

**Renewal Application - September 30, 2022**



## 1. Overview



**THOMAS EDISON**  
**CHARTER SCHOOL**  
[www.thomasedison.charter.k12.de.us](http://www.thomasedison.charter.k12.de.us)

### 1.1. Basic Information

Please review the following questions below for accuracy. Please fill in "Current Enrollment" at the time of application submission.

#### Q1. Name of School

- Thomas A. Edison Charter School
- Other [Please Add Correct Info in the Comment]

#### Q2. Year School Opened

- 2000
- Other [Please Add Correct Info in the Comment]

#### Q3. Current Enrollment

- Please fill in "Current Enrollment" at the time of application submission.

636 (as of 9.22.22)

#### Q4. Approved Enrollment

- 745
- Other [Please Add Correct Info in the Comment]

#### Q5. School Address

- 2200 N. Locust Street, Wilmington, DE 19802
- Other [Please Add Correct Info in the Comment]

#### Q6. District(s) of Residence

- Brandywine School District
- Other [Please Add Correct Info in the Comment]

#### Q7. Website Address

- <http://thomasedison.charter.k12.de.us/>
- Other [Please Add Correct Info in the Comment]

#### Q8. Name of School Leader

- Salome Thomas-El



Other [Please Add Correct Info in the Comment]

**Q9.School Leader Email**

salome.thomas-el@tecs.k12.de.us

Other [Please Add Correct Info in the Comment]

**Q10.School Leader Phone Number**

(302) 778-1101

Other [Please Add Correct Info in the Comment]

**Q11.Name of Board President**

Mikkel Christie

Other [Please Add Correct Info in the Comment]

**Q12.Board President Email**

Mikkelmbc@gmail.com

Other [Please Add Correct Info in the Comment]

**Q13.Mission Statement:** The mission of the Thomas A. Edison Charter School is to provide a world-class education to students despite race, gender, and socio-economic status. In compliance with 14 Del. C., §501, Thomas Edison Charter School intends “to improve student learning; encourage the use of different and innovative or proven school environments and teaching and learning methods; provide parents and students with measures of improved school and student performance and greater opportunities in choosing public schools within and outside their school districts; and to provide for a well-educated community.

Correct; this is our Mission Statement

Other [Please Add Correct Info in the Comment]

**1.2. Enrollment and Demographics**


**Q14.Please review the Enrollment & Demographic Information table (see Resources), complete the last column, and upload the revised document.**

Upload Required File Type: excel Max File Size: 30 Total Files Count: 1

**Resources**


TECS Enrollment

**Applicant Evidence :**


TECS Enrollment and Demographic Inf...

Uploaded on 9/22/2022 by Benjamin Feit

Q15.

<b>School Comments 2020-2021</b>	The school was not required to provide a response to this information.
<b>School Comments 2019-2020</b>	The school was not required to provide a response to this information.
<b>School Comments 2018-2019</b>	The school was not required to provide a response to this information.

Schools are invited but not required to comment on any aspect of the demographic data above in section 1.2.



Both in absolute terms and relative to the traditional public schools in the surrounding neighborhoods, TECS educates a student population overwhelmingly composed of low-income African American students. Our enrollment numbers and demographic rates have remained consistent over the life of our charter term even as the pandemic caused many families to rethink how best to educate their children.

### 1.3. Approved Minor and Major Modifications

The table lists any approved minor and/or major modifications over the course of the school's current charter term.

Q16.

Date	Modification Requested	Outcome
	Not applicable	

Schools are invited but not required to comment on any aspect of the modification data above in table 1.3.


Not applicable.

### 1.4. Enrollment Trends


Q17. Please review the School Enrollment Trends table (see Resources), complete the last column ("Current Waitlist for 2021-22"), and upload the revised document.

Upload Required File Type: excel Max File Size: 30 Total Files Count: 1

#### Resources


TECS School Enrollment Trends.xlsx

#### Applicant Evidence :


TECS School Enrollment Trends.xlsx

Uploaded on 9/22/2022 by Benjamin Feit

Q18.

<b>DOE Summary:</b>
Thomas Edison's enrollment has decreased each year for the past three years totally a loss of thirty students.

<b>School Comments 2020-2021</b>	The ongoing bus and transportation issues in Delaware have created obstacles for Thomas Edison because many of our students travel from zip codes that are 10-20 miles from our school. A large percentage of our student population come from high-needs families who do not own cars. Also, the pandemic impacted our enrollment, as it has impacted many schools across the nation. Our student retention rate is good but we are experiencing issues with our new student enrollment during the pandemic.
<b>School Comments 2019-2020</b>	Schools are not required to comment on this data.
<b>School Comments 2018-2019</b>	Schools are not required to comment on this data.

Schools are invited but not required to comment on any aspect of the demographic data above in section 1.4.




Notwithstanding the dramatic disruptions to educational continuity that impacted enrollment at schools across the country, TECS has maintained remarkably stable enrollment throughout the school's most recent charter term. A categorical statement to the effect of TECS having witnessed an enrollment decline in each of the past three years is misleading: on two occasions — from 2018-19 to 2019-20 and from 2020-21 to 2021-22 — the year-over-year enrollment decrease was two or fewer students. Consistent with nationwide trends, TECS enrollment decreased by 27 students in 2020-21. Excluding kindergarten, however TECS enrollment actually \*increased\* by two students. Enrollment increased in 2020-21 at each grade level from 5 to 8. The 29-student decline in Kindergarten was attributable to parents being uncomfortable sending their children to school in the midst of the pandemic. As conditions stabilized, our kindergarten enrollment increased in 2021-22, and we added students to the rising first-grade cohort.

### 1.5. Reenrollment Trends

Please review the following table with the school's reenrollment trends during the current term of the charter.

<b>DOE Summary:</b>
Thomas Edison's reenrollment rate has steadily increased over the past four years. In 2021-2022, only 1.4% of students chose not to return to the school.

#### Resources


TECS Reenrollment Trends.xlsx

Q19.

<b>School Comments 2020-2021</b>	At Thomas Edison Charter we try to build a safe and academically challenging culture where students feel supported and families are happy about sending their children to our school. We engage with the community and ensure that students and staff know and feel that they make an impact and representation matters
<b>School Comments 2019-2020</b>	The school did not provide a response.
<b>School Comments 2018-2019</b>	The school did not provide a response.

**Describe the school's plans to monitor and minimize attrition rates. Provide information about why students are choosing to enroll in different schools.**

TECS is committed to limiting student mobility and to ensuring that families who do choose to enroll their children in our program remain with us for the balance of their K-8 trajectories. We communicate regularly with families to ensure we are providing educational and social-emotional supports that meet their children's needs and proactively explain how we structure our offerings to maximize the opportunities our students have to succeed. Nevertheless, while we strive to keep all of our families within the TECS family, we respect the ability of parents to continually reevaluate their options and to choose the setting that works best for their children. During our most recent charter term, the vast majority of the parents who withdrew their students did so either on account of transportation challenges or health-related concerns during the pandemic.



## 2. Academic Performance

### Delaware School Success Framework (DSSF)

Delaware operates under the belief that all schools benefit from continuous improvement – including those that receive exceeds expectations ratings – to best support all students. The Delaware School Success Framework (DSSF) ([https://education.delaware.gov/wp-content/uploads/2020/02/dssf\\_one\\_pager\\_final.pdf](https://education.delaware.gov/wp-content/uploads/2020/02/dssf_one_pager_final.pdf)) outlines the accountability standards by which all Delaware public schools are measured. This state- and school-level data helps identify each school's needs and determine how best to support students across the state.

DSSF measures the following areas to determine school success. This annual data is publicly available on the Delaware Report Card (<https://reportcard.doe.k12.de.us/>).

- Academic achievement – Proficiency for ELA and math (grades 3-8 and 11)
- Academic progress – Growth in ELA and math (grades 4-8); includes growth of the lowest and highest performing students in a school
- School quality/student success – On-track attendance (K-12), science proficiency (grades 5, 8 and biology), social studies proficiency (grades 4, 7 and 11), college/career preparedness (grades 9-12), and on-track in 9<sup>th</sup> grade
- Graduation rates – 4-year, 5-year and 6-year adjusted cohort graduation rates
- English language proficiency (ELP) – Progress toward English language proficiency (grades 1-12)

### 2.1. Delaware School Success Framework

#### Q20.Overall Academic Ratings Elementary (grades K-5)/Middle School (grades 6-8)

Indicator	2018-2019			2021-2022		
	Points	Point Earned	Percent Point	Points	Point Earned	Percent Point
Academic Achievement	150	30	20% Well Below Expectations	150	13	9%
Academic Progress	200	102	51% Well Below Expectations	50	3	6%
School Quality/Student Success	50	44	88% Exceeds Expectations	50	32	64%
Progress Toward English Language Proficiency	n/a	n/a	Not Applicable	n/a	n/a	Not Applicable
Overall	400	176	44% Well Below Expectations	250	48	19%



**DOE Summary:**

Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. In 2017-2018 and 2018-2019, Thomas Edison was well-below expectations on the overall academic framework. The school's academic data for 2021 can be found at <https://reportcard.doe.k12.de.us/detail.html#aboutpage?scope=school&district=76&school=575>

Based on the table above discuss the school's:

- overall academic achievement results,
- major challenges,
- and accomplishments

<p><b>School Comments 2020-2021</b></p>	<p>The Covid-19 pandemic posed many challenges during the 2020-2021 school year and required teachers and administrators to rethink how we educate our students. When we began remote learning, we were aware that students had issues connecting to the internet and accessing technology, so our attendance and engagement were not where we wanted. We serve a very high needs population, and we expected some issues in these areas, but worked to provide internet access through mifi devices and vouchers for families in need. Overall, we saw steady progress with student attendance and engagement online. Our goal was to enhance student-teacher relationships, focus on academics and creativity, and social emotional learning. We structured our online program to mirror our in-person instruction and saw better results. In May of 2021, we began bringing small groups of students into the school building for in-person instruction. Many families opted to stay home and continue with learning remotely. Due to the majority of our students opting to stay home during the entire 2020/2021 school year, our student participation in the state assessments was very minimal. The mental health and well-being of our students was a priority, and we were able to continue to provide services through our counselor, Family Crisis Therapist, Behavioral Health Consultant, and Delaware Guidance. Lessons Learned and Implemented for 2020-2021: • We needed a structured Zoom schedule, which would mimic a more-normal school day. • We implemented Remind school-wide as a communication tool for teachers and parents. • All students in grades K-8 were given a lap top computer (full school one-to-one). • Schoology and Clever were adopted as our Learning Management Systems. • Students submit work through Schoology and receive grades. • AimsWeb assessments have been administered virtually to provide some data for teachers. • We provided WiFi devices to any family struggling to connect to internet. • Teachers provide office hours after school to students for extra help and tutoring. We are providing additional professional development to our teachers and staff on effective virtual teaching strategies. Teachers participate in our Coach's Corner Schoology group and PLC meeting, where they develop a monthly focus to implement in their classrooms.</p>
<p><b>School Comments 2019-2020</b></p>	<p>We have learned a lot about remote learning since March 13, 2020. We began remote learning by providing all families in K-6 with a minimum of one laptop computer, and our 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade students were one-to-one. Packets of work were compiled by our teachers and sent home to our students. Teachers made daily videos to complement the work packets. We were aware that students had issues connecting to the internet and getting on their computers, so our attendance and engagement were not where we wanted. We serve a very high needs population, so we expected some issues in these areas, but overall we saw steady progress. We were not able to administer assessments to our students, and therefore, were unable to accurately gauge their progress. The mental health and well-being of our students was a priority, and we were able to continue to provide services through our counselor, Family Crisis Therapist, Behavioral Health Consultant, and Delaware Guidance. Lessons Learned and Implemented for 2020-2021:</p> <ul style="list-style-type: none"> <li>• We needed a structured Zoom schedule, which would mimic a more-normal school day.</li> <li>• We implemented Remind school-wide as a communication tool for teachers and parents.</li> <li>• All students in grades K-8 were given a lap top computer (full school one-to-one).</li> <li>• Schoology and Clever were adopted as our Learning Management Systems.</li> <li>• Students submit work through Schoology and receive grades.</li> <li>• AimsWeb assessments have been administered virtually to provide some data for teachers.</li> <li>• We provided WiFi devices to any family struggling to connect to internet.</li> <li>• Teachers provide office hours after school to students for extra help and tutoring.</li> <li>• We are providing additional professional development to our teachers and staff on effective virtual teaching strategies. Teachers participate in our Coach's Corner Schoology group and PLC meeting, where they develop a monthly focus to implement in their classrooms.</li> </ul>



**School  
Comments  
2018-2019**

Our 8th grade students have consistently performed academically at or above the state average on the Smarter Balanced Exam (57% of 8th graders scored proficient in ELA versus 52%, respectively across the state). Our 7th grade students were close to meeting the state average in ELA (53% of 7th graders scored proficient in ELA versus 55%, respectively across the state). The transition to Smarter Balanced has been met with some successes along with challenges. Smarter Balanced is a much more rigorous test and the students are required to perform tasks that were not previously required on DCAS. Compared to schools with similar student populations, TECS elementary students doubled the percent proficient on both Smarter Balanced ELA and Math in 2015. In 2016, our 7th and 8th grade ELA and Math scores on Smarter Balanced were within 10 points of the state average and we were recognized by the state for outstanding growth in middle school Science and Math. In 2017, our elementary students continued to outperform similar schools, our 7th and 8th grade students exceeded the state average in ELA and our 7th grade students came within 10 points of the state average in math while our 8th grade students were within 1 point of the state average in math. In 2018, our middle school students performed academically at or above the state average on the Smarter Balanced Exam. Thomas Edison Charter School (TECS) has demonstrated considerable growth in academics over the past five years. In 2012, the Board continued its support of adopting a Turn-Around Model of School Reform. This reform spurred additional positive changes to the school's culture, structure, leadership, management, academic programs, parental engagement, and student achievement. Since winning the 2011 State Academic Achievement Award and the 2015 Superstars in Education Award, strategic changes were made to the school's curriculum to propel student achievement even more, including the addition of Engage NY for math and a more comprehensive guided reading program in grades K-5, and SpringBoard, a rigorous Pre-AP math and ELA curriculum in grades 6-8. University of Chicago's STEP (Strategic Teaching and Evaluation of Progress) Reading Assessment, Wilson Language Program, the 100-Book Challenge Program, and the infusion of technology in every classroom were also added. Our middle school students consistently performed academically at or above the state average on DCAS in ELA and Mathematics. Another significant strength is our experienced, dedicated, and committed leadership team and faculty – many of whom have remained at TECS far longer than the average urban school administrator and teacher. Since opening in August 2000, we have been able to retain a large number of our founding teachers and/or staff members with five or more years of service to the children at TECS. Our staff members have been committed for years to serving the children that most of society has forgotten. At TECS, we are providing a safe and caring environment for students and staff where creativity, problem solving, risk taking and critical thinking are encouraged and supported. The positive culture that we have developed in our school has helped to build resilient students and teachers. Additional Notable Accomplishments: - 3rd Annual Student-Led Leadership Day—April 12, 2019 (community leaders and dignitaries visited TECS and spent the day learning about TECS) - Staff Retention - Several staff members from inaugural year of 2000 are still working at TECS - Large Number of TFA Corps members who have exceeded their 2-year commitment serving 5 years or more at TECS - Monthly Leadership Breakfast—parents attend to celebrate leadership accomplishments of students - National Championship Chess Team—won 1st place at National Chess Championships in 2014 in Dallas, Texas, 2016 in Indianapolis, Indiana, and Atlanta, Georgia in 2018. One of our greatest challenges at TECS is increasing and maintaining academic growth for all of our students. Our middle school students (6-8) were successfully performing at or above the state average on DCAS, but our challenge is now moving our elementary and middle students to perform at the same level on Smarter Balanced. Although we have seen growth in our academic performance in our elementary grades, we are still below our target. We need to see more consistency in the growth of our scores from year to year. In our analysis, we have found that our elementary students are less likely to enroll in after-school, Saturday school and/or summer school programs due to their increased dependency on their parents/caregivers. An additional challenge we face is that our students live in communities in which there is a high rate of crime, poverty, and at-risk behavior. Despite these challenges, we maintain the belief that each and every one of our students can and will be successful as long as the adults in our school care enough not to give up on them. To support our students, we have implemented the following: Increased support for teachers and students from our math and literacy coaches, increased planning time for PLC, after-school tutoring, extended school day and school year, summer enrichment programs, AimsWeb Assessment, DreamBox, a Family Crisis Therapist, Behavioral Health Consultant, and a School and Family Coordinator. One of our major goals is to retain our new teachers and Teach for America Corps members longer than their initial two-year commitment. Although we have found some success with extending that commitment to three years for some teachers, we would like all of our teachers to stay a minimum of 5 years at TECS and remain in Delaware to continue servicing Delaware's most at-risk students. We understand that struggling students need consistent and strong leadership, administrators, parents and teachers to be successful. Finally, TECS is focused on increasing the level of parental involvement and engagement in our school. We have a large number of parents who attend our report card conferences, Back to School Night, Math Night, and Reading Night, but there are still a considerable amount of parents who struggle to take an active role in the education of their children. Although, we understand the issues in the community affect some of our parents and their ability to be involved at a high level, we know we must support them in supporting their children and their education.





For over 22 years, TECS has provided a reliably solid educational option for low-income students of color. With over 95% of our student population identifying as African American and over 80% belonging to economically disadvantaged families, TECS has provided a safe, supportive learning environment in which students are held to high expectations for what they are capable of accomplishing academically. Our graduates typically attend some of Delaware’s best public and private high schools on full academic scholarships. Our model is rooted in the deep, authentic relationships that TECS employees have built and maintained with our students and families. These relationships proved to be the foundation that our students needed to persevere throughout the last two and a half years during the pandemic.

Our school and community were impacted disproportionately by the ravages of the pandemic. Shaky access to testing, health care, and vaccines affected the academic success and emotional well-being of our students. Before March 2020, TECS was an example of a school that was not only meeting the needs of its students, but was also holding students accountable to elevated levels of academic and personal success. For almost two years, the pandemic caused our students to be out of the school building on an intermittent basis due to school closures, periodic quarantines, and general unease regarding the unknown longitudinal effects of contracting Covid-19.

Prior to the pandemic, our middle school students consistently performed academically at or above the state average on the Smarter Balanced Exam. During the pandemic, our middle school students struggled to maintain their prior levels of academic performance on SBAC, and our elementary students struggled even more. We serve a large number of students who experience adversity in the form of poverty, homelessness, food insecurity, learning obstacles, and lack of health care, which produces stress that affects learning and behavior. Now that we have resumed a more traditional school schedule and (hopefully) will be able to provide a consistent haven from the assorted traumas of daily life, our goal is to provide additional support for our students to bounce back from the hardships associated with/from the pandemic. Students need the support and security of school to feel safe and to have their basic needs (e.g., shelter, food, clothing, medical care, and protection from harm) met in order to be successful.

Maintaining the principle of educating the whole child, programs and student opportunities were put into place to ensure that all students have access to a well-rounded education —both in and out of the classroom. We implement the Franklin Covey “Leader in Me” program, which allows students to learn and practice leadership skills, goal-setting, time management, teamwork, problem-solving, respecting diversity, and life balance. Our National Championship Chess Team and the First Move chess program helps students develop their critical thinking, problem-solving, and decision-making skills.

We have moved forward with implementing a flexible system of supports to address the academic, mental health, and social-emotional needs with which our students have presented since returning to school. The provision of these supports reflects a whole-school approach to whole-child development that maximizes opportunities for all children to succeed.

**Q21. Performance Agreement Academic Performance Expectations** Thomas A. Edison's 2016-17 overall academic ratings are: **Approaching Standard**

- **Academic Achievement: Needs Improvement**
- **Growth: Approaching Standard**
- **On Track to Graduation: Exceeds Standard**
- **College and Career: Needs Improvement**

By September 2022, our expectation is to achieve overall ratings of "Meets" or "Exceeds" standard as measured by the Delaware School Success Framework. Each year, we will show growth within our overall rating putting us on track to achieve our academic performance expectations. This progress will be monitored through our annual performance review.

<b>DOE Summary:</b>
Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. Thomas Edison earned a rating of “well below standard” on the Academic Performance Framework.

Discuss the school's academic performance based on its approved Performance Agreement (see above).

<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	Student achievement remains our primary goal at TECS and we are proud of the growth we have seen in our students and across our school. Our elementary students out-performed similar schools in the City of Wilmington on SBAC while our middle school students out-perform most similar schools on SBAC across the state. Our culture of support and high expectations for both our staff and our students coupled with our rigorous and challenging curriculum has been a major leverage point. We have incorporated benchmark testing for ELA and Math to monitor growth and provide support where needed. In addition, our use of the Teaching Excellence Framework has allowed us to offer coaching and support to teachers through consistent and authentic feedback after classroom observations, thus increasing teacher efficacy and student engagement.



While TECS did not earn a “meets standard” rating on the Academic Performance Framework, we had — prior to the pandemic — demonstrated consistent growth in our performance and in ensuring strong outcomes for students. Our students live in the communities that were most adversely affected by the worst of the pandemic; to the extent that educational disruptions, inconsistency, illness, economic dislocations, exacerbation of preexisting conditions due to the lack of health care capacity, and mental health issues were universal, those issues were felt more acutely among our students and families. We attribute our SBAC data, in significant measure, to those challenges, and we fully expect to meet standards on the Academic Performance Framework moving forward.

## 2.2. Academic Achievement

Metric	2018-2019			2021-2022		
	Value	Points	Points Earned	Value	Points	Points Earned
Proficiency – ELA	29.86%	75	22	14.73%	75	11
Proficiency – Math	11.24%	75	8	3.14%	75	2

**DOE Summary:**

Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. The school was rated as “well below” in 2017 – 2018 and in 2018-2019.

### Q22. Academic Achievement ratings over the course of the charter term

<b>School Comments 2020-2021</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>



<p><b>School Comments</b> 2018-2019</p>	<p>TECS has consistently outperformed similar schools in the state with regard to academic growth in both Mathematics and English Language Arts. We believe that growth is a critical indicator as it shows that our students are progressing at an above average rate – necessary for those students who began their TECS career 1-3 years below grade level which is typical of a majority of our Kindergarten students and even more so for those who transferred to TECS from another school. 2 Explanations: 1. Our observation and feedback model has led to an increase in the quality and quantity of instructional coaching sessions our teachers receive, thus resulting in quicker and more immediate improvement of our individual and collective instructional practices. This provides our leadership team a stronger sense of our school's instructional successes and gaps which has informed our training and support of teachers. 2. The use of the Teaching Excellence Framework has set a high bar of instructional excellence for our teachers. This has caused a positive shift in how our teachers think about instruction, and how we use professional development and professional learning communities to both enhance the skillset and repertoire of our teachers and to leverage our teachers' talent and expertise across the school. 2 Root Causes: 1. As previously mentioned, a large majority of our new students enter TECS between 1-3 years below grade level. Due to this issue, we have had to prioritize remediation for our students while trying to effectively balance sufficient academic progress and grade level rigor. This has led to strong growth results (although less than desired) and lower proficiency scores. 2. Teacher Retention dropped from an average of 82.5% in the two years spanning 2012- 2014 to an average of 71.5% in 2015-2017. This led to both a lack of inconsistency in our instructional delivery but also an increase in the number of novice teachers who needed significant time to learn our academic approach and the strategies to successfully engage our students.</p>
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Our Academic Achievement rating is not where we would like it to be. We have lots of work ahead of us. The last two and a half years have been extremely challenging, overwhelming and stressful for students, families, and educators. We have continued to support all our students and teachers, but we underestimated the lingering impact the pandemic would have on students' social-emotional well-being and academic performance.

One of our greatest challenges at TECS is increasing and maintaining academic growth for all of our students. Prior to the pandemic, our middle school students (6-8) were successfully performing at or above the state average on SBAC, but our challenge is now moving our elementary and middle students to perform at the same level on Smarter Balanced. Although we have seen growth in our academic performance in our elementary grades, we are still below our target. In our analysis, we have found that our elementary students are less likely to enroll in after-school, Saturday school and/or summer school programs due to their increased dependency on their parents/caregivers. An additional challenge we face is that our students live in communities in which there is a high rate of crime, poverty, and at-risk behavior.

**Q23.Expected outcomes for Academic Achievement**

<p><b>School Comments</b> 2020-2021</p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments</b> 2019-2020</p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments</b> 2018-2019</p>	<p>Our goal is to increase our achievement to at least meet the state average in all categories within the 5-year term of our charter renewal. We need to see more consistency in the growth of our scores. While we know that this is a lofty goal, considering the starting gaps of many of our students, we are committed to learning from our successes, our challenges, and the successes of others to continue to improve our instructional delivery and our academic results. By focusing on strong student retention, we expect fewer new students in our upper grades and thus less time spent on remediation of our adolescents. Additionally, by focusing on strong staff retention, quality professional development, and strong professional accountability measures, we expect the expertise of our staff and their knowledge of our students, effective instruction, and the TECS academic model to have a strong impact on our success throughout the next five years. Specifically, we plan to focus on the following initiatives in order to meet our expected academic achievement outcomes:</p> <ul style="list-style-type: none"> <li>• More consistent planning with general and special education K-6 teachers on a regular basis</li> <li>• Instruction always specifically designed based on IEP and student needs</li> <li>• Differentiated instruction implemented at varying levels in grades K-3</li> <li>• Consistent progress monitoring and follow up</li> <li>• Consistent meetings to discuss student data, progress, and interventions</li> </ul> <p>· Feedback from classroom visits and assessment data inform instruction 100% of the time</p>



In terms of our standing on the Academic Performance Framework, we expect to meet or exceed the statewide percentage of all students testing at proficient levels on year-end ELA and Math assessments at each grade level. A close analysis of our SBAC Similar Schools data shows that TECS students tend to start well behind their peers but narrow (and even reverse) proficiency gaps by the time they complete our program. For example, whereas our Grade 3 students start out 20 percentage points behind the state average for African American students, by the time they reach Grade 7 they are outperforming their demographically similar peers across the state. In Grade 8, our students outperform African American students from across Delaware by seven percentage points. While proficiency rates for African American students across the state tend to remain stagnant from Grade 3 to Grade 8 in ELA, our proficiency rates increase by 29 percentage points, demonstrating that we are moving the needle with a student group that is not making similar progress elsewhere. While our proficiency rates in Math are consistent from Grade 3 to Grade 8, the proficiency rates for African American students across the state tend to decline year-over-year (from 23% in Grade 3 down to 11% in Grade 8). Accordingly, the proficiency gap between TECS students and African American students across the state decreases from 16 percentage points in Grade 3 to 3 percentage points in Grade 8. We manage to achieve these results without any entry criteria or selective admissions programs, further setting us apart from peer schools serving similar concentrations of low-income students of color.

**Q24. Progress measures to track expected Academic Achievement outcomes**

<p><b>School Comments</b> <b>2020-2021</b></p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments</b> <b>2020-2021</b></p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments</b> <b>2018-2019</b></p>	<p>The school will measure progress in the following ways:</p> <ul style="list-style-type: none"> <li>• Academic knowledge and retention through interim assessments</li> <li>• Instructional efficacy through monthly lesson observation and coaching and periodic school learning walks</li> <li>• Observations of teacher and PLC meetings</li> <li>• Regular review of progress monitoring documents and implementation of action steps</li> </ul> <p>• Quarterly progress check of impact of staff accountability plan</p>

TECS will use interim assessments in Math and ELA to assess student learning trajectories and evaluate the extent to which we are on track to achieve our Academic Achievement outcomes. Among the tools we will use are

- DIBELS (K-6 ELA)
- Acadience Reading (7-8 ELA)
- Achieve 3000/McGraw Hill (6-8 ELA)
- Freckle by Renaissance (K-8 math)
- SBAC interim assessments

On a monthly basis, our leadership team will convene to assess our data, identify trends and create comprehensive action plans to address the root causes of student outcomes and to ensure we are on track to meet expectations. The board will also be apprised of student achievement measures on at least a quarterly basis, ensuring another level of accountability throughout the year.

**Q25. The table above lists the school's available Academic Achievement ratings. Respond to the following questions. a. Based on the school's Academic Achievement ratings over the course of the charter term, discuss the school's current performance and provide explanations/root causes (positive and negative) for the results.**

Student achievement remains our primary goal at TECS. We realize our students are not where we need them to be and the pandemic has set our students back academically and emotionally. We believe our culture of support and high expectations for both our staff and our students coupled with our rigorous and challenging curriculum will be a major leverage point in the years to come. In addition, we are piloting the Delaware Teacher Growth and Support System (DTGSS) which allows us to offer coaching and support to teachers through consistent and authentic feedback after classroom observations, thus increasing teacher efficacy and student proficiency and engagement.

Root Causes of Student Underperformance

- Covid-19 and pandemic-related issues—learning loss
- One challenge we face is that our students live in communities in which there is a high rate of crime, poverty, and at-risk behavior
- Students come to TECS 1-3 years below grade level ,which is typical of our kindergarten students and even more so for those who transferred to TECS from another school
- Dependence of our elementary students on private transportation from their families and their familial responsibilities as older siblings has led to those students being less likely to enroll in our after-school programs, Saturday school, and/or summer school programs
- Inconsistent lesson planning with general and special education K-3 teachers
- Lack of consistency in the implementation of differentiated instruction in grades K-3
- Inconsistent fidelity to school systems: progress monitoring, student intervention meetings and DDI structure to inform instruction at all times

**Q26.b. Looking ahead, what are the school's expected outcomes for Academic Achievement and what steps will the school take to achieve them?**



It goes without saying that our ultimate Student Achievement objective is for all students, at each grade level, to meet or exceed state standards. While we understand we have a ways to go in order to accomplish that objective — given both the incoming proficiency levels of our students and the gaps that have compounded over the past several years due to circumstances beyond our control — we believe that we have the programming in place to achieve this goal over the next five years. In order to do so, we will take the following steps:

- Increase mental health and SEL supports and interventions
- MTSS instruction, data tracking, implementing academic supports
- After-school program and Saturday Academy for additional remediation
- Strengthened, curriculum-aligned professional development for teachers
- Renewed attention to recruiting, developing, and retaining high-quality educators

We have a strong focus on instructional and leadership excellence evidenced by our Professional Development sessions on growth mindset, resilience, trauma-informed instruction, guided reading, differentiated instruction, and leadership development for both students and staff. We also believe in maximizing increased time on task through after school programs, Saturday School Academies, and our highly popular summer program.

**Q27.c. Describe how the school will measure progress to determine whether the school is on track to meet the school's expected Academic Achievement outcomes.**

We will measure progress to determine whether we are on track to meet expected Academic Achievement outcomes in the following ways:

- Administer interim assessments (DIBELS, Acadience Reading, Freckle, Achieve 3000, SBAC Interim Assessments) and hold monthly data meetings to assess progress and identify root causes
- DTGSS teacher observations
- Instructional efficacy through monthly lesson observation and coaching and periodic school learning walks
- Observations of teacher and PLC meetings
- Regular review of progress monitoring documents and implementation of action steps
- Quarterly progress check to monitor the impact of our staff accountability plan

**2.3. Academic Progress**

Metric	2018-2019			2021-2022		
	Value	Points	Points Earned	Value	Points	Points Earned
Proficiency - Science	N/A	N/A	N/A	4.33%	25	1
Proficiency - Social Studies	N/A	N/A	N/A	9.35%	25	2
Growth - ELA	61.44%	75	46	N/A	N/A	N/A
Growth - Math	41.32%	75	31	N/A	N/A	N/A
Growth of Highest Quartile - ELA	49.60%	12.5	6	N/A	N/A	N/A
Growth of Highest Quartile - Math	36.46%	12.5	5	N/A	N/A	N/A
Growth of Lowest Quartile - ELA	65.51%	12.5	8	N/A	N/A	N/A
Growth of Lowest Quartile - Math	44.43%	12.5	6	N/A	N/A	N/A

DOE Summary:



Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. Thomas Edison earned an "Approaching Standard" rating in 2017-2018 and a "Well Below Standard" rating in 2018-2019.

**Q28.School's Academic Progress ratings for all students over the course of the charter term**

<b>School Comments 2020-2021</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	<p>TECS has consistently outperformed similar schools with regard to academic growth in both Mathematics and English Language Arts. We believe that growth is a critical indicator as it shows that our students are progressing at an above average rate – necessary for those students who began their TECS career 1-3 years below grade level which is typical of a majority of our Kindergarten students and even more so for those who transferred to TECS from another school. 2 Explanations:</p> <ol style="list-style-type: none"> <li>1. Our observation and feedback model has led to an increase in the quantity of instructional coaching sessions our teachers receive, thus resulting in quicker and more immediate improvement of our individual and collective instructional practices while also providing our leadership team a stronger sense of our school's instructional successes and gaps which has informed our training and support of teachers.</li> <li>2. The use of the Teaching Excellence Framework has set a high bar of instructional excellence for our teachers. This has caused a positive shift in how our teachers think about instruction, and how we use professional development and professional learning communities to both enhance the skillset and repertoire of our teachers and to leverage our teachers' talent and expertise across the school.</li> </ol> <p>2 Root Causes:</p> <ol style="list-style-type: none"> <li>1. As previously mentioned, a large majority of our new students enter TECS between 1-3 years below grade level. Due to this issue, we have had to prioritize remediation for our students while trying to effectively balance sufficient academic progress and grade-level rigor. This has led to strong growth results (although less than desired) and lower proficiency scores.</li> <li>2. Teacher Retention dropped from an average of 82.5% in the two years spanning 2012-2014 to an average of 71.5% in 2015-2017. This led to both a lack of consistency in our instructional delivery but also an increase in the number of novice teachers who needed significant time to learn our academic approach and the strategies to successfully engage our students.</li> </ol>

Although growth measures became considerably more difficult to track during the pandemic thanks to the suspension of state assessments and the consequent lack of baseline data against which to measure progress, TECS has consistently outperformed statewide growth averages in ELA and Math. Given the deficits with which our students frequently present upon entry into the TECS system, we place primary emphasis on growth, ensuring students move incrementally closer to proficiency as they near high school. Our students — even those in kindergarten and especially those who transfer in from schools less equipped to meet their needs — generally enter our system 1–3 years below grade level.

**Q29.Expected outcomes for Academic Progress for all students**

<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	<p>Our goal is to exceed expectations for academic growth within the 5-year term of our charter renewal. While we know that this is a lofty goal, we are committed to continuing to learn from our successes our challenges, and those of others to continue to improve our instructional delivery and our academic results. We need to see more consistency in the growth of our scores. By focusing on strong student retention, we expect fewer new students in our upper grades and thus less time spent on remediation of our adolescents. Additionally, by focusing on strong staff retention, we expect the expertise of our staff and their knowledge of our student and the TECS academic model to have a strong impact on our success throughout our next renewal term.</p>

TECS has established two principal goals within the Academic Progress domain. First, we will meet or exceed expectations for Academic Progress. Second, we will show consistent improvement on each of the six relevant growth measures.



**Q30. Progress measures to track Academic Progress for all students**

<p><b>School Comments 2020-2021</b></p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments 2019-2020</b></p>	<p><i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i></p>
<p><b>School Comments 2018-2019</b></p>	<p>TECS will use interim assessments in Math and ELA to assess academic growth of our students and the extent to which TECS is on track to meet its expected Growth outcomes. On a quarterly basis, our leadership team will convene to assess our data, identify trends and create comprehensive action plans to address our root causes and meet our expectations.</p>

TECS will use interim assessments in Math and ELA to assess student learning trajectories and evaluate the extent to which we are on track to achieve our Academic Progress outcomes. Among the tools we will use are

- DIBELS (K-6 ELA)
- Acadience Reading (7-8 ELA)
- Achieve 3000/McGraw Hill (6-8 ELA)
- Freckle by Renaissance (K-8 math)
- SBAC interim assessments

On a monthly basis, our leadership team will convene to assess our data, identify trends and create comprehensive action plans to address the root causes of student outcomes and to ensure we are on track to meet expectations. The board will also be apprised of student progress measures on at least a quarterly basis, ensuring another level of accountability throughout the year.

**Q31. The table above lists the school's available Academic Progress ratings. Respond to the following questions.**

**a. Based on the school's Academic Progress ratings for all students over the course of the charter term, discuss the school's current performance and provide at least three explanations/root causes (positive and negative) for the results. (Note: We invite the school to provide information about all students including those below, at and above proficiency.)**

Prior to the onset of the pandemic, TECS's Academic Progress data was trending in the right direction. While the majority of our students had not yet reached proficiency (due to primarily to the depth of learning deficits with which students enter our system), our population of low-income students of color generally made strides toward grade-level achievement while matriculating through our elementary and middle school programs. The root causes of the challenges we have experienced as a school community are threefold:

- (1) The dislocations associated with the pandemic (educational disruptions, inconsistent learning modalities, disconnected students, compounding learning loss, economic hardships, healthcare complications, etc.);
- (2) Trauma associated not only with the pandemic but with preexisting stressors that Covid amplified; and
- (3) A curricular program that has evolved to become more rigorous, more student-centered, more standards-aligned, and better supported by professional learning opportunities for teachers.

**Q32.b. Looking ahead, what are the school's expected outcomes for Academic Progress for all students and what steps will the school take to achieve them?**

TECS intends to improve the academic progress for all students by providing targeted support to help students acquire the skills they need to get back on level and above. We will track the data weekly and monitor progress to ensure deficiencies are addressed quickly. Specifically, we plan to take the following steps to meet our expected Academic Progress outcomes:

- Provided more consistent co-planning opportunities with general and special education teachers;
- Tailor instruction based on student needs as identified through routine and ongoing data analysis;
- Differentiate instruction at all grade levels;
- Evaluate efficacy of curriculum on a routine and ongoing basis;
- Leverage DOE materials and communities of practice to ensure teachers have access to high-quality materials and learning opportunities
- Hold PLC meetings to discuss student data, progress, and interventions
- Conduct regular classroom observations to ensure instruction is routinely rooted in best practices (DTGSS)



**Q33.c. Describe how the school will measure progress to determine whether the school is on track to meet expected Academic Progress outcomes for all students.**

We will measure progress to determine whether we are on track to meet expected Academic Progress outcomes in the following ways:

- Administer interim assessments (DIBELS, Acadience Reading, Freckle, Achieve 3000, SBAC Interim Assessments) and hold monthly data meetings to assess progress and identify root causes
- DTGSS teacher observations
- Instructional efficacy through monthly lesson observation and coaching and periodic school learning walks
- Observations of teacher and PLC meetings
- Regular review of progress monitoring documents and implementation of action steps
- Quarterly progress check to monitor the impact of our staff accountability plan

**2.4. School Quality/ Student Success**

Metric	2018-2019			2021-2022		
	Value	Points	Points Earned	Value	Points	Points Earned
On-Track Attendance	87.05%	50	44	64.86%	50	32
Proficiency - Science	N/A	N/A	N/A	N/A	N/A	N/A
Proficiency - Social Studies	N/A	N/A	N/A	N/A	N/A	N/A

**DOE Summary:**

Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. In 2017-2018 and 2018-2019, Thomas Edison achieved a rating of "Exceeds Expectations".

**Q34.School's School Quality/ Student Success ratings over the course of charter term**

<b>School Comments 2020-2021</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	We earned 44 out of 50 points for chronic absenteeism for a value of 87.05%. We will continue to be committed to excellent student attendance at Thomas Edison.

Our on-track attendance rating dipped in 2021–22. Relative to other schools serving similar demographic populations, we are pleased with how effectively we managed to remain in contact with students and families at the height of the pandemic. Nevertheless, we were not immune from the larger forces that caused chronic absenteeism to spike during the pandemic, both during periods of distance and hybrid learning and then after in-person learning resumed. Reengaging students who disconnected when schools first closed has been a daunting challenge, particularly in communities such as those served by TECS.

**Q35.Expected outcomes for School Quality/ Student Success**

<b>School Comments 2020-2021</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
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<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	We will continue to be committed to excellent student attendance at Thomas Edison.

With the pandemic ostensibly having abated, we anticipate our average daily attendance rates to increase and our chronic absenteeism rate to decline. Our goal is to demonstrate year-over-year improvements in these categories and to achieve a 'Meets Target' rating on the On-Track Attendance measure within the School Quality/Student Success domain.

**Q36. Progress measures to track School Quality/ Student Success**

<b>School Comments 2020-2021</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2019-2020</b>	<i>The school was not required to provide a response. Due to COVID-19, all SY 19/20 assessment and accountability requirements were waived by the U.S. Department of Education.</i>
<b>School Comments 2018-2019</b>	We will continue to be committed to excellent student attendance at Thomas Edison.

We diligently monitor daily attendance, assess which students are nearing key absenteeism thresholds, and implement tiered intervention plans for students and families facing barriers to consistent presence in school.

**Q37. The table above lists the school's available School Quality/ Student Success ratings. Respond to the following questions.**

**a. Based on the school's School Quality/ Student Success ratings for all students over the course of the charter term, discuss the school's current performance and provide at least three explanations/root causes (positive and negative) for the results. (Note: We invite the school to provide information about all students including those below, at and above proficiency.)**

- (1) As has been the case with schools across the country, both in low-income communities of color and in affluent suburban settings, the pandemic caused uncharacteristic spikes in absenteeism at TECS.
- (2) The manner in which TECS prioritizes student culture has allowed us to maintain strong attendance rates. By providing a safe and supportive school environment that serves as a haven from the assorted hardships that pervade our students' daily lives, we make our school a place that students want to be.
- (3) We prioritize parent communication in order to identify and mitigate barriers (transportation and otherwise) that might affect our on-track attendance numbers.

**Q38.b. Looking ahead, what are the school's expected outcomes for School Quality/ Student Success for all students and what steps will the school take to achieve them?**

With the pandemic ostensibly having abated, we anticipate our average daily attendance rates to increase and our chronic absenteeism rate to decline. Our goal is to demonstrate year-over-year improvements in these categories and to achieve a 'Meets Target' rating on the On-Track Attendance measure within the School Quality/Student Success domain.

To achieve these outcomes, we will continue to prioritize making our school an oasis of calm and consistency for our students. We have moved forward with implementing a flexible system of supports to address the academic, mental health, and social-emotional needs with which our students have presented since returning to school. The provision of these supports reflects a whole-school approach to whole-child development that maximizes opportunities for all children to succeed.

**Q39.c. Describe how the school will measure progress to determine whether the school is on track to meet expected School Quality/ Student Success outcomes for all students.**

We diligently monitor daily attendance, assess which students are nearing key absenteeism thresholds, and implement tiered intervention plans for students and families facing barriers to consistent presence in school.

**2.5. Progress toward English Language Proficiency (ELP)**

Beginning in the 2017-2018 school year, every school was measured on student "Progress toward English language proficiency (ELP)" This metric is an index calculation that measures the percentage of all current English Learners (ELs) who make annual progress toward ELP as measured by the statewide ELP assessment. ELP is defined as scoring a PL of 5.0 on the statewide ELP assessment. Attainment has been defined in Delaware as a PL of 5.0 and a level in which a student is considered to have met a proficiency level comparable to their native English speaking peers. **Therefore, a PL of 5.0 is considered a student's Attainment Target (AT).**



Metric	2018-2019			2021-2022		
	Value	Points	Points Earned	Value	Points	Points Earned
Progress Toward English Language Proficiency	N/A	N/A	N/A	N/A	N/A	N/A

**DOE Summary:**

Due to COVID-19, all SY 19/20 and SY 20/21 assessment and accountability requirements were waived by the U.S. Department of Education. In SY 18/19, Thomas Edison did not have a sufficient number of English learners required to calculate this metric.

**Q40. English language proficiency (ELP) ratings over the course charter term**

School Comments 2019-2020	<i>Not applicable</i>
School Comments 2019-2020	<i>Not applicable</i>
School Comments 2018-2019	<i>Not applicable</i>

Not applicable.

**Q41. Expected outcomes for Progress toward English language proficiency (ELP)**

School Comments 2020-2021	<i>Not applicable</i>
School Comments 2019-2020	<i>Not applicable</i>
School Comments 2018-2019	<i>Not applicable</i>

Not applicable.

**Q42. Progress measures to track English language proficiency (ELP) outcomes**

School Comments 2020-2021	<i>Not applicable</i>
School Comments 2019-2020	<i>Not applicable</i>
School Comments 2018-2019	<i>Not applicable</i>

Not applicable.

**Q43. The table above lists the school's available English language proficiency (ELP) ratings. Respond to the following questions.**

**a. Based on the school's English language proficiency (ELP) ratings for all students over the course of the charter term, discuss the school's current performance and provide at least three explanations/root causes (positive and negative) for the results. (Note: We invite the school to provide information about all students including those below, at and above proficiency.)**

Not applicable.

**Q44.b. Looking ahead, what are the school's expected outcomes for English language proficiency (ELP) for all students and what steps will the school take to achieve them?**

Thomas Edison does not anticipate enrolling English learners in sufficient numbers to establish formal ELP goals. Nevertheless, we continually strive to ensure that our academic program is sufficiently differentiated to meet the needs of all students including those for whom English is not a primary language. The measures we take to evaluate the efficacy of our curriculum, our instructional approach, and our professional development offerings encompass an assessment of whether they are supporting language acquisition for students with a diverse set of needs.

**Q45.c. Describe how the school will measure progress to determine whether the school is on track to meet expected English language proficiency (ELP) outcomes for all students.**



Not applicable.



### 3. Organizational Performance

The Organizational Performance Framework reflects expectations the charter school is required to meet through state and federal law and the charter performance agreement, and seeks to provide information regarding these key questions:

- Is the school organizationally sound and well operated?
- Is the school fulfilling its legal obligations and sound public stewardship?
- Is the school meeting its obligations and expectations for appropriate access, education, support services, and outcomes for students with disabilities?

#### 3.1. Mission Specific Goal(s)

Is the school faithful to its mission as defined in its current charter, including approved mission-specific academic goals if applicable?

M

Mission	Measure	Meets Standard
The mission of the Thomas A. Edison Charter School is to provide a world-class education to students despite race, gender, and socio-economic status. In compliance with 14 Del. C., §501, Thomas Edison Charter School intends "to improve student learning; encourage the use of different and innovative or proven school environments and teaching and learning methods; provide parents and students with measures of improved school and student performance and greater opportunities in choosing public schools within and outside their school districts; and to provide for a well-educated community."	Achieve3000 Lexile scores  Strategic Teaching and Evaluation of Progress (STEP) testing"	70%-100% of students will reach their Lexile growth goal or 2 or more STEP levels on a per grade basis. (STEP – Grades K-3, Achieve3000 – Grades 4-8)

**DOE Summary:**

Due to COVID-19, Thomas Edison was not able to track its Mission Specific measure in SY 19/20 and SY 20/21. The most recent data was from SY 18/19 and 43.5% students met the goal which was Approaching Standard.

**Q46. Rate the school's performance according to the criteria established by the school for its mission specific goal(s).**

<b>School Comments 2020-2021</b>	Due to the COVID-19 pandemic and the closure of school for the majority of school year 2020-2021, we were unable to complete our benchmark and end of year testing.
<b>School Comments 2019-2020</b>	Due to the COVID-19 pandemic and the required closure of schools, we were not able to complete our spring testing. Therefore, we did not meet our Mission Specific Goal for the 2019-2020 school year.
<b>School Comments 2018-2019</b>	Thomas Edison Charter School is approaching standard with 45.3% of our students meeting the goal.

Due to the continued impact and challenges of COVID-19, TECS did not meet our mission-specific goal for the 2021-22 school year. Student and staff absences due to quarantine were just one of the challenges we faced last year.

While we intend to revise our mission-specific goal during our upcoming charter term, we will continue to work with our administration, coaches, teachers, and support staff to meet any and all goals in 2022-23 and in the years to come. Specifically, TECS intends to provide high-quality, relevant professional development opportunities to staff on instructional strategies, MTSS, and the social-emotional well-being of our students.



Q47. Provide as Appendix 1 the results (data source) of the school's mission specific goal(s). Remember not to include any personally identifiable information (PII).

Upload Required File Type: pdf, excel, word Max File Size: 30 Total Files Count: 30

Applicant Evidence :


Mission-Specific Goal Data Response.d...

Uploaded on 9/22/2022 by Benjamin

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### 3.2. Organizational Performance

Note: Please utilize the hyperlink in this sentence for more information about the Organizational Performance Framework.

#### SUMMARY AND OVERALL RATING

Year	Education Program				Governance & Reporting			Students & Staff			OVERALL RATING
	Mission Fidelity	Applicable State & Federal Requirements	Students with Disabilities	English learners	Governance & Public Stewardship	Oversight of School Management	Reporting Requirements	Students Rights	Req. on Teacher Certification & Hiring Staff	Facilities, Transportation, Health & Safety	
	1a	1b	1c	1d	2a	2b	2c	3a	3b	4a	
2018-2019	M	M	M	M	M	M	M	M	M	M	Meets Standard
2019-2020	M	M	M	M	M	M	M	M	M	M	Meets Standard
2020-2021	M	M	AS	M	M	M	M	M	M	M	Meets Standard
2021-2022	M	M	AS	M	M	M	M	M	M	M	Meets Standard

**DOE Summary:**

Thomas Edison earned overall ratings of "Meets Standard" for the past three years of its current charter term. Thomas Edison has meet each indicator, each year, with the exception on "Students with Disabilities" in 2020-2021.

Q48. School's organizational performance over the current charter term

School Comments 2020-2021	The school was not required to provide a response to this information.
School Comments 2019-2020	The school was not required to provide a response to this information.



<b>School Comments 2018-2019</b>	TECS has met the standard in every area.
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TECS achieved an overall rating of 'Meets Standard' during each year of its charter term.

**Q49.Changes to organizational practices that the school has implemented to improve the school's organizational outcomes**

<b>School Comments 2020-2021</b>	The school was not required to provide a response to this information.
<b>School Comments 2019-2020</b>	The school was not required to provide a response to this information.
<b>School Comments 2018-2019</b>	TECS has met the standard in every area.

TECS continues to demonstrate operational soundness and organizational viability across a range of key indicators. Our sound policies, clear lines of accountability, strong internal communication, and multiple levels of oversight ensure that we are set up to deliver our rigorous and supportive instructional program. We anticipate continuing to use strong leadership, governance, and accountability practices to make responsible decisions, implement our model with fidelity, reach our programmatic goals, and satisfy our compliance requirements.

**Q50.Indicator measure where school did not meet standard or is approaching standard**

<b>School Comments 2020-2021</b>	<p><b>1. Education Program</b></p> <p><b>Measure 1c. Students with Disabilities</b></p> <p>We are engaged in a Corrective Action Plan with DDOE</p>
<b>School Comments 2019-2020</b>	School comments for SY <b>2019-2020</b> can be found at: <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> ( <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> )
<b>School Comments 2018-2019</b>	School comments for SY <b>2018-2019</b> can be found at: <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> ( <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> )

On Education Program Measure 1a (Mission Fidelity), we received a rating of 'Approaching Standard' in 2021–22. As elaborated upon below in our response to Question 53, TECS is proud not to have lowered our expectations for what our students are capable of accomplishing despite the pandemic making it difficult for us to provide the type of consistency they would need to achieve our ambitious academic goals.

**Q51.Describe the school's organizational performance over the current charter term. (This section is for the school to address any overall rating where the school has not met standards. The school will be able to address individual metrics in the sections below.)**

Thomas Edison earned an overall rating of 'Meets Standard' during each year of its charter term.

**Q52.Identify changes to organizational practices that the school has implemented to improve the school's organizational outcomes.**

TECS has maintained governance, staffing, student-service, and safety and security practices that ensure strong organizational outcomes. Throughout the current charter term, and over the course of the upcoming term, TECS will continue to monitor organizational outcomes at the staff, leadership, and board levels and will consider making any necessary adjustments when it reasonably appears as though improvements are needed.

**Q53.Address any measure where school did not meet standard or is approaching standard.**

We achieved an 'Approaching Standard' rating on the Students with Disabilities measure in 2020–21 and on the Mission Fidelity measure in 2021–22.

With respect to the former, TECS unwittingly found itself out of compliance with an initial speech evaluation on account of communication challenges with both the parent and the speech therapist. We entered into a Corrective Action Plan with the Department of Education, strengthened our professional development and tracking practices (see Q57) and met the standard in 2021–22.

With respect to the latter, TECS students did not hit the STEP or Achieve3000 growth targets enshrined in our mission-specific goals in 2021–22. The exigencies of the pandemic made it difficult to administer the assessments and to collect reliable data, but we nevertheless felt obligated to maintain a high bar for our students and to report candidly about how the disruptions of the past several years have stunted our students' progress. With a resumption of full-time, in-person learning and an ability to more reliably provide both rigorous instruction and wraparound supports, we anticipate meeting this standard in 2022–23 and beyond.

**Q54.Performance Agreement Organizational Performance Expectations Thomas A. Edison Charter School's 2016-17 overall Organizational rating is "Approaching Standard." By September 2022, our expectation is to achieve the overall rating of "Meets Standard," as measured by the Organizational Performance Framework. Each year, we will be on track to demonstrate performance aligned with those organizational performance expectations. This progress will be monitored through our annual performance review.**

**DOE Summary:**



Thomas Edison has been rated as “Meets Standard” overall in the last three years of the charter term.

<b>School Comments 2020-2021</b>	TECS has met the standard in every area under Governance and Reporting.
<b>School Comments 2019-2020</b>	The school did not provide a response.
<b>School Comments 2018-2019</b>	TECS has met the standard in every area on the organizational Performance Agreement.

**Discuss the school’s organizational performance based on its approved Performance Agreement.**

By achieving an overall rating of 'Meets Standard' during each year of our charter term, TECS has satisfied the organizational targets set forth in our approved Performance Agreement.

**3.3. Educational Program**

**Q55. Describe any changes to the education program or curricula the Board plans to make prior to the renewal.**

TECS has continually used student performance data to assess the viability of its curriculum. We routinely evaluate the quality of the materials we are placing in front of children and making appropriate modifications to our instructional program based on what we believe to be in the best interests of children. As outlined in Appendix 2, we have implemented a number of curricular shifts in 2022–23 in response to student outcomes and feedback from teachers and in order to remain aligned with Delaware’s evolving state standards. Specifically, we have contacted the Science Resource Center and ordered kits from the Delaware Science Coalition’s Approved Kit Rotation for use in the 2022–23 school year. As we work to fully embrace the profound shifts occasioned by the adoption of NGSS, we are striving to phase out all lesson activities that rely on a traditional mode of instructional delivery and to replace them with lessons that allow students to make sense of their learning. We are also consistently reviewing science lesson plans and looking for ways to infuse student discovery into the learning process.

To ensure alignment with the new ‘through assessment’ system for social studies, TECS has joined the Social Studies Coalition of Delaware. Teachers will use the re aligned standards as learning goals. As the new standards take effect, TECS will utilize the model lesson materials provided in the realigned, grade-specific Schoology groups for Grade 4: U.S. History and Civics (1491-1787), Grade 5: Economics and Geography, Grade 6: World Geography, Grade 7: Economics and Civics, and Grade 8: U.S. History (1783-1877).

Through conversations with the DOE’s Education Associates, we have reviewed and updated our Music, Physical Education, and Health curricula to ensure ongoing alignment with prevailing state standards.

**Q56. As appendices, provide the following documents as evidence of curriculum alignment to Delaware Content Standards: Appendix 2 Provide an electronic copy of curricula including scope and sequence documents, units, assessments and content covered per core content area (Mathematics, English Language Arts, Social Studies, Science, Visual/Performing Arts, World Languages, Health and Physical Education) for each grade level the school serves. The documents should demonstrate clear alignment with the Delaware Content Standards (including Common Core State Standards in English Language Arts and Mathematics, and Next Generation Science Standards) in all content areas. Evidence to establish adherence to the state’s expectations regarding ELA standards and instruction through the grade bands should include the following:**

- Evidence of the adoption of a high quality instructional resources as defined by EdReports.org., which includes the scope and sequence documents showing units of study with their corresponding anchor texts and culminating tasks with the intended pacing for each grade/course; **OR** curricular resources/documents that meet the criteria of the appropriate IMET from achievethecore.org, including additional resources selected to support areas where the curriculum materials were weak per EdReports.org (yellow or red). Scope and sequence documents must include:
  - featured anchor texts of knowledge building units around topics of inquiry/exploration and intended pacing for each grade/course. These should reflect the distribution of text types and genres required by the standards as outlined in Appendix B.
  - a set of targeted grade-level CCSS ELA/Literacy standards for each unit.
  - alignment to the foundational reading skills and intended pacing for each grade must be included for grades K-5.
- Sample learning experiences (lesson/unit) and assessments with their corresponding rubrics.
- Opportunities provided and embedded within curriculum for professional learning and strategic use of curricular resources.
- In addition, there needs to be a well-articulated academic MTSS process for reading that includes screening, diagnostics, evidence-based interventions, and progress monitoring.
- For grades 9-12, English course sequences/programs of study should be provided. No curricular documents are required for Advanced Placement, International Baccalaureate SL or HL, or dual enrollment courses.

Evidence to establish adherence to the state’s expectations regarding **Health Education standards and instruction** in grades K-8 and 1/2 credit in high school (grades 9-12) should include the following:

- Curriculum map or scope and sequence showing the National Health Education Standards/Delaware State Standards targeted and attention to the specific learning concepts for each grade.
- One sample document outlining adherence to the hours requirements for specific health concepts in Regulation 551.
- One sample assessment and accompanying scoring rubric aligned to state standards – intended to provide evidence of student achievement of standards – for each grade level in the school.

Evidence to establish adherence to the state’s expectations regarding **Math standards and instruction** through the grade bands should include the following:



- Evidence of the adoption of a high quality, standards aligned instructional resource as defined by EdReports.org. This includes the scope and sequence documents showing alignment to standards and intended pacing for each grade/course; **OR** curricular resources/documents that meet the criteria of the appropriate IMET from achievethecore.org including additional resources selected to support areas where the curriculum materials were weak per EdReports.org (yellow or red). Scope and sequence documents showing alignment to standards and intended pacing for each grade/course must be included in this documentation.
- Sample learning experiences (lesson/unit) and assessments
- Opportunities provided and embedded within the curriculum for professional learning and strategic use of curricular resources.
- In addition, there needs to be a well-articulated academic MTSS process for mathematics that includes screening, diagnostics, evidence-based interventions, and progress monitoring.
- Additionally, for grades 9-12, Mathematics course sequences/programs of study should be provided. No curricular documents are required for Advanced Placement, International Baccalaureate SL or HL, or dual enrollment courses.

Evidence to establish adherence to the state's expectations regarding **Physical Education standards and instruction** in grades K-8 and 1 credit in high school (grades 9-12) should include the following:

- Curriculum map or scope and sequence showing alignment to the Delaware physical education standards and grade level expectations.
- One sample assessment and accompanying scoring rubric aligned to state standards – intended to provide evidence of student achievement of standards –for each grade level in the school (example: state physical fitness assessment data and programming provided by the Delaware Department of Education)
- No curricular documents are required for elective Physical Education courses, which should not exceed 1 credit to fulfill graduation requirements.

Evidence to establish adherence to the state's expectations regarding **Social Studies standards and instruction** through the grade bands should include the following:

- Scope and sequence showing standards targeted and major topics for each grade/course in the school.
- One sample assessment aligned to state standards – intended to provide evidence of student achievement of standards - for each grade/course in the school.
- No curricular documents are required for AP, IB, or dual enrollment courses.
- Schedule of time allotted for social studies instruction in each grade

Evidence to establish adherence to the state's expectations regarding **Science standards and instruction** through the grade bands should include the following:

- Evidence of the adoption of a high-quality instructional resource as defined by EdReports.org or curricular resources that meet the criteria of the EQulP rubric from nextgenscience.org, reviewed by an external evaluator that is not the materials publisher.
- The LEA must provide a scope and sequence for each grade level that includes the unit topic, the unit phenomenon, standards that are covered in that unit, what the students do and figuring out in the unit, and include a lesson and sample assessment from K-2, 3-5, 6-8, 9-12, depending on the structure of the school.
- Schedule of time allotted for science instruction in each grade
- A Response to the following questions:
  - What is the professional development plan to support continuous three-dimensional learning along with your instructional resources?
  - Describe how you ensure accessibility for all students in science.
  - Describe how your administrators are monitoring science instruction to ensure the shifts in science are occurring.

Evidence to establish adherence to the state's expectations regarding **Visual/ Performing Arts standards and instruction** through the grade bands should include the following:

- Scope and sequence showing National Core Arts Standards/Delaware State Standards targeted and major topics for each grade/course in the school.
- One sample assessment and rubrics aligned to state (NCAS) standards – intended to provide evidence of student achievement of standards - for each grade/course in the school.
- Schedule of time allotted for arts instruction in each grade band.
- No curricular documents are required for AP, IB.

Evidence to establish adherence to the state's expectations regarding **World Languages standards and instruction** in grades 9-12 should include the following:


- Curriculum map or scope and sequence showing the targeted Delaware World-Ready Standards for Learning Languages, state proficiency targets and major learning contexts (themes) for each level of language instruction.
- One sample assessment and accompanying scoring rubric from one learning context--intended to provide evidence of student growth in proficiency--for each level of language instruction.
- No curricular documents are required for AP, IB.

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 100





Applicant Evidence :


TECS Appendix 2 (Final).zip

Uploaded on 9/18/2022 by Benjamin Feit

### 3.4. At-risk students, Students with Disabilities, and English Language Learners

	Education Program			
	Mission Fidelity	Applicable State & Federal Requirements	Students with Disabilities	English learners
Year	1a	1b	1c	1d
2018-2019	M	M	M	M
2019-2020	M	M	M	M
2020-2021	M	M	AS	M
2021-2022	M	M	AS	M

**Q57.If applicable, describe any changes or enhancements the school has made based on findings from audits, investigations, or other administrative proceedings related to at-risk students, students with disabilities, or English Language Learners.**

During the 2019–20 school year, one TECS student was evaluated outside the statutory timeline. In response to a finding of noncompliance, we made two key changes to strengthen our organizational performance. First, we provided professional development to all special education teachers and related service staff on timely evaluations and on what to do when a parent fails to show up or respond to an eligibility meeting. Second, we began to implement a weekly meeting spreadsheet that allowed our Special Education Coordinator to easily view and communicate between related service staff and school personnel. This ensured that related service providers were able to share updates on where things stood with respect to their evaluations in order to strengthen collaborative efforts to improve timeliness.

**Q58.Describe any changes or enhancements to the process by which at-risk students are identified and the evidence that the school was able to provide the right resources and services for these students.**

TECS has developed a Student Support Team that meets every 2 weeks to review MTSS data and student referrals. TECS has also implemented Tier 3 interventions and screenings to support students in all areas (academics, behavior and social-emotional) to determine student needs and direct them to the appropriate resources for success.

**Q59.Describe any changes or enhancements to the process by which English Language Learners are identified and the evidence that the school was able to provide the right resources and services for these students.**

As a threshold matter, TECS determines if a student is a potential ELL student by administering the Home Language Survey, which looks at the primary language used in the home, the language most often spoken by the student, and the language the student first acquired. We then review the HLS results to determine if the student may have a primary or home language other than English and, consequently, may be an English Learner. If one or more responses to the questions on the HLS indicate a language other than English, the student is given the WIDA Screener within 25 days of enrollment. If a student is identified as an EL, we administer the ACCESS 2.0 assessment in addition to the screener. All screened students are entered into the State EL Database. Students identified as English Learners receive services through a contracted provider (Back to Basics) until they test at proficient levels on the ACCESS 2.0 assessment.

**Q60.Describe any changes or enhancements to the process by which students with disabilities are identified and the evidence that the school was able to provide the right resources and services for these students.**



The MTSS process begins with high-quality instruction and universal screening of all children in the general education classroom (Tier 1) in all areas (academic, behavioral, and social-emotional skills). Interventions for Tier 2 and Tier 3 are selected for academic, behavioral and social-emotional skills which are of high quality, evidence-based and aligned with the State’s appropriate content standards. Our struggling learners are provided with Tier 3 interventions at increasing levels of intensity to accelerate their rate of learning. These services will be provided by a variety of personnel, including general education teachers, special educators, and specialists. Progress will be closely monitored to assess both the learning rate and level of performance of individual students. Educational decisions about the intensity and duration of interventions are based on individual student response to instruction.

After six to eight school weeks of Tier 3 intervention, the problem-solving team conducts a review to determine whether additional assessments are required, whether changes to Tier 3 academic or non-academic methods are required, or whether the student should be referred for an initial evaluation for special education.

In Math, we administer the STAR Math assessment three times annually. Each student receives a Fall, Winter, and Spring benchmark score. Teachers, coaches, and administrators hold monthly data meetings to assessment the impact of instruction on student growth. Concepts that students appear to be having a difficult time mastering are spiraled back into the curriculum through thoughtful ‘reteach’ plans. Students whose benchmark scores identify them as needing Tier 2 interventions receive biweekly monitoring, while students in Tier 3 have their data monitored on a weekly basis. All students receive differentiated instruction via DreamBox, Freckle, or Zearn daily. Tier 3 students receive daily small-group instruction for 30 minutes using Bridges Intervention.

In ELA, our MTSS process consists of the following components:

Component 1: Benchmark Screening

- DIBELS Assessment: Fall, Winter, Spring (Acadience Reading 7–8 for students in Grades 7–8)

Component 2: Diagnostics

- Data meetings after each Benchmark Screening to track and analyze all students
- Data meetings for Tier 2 & Tier 3 students after 6-week cycles of intervention

Component 3: Evidence-Based Interventions

- Tier 2:
  - Students receive 15 minutes per day of additional intervention support (push in, small group, or individual) to meet their targeted needs
- Tier 3:
  - Students receive 30 minutes per day of small group intervention to meet their targeted needs
- Interventions Used:
  - Leveled Literacy Intervention (LLI)
  - Achieve3000

Component 4: Progress Monitoring

- DIBELS
- Tier 2 & 3: Biweekly monitoring

**3.5. Governance and Reporting Requirements**

	Governance & Reporting		
	Governance & Public Stewardship	Oversight of School Management	Reporting Requirements
Year	2a	2b	2c
2018-2019	M	M	M
2019-2020	M	M	M
2020-2021	M	M	M
2021-2022	M	M	M



**Q61. Provide information regarding how the Board of Trustees effectively evaluates the School Leader(s), including any policies or procedures related to such evaluation(s).**

TECS school leadership is directly accountable to the school's Board of Trustees. In general, the board holds leadership accountable for (a) the school's overall academic performance, (b) achievement of the school's enrollment targets, and (c) successful management of the board-approved school budget. At each monthly board meeting, the school leader delivers a report that includes progress toward key school-level targets (academic, operational, financial, etc.), and those reports are reviewed and approved by the board. At the close of each year, the board conducts a formal school leader evaluation based on goals and performance targets jointly established at the school year's outset. All board members contribute to the evaluation process, with the final report being delivered and reviewed by the board chair.

**Q62. Provide information regarding how the Board of Trustees effectively evaluates its own success. Include examples of any corrective actions, if applicable, the Board of Trustees implemented as a result of its evaluation.**

In our 2017 renewal application, we pledged to "rededicate ourselves to ensuring that we have a high-functioning board that is providing the right type of support and oversight of TECS." That commitment was a result of an honest reckoning with some of the governance shortcomings that had plagued the school during the prior term. In the intervening five years, we have taken a multitude of steps to honor that pledge. As a threshold matter, we have allowed terms to expire for trustees whose governance practices were not aligned with the overall mission of the school. Our current board has a strong commitment to honor the pledge. The members were chosen with great intention; we prioritized diversity (of background, experience, and skill sets) within the board. They have also committed themselves to attending any and all required trainings. When the school leader brings a need to the board, and substantiates that need with evidence, we work to find solutions that ensure the school has what it needs to position teachers and students for success. During the upcoming term, the board will conduct an annual self-evaluation to ensure it is discharging its governance duties in a manner that ensures the school will meet its academic, organizational, and financial performance targets.

**Q63. Identify the school's plan to ensure the effectiveness of its Board of Trustees, including governance training and new member induction.**

Incoming board members receive a complete Board Manual that includes all policies and relevant information. All board members complete required trainings and attend governance workshops provided through the Delaware Alliance for Nonprofit Advancement. Furthermore, we actively engage with the Delaware Charter Schools Network to ensure we are remaining apprised of best practices in charter school oversight and cognizant of any state-level needs, shifts, or priorities that could impact our board's ability to fulfill its oversight responsibilities. Lastly, we budget for and fund board travel to the National Charter Schools Conference for continuing education purposes.

**Q64. Describe the school's process for succession planning including identification, development and retention of school leaders.**

TECS is proud to have cultivated a leadership team that has remained intact for an uncommonly long period of time in a sector where turnover is the norm and continuity is elusive. Nevertheless, while we anticipate our current leadership team remaining in place for the foreseeable future, we understand that planning for unexpected transitions is an important board-level responsibility. In the event of a potential vacancy, we would first consider internal candidates; we have impressed upon the current head of school the need to build a deep leadership bench, and we believe that high-potential members of the school's current administrative team would be well-positioned to assume larger responsibilities. The board has taken an active role in supporting the development of internal leadership. The success of this effort has been demonstrated by the promotion to Assistant Principal of John Shelton and Elizabeth Yates over the past several years. To the extent necessary, we would conduct a national search to source leadership talent and ensure the right person is leading our school forward.


**Q65. Share how the Board supports the school. Speak to the Board's involvement in events, operations, and fundraising activities.**

While we maintain a clear separation between governance and management and do not expect trustees to be actively involved in the day-to-day operation of the school, we do expect board members to be actively involved in the overall life of the school. Board member presence is necessary both to maintain a finger on the pulse of the school and to convey to members of the school community a sense of engagement, accessibility, and dependability. Board members attend Back to School Nights, parent engagement events, and chess team tournaments. The board has also lent in-kind expertise to school operations, providing professional services in their unique areas of expertise that obviate the need to seek costly vendor services in certain areas. The board provided funding to assist with providing teachers well-deserved and much-needed raises. We have also carved out funding to support grant-writing and development activities over the past several years in an effort to ensure sufficient funds are secured for programming that meets student need. Fundraising efforts are aligned with school priorities; rather than seek funding for flashy initiatives that might look good on paper but which detract from the school's ability to focus on its core mission, we seek resources to support the specific needs identified by school leaders.

**Q66. Appendix 3: Current Organizational Chart**

Upload Required File Type: pdf, image, excel, word Max File Size: 30 Total Files Count: 10

Applicant Evidence :


Appendix 3 - Current Organizational C...

Uploaded on 8/25/2022 by Benjamin Feit


**Q67. Complete the Board Financial and Governance table (see Resources) with the necessary information.**

- In accordance with Del. 14 §512 (15), the school shall have a satisfactory plan to ensure the effectiveness of its board of trustees, including governance trainings conducted for any new board members and at a minimum of once every 3 years.
- Please list only the most recent training date.


Upload Required File Type: excel Max File Size: 30 Total Files Count: 1



Resources

  
TECS Board Financial and Governance ...

Applicant Evidence :

  
TECS Board Financial and Governance ...

Uploaded on 9/30/2022 by Benjamin Feit

Q68. Board Financial and Governance Members and Training (review the file you uploaded above)

<b>DOE Summary:</b>
As of April 25, 2022, Thomas Edison’s Board of Directors was in compliance with the State’s membership and board governance training requirements.

<b>School Comments 2020-2021</b>	The school was not required to provide a response to this information.
<b>School Comments 2019-2020</b>	The school was not required to provide a response to this information.
<b>School Comments 2018-2019</b>	New Board Members are in the process of receiving all necessary training

TECS is in compliance with the state's financial and governance training requirements.

Q69. Please complete the Citizen Budget Oversight Committee Membership and Training table (see Resources) and upload your finished copy here.

Upload Required File Type: excel Max File Size: 30 Total Files Count: 1

Resources

  
TECS CBOC.xlsx

Applicant Evidence :

  
TECS CBOC.xlsx

Uploaded on 8/26/2022 by Benjamin Feit

Q70. Citizen Budget Oversight Committee Membership & Trainings (review the file you uploaded above)

<b>DOE Summary:</b>
As of April 25, 2022, Thomas Edison’s Board of Directors was in compliance with the State’s membership and board governance training requirements.

<b>School Comments 2020-2021</b>	The school was not required to provide a response to this information.
<b>School Comments 2019-2020</b>	The school was not required to provide a response to this information.




<b>School Comments 2018-2019</b>	The school was not required to provide a response to this information.
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TECS is in compliance with the state's Citizen Budget Oversight Committee Membership and Training requirements.

**Q71. Appendix 4: Board Governance Training Certificates and/or Documentation**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 50

Applicant Evidence :



Appendix 4 - Board Member Training ...


Uploaded on 9/30/2022 by Benjamin

Feit

**Q72. Appendix 5: Board member and school leader succession plans**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Evidence :



Appendix 5 - Succession Plans.docx


Uploaded on 9/20/2022 by Benjamin

Feit

**Q73. Appendix 6: Current board bylaws**

Upload Required File Type: pdf, excel, word Max File Size: 30 Total Files Count: 10

Applicant Evidence :



Appendix 6 - Current Board By-Laws.pdf

Uploaded on 8/25/2022 by Benjamin

Feit

**3.6. Students, Employees and School Environment**

	Students & Staff		
	Students Rights	Req. on Teacher Certification & Hiring Staff	Facilities, Transportation, Health & Safety
Year	3a	3b	4a
2018-2019	M	M	M
2019-2020	M	M	M
2020-2021	M	M	M
2021-2022	M	M	M



**Q74. Provide information about any metric where the school did not meet standards including how the school addressed this deficiency.**

TECS met the Organizational Performance Framework standards from these selected domains during each year of our charter term.

**Q75. Provide information about the best practices the school uses to meet standards in the above noted areas.**

Within the Student Rights domain, we encourage and support an active Student Government Association (SGA) that advocates for all our students. SGA meets with the TECS Administrative Team on a monthly basis.


Within the Teacher Certification and Hiring Staff domain, we offer mentoring meetings (1-on-1 and in groups); prioritize recruiting, developing, and retaining teachers from traditionally underrepresented populations, particularly those whose demographics mirror those of our student body; employ a Teacher Intern Program, through which aspiring educators spend a year as an interventionist before assuming a full teaching load; and support our interventionists and paraprofessionals to pursue certification through Grow Your Own partnerships with Relay and ARTC.

Within the Facilities, Transportation, Health & Safety domain, we use the Remind app to notify parents about late-running buses; communicate on a daily basis with our transportation vendor; convene anti-bullying assemblies to build a safe learning environment; use counselors to provide social-emotional support; contract with Delaware Guidance to house a counselor in school; and added a second certified nurse to service our school.

**Q76. Appendix 7: Please upload an up-to-date Certificate of Occupancy**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Evidence :



Appendix 7 - Certificate of Occupancy...

Uploaded on 9/6/2022 by Benjamin Feit

**Q77. Appendix 8: Please upload an up-to-date Fire Inspection Certificate**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Evidence :



Appendix 8 - Fire Inspection Certificate...

Uploaded on 9/6/2022 by Benjamin Feit

**Q78. Appendix 9: Please upload an up-to-date Insurance Certificate(s)**



Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Evidence :



Appendix 9 - Insurance Certificate.pdf

Uploaded on 8/25/2022 by Benjamin Feit

**Q79. Appendix 10 ERIP: Please upload report for SY20/21 and SY21/22**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Evidence :


Appendix 10 - ERIP Report.pdf

Uploaded on 9/15/2022 by Benjamin Feit

**3.7. Teacher Retention**

2018-2019			2019-2020			2020-2021			2021-2022		
% of Teachers RETAINED	# of Teachers RETAINED	# of Teachers ELIGIBLE	% of Teachers RETAINED	# of Teachers RETAINED	# of Teachers ELIGIBLE	% of Teachers RETAINED	# of Teachers RETAINED	# of Teachers ELIGIBLE	% of Teachers RETAINED	# of Teachers RETAINED	# of Teachers ELIGIBLE
66%	29	44	74.4%	32	43	86%	37	43	50%	22	44

**DOE Summary:**

Thomas Edison's teacher retention rate has increased each year over the past three years resulting in the retention of all but six teachers in 2020-2021.

**Q80. 2021-2022 PERCENT of Teachers RETAINED**

50%

**Q81. 2021-2022 NUMBER of Teachers RETAINED**

22

**Q82. 2021-2022 NUMBER of Teachers ELIGIBLE**

44

**Q83. School's plans to monitor and minimize teacher attrition rates**

<b>School Comments 2020-2021</b>	After analyzing our teacher attrition rates, we have found that the majority of our teachers that leave relocate to other states or to higher paying school districts. We will continue to conduct our yearly summer new teacher induction trainings, participate in the DDOE New Teacher Induction/Mentoring program and provide support through lead teachers and administration.
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<b>School Comments 2019-2020</b>	After analyzing our teacher attrition rates, we have found that the majority of our teachers that leave relocate to other states or to higher paying school districts. We will continue to conduct our yearly summer new teacher induction trainings, participate in the DDOE New Teacher Induction/Mentoring program and provide support through lead teachers and administration.
<b>School Comments 2018-2019</b>	After analyzing our teacher attrition rates, we have found that the majority of our teachers that leave relocate to other states or to higher paying school districts. We will continue to conduct our yearly summer new teacher induction trainings, participate in the DDOE New Teacher Induction/Mentoring program and provide support through lead teachers and administration.

Our plans to monitor and minimize teacher attrition rates revolve around supporting teachers inside and outside of the school. We provide mentoring and support teachers through the DDOE Comprehensive Induction Program for new teachers (Years 1-4). We provide relevant and high-quality professional development, treat our teachers as valued professionals, and acknowledge that they are the most important ingredient in their students' success by celebrating their accomplishments.

We work to build a positive school culture that includes team-building events and staff-building events (e.g., staff outings, pick-me-ups, and celebrations). We work to provide a sense of belonging and a family atmosphere. We understand that representation matters. To that end, we strive to hire teachers from underrepresented groups including black males and teachers from the community in which we are located. Those teachers tend to be heavily invested in the school's success and, as a result, to seek alternative employment opportunities less frequently.

Finally, we prioritize teachers' mental health by working to understand their personal and familial needs and remaining flexible where necessary and appropriate. We limit teacher workload and use PLC time effectively. When possible, we provide financial incentives including bonuses and stipends.

**Q84. School's professional development plans support teachers and leadership.**

<b>School Comments 2020-2021</b>	After analyzing our teacher attrition rates, we have found that the majority of our teachers that leave relocate to other states or to higher paying school districts. We will continue to conduct our yearly summer new teacher induction trainings, participate in the DDOE New Teacher Induction/Mentoring program and provide support through lead teachers and administration.
<b>School Comments 2019-2020</b>	The school was not required to provide a response to this information.
<b>School Comments 2018-2019</b>	The Teaching Excellence Framework has allowed us to offer coaching and support to teachers through consistent and authentic feedback after classroom observations, thus increasing teacher efficacy and student engagement. We have a strong teacher leadership team who meets regularly and provides support to help build capacity in our school.

In addition to the PLC system described throughout this application, and in concert with the virtual Pas we have incorporated since the onset of the pandemic (see Q86 below), TECS works with a range of service providers to ensure teachers receive high-quality, relevant, and useful professional development. For example, we have contracted with Research for Better Teaching (RBT) to provide PD on high-quality pedagogical techniques for teachers and staff. We partner with the University of Delaware Professional Development Center for Educators (UD-PDCE) for Bookworms. They provide 18 coaching-days annually for teachers and coaches. And we partner with Great Minds to provide Effective Instruction PD for teachers and Lead Eureka PD for coaches.

A comprehensive, subject-specific breakdown of our approach to professional learning is included in Appendix 2 (Q56).

**Q85. Review the table above with the school's teacher retention trends. Describe the school's plans to monitor and minimize teacher attrition rates. Provide information about why teachers leave the school.**

Our analysis of teacher mobility data has revealed a number of factors associated with teacher attrition. The pandemic caused extreme stress and myriad mental health challenges for educators. While we were fortunate to have had a sizable percentage of our dedicated teachers remain with the school while the pandemic was raging at its most virulent, we did see more significant turnover after the 2021-22 school year when the improving job market and the loosening of restrictions on travel allowed teachers who burned out during the pandemic to leave the profession. Other reasons that teachers may choose to leave include moving out of commuting distance, receiving more lucrative financial offers from neighboring districts (we are located in the Brandywine school district, one of the highest paying districts in the state), and the realization of a poor mission-fit with the expectations associated with teaching low-income students of color.

Our plans to monitor and minimize teacher attrition rates are set forth in our response to Q83 above.

**Q86. Describe how the school's professional development plans have evolved over the course of the charter term to support teachers and leadership.**

As the charter term progressed, we learned to incorporate virtual PDs and asynchronous, on-demand PDs into our repertoire of offerings. During the pandemic, teachers, administrators, and staff came to appreciate how much professional learning can be accomplished virtually. Without having to consider costs associated with travel (including finding coverage for missed instruction) and with scheduling having been made considerably easier, we are now able to access more opportunities, nationally recognized trainers, and programs. We have much more flexibility virtually and can offer a more robust menu of choices to our teachers.

**Q87. Describe how the school's completion of educator evaluations has evolved over the course of the charter term.**





We began our charter term utilizing the Teaching Excellence Framework (TEF) for educator evaluations and are now utilizing the Delaware Teacher Growth and Support System (DTGSS). While we have seen growth and progress from our teachers through TEF and benefited from many aspects of the TEF process, we believe that DTGSS is similarly aligned with our values and goals. Accordingly, we have opted to pilot DTGSS this school year. Our Administration and our Instructional Coaches have gone through extensive DTGSS training and are all credentialed observers in DTGSS. We are part of the network of schools who are piloting this evaluation system and have found the resources provided by the state to be extremely beneficial.

### 3.8. Closure Requirements

**Q88. Describe the school's plan for procedures it will follow in the event of the closure or dissolution of the school. The plan should, at a minimum, address each of the following areas:**

- **Current balance of contingency reserve funds to be used to cover accrued expenses including summer pay obligations (identify estimated amount for the 2016-17 school year), final audit (identify estimated cost), and other expenses typically incurred by June but paid in July or thereafter.**
- **If the current contingency reserve balance is insufficient to cover the estimated costs identified above, discuss the school's plan for ensuring the required funds are set aside, including the timeframe for meeting this requirement.**
- **Identification of the individuals responsible for handling the school's final closeout activities after closure or dissolution (i.e., who will process any final payments, coordinate the final audit, etc.).**

In the event of a closure or dissolution, TECS will follow state-mandated protocols applicable to all schools that are relinquishing their charters and terminating their operations. Additionally, TECS has adopted supplemental measures to ensure we can fulfill all our financial responsibilities.

The current balance of TECS's contingency reserve funds exceeds, by a significant amount, the aggregate amount of accrued expenses. As of June 30, 2022, TECS had (pending auditor verification), \$10,838,923 in cash on hand. The estimated cost of summer pay obligations, using 2022 as a benchmark, is \$983,980. The estimated cost of a final audit is \$25,860, and the estimated amount of other costs typically incurred by June but paid in July or thereafter is \$655,210.88.

The individuals responsible for handling the school's final closeout activities after closure or dissolution are Salome Thomas-EI (Head of School), Patricia S. Winder (the Chief Financial Officer), and Angela Cortes (the Business Manager).



#### 4. Financial Performance

##### 4.1. Financial Performance

Note: Please utilize the hyperlink in this sentence for more information about the Financial Performance Framework (<https://www.doe.k12.de.us/Page/2626>).

Financial Performance Framework Ratings	Near Term Indicators				Sustainability Indicators				Financial Management and Oversight	Overall Rating
	Current Ratio	Days Cash	Enrollment Variance	Default, Loan Covenants, & Debt Service Payments	Total Margin	Debt Asset Ratio	Cash Flow	Debt Service Coverage Ratio		
Year	1a	1b	1c	1d	2a	2b	2c	2d	3	
2018-2019	M	M	M	M	M	M	M	M	M	Meets Standard
2019-2020	M	M	M	M	M	M	M	AS	M	Meets Standard
2020-2021	M	M	AS	M	M	M	M	M	M	Meets Standard
2021-2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

**DOE Summary:**

Thomas Edison has met standard on the overall financial framework for each of the past three years. The school approached standard in enrollment variance in 2020-2021 and in debt service coverage ratio in 2019-2020.

#### Q89. School's financial performance over the current charter term

<b>School Comments 2020-2021</b>	TECS has consistently achieved a "Meets Standard" overall rating since 2014. We are confident in our business practices and will continue to utilize best practices to ensure this continued positive trend.
<b>School Comments 2019-2020</b>	TECS has consistently achieved a "Meets Standard" overall rating since 2014. We are confident in our business practices and will continue to utilize best practices to ensure this continued positive trend.
<b>School Comments 2018-2019</b>	TECS has consistently achieved a "Meets Standard" overall rating since 2014. We are confident in our business practices and will continue to utilize best practices to ensure this continued positive trend.

TECS has consistently achieved a "Meets Standard" overall rating on the Financial Performance Framework since 2014. With respect to the single measure on which the school received an 'Approaching Standard' rating (debt service coverage ratio in 2019-20), we immediately made the appropriate adjustments and moved back into the 'met' standard tier the following year. We are confident in our business practices and will continue to utilize best practices to ensure this continued positive trend.

#### Q90. Financial practices that the school has implemented to improve the school's financial outcomes

<b>School Comments 2020-2021</b>	TECS's Financial Framework overall rating was Meets Standard for 2020-2021. Thomas Edison 's external audit for 2020-2021 was performed by Whisman Giordano & Associates. As in all previous years, an unqualified/ unmodified opinion was received. No material weaknesses or significant deficiencies were identified.
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<b>School Comments 2019-2020</b>	TECS's Financial Framework overall rating was Meets Standard for 2019-2020. Thomas Edison 's external audit for 2019-2020 was performed by Whisman Giordano & Associates. As in all previous years, an unqualified/ unmodified opinion was received. No material weaknesses or significant deficiencies were identified.
<b>School Comments 2018-2019</b>	TECS's Financial Framework overall rating was Meets Standard for 2018-2019. Thomas Edison's external audit for 2018-2019 was performed by Whisman Giordano & Associates. As in all previous years, an unqualified/unmodified opinion was received. No material weaknesses or significant deficiencies were identified.

TECS's Financial Framework overall rating was Meets Standard for 2021-2022. Thomas Edison's external audit for 2021-2022 was performed by Whisman Giordano & Associates. As in all previous years, an unqualified / unmodified opinion was received. No material weaknesses or significant deficiencies were identified.

**Q91. Below is the measure(s) where the school did not meet the standard. You are invited to make a response.**

<b>School Comments 2020-2021</b>	<p><b><u>1. NEAR TERM INDICATORS</u></b></p> <p><b>Measure 1c. Enrollment Variance:</b></p> <p>Actual Enrollment as of September 30 divided by Authorized Enrollment 2020-2021: <b>94% (Approaching Standard)</b> (The enrollment variance depicts actual versus authorized enrollment. A school budget is based on projected enrollment but is funded based on actual enrollment; therefore, a school that fails to meet its enrollment targets may not be able to meet its budgeted expenses. The preferred result is more than 95%.) <b>School Response To Rating:</b></p> <p>Due to the COVID Pandemic, there was a drop in enrollment for most schools in Delaware. Despite providing remote learning and in-person learning, some families still decided to move to other schools or districts who were in-person full time. We are confident that our enrollment will increase in the next school year.</p>
<b>School Comments 2019-2020</b>	School comments for SY 2019-2020 can be found at: <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> ( <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> )
<b>School Comments 2018-2019</b>	School comments for SY 2018-2019 can be found at: <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> ( <a href="https://www.doe.k12.de.us/Page/2654">https://www.doe.k12.de.us/Page/2654</a> )

**Q92. Describe the school's financial performance over the current charter term. (This section is for the school to address any overall rating where the school has not met standards. The school will be able to address individual metrics in the sections below.)**

TECS received an overall rating of 'Meets Standard' during each year of its charter term.

**Q93. Identify changes to Financial practices that the school has implemented to improve the school's financial outcomes.**

Given that TECS has continued to achieve an overall rating of 'Meets Standard' on the Department's Financial Performance Framework, no significant changes to our financial practices have been necessary in order to improve our financial outcomes. We have continued to monitor our near-term and sustainability indicators in order to ensure we remain on sound financial footing, and our management and oversight practices have remained consistent with best practices in charter school operation and governance.

**Q94. Address any measure where the school did not meet the standard or is approaching standard.**

Our enrollment variance of 94% at the height of the pandemic fell one percentage point below the state's target. As the crisis abates and a new equilibrium emerges based on where parents determine their children have the best opportunity to succeed, we anticipate closer alignment between our actual enrollment numbers and our forecasts.

**Q95. Performance Agreement** Thomas A. Edison 's 2016-17 overall Financial ratings are: Meets Standard By September 2022, our expectation is to achieve the overall rating of "Meets Standard," as measured by the Financial Performance Framework. Each year, we will be on track to demonstrate economic viability and achieve our financial performance expectation. This progress will be monitored through our annual performance review.

<b>DOE Summary:</b>
Thomas Edison has earned overall ratings of "Meets Standard" for the past three years of its current charter term.



<b>School Comments 2020-2021</b>	TECS has met its expectation of achieving an overall rating of "Meets Standard" on the Financial Performance Framework. We expect to continue this trend indefinitely.
<b>School Comments 2019-2020</b>	TECS has met its expectation of achieving an overall rating of "Meets Standard" on the Financial Performance Framework. We expect to continue this trend indefinitely.
<b>School Comments 2018-2019</b>	TECS has met its expectation of achieving an overall rating of "Meets Standard" on the Financial Performance Framework. We expect to continue this trend indefinitely.

TECS continues to meet its expectation of achieving an overall rating of 'Meets Standard' as measured by the Financial Performance Framework. Given the strength of our management and oversight practices and the consistently clean audits our school receives, we anticipate this strong performance to continue throughout our next charter term.

**Q96. How the school developed and implemented a corrective action plan in response to audit findings (if applicable)**

<b>DOE Summary:</b>
Not applicable

<b>School Comments 2020-2021</b>	Not applicable
<b>School Comments 2019-2020</b>	Not applicable
<b>School Comments 2018-2019</b>	Not applicable

Not applicable.

**Q97. Discuss the school's financial performance based on its approved Performance Agreement.**

TECS has satisfied the financial targets established within its Performance Agreement during each year of our charter term. We have achieved our goal of annually attaining an overall rating of "Meets Standard" on the Financial Performance Framework, and we expect to continue this trend indefinitely.

**Q98. Describe how the school developed and implemented a corrective action plan in response to audit findings (if applicable).**

Not applicable.

**Q99. Appendix 11: Upload a Summary of Findings from Independent Audits (if applicable)**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

**Applicant Comments :**

Not applicable.

**Q100. Appendix 12: Upload a Final Fiscal Year 2022 Revenue & Expenditure Budget Report in the prescribed Department format**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

**Applicant Evidence :**

Appendix 12 - Final FY22 revenue and ...


Uploaded on 8/25/2022 by Benjamin Feit

**Q101. Appendix 13: Upload an Approved Preliminary Fiscal Year 2023 Budget in the prescribed Department format**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10



Applicant Evidence :


Appendix 13 - Approved Preliminary Fi...

Uploaded on 8/25/2022 by Benjamin Feit

Q102. **Appendix 14: Upload a Fiscal Year 2022 Audited Financial Statements (if final report is not available, a draft version is acceptable until final version is completed)**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 10

Applicant Comments :

As TECS has shared with DOE, a severe case of COVID has prevented our audit firm from completing a draft of our FY22 Audited Financial Statements prior to September 30. We anticipate being able to share the draft financials by the end of October, and — in any event — well before the close of the renewal process on December 15. We will forward a copy to DOE as soon as it is completed in order for the Financial Framework report to be completed and disseminated to CSAC members.

Q103. **Appendix 15: Upload A list of all due process settlements (if applicable) and financial impact.**

Upload Required File Type: pdf, image, excel, word, text Max File Size: 30 Total Files Count: 20

Applicant Comments :

Not applicable.

Q104. **If the projected enrollment is increasing or decreasing by 5% or more over the term of the charter, please include a separate written justification for the modification request as well as budget documents reflecting the new enrollment figures.**

Not applicable.



5. Innovation

Q105. School's innovative practice(s) that could be replicated at other schools in Delaware

<p><b>School Comments 2020-2021</b></p>	<p>Not applicable</p>
<p><b>School Comments 2019-2020</b></p>	<p>Not applicable</p>
<p><b>School Comments 2018-2019</b></p>	<p>Not applicable</p>

**Describe the school's innovative practice(s) that could be replicated at other schools in Delaware. Please include the data that supports the success of these practice(s).**

TECS operates to a nationally renowned chess program. In 2014 and 2016, our students won the Junior High National Chess Championship in their division, a remarkable accomplishment that has earned our school recognition and acclaim. As with other extracurricular programs, chess is a hook that gets students more engaged in their studies and helps them develop a positive orientation toward school. Moreover, by excelling at a pastime that has not often been hospitable to students who look like them, our students develop a positive self-efficacy that is transferrable to other areas. That is, having succeeded on the chess table, students become likelier to believe they can master difficult concepts when they encounter them for the first time in their classrooms. We would be thrilled to support the development of chess programs at other Delaware schools, as we know these innovative practices are transferrable with the right infrastructure, coaching, and dedication.



## 6. Five-Year Planning


### 6.1. Projected Enrollment

Q106. Fill out the five-year enrollment chart by grade level (see Resources). Ensure that the chart allows for the natural progression of students from year to year.


- Note: This will become the school's authorized enrollment for the new charter term.
- Note: An increase or decrease in enrollment exceeding 5%, but less than 15%, is considered a minor modification of the school's charter. 14 Del. Admin. C. § 275.9.9.1.4. An increase or decrease in enrollment exceeding 15% is considered a major modification of the school's charter, which requires a review by the Charter School Accountability Committee and the assent of the State Board of Education. See 14 Del. C. § 511(b)(2); 14 Del. Admin. C. § 275.9.8.1.3. As such, if the projected enrollment is increasing or decreasing by 5% or more over the term of the charter, the school is required to submit a Charter Modification Application (<https://www.doe.k12.de.us/Page/4361>) including budget sheets, and a budget narrative reflecting the new enrollment figures.

Upload Required File Type: excel Max File Size: 30 Total Files Count: 20

#### Resources


TECS Projected Enrollment.xlsx

#### Applicant Evidence :


TECS Projected Enrollment.xlsx

Uploaded on 9/22/2022 by Benjamin Feit

### 6.2. The school's plans for the next five years of the charter

(Note: The school's responses to the next 4 questions in this section will be used to populate the Academic Performance section of the school's new Performance Agreement.)

Q107. Explain how the school's Board and School Leadership Team will measure and evaluate the academic progress of individual students, student cohorts, and the school as a whole throughout the school year, at the end of each academic year, and for the term of the charter contract.

The TECS Board of Trustees and School Leadership Team will use a range of data sources and analytical methods to measure and evaluate the academic achievement and progress of individual students, student cohorts, and the school as a whole. Both during each academic year and for the duration of the charter contract, we will triangulate data from a number of tools and across a range of domains (academic, enrollment/attendance, cultural, etc.) to ensure we are providing students with the academic programming they need to be successful and are on track to meet our performance targets.

We assess every student multiple times per year with DIBELS, Freckle Math, and Achieve 3000. All are assessment programs that measure growth and provide learning paths that build skills in a research-based fashion. Our Leadership and Administrative Teams review data amongst themselves and with educators during PLC meetings. Data are also shared with parents and students both formally and informally, and the Board reviews data at least quarterly to hold leadership team members accountable for progress toward school-level goals. On an annual basis, we unpack student performance on SBAC assessments to determine how effectively our academic program is preparing students to be successful on year-end standardized exams. At the leadership and board levels, we make whatever adjustments (including additional social-emotional and mental health support services) appear most likely to engage, support, and inspire students to improve the following year.

Q108. Outline the clearly measurable annual performance status and growth goals that the school will set over the course of the next charter term in order to monitor and evaluate its progress accelerating student achievement. Include information about proposed school's student performance goals and the DSSF.

Fundamentally, it is important that TECS continues to provide low-income students of color with superior educational opportunities than the ones to which they would likely have access in our absence. On an annual basis, we expect our students to outperform their demographically comparable peers at observationally similar schools on year-end ELA and Math assessments. Ultimately, we aspire for our students to be competitive with all other students across the state including those who live in more affluent communities and who are not as exposed to the daily hardships from which our students often suffer.

In terms of our standing on the Academic Performance Framework, we expect to meet or exceed the statewide percentage of all students testing at proficient levels on year-end ELA and Math assessments at each grade level. TECS has established two principal goals within the Academic Progress domain. First, we will meet or exceed expectations for Academic Progress. Second, we will show consistent improvement on each of the six relevant growth measures.

Q109. Describe the student performance standards for the school as a whole.



- (1) TECS will meet or exceed expectations on the DSSF Academic Achievement, Academic Progress, School Quality/Student Success, and Overall indicators.
- (2) TECS will show consistent improvement on each of the six Academic Progress metrics.
- (3) The ELA and Math proficiency gaps between TECS students and their peers statewide will decrease by at least 50% between Grade 3 and Grade 8. That is, if TECS students in Grade 3 lag their peers by 20 percentage points on SBAC ELA proficiency results, the proficiency gap in Grade 8 should be 10 percentage points or fewer.

**Q110. In addition to the State's mandatory assessments, identify the primary interim assessments that the school will use to assess student learning needs and demonstrate academic progress throughout the year. Explain how these interim assessments align with the school's curriculum, performance goals, and Delaware Content Standards (Common Core State Standards in English Language Arts, Mathematics, and Next Generation Science Standards).**

We assess every student multiple times per year using DIBELS, Freckle Math, and Achieve 3000. Moreover, we use curriculum-based assessments such as Great Minds/Eureka Math, Bookworms (DI), and Star Math on an interim basis in order to assess how students are progressing throughout the school year and to determine any re-teach/concept spiraling/intervention plans prior to the administration of the State's mandatory assessments.

These assessment systems are aligned with both our curricular program and performance goals, which are in turn aligned with Delaware Content Standards (see Appendix 2).

**Q111. Explain how the school will collect and analyze student academic achievement data, use the data to refine and improve instruction, and report the data to the school community. Identify the person(s), position(s), and/or entities that will be responsible and involved in the collection and analysis of assessment data.**

TECS employs consistent and ongoing data review processes. Our Administrative and Leadership Teams — led by Salome Thomas-EL (Head of School) and Elizabeth Yates (Assistant Principal) lead teachers in biweekly data review cycles at PLC meetings. The Leadership Team reviews student-, classroom-, grade-, and school-level data on a monthly basis, and the Board of Trustees reviews pertinent data at least quarterly. Data is analyzed and tracked, and TECS makes programmatic, budgetary, scheduling, student grouping, and staffing modifications based on our understanding of the root cause of student performance. School-wide data displays are located in our math and ELA rooms and updated after each assessment. We communicate with parents during back to school nights, report card conferences, and other communications throughout the year. We share information with students during assemblies and personalized intervention periods, and we furnish pertinent information to the Department of Education and the general public in our annual report.

**Q112. Describe the corrective actions the school will take, pursuant to 14 Del. C. § 512(5), if it falls short of student academic achievement expectations or goals at the school-wide, classroom, or individual student level. Explain what would trigger such corrective actions and who would be responsible for implementing them.**

Should the school fall short of student academic achievement expectations or goals at the school-wide, classroom, or individual student level, TECS will undertake a root cause analysis designed to ascertain the key variables associated with these shortcomings. We will review disaggregated student performance data as well as other key metrics (attendance, student culture, educator efficacy, etc.) and triangulate the information to determine what levers will be most likely to result in improved student performance. Based on the results of our root cause analysis, we will consider a range of possible changes including to our curriculum; instructional design and delivery expectations; staff at the teacher or leadership level; academic schedule and/or calendar teacher and leader assignments; professional development; external student support partnerships; and allocation of resources. This process will be driven by the school leadership team, which will report to the board on its findings and proposed course of action. Ultimately, as the board bears responsibility for ensuring that the school is fulfilling the terms of its charter, it is the entity that will need to approve leadership's recommendations. At all times, the board will hold school leadership accountable for overall performance.

**Q113. Describe how state data systems will be used and monitored to support informed decision-making in the areas of academic performance, organizational management, and financial viability. Include any coordinated professional development intended to sustain these processes.**

The school leadership team routinely monitors and analyzes state-level data from Ed Insight Reports, FSF, eSchool, PS IEP, Data Service, and other similar systems in order to identify strengths and uncover gaps in our work. We analyze these academic, organizational, and financial data at the leadership and board levels in order to determine what is working well (and should be sustained and/or amplified) and what is working poorly (and should be strengthened or scrapped). We provide appropriate professional learning opportunities (through internal experts, PLCs, curriculum providers, contracted partners, and state associations like Delaware Science and Social Studies Coalitions) to ensure that all team members are equipped to implement our programming and sustain our processes.

**Q114. Describe how the School Leadership Team will oversee and monitor compliance with statutory requirements as measured by the Organizational Framework. Include any additional organizational goals and targets that the school will have. State the goals clearly in terms of the measures or assessments that the school plans to use.**

TECS earned an overall rating of "Meets Standard" on the Organizational Performance Framework during each year of its charter term. The school leadership team will continue to implement its best practices to ensure that this strong record of compliance endures over the next five years. Our process is to assign specific owners to each portion of the framework with the school leader holding each responsible party accountable for executing their respective duties and ensuring the Performance Framework's standards are met.

**Q115. Provide detailed information on the school's plan for any changes or improvements to its facility for the five years of the next charter renewal term. The plan should include an adequate and detailed financial arrangement and timeline for the proposed facility improvements.**

TECS does not anticipate undertaking any changes or improvements to its facility during its next charter renewal term.





**Q116. Provide detailed information on the board's plan to assess its performance annually and hold itself accountable for achieving its goals and govern effectively.**

The TECS Board of Trustees is ultimately responsible for the school's fulfillment of its mission and its adherence to the terms of its Performance Agreement. Accordingly, we will continue to evaluate ourselves based on the extent to which we are achieving those objectives. Each year, the board will review the school's academic, organizational, and financial data to arrive at an objective understanding of where the school stands. Collectively, we will establish goals for the school, for the board, and for the leadership team based on what the data are telling us. We will monitor progress toward those goals throughout the year via committee and school leader reports at board meetings. Formal evaluations will be aligned to those goals, and the board will develop action plans for itself (i.e., specific trainings to seek, policies to adopt, tools to develop/deploy, changes to the composition of the board or the school leadership team to consider, etc.) in order to ensure accountability for achieving the school's goals and governing effectively.

The TECS board has historically reserved time for an annual off-site retreat. This exercise, which was temporarily paused during the pandemic but which will resume in 2022-23, affords board members a dedicated opportunity to establish goals and to reaffirm their shared vision for the school. The board will also undertake a SWOT analysis, in which we identify Strengths, Weaknesses, Opportunities, and Threats in order to maximize our assets and mitigate the areas in which our internal capacity is weaker and the external operating environment is less favorable. In prior years, these retreats have been facilitated by Dr. Devona Williams (the current board chair of Delaware State University).

**Q117. Number of school attendance days (2023-2024)**

185

**Q118. Number of full days (2023-2024)**

172

**Q119. Number of half days (2023-2024)**

13

**Q120. Number of instructional hours in a day (2023-2024)**

7

**Q121. Number of hours in a full day (2023-2024)**

7.5

**Q122. Number of hours in a half day (2023-2024)**

3.5



## 7. Compliance certification statement

Q123. The Board of Directors of this charter school certifies that it will materially comply with all applicable laws, rules, regulations, and provisions of the charter relating to the education of all students enrolled at the school. We have reviewed the Delaware Charter Law (14 Del. C. Ch. 5) and 14 DE Admin. Code § 275 in Department of Education regulations (Regulation 275), and have based the responses in this renewal application on the review of these documents. Signature of the Chairperson of the Board of Directors (or designated signatory authority)

Salome Thomas-EL

Q124. Name of the Chairperson of the Board of Directors (or designated signatory authority)

Salome Thomas-EL

Q125. Title (if designated)

Head of School

Q126. Date of Signature

Fri Sep 30 2022 (Eastern Daylight Time)





## 8. Renewal Application Certification Statement

Q127. I hereby certify that the information submitted in this application for renewal of a charter school is true to the best of my knowledge and belief; that this application has been approved by the school's Board of Directors; and that, if awarded a renewed charter, the school shall continue to be open to all students on a space available basis, and shall not discriminate on the basis of race, color, national origin, creed, sex, gender identity, ethnicity, sexual orientation, mental or physical disability, age, ancestry, athletic performance, special need, proficiency in the English language or a foreign language, or prior academic achievement. This is a true statement, made under the penalties of perjury. Signature:

Chairperson of Board of Directors (or designated signatory authority)

Signature

Q128. Date of signature

Fri Sep 30 2022 (Eastern Daylight Time)



Q129. Name of Chairperson of Board of Directors (or designated signatory authority)

Salome Thomas-EL

Q130. Title (if designated)

Head of School

Q131. Date of approval by board of directors

Tue Sep 27 2022 (Eastern Daylight Time)






## 9. Performance Agreement Template


Q132. Complete the Performance Agreement Template (see Resources) in conjunction with the Department of Education should the school be renewed by the Secretary with the assent of the State Board of Education.

Upload Required File Type: pdf, word Max File Size: 30 Total Files Count: 1

### Resources


TECS Performance Agreement Templa...

### Applicant Evidence :


TECS Performance Agreement Templa...

Uploaded on 9/29/2022 by Benjamin Feit

Q133. I have completed this renewal application to the best of my ability and to the extent of my knowledge.

I agree

### Final Status

Reject  Approve

### Approver Comments

## **Enrollment and Demographic Info Table**

<b>ENROLLMENT &amp; DEMOGRAPHIC INFORMATION</b>				
	<b>2018-2019<sup>2</sup></b>	<b>2019-2020<sup>2</sup></b>	<b>2020-2021<sup>2</sup></b>	<b>2021-2022<sup>2</sup></b>
Total Enrollment	730	728	701	700
<b>Gender</b>				
% Male	46.58%	48.49%	47.50%	46.71%
% Female	53.42%	51.51%	52.50%	53.29%
<b>Ethnicity/Race</b>				
% African American	97.26%	96.98%	97.00%	95.86%
% American Indian	NA	0.14%	0.14%	0.14%
% Asian	NA	NA	NA	NA
% Hispanic/Latino	1.51%	1.24%	1.28%	1.29%
% White	0.96%	1.10%	1.00%	2.00%
% Multiracial	0.27%	0.55%	0.57%	0.71%
<b>Special Populations</b>				
% Special Education <sup>3</sup>	7.12%	7.14%	6.42%	6.71%
% English Language Learners	0.55%	0.82%	0.86%	0.71%
% Low-Income	75.34%	74.45%	68.33%	65.86%

<b>2022-2023</b>
636*
47.33%
52.67%
98.11%
0.47%
NA
1.26%
1.42%
NA
9.12%
0.63%
81.00%

\* as of 9/22/22

## **School Enrollment Trends Table**



**School Enrollment Trends**

*Cells highlighted in gray were grade levels not serviced by this school.*

	2018-2019		2019-2020		2020-2021	
	Approved Enrollment	30-Sep Enrollment Count	Approved Enrollment	30-Sep Enrollment Count	Approved Enrollment	30-Sep Enrollment Count
K	100	101	100	95	100	66
Grade 1	100	91	100	93	100	87
Grade 2	100	94	100	87	100	86
Grade 3	100	91	100	94	100	81
Grade 4	80	85	80	90	80	88
Grade 5	75	82	75	82	75	87
Grade 6	70	74	70	71	70	75
Grade 7	60	59	60	66	60	67
Grade 8	60	53	60	50	60	64
Grade 9						
Grade 10						
Grade 11						
Grade 12						
<b>Total</b>	745	730	745	728	745	701

2021-2022		2022-2023		
Approved Enrollment	30-Sep Enrollment Count	Approved Enrollment	30-Sep Enrollment Count	Current Wait List for 2022-2023*
	100		75	
100	68	100	88	0
100	85	100	68	0
100	84	100	78	0
80	80	80	72	0
75	86	75	72	9
70	84	70	71	17
60	73	60	62	18
60	65	60	60	11
745	700	745	636 *	55

\* as of 9/22/22

## **Board Financial and Governance Training Table**

First Name	Last Name	Term Begin Date	Term End Date	Role/Title
Emile	Brown	11/1/2014	11/2023	Vice President
Mikkel	Christie	11/1/2015	11/2024	President
Wayne	Cooper	11/1/2016	11/2023	Treasurer
Nicole	Huffner	11/1/2016	11/2022	Teacher Member
Ollie	Johnson	11/2018	11/2022	Member
Ami	Patel	11/2018	11/2022	Member
Roopa	Sabesan	11/2020	11/2023	Member



## **Citizens Budget Oversight Committee Table**

First Name	Last Name	Term Begin Date	Term End Date	Role/Title
Christopher	Belcher	10/1/2011	N/A	Teacher Representative
Tanyell	Howard	10/1/2011	N/A	Parent Representative
Richard	Riggs	8/9/2015	N/A	DOE Representative
Patricia	Winder	10/1/2011	N/A	CFO (CBOC Member)
Mikkel	Christie	11/2021	11/2024	Board President
Emile	Brown	11/2020	11/2023	Board Vice President
Wayne	Cooper	11/2020	11/2023	Board Treasurer (CBOC Member)
Ami	Patel	11/2018	11/2022	Board Secretary
Nicole	Huffner	11/2021	11/2022	Faculty Director
Roopa	Sabesan	11/2020	11/2023	Board Member
Ollie	Johnson	11/2018	11/2022	Board Member
Richard	Burruss	11/2020	11/2021	Parent Director

Financial Training Date
1/25/2012
1/25/2012
11/30/2015
1/25/2012
1/25/12
1/25/12
10/24/17
05/11/20
02/22/18
08/29/21
05/30/20
05/15/20



**Appendix 1 - Data Source for Mission-Specific Goal(s)**

## Mission-Specific Goal Data

TECS did not meet its mission-specific goal in 2021–22. While we were able to collect some of the relevant data, our evolving interim assessment system (i.e., a shift away from using STEP) and the general unpredictability and instability during the school year made it impracticable to collect all the relevant information.

## **Appendix 2 - Curriculum Documents**

## English Language Arts Curriculum Documents

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Professional Learning Opportunities	p. 133
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## Kindergarten Overview

Kindergarten Shared Reading, Module 1	
Unit 1: The World Around Us	
1–5	<i>Miss Bindergarten Gets Ready for Kindergarten</i>
6–10	<i>Rosie’s Walk</i>
11–15	<i>Cookie’s Week</i>
16–20	<i>Lola at the Library</i>
21–25	<i>Biscuit Loves the Library</i>
26–30	<i>Paddington Sets Sail</i>
31–35	<i>Fred and Ted Go Camping</i>
36–40	<i>Pumpkin Day!</i>
41–45	<i>My Trip to the Hospital</i>

Kindergarten ELA, Module 1	
Unit 1: Listening to Stories	
1–2	<i>Caps for Sale</i>
3–4	<i>The Most Magnificent Thing</i>
5	Subjects and Predicates
6–7	<i>Frederick</i>
8–10	<i>Rosie’s Walk</i>
11–12	<i>The Doorbell Rang</i>
13–15	<i>Charlie Needs a Cloak</i>
16–18	<i>The Full Belly Bowl</i>
19–20	Book Review Sentences
Unit 2: Learning New Information	
21–22	<i>A Tree for All Seasons</i>
23–25	<i>Forest Bright, Forest Night</i>
26–28	<i>What Lives in a Shell?</i>
29–30	Shell Facts
31–33	<i>What Magnets Can Do</i>
34–35	Magnet Facts
Unit 3: Coping With Problems	
36–37	<i>The Ugly Pumpkin</i>
38–40	Pumpkin Day Event
41–43	<i>Owen</i>
44–45	<b>Little Critter Retelling</b>

## Choosing and Using Books

Kindergarten Shared Reading, Module 2	
Unit 1: Insects	
1–5	<i>A Bee's Life</i>
6–10	<i>Hi! Fly Guy</i>
11–15	<i>Super Fly Guy</i>
Unit 2: Meeting New Friends	
16–20	<i>Sarah Morton's Day</i>
21–25	<i>Sammy the Seal</i>
26–30	<i>Little Lucy</i>
31–35	<i>Are You My Mother?</i>
Unit 3: Sounds in Our World	
36–40	<i>Roadwork</i>
41–45	<i>Rap a Tap Tap</i>

Kindergarten ELA, Module 2	
Unit 1: Our Changing Environment	
1–3	<i>A Log's Life</i>
4–5	Bee Facts
6–8	<i>Building with Dad</i>
9–10	How to Build a School
Unit 2: Learning About America	
11–13	<i>Can We Ring the Liberty Bell?</i>
14–15	<i>Fry Bread</i>
16–19	<i>Of Thee I Sing</i>
20	Famous American Facts
21–22	<i>America is...</i>
23–25	Sequence of Events
Unit 3: Funny Animal Characters	
26–27	<i>Giggle, Giggle, Quack</i>
28–30	Sammy the Seal
31–35	<i>Make Way for Ducklings</i>
Unit 4: Being Brave	
36–38	<i>Sheila Rae, the Brave</i>
39–40	My Favorite Character
41–43	<i>Happy Birthday, Martin Luther King</i>
44–45	<b>What's Your Opinion?</b>

## Kindergarten Overview

Kindergarten Shared Reading, Module 3	Kindergarten ELA, Module 3
Unit 1: Fantasy Characters	Unit 1: Learning Together
1–5 <i>Bunny Cakes</i>	1–2 <i>Nothing Sticks Like a Shadow</i>
6–10 <i>Good Night, Wind</i>	3–5 My Day
11–15 <i>Snowmen at Night</i>	6–8 <i>Chrysanthemum</i>
Unit 2: Author Study: Ezra Jack Keats	9–10 A Sad Event
16–20 <i>Whistle for Willie</i>	11–13 <i>Miss Bindergarten Celebrates the 100th Day</i>
21–25 <i>The Snowy Day</i>	14–15 A Weather Story
26–30 <i>Peter’s Chair</i>	Unit 2: Learning About Our Past
Unit 3: Life Cycles	16–18 <i>George Washington</i>
31–35 <i>From Tadpole to Frog</i>	19–20 A Special Person
36–40 <i>From Caterpillar to Butterfly</i>	21–22 <i>Wind Flyers</i>
41–45 <i>How Plants Grow</i>	23–25 Wind Flyers Book Review
	Unit 3: Our Families
	26–28 <i>Grandfather’s Wrinkles</i>
	29–30 Book Reviews
	31–33 <i>The Pain and the Great One</i>
	34–35 Book Review
	Unit 4: Life Cycles
	36–37 <i>How a Seed Grows</i>
	38–40 Have You Ever Wondered...?
	41–43 <i>In a Nutshell</i>
	44–45 <b>All About Plants</b>

## Choosing and Using Books

Kindergarten Shared Reading, Module 4	
Unit 1: Making a Difference	
1–5	<i>Daring Amelia</i>
6–10	<i>Follow the Moon Home</i>
11–15	<i>The World is Not a Rectangle</i>
16–20	<i>Harriet Tubman</i>
21–25	<i>Dancing Hands</i>
Unit 2: Animal Sidekicks	
26–30	<i>Have You Seen My Dinosaur?</i>
31–35	<i>Henry and Mudge and the Wild Wind</i>
36–40	<i>Harry the Dirty Dog</i>
41–45	<i>Tarra &amp; Bella</i>

Kindergarten ELA, Module 4	
Unit 1: Describing Our World	
1–2	<i>Actual Size</i>
3–5	<i>Actual Size</i>
6–8	<i>Follow the Water from Brook to Ocean</i>
9–10	Book Reviews
11–14	<i>Clouds</i>
15	Cloud Observation Report
Unit 2: Wonderful You!	
16–18	<i>Career Day</i>
19–20	Book Reviews
21–22	<i>Amazing Grace</i>
23–25	Harriet Tubman Report
26–30	<b>Book of the Year</b>
31–33	<i>A Bad Case of Stripes</i>
34–35	An Interesting Event
36–38	<i>Ada's Violin</i>
39–40	An Exciting Adventure
41	<i>Leo the Late Bloomer</i>
42–45	<b>Wonderful Me!</b>



## Grade 1 Overview

Grade 1 Shared Reading, Module 1	Grade 1 ELA, Module 1
Unit 1: Playing Games	Unit 1: Becoming a Writer
1–5 <i>Hooray for Snail!</i>	1–25 Learning to Write Sentences
6–10 <i>Soccer Game!</i>	
Unit 2: Animal Characters	
11–15 <i>“What Is That?” Said the Cat</i>	
16–20 <i>Biscuit</i>	
21–25 <i>Biscuit Finds a Friend</i>	
26–30 <i>Biscuit Goes to School</i>	Unit 2: Learning and Growing
31–35 <i>The Fat Cat Sat on the Mat</i>	26–27 <i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i>
Unit 3: New Experiences	28–30 <i>Pepper’s Journal</i>
36–40 <i>Little Critter Going to the Sea Park</i>	31–32 <i>The Art Lesson</i>
41–45 <i>Little Critter Sleeps Over</i>	33–35 Book Reviews
	Unit 3: Learning About Fall
	36–37 <i>How Do Apples Grow?</i>
	38 <i>Possum’s Harvest Moon</i>
	39–40 <i>Why Do Leaves Change Color?</i>
	41 <i>In November</i>
	42–45 <b>Informative Writing: Fall Research Report</b>

## Choosing and Using Books

Grade 1 Shared Reading, Module 2	
Unit 1: Imaginary Friends	
1–5	<i>Danny and the Dinosaur Go to Camp</i>
6–15	<i>Danny and the Dinosaur</i>
16–20	<i>The Horse in Harry’s Room</i>
21–30	<i>Oliver</i>
31–35	<i>Danny and the Dinosaur and the Sand Castle Contest</i>
36–40	<i>Danny and the Dinosaur Ride a Bike</i>
41–45	<i>Morris the Moose</i>

Grade 1 ELA, Module 2	
Unit 1: Stories from Our Past	
1	<i>Raven</i>
2–4	<i>Why Mosquitoes Buzz in People’s Ears</i>
5	<i>Stone Soup</i>
6–7	<i>Strega Nona</i>
8–10	Book Reviews
11–13	<i>Eleanor</i>
14–15	<i>A. Lincoln and Me</i>
16–18	<i>Now and Ben</i>
19–20	<i>Duke Ellington</i>
21–25	All About Me
Unit 2: Making Good Decisions	
26–27	<i>When I Grow Up</i>
28–30	Best Job for Me
31–32	<i>Do I Need It? Or Do I Want It?</i>
33–35	Needs and Wants
36–37	<i>Max’s Words</i>
38–40	<i>Just a Dream</i>
41–45	<b>The Best of Syd Hoff</b>

## Grade 1 Overview

Grade 1 Shared Reading, Module 3	Grade 1 ELA, Module 3
Unit 1: Telling Stories	Unit 1: Telling Our Stories
1–5 <i>Little Bear’s Friend</i>	1–5 A Very Special Day
6–10 <i>Father Bear Comes Home</i>	6–7 <i>The Relatives Came</i>
11–15 <i>Little Bear’s Visit</i>	8–9 <i>Thunder Cake</i>
16–20 <i>The Fire Cat</i>	10 <i>Owl Moon</i>
21–25 <i>Frog and Toad are Friends</i>	11–12 <i>A Chair for My Mother</i>
26–30 <i>Frog and Toad All Year</i>	13–14 <i>Metal Man</i>
Unit 2: Learning Our History	15 <i>My Brother Charlie</i>
31–35 <i>Long, Tall Lincoln</i>	16–20 A Special Memory
36–40 <i>Harriet Tubman</i>	Unit 2: United States Symbols
41–45 <i>Martin Luther King Jr.</i>	21–22 <i>Presidents’ Day</i>
	23–24 <i>The Washington Monument</i>
	25 <i>Is a Bald Eagle Really Bald?</i>
	Unit 3: Telling Stories
	26–27 <i>Blueberries for Sal</i>
	28–32 My Family Adventure
	33–34 <i>Wings</i>
	35 Wings Book Review
	Unit 4: Wonderful You!
	36–38 <i>The Rainbow Tulip</i>
	39 <i>Stand Tall, Molly Lou Melon!</i>
	40 <i>The Thing Lou Couldn’t Do</i>
	41–45 <b>Wonderful Me!</b>

## Choosing and Using Books

Grade 1 Shared Reading, Module 4	
Unit 1: Solving Mysteries	
1–5	<i>Young Cam Jansen and the Library Mystery</i>
6–15	<i>Nate the Great Saves the King of Sweden</i>
16–25	<i>Nate the Great and the Fishy Prize</i>
Unit 2: Coping with Challenges	
26–35	<i>The Chalk Box Kid</i>
36–45	<i>The Paint Brush Kid</i>

Grade 1 ELA, Module 4	
Unit 1: Exploring Our World	
1–2	<i>The Popcorn Book</i>
3–10	How to Make Popcorn
11–12	<i>Tops and Bottoms</i>
13–14	<i>From Seed to Plant</i>
15	Our Favorite Plant Book
16–17	<i>Newton and Me</i>
18–20	Force and Motion Observation Report
Unit 2: Summing It Up	
21–30	A Mystery
31	<i>Apple Pie 4th of July</i>
32–35	A Family Tradition
36–40	Kindness Counts!
41–45	<b>Book of the Year</b>

## Grade 2 Overview

Grade 2 Shared Reading, Module 1	Grade 2 ELA, Module 1
Unit 1: New Beginnings	Unit 1: Telling Our Stories
1–5 <i>Arthur's Back to School Day</i>	1–5 Personal Narrative
6–10 <i>Henry and Mudge</i>	6–10 Learning to Write Book Reviews
Unit 2: Friendship	11–12 <i>A New Coat for Anna</i>
11–15 <i>Pinky and Rex</i>	13 Planning a Book Review
16–25 <i>Ivy + Bean</i>	14–20 <i>Gooney Bird Greene</i>
Unit 3: Life Cycles	Unit 2: Ways Our World Works
26–30 <i>Tale of a Tadpole</i>	21–22 <i>Magnets Push, Magnets Pull</i>
31–35 <i>From Tadpole to Frog</i>	23–28 <i>Sounds All Around</i>
36–40 <i>Caterpillar to Butterfly</i>	29–32 <i>Clang!</i>
41–45 <i>Great Migrations</i>	Unit 3: Animals in the Wild
	33–34 <i>Where in the Wild?</i>
	35–37 <i>Camouflage</i>
	38–45 <b>Frogs Research Report</b>

## Choosing and Using Books

Grade 2 Shared Reading, Module 2	
Unit 1: Native Americans	
1–5	<i>The Hopi People</i>
6–10	<i>The Cheyenne People</i>
11–15	<i>The Cherokee People</i>
16–20	<i>The Mohawk People</i>
Unit 2: Actions and Consequences	
21–31	<i>A-Z Mysteries</i>
32–40	<i>Cam Jansen Case #27</i>
41–45	<i>Practice Makes Perfect for Rotten Ralph</i>

Grade 2 ELA, Module 2	
Unit 1: Weather	
1–2	<i>Going Home</i>
3–9	<i>Tornado</i>
10–12	<i>Cloudy With a Chance of Meatballs</i>
13	Weather Report for Chewandswallow
Unit 2: Native American Legends	
14–15	<i>The Girl Who Loved Wild Horses</i>
16–17	<i>The Legend of the Bluebonnet</i>
18–19	<i>Arrow to the Sun</i>
20–27	<b>Informative Writing: Native Americans Research Report</b>
Unit 3: Our Money, Our Choices: Earning, Saving, Spending	
28–29	<i>Alexander, Who Used to Be Rich Last Sunday</i>
30–31	<i>Who’s Buying? Who’s Selling?</i>
32–33	<i>My Rows and Piles of Coins</i>
34–35	My Earning/Saving/Spending Plan
Unit 4: My Story, Your Story	
36–42	My Experience
43–44	<i>Miss Rumphius</i>
45	Book Review of Miss Rumphius

## Grade 2 Overview

Grade 2 Shared Reading, Module 3	Grade 2 ELA, Module 3
Unit 1: Making a Difference in Our World	Unit 1: Breaking Barriers
1–11 <i>Judy Moody Saves the World</i>	1–3 <i>Helen Keller</i>
	4–5 <i>Amelia and Eleanor Go for a Ride</i>
	6–7 <i>Mudball</i>
	8 <i>Breaking Barriers</i>
Unit 2: Changing the Game	Unit 2: My Story, My Feelings
12–30 <i>Abraham Lincoln</i>	9–18 <i>My Feelings</i>
	Unit 3: Making History
	19–20 <i>Dad, Jackie, and Me</i>
	21–22 <i>The Story of Ruby Bridges</i>
	23–25 <i>My Brother Martin</i>
31–35 <i>Jackie Robinson</i>	26–30 <b>Opinion Writing: Making Good Choices</b>
Unit 3: Mysterious Mummies	Unit 4: Making a Difference in Your World
36–40 <i>Mummies</i>	31–50 <i>Poppy</i>
41–50 <i>The Mystery of the Mummy’s Curse</i>	

## Choosing and Using Books

Grade 2 Shared Reading, Module 4		Grade 2 ELA, Module 4	
Unit 1: Books and Culture		Unit 1: For Love of Country	
1–10	<i>Magic Tree House: Day of the Dragon King</i>	1–3	<i>The Flag We Love</i>
		4–5	<i>The Wall</i>
		Unit 2: A Cinderella Story	
11–20	<i>Magic Tree House Fact Tracker: China</i>	6–7	<i>Cinderella</i>
		8–9	<i>The Rough-Face Girl</i>
		10–11	<i>The Egyptian Cinderella</i>
		12–16	Comparing Cinderella Stories
Unit 2: Myths and Culture		Unit 3: Earth and Space: Moving, Growing, Changing	
21–30	<i>Time Warp Trio: It’s All Greek to Me</i>	17–19	<i>Starry Messenger</i>
		20–22	<i>Starstruck</i>
		23–25	<i>Cracking Up</i>
		26–28	<i>How a Plant Grows</i>
		29–30	<i>How Do You Raise a Raisin?</i>
31–40	<i>Magic Tree House Fact Tracker: Ancient Greece and the Olympics</i>	Unit 4: Look How Far I’ve Come!	
		31–35	<b>Opinion Writing: Book Advertisement</b>
		36–40	<b>Narrative Writing: Reading and Writing Identity</b>



## Grade 3 Overview

Grade 3 Shared Reading, Module 1	Grade 3 ELA, Module 1
Unit 1: Life's Lessons	Unit 1: Purposeful Writing
1–10 <i>Owen Foote, Money Man</i>	1–5 Personal Narrative
	6–8 Introduction to Informative Writing
	Unit 2: Becoming a Writer
11–20 <i>Fudge-a-Mania</i>	9–12 <i>Boy</i>
	13–32 <i>The BFG</i>
Unit 2: Government for the People	
21–30 <i>The Constitution of the United States</i>	
31–40 <i>The Congress of the United States</i>	33–40 <b>Opinion Writing: Unearthing Character Traits</b>

## Choosing and Using Books

Grade 3 Shared Reading, Module 2	
Unit 1: Geology	
1–5	<i>Soil</i>
6–15	<i>Minerals, Rocks, and Soil</i>
16–25	<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i>
Unit 2: Powerful Connections	
26–40	<i>Because of Winn-Dixie</i>
41–45	<i>Red Kite, Blue Kite</i>

Grade 3 ELA, Module 2	
Unit 1: Patterns in Our World	
1–5	<i>Maps and Globes</i>
6–8	<i>A Drop Around the World</i>
9–15	<i>What is a Biome?</i>
16–25	Minerals and Rocks Research Report
Unit 2: Family Connections	
26–27	<i>The Keeping Quilt</i>
28–29	<i>Grandfather’s Journey</i>
30–32	Book Review
Unit 3: Timeless Tales	
33–34	<i>Lon Po Po</i>
35–40	<i>American Tall Tales</i>
41–45	<b>Narrative Writing: Tall Tale Alternate Ending</b>

## Grade 3 Overview

Grade 3 Shared Reading, Module 3	
Unit 1: Fight for What’s Right	
1–5	<i>A Picture Book of Frederick Douglass</i>
6–25	<i>Susan B. Anthony</i>
Unit 2: Reaching Our Goals	
26–30	<i>And Then What Happened, Paul Revere?</i>
31–40	<i>Who is Sonia Sotomayor?</i>
41–45	<i>The Story of Ruth Bader Ginsburg</i>

Grade 3 ELA, Module 3	
Unit 1: Fearless American Females	
1–5	<i>Rosa</i>
6–10	<i>When Marian Sang</i>
Unit 2: Astonishing Accomplishments	
11–14	<i>Harvesting Hope</i>
15–17	<i>Snowflake Bentley</i>
18–25	<b>Informative Writing: Biography Research Report</b>
Unit 3: Exposing Injustice	
26–40	<i>Shiloh</i>
41–45	<b>Opinion Writing: Exposing Injustice</b>

## Choosing and Using Books

Grade 3 Shared Reading, Module 4	
Unit 1: A Journey of Self Discovery	
1–15	<i>The Miraculous Journey of Edward Tulane</i>
16–20	<i>The Boy Who Harnessed the Wind</i>
Unit 2: A Journey to the Past	
21–25	<i>Ancient Greece</i>
26–40	<i>Here Lies the Librarian</i>

Grade 3 ELA, Module 4	
Unit 1: Actions and Consequences	
1–3	<i>Bringing the Rain to Kapiti Plain</i>
4–7	<i>One Hen</i>
8–10	<i>Pinduli</i>
11–20	Pinduli Adaptation
Unit 2: Readers are Writers	
21–30	Ancient Greece Infographic
31–35	<b>Opinion Writing: Book Advertisement</b>
Unit 3: Look How Far I've Come	
36–40	<b>Narrative Writing: Reading and Writing Identity</b>

## Grade 4 Overview

Grade 4 Shared Reading, Module 1	Grade 4 ELA, Module 1
Unit 1: Our Changing Relationships	Unit 1: Writing for a Purpose
1–20 <i>A Strong Right Arm</i>	1–5 Personal Narrative
	6–10 Opinion Written Response
	Unit 2: Natural Disasters
	11–15 <i>Earthquakes</i>
	16–20 <i>Go Straight to the Source</i>
21–38 <i>Love, Amalia</i>	21–30 <b>Informative Writing: Natural Disasters Research Project</b>
	Unit 3: Mysterious Exploration
	31–33 <i>Roanoke: The Lost Colony</i>
	34–38 News Article

## Choosing and Using Books

Grade 4 Shared Reading, Module 2	
Unit 1: Change and Conflict	
1–33	<i>Blood on the River</i>
34–40	<i>Can't You Make Them Behave, King George?</i>

Grade 4 ELA, Module 2	
Unit 1: The Mysteries of Friendship	
1–8	Mystery
9–11	<i>Worst of Friends</i>
12–18	Compare and Contrast
Unit 2: Tracking Relationships	
19–27	<i>My Life in Dog Years</i>
28	Compare and Contrast
29–30	<i>Shaking Things Up</i>
31–40	<b>Opinion Writing: Persuasive Letter</b>

## Grade 4 Overview

Grade 4 Shared Reading, Module 3	Grade 4 ELA, Module 3
Unit 1: Looking Beneath the Surface	Unit 1: Finding Courage
1–36 <i>Tangerine</i>	1–3 <i>Shaking Things Up</i>
	4–22 <i>Hatchet</i>
	23–28 <b>Narrative Writing: Survival Story</b>
37–55 <i>My Life as a Book</i>	29–55 <i>Alabama Moon</i>

## Choosing and Using Books

Grade 4 Shared Reading, Module 4	
Unit 1: Understanding Each Other	
1–30	<i>Starry River of the Sky</i>
Unit 2: Making a Difference	
31–37	<i>The Amazing Life of Benjamin Franklin</i>

Grade 4 ELA, Module 4	
Unit 1: The Power of Words	
1–3	<i>Miss Alaineus</i>
4–8	Doing What’s Right
Unit 2: The Power of Actions	
9–12	<i>Freedom on the Menu</i>
13	<i>Shaking Things Up</i>
Unit 3: Understanding Our World	
14–19	<i>The Moon Book</i>
20–23	<i>Moth and Wasp, Soil and Ocean</i>
24–27	<i>Auntie Yang’s Great Soybean Picnic</i>
Unit 4: My Journey in Literacy This Year	
28–32	<b>Opinion Writing: Book Advertisement</b>
33–37	<b>Narrative Writing: Reading and Writing Identity</b>



## Grade 5 Overview

Grade 5 Shared Reading, Module 1	Grade 5 ELA, Module 1
Unit 1: Self-Discovery	Unit 1: Writing With a Purpose
1–30 <i>Walk Two Moons</i>	1–5 Personal Narrative
	6–10 Learning to Write Opinions
	11–13 <i>Keep On!</i>
	14–19 Learning About Informative Writing
	20–25 <i>Rats Around Us</i>
	26–35 Adventure Story
Unit 2: Life Science	Unit 2: Powerful Words
31–37 <i>Animal Cells and Life Processes</i>	36 <i>Messenger, Messenger</i>
	37 <i>Hoops</i>
	38–40 <i>The Boy Who Loved Words</i>
38–45 <i>Plant Cells and Life Processes</i>	Unit 3: Compare and Contrast
	41–45 <b>Informative Writing: Compare/Contrast Cells Research Project</b>

## Choosing and Using Books

Grade 5 Shared Reading, Module 2	
Unit 1: Earth Science	
1–5	<i>Volcano</i>
6–10	<i>Oceans</i>
11–15	<i>The Sun</i>
Unit 2: Unlikely Alliances	
16–45	<i>The Westing Game</i>

Grade 5 ELA, Module 2	
Unit 1: History of Science	
1–4	<i>The Flu of 1918</i>
5–14	<i>The Wright Brothers</i>
Unit 2: History of Civil Rights	
15–32	<i>The Watsons Go to Birmingham — 1963</i>
33–45	<b>Informative Writing: Civil Rights Research Paper</b>

## Grade 5 Overview

Grade 5 Shared Reading, Module 3	Grade 5 ELA, Module 3
Unit 1: Hope and Perseverance	Unit 1: Themes in Poetry
1–20 <i>Bud, Not Buddy</i>	1–2 <i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i>
	3–4 <i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i>
	Unit 2: The Underground Railroad
	5–8 <i>Aunt Harriet's Underground Railroad in the Sky</i>
	9–12 Compare/Contrast Underground Railroad Project
Unit 2: Physics	Unit 3: Doing What's Right
21–26 <i>How Does a Waterfall Become Electricity?</i>	13–25 <i>A Single Shard</i>
27–35 <i>Ice to Steam</i>	26–35 <b>Opinion Writing: Doing What's Right</b>

## Choosing and Using Books

Grade 5 Shared Reading, Module 4	Grade 5 ELA, Module 4
Unit 1: Demonstrating Courage	Unit 1: Trail of Tears
1–30 <i>The Mostly True Adventures of Homer P. Figg</i>	1–16 <i>The Porcupine Year</i>
	17–22 Trail of Tears Research Project
	Unit 2: The Importance of Story
	23–35 <i>Tuck Everlasting</i>
31–45 <i>Half and Half</i>	36–40 <b>Opinion Writing: Book Advertisement</b>
	Unit 3: Look How Far I've Come
	41–45 <b>Narrative Writing: Reading and Writing Identity</b>



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## Bookworms K-5 Shared Reading & ELA Required Trade Books

Key: New Title

Removed Title (from revisions)

### Grade K

First Edition (2022)	BETA
<b>Grade K Shared Reading</b>	<b>Grade K Shared Reading</b>
<i>A Bee's Life</i> (Dona Herweck Rice)	<i>A Bee's Life</i> (Dona Herweck Rice)
<i>Are You My Mother?</i> (P. D. Eastman)	<i>Are You My Mother?</i> (P. D. Eastman)
<i>Biscuit Loves the Library</i> (Alyssa Satin Capucilli)	<i>Biscuit Loves the Library</i> (Alyssa Satin Capucilli)
<i>Bunny Cakes</i> (Rosemary Wells)	<i>Bunny Cakes</i> (Rosemary Wells)
<i>Cookie's Week</i> (Cindy Ward)	<i>Cookie's Week</i> (Cindy Ward)
<span style="background-color: yellow;">Dancing Hands: How Teresa Carreño Played the Piano for President Lincoln</span> (Margarita Engle)	
<i>Daring Amelia</i> (Barbara Lowell)	<i>Daring Amelia</i> (Barbara Lowell)
<i>Follow the Moon Home: A Tale of One Idea, Twenty Kids, and a Hundred Sea Turtles</i> (Philippe Cousteau and Deborah Hopkinson)	<i>Follow the Moon Home: A Tale of One Idea, Twenty Kids, and a Hundred Sea Turtles</i> (Philippe Cousteau and Deborah Hopkinson)
<i>Fred and Ted Go Camping</i> (Peter Eastman)	<i>Fred and Ted Go Camping</i> (Peter Eastman)
<i>From Caterpillar to Butterfly</i> (Deborah Heiligman)	<i>From Caterpillar to Butterfly</i> (Deborah Heiligman)
<i>From Tadpole to Frog</i> (Kathleen Weidner Zoehfeld)	<i>From Tadpole to Frog</i> (Kathleen Weidner Zoehfeld)
<span style="background-color: yellow;">Good Night, Wind: A Yiddish Folktale</span> (Linda Elovitz Marshall)	
<i>Harriet Tubman: Follow the North Star</i> (Violet Findley)	<i>Harriet Tubman: Follow the North Star</i> (Violet Findley)
<i>Harry the Dirty Dog</i> (Gene Zion)	<i>Harry the Dirty Dog</i> (Gene Zion)
<i>Have You Seen My Dinosaur?</i> (Jon Surgal)	<i>Have You Seen My Dinosaur?</i> (Jon Surgal)
<i>Henry and Mudge and the Wild Wind</i> (Cynthia Rylant)	<i>Henry and Mudge and the Wild Wind</i> (Cynthia Rylant)
<i>Hi! Fly Guy</i> (Tedd Arnold)	<i>Hi! Fly Guy</i> (Tedd Arnold)
<i>How Plants Grow</i> (Dona Herweck Rice)	<i>How Plants Grow</i> (Dona Herweck Rice)



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<i>Little Lucy</i> (Ilene Cooper)	<i>Little Lucy</i> (Ilene Cooper)
<i>Lola at the Library</i> (Anna McQuinn)	<i>Lola at the Library</i> (Anna McQuinn)
<i>Miss Bindergarten Gets Ready for Kindergarten</i> (Joseph Slate)	<i>Miss Bindergarten Gets Ready for Kindergarten</i> (Joseph Slate)
<i>My Trip to the Hospital</i> (Mercer Mayer)	<i>My Trip to the Hospital</i> (Mercer Mayer)
<i>Paddington Sets Sail</i> (Michael Bond)	<i>Paddington Sets Sail</i> (Michael Bond)
<i>Peter's Chair</i> (Ezra Jack Keats)	<i>Peter's Chair</i> (Ezra Jack Keats)
<i>Pumpkin Day!</i> (Candice Ransom)	<i>Pumpkin Day!</i> (Candice Ransom)
<i>Rap a Tap Tap: Here's Bojangles—Think of That!</i> (Leo Dillon and Diane Dillon)	<i>Rap a Tap Tap: Here's Bojangles—Think of That!</i> (Leo Dillon and Diane Dillon)
<i>Roadwork</i> (Sally Sutton)	<i>Roadwork</i> (Sally Sutton)
<i>Rosie's Walk</i> (Pat Hutchins)	<i>Rosie's Walk</i> (Pat Hutchins)
<i>Sammy the Seal</i> (Syd Hoff)	<i>Sammy the Seal</i> (Syd Hoff)
<i>Sarah Morton's Day: A Day in the Life of a Pilgrim Girl</i> (Kate Waters)	<i>Sarah Morton's Day: A Day in the Life of a Pilgrim Girl</i> (Kate Waters)
<i>Snowmen at Night</i> (Caralyn Buehner)	<i>Snowmen at Night</i> (Caralyn Buehner)
<i>Super Fly Guy</i> (Tedd Arnold)	<i>Super Fly Guy</i> (Tedd Arnold)
<i>Tarra &amp; Bella: The Elephant and Dog Who Became Best Friends</i> (Carol Buckley)	<i>Tarra &amp; Bella: The Elephant and Dog Who Became Best Friends</i> (Carol Buckley)
<i>The Snowy Day</i> (Ezra Jack Keats)	<i>The Snowy Day</i> (Ezra Jack Keats)
	<b><i>Up in the Garden and Down in the Dirt</i></b>
	<b><i>What Makes a Magnet?</i></b>
<b><i>The World is Not a Rectangle: A Portrait of Architect Zaha Hadid</i> (Jeanette Winter)</b>	
<i>Whistle for Willie</i> (Ezra Jack Keats)	<i>Whistle for Willie</i> (Ezra Jack Keats)
<i>Treasury for All Seasons</i> (Julie Andrews and Emma Walton Hamilton)	<i>Treasury for All Seasons</i> (Julie Andrews and Emma Walton Hamilton)
<i>Mary Engelbreit's Mother Goose: One Hundred Best-Loved Verses</i> (Mary Engelbreit)	<i>Mary Engelbreit's Mother Goose: One Hundred Best-Loved Verses</i> (Mary Engelbreit)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade K ELA</b>	<b>Grade K ELA</b>
<i>A Bad Case of Stripes</i> (David Shannon)	<i>A Bad Case of Stripes</i> (David Shannon)
<i>A Log's Life</i> (Wendy Pfeffer)	<i>A Log's Life</i> (Wendy Pfeffer)



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<i>A Tree for All Seasons</i> (Robin Bernard)	<i>A Tree for All Seasons</i> (Robin Bernard)
<i>Actual Size</i> (Steve Jenkins)	<i>Actual Size</i> (Steve Jenkins)
<i>Ada's Violin: The Story of the Recycled Orchestra of Paraguay</i> (Susan Hood) (moved from Grade K BETA Shared Reading)	
<i>Amazing Grace</i> (Mary Hoffman)	<i>Amazing Grace</i> (Mary Hoffman)
<i>America is...</i> (Louise Borden)	<i>America is...</i> (Louise Borden)
<i>Building with Dad</i> (Carol Nevius)	<i>Building with Dad</i> (Carol Nevius)
<i>Can We Ring the Liberty Bell?</i> (Martha E. H. Rustard)	
<i>Caps for Sale</i> (Esphyr Slobodkina)	<i>Caps for Sale</i> (Esphyr Slobodkina)
<i>Career Day</i> (Anne Rockwell)	<i>Career Day</i> (Anne Rockwell)
<i>Charlie Needs a Cloak</i> (Tomie dePaola)	<i>Charlie Needs a Cloak</i> (Tomie dePaola)
<i>Chrysanthemum</i> (Kevin Henkes)	<i>Chrysanthemum</i> (Kevin Henkes)
<i>Clouds</i> (Anne Rockwell)	<i>Clouds</i> (Anne Rockwell)
<i>Follow the Water from Brook to Ocean</i> (Artuhur Dorros)	<i>Follow the Water from Brook to Ocean</i> (Artuhur Dorros)
<i>Forest Bright, Forest Night</i> (Jennifer Ward)	<i>Forest Bright, Forest Night</i> (Jennifer Ward)
<i>Frederick</i> (Leo Lionni)	<i>Frederick</i> (Leo Lionni)
<i>Fry Bread: A Native American Family Story</i> (Kevin Noble Maillard)	
<i>George Washington: Our First President</i> (Garnet Jackson)	<i>George Washington: Our First President</i> (Garnet Jackson)
<i>Giggle, Giggle, Quack</i> (Doreen Cronin)	<i>Giggle, Giggle, Quack</i> (Doreen Cronin)
<i>Grandfather's Wrinkles</i> (Kathryn England)	<i>Grandfather's Wrinkles</i> (Kathryn England)
<i>Happy Birthday, Martin Luther King</i> (Jean Marzollo)	<i>Happy Birthday, Martin Luther King</i> (Jean Marzollo)
<i>How a Seed Grows</i> (Helene Jordan)	<i>How a Seed Grows</i> (Helene Jordan)
<i>In a Nutshell</i> (Joseph Anthony)	<i>In a Nutshell</i> (Joseph Anthony)
<i>Leo the Late Bloomer</i> (Robert Kraus)	
<i>Make Way for Ducklings</i> (Robert McCloskey)	<i>Make Way for Ducklings</i> (Robert McCloskey)



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<i>Miss Bindergarten Celebrates the 100th Day</i> (Joseph Slate)	<i>Miss Bindergarten Celebrates the 100th Day</i> (Joseph Slate)
<i>Nothing Sticks Like a Shadow</i> (Ann Tompert)	<i>Nothing Sticks Like a Shadow</i> (Ann Tompert)
<i>Of Thee I Sing: A Letter to My Daughters</i> (Barack Obama)	
<i>Owen</i> (Kevin Henkes)	<i>Owen</i> (Kevin Henkes)
<i>Sheila Rae, the Brave</i> (Kevin Henkes)	<i>Sheila Rae, the Brave</i> (Kevin Henkes)
<i>The Doorbell Rang</i> (Pat Hutchins)	<i>The Doorbell Rang</i> (Pat Hutchins)
<i>The Full Belly Bowl</i> (Jim Aylesworth)	<i>The Full Belly Bowl</i> (Jim Aylesworth)
	<b><i>Thanksgiving on Plymouth Plantation</i></b>
	<b><i>The Egg</i></b>
<i>The Most Magnificent Thing</i> (Ashley Spires)	
<i>The Pain and the Great One</i> (Judy Blume)	<i>The Pain and the Great One</i> (Judy Blume)
	<b><i>The Story of Pocahontas</i></b>
<i>The Ugly Pumpkin</i> (Dave Horowitz)	<i>The Ugly Pumpkin</i> (Dave Horowitz)
	<b><i>Tikki Tikki Tembo</i></b>
<i>What Lives in a Shell?</i> (Kathleen Weidner Zoehfeld)	<i>What Lives in a Shell?</i> (Kathleen Weidner Zoehfeld)
<i>What Magnets Can Do</i> (Allan Fowler)	<i>What Magnets Can Do</i> (Allan Fowler)
<i>Wind Flyers</i> (Angela Johnson)	<i>Wind Flyers</i> (Angela Johnson)





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## Grade 1

First Edition (2022)	BETA
Grade 1 Shared Reading	Grade 1 Shared Reading
	<b><u>Barn Storm</u></b>
<i>Biscuit Alyssa</i> (Satin Capucilli)	<i>Biscuit Alyssa</i> (Satin Capucilli)
<i>Biscuit Finds a Friend Alyssa</i> (Satin Capucilli)	<i>Biscuit Finds a Friend Alyssa</i> (Satin Capucilli)
<i>Biscuit Goes to School Alyssa</i> (Satin Capucilli)	<i>Biscuit Goes to School Alyssa</i> (Satin Capucilli)
<i>Danny and the Dinosaur</i> (Syd Hoff)	<i>Danny and the Dinosaur</i> (Syd Hoff)
<b><u>Danny and the Dinosaur and the Sand Castle Contest</u></b> (Syd Hoff)	
<i>Danny and the Dinosaur Go to Camp</i> (Syd Hoff)	<i>Danny and the Dinosaur Go to Camp</i> (Syd Hoff)
<b><u>Danny and the Dinosaur Ride a Bike</u></b> (Syd Hoff)	
<i>Father Bear Comes Home</i> Else (Holmelund Minarik)	<i>Father Bear Comes Home</i> Else (Holmelund Minarik)
<i>Frog and Toad are Friends</i> (Arnold Lobel)	<i>Frog and Toad are Friends</i> (Arnold Lobel)
<b><u>Frog and Toad All Year</u></b> (Arnold Lobel)	
<b><u>Harriet Tubman: Freedom Fighter</u></b> (Nadia L. Hohn)	
<i>Hooray for Snail!</i> (John Stadler)	<i>Hooray for Snail!</i> (John Stadler)
<i>Little Bear's Friend</i> (Else Holmelund Minarik)	<i>Little Bear's Friend</i> (Else Holmelund Minarik)
<i>Little Bear's Visit</i> (Else Holmelund Minarik)	<i>Little Bear's Visit</i> (Else Holmelund Minarik)
<b><u>Little Critter Going to the Sea Park</u></b> (Mercer Mayer)	
<i>Little Critter Sleeps Over</i> (Mercer Mayer)	<i>Little Critter Sleeps Over</i> (Mercer Mayer)
<b><u>Long, Tall Lincoln</u></b> (Jennifer Dussling)	
<b><u>Martin Luther King Jr.: A Peaceful Leader</u></b> (Sarah Albee)	
	<b><u>Morris Goes to School</u></b>
<i>Morris the Moose</i> (Bernard Wiseman)	<i>Morris the Moose</i> (Bernard Wiseman)
<i>Nate the Great and the Fishy Prize</i> (Marjorie Weinman Sharmat)	<i>Nate the Great and the Fishy Prize</i> (Marjorie Weinman Sharmat)
<i>Nate the Great Saves the King of Sweden</i> (Marjorie Weinman Sharmat)	<i>Nate the Great Saves the King of Sweden</i> (Marjorie Weinman Sharmat)
<i>Oliver</i> (Syd Hoff)	<i>Oliver</i> (Syd Hoff)



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<i>Soccer Game!</i> (Grace Maccarone)	<i>Soccer Game!</i> (Grace Maccarone)
<i>The Chalk Box Kid</i> (Clyde Robert Bulla)	<i>The Chalk Box Kid</i> (Clyde Robert Bulla)
<i>The Fat Cat Sat on the Mat</i> (Nurit Karlin)	<i>The Fat Cat Sat on the Mat</i> (Nurit Karlin)
<i>The Fire Cat</i> (Esther H. Averill)	<i>The Fire Cat</i> (Esther H. Averill)
<i>The Horse in Harry's Room</i> (Syd Hoff)	<i>The Horse in Harry's Room</i> (Syd Hoff)
<i>The Paint Brush Kid</i> (Clyde Robert Bulla)	<i>The Paint Brush Kid</i> (Clyde Robert Bulla)
<i>Young Cam Jansen and the Library Mystery</i> (David A. Adler)	<i>Young Cam Jansen and the Library Mystery</i> (David A. Adler)
	<b><i>Young Cam Jansen and the Pizza Shop Mystery</i></b>
<i>"What Is That? Said the Cat"</i> (Grace Maccarone)	<i>"What Is That? Said the Cat"</i> (Grace Maccarone)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade 1 ELA</b>	<b>Grade 1 ELA</b>
<i>A Chair for My Mother</i> (Vera B. Williams)	<i>A Chair for My Mother</i> (Vera B. Williams)
<i>A. Lincoln and Me</i> (Louise Borden)	<i>A. Lincoln and Me</i> (Louise Borden)
<i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i> (Judith Viorst)	<i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i> (Judith Viorst)
<i>Apple Pie 4th of July</i> (Janet S. Wong)	<i>Apple Pie 4th of July</i> (Janet S. Wong)
<i>Blueberries for Sal</i> (Robert McCloskey)	<i>Blueberries for Sal</i> (Robert McCloskey)
<i>Do I Need It? Or Do I Want It?: Making Budget Choices</i> (Jennifer S. Larson)	<i>Do I Need It? Or Do I Want It?: Making Budget Choices</i> (Jennifer S. Larson)
<b><i>Duke Ellington: The Piano Prince and His Orchestra</i> (Andrea Davis Pinkney)</b>	
	<b><i>City Dog, Country Frog</i></b>
<i>Eleanor</i> (Barbara Cooney)	<i>Eleanor</i> (Barbara Cooney)
<i>From Seed to Plant</i> (Gail Gibbons)	<i>From Seed to Plant</i> (Gail Gibbons)
<i>How Do Apples Grow?</i> (Betsy Maestro)	<i>How Do Apples Grow?</i> (Betsy Maestro)
<i>In November</i> (Cynthia Rylant)	<i>In November</i> (Cynthia Rylant)
<i>Just a Dream</i> (Chris Van Allsburg)	<i>Just a Dream</i> (Chris Van Allsburg)
<b><i>Is a Bald Eagle Really Bald?</i> (Martha E. H. Rustad)</b>	
<i>Max's Words</i> (Kate Banks)	<i>Max's Words</i> (Kate Banks)
<i>Metal Man</i> (Aaron Reynolds)	<i>Metal Man</i> (Aaron Reynolds)



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<i>Newton and Me</i> (Lynne Mayer)	<i>Newton and Me</i> (Lynne Mayer)
<i>My Brother Charlie</i> (Holly Robinson Peete and Ryan Elizabeth Peete)	
<i>Now and Ben: The Modern Inventions of Benjamin Franklin</i> (Gene Barretta)	<i>Now and Ben: The Modern Inventions of Benjamin Franklin</i> (Gene Barretta)
<i>Owl Moon</i> (Jane Yolen)	<i>Owl Moon</i> (Jane Yolen)
<i>Peppers Journal: A Kitten's First Year</i> (Stuart J. Murphy)	<i>Peppers Journal: A Kitten's First Year</i> (Stuart J. Murphy)
	<b><i>A Picture Book of George Washington Carver</i></b>
<i>Possum's Harvest Moon</i> (Anne Hunter)	<i>Possum's Harvest Moon</i> (Anne Hunter)
<i>Presidents Day</i> (Anne Rockwell)	<i>Presidents Day</i> (Anne Rockwell)
<i>Raven: A Trickster Tale from the Pacific Northwest</i> (Gerald McDermott)	
<i>Stand Tall, Molly Lou Melon!</i> (Patty Lovell)	<i>Stand Tall, Molly Lou Melon!</i> (Patty Lovell)
<i>Stone Soup</i> (Ann McGovern)	<i>Stone Soup</i> (Ann McGovern)
<i>Strega Nona</i> (Tomie dePaola)	<i>Strega Nona</i> (Tomie dePaola)
<i>The Art Lesson</i> (Tomie dePaola)	<i>The Art Lesson</i> (Tomie dePaola)
	<b><i>The Bald Eagle</i></b>
	<b><i>The Dog Who Cried Wolf</i></b>
	<b><i>The Pilgrims' First Thanksgiving</i></b>
<i>The Popcorn Book</i> (Tomie dePaola)	<i>The Popcorn Book</i> (Tomie dePaola)
<i>The Rainbow Tulip</i> (Pat Mora)	
<i>The Relatives Came</i> (Cynthia Rylant)	<i>The Relatives Came</i> (Cynthia Rylant)
<i>The Thing Lou Couldn't Do</i> (Ashley Spires)	
<i>The Washington Monument</i> (Kristin L. Nelson)	<i>The Washington Monument</i> (Kristin L. Nelson)
<i>Thunder Cake</i> (Patricia Polacco)	<i>Thunder Cake</i> (Patricia Polacco)
<i>Tops and Bottoms</i> (Janet Stevens)	<i>Tops and Bottoms</i> (Janet Stevens)
<i>When I Grow Up</i> (Al Yankovic)	<i>When I Grow Up</i> (Al Yankovic)
<i>Why Do Leaves Change Color?</i> (Betsy Maestro)	<i>Why Do Leaves Change Color?</i> (Betsy Maestro)
<i>Why Mosquitoes Buzz in Peoples Ears: A West African Tale</i> (Verna Aardema)	
<i>Wings</i> (Christopher Myers)	



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## Grade 2

First Edition (2022)	BETA
<b>Grade 2 Shared Reading</b>	<b>Grade 2 Shared Reading</b>
<i>A-Z Mysteries: The Kidnapped King</i> (Ron Roy)	<i>A-Z Mysteries: The Kidnapped King</i> (Ron Roy)
<i>Abraham Lincoln: The Great Emancipator</i> (Augusta Stevenson)	<i>Abraham Lincoln: The Great Emancipator</i> (Augusta Stevenson)
<i>Arthur's Back to School Day</i> (Lillian Hoban)	<i>Arthur's Back to School Day</i> (Lillian Hoban)
<i>Cam Jansen Case #27: The Mystery Writer Mystery</i> (David A. Adler)	<i>Cam Jansen Case #27: The Mystery Writer Mystery</i> (David A. Adler)
	<b>From Caterpillar to Butterfly</b>
<b>Caterpillar to Butterfly</b> (Laura Marsh)	
<i>From Tadpole to Frog</i> (Wendy Pfeffer)	<i>From Tadpole to Frog</i> (Wendy Pfeffer)
<i>Henry and Mudge: The First Book</i> (Cynthia Rylant)	<i>Henry and Mudge: The First Book</i> (Cynthia Rylant)
<b>Great Migrations: Butterflies</b> (Laura Marsh)	
	<b>If You Lived with the Cherokee</b>
<i>Ivy + Bean</i> (Annie Barrows)	<i>Ivy + Bean</i> (Annie Barrows)
<i>Jackie Robinson</i> (Sally M. Walker)	<i>Jackie Robinson</i> (Sally M. Walker)
<i>Judy Moody Saves the World</i> (Megan McDonald)	<i>Judy Moody Saves the World</i> (Megan McDonald)
<b>Magic Tree House Fact Tracker: Ancient Greece and the Olympics</b> (Mary Pope Osborne and Natalie Pope Boyce)	
<b>Magic Tree House Fact Tracker: China: Land of the Emperor's Great Wall</b> (Mary Pope Osborne and Natalie Pope Boyce)	
<i>Magic Tree House: Day of the Dragon King</i> (Mary Pope Osborne)	<i>Magic Tree House: Day of the Dragon King</i> (Mary Pope Osborne)
<i>Mummies</i> (Joyce Milton)	<i>Mummies</i> (Joyce Milton)
<i>Pinky and Rex</i> (James Howe)	<i>Pinky and Rex</i> (James Howe)
<i>Practice Makes Perfect for Rotten Ralph</i> (Jack Gantos)	<i>Practice Makes Perfect for Rotten Ralph</i> (Jack Gantos)
<i>Tale of a Tadpole</i> (Karen Wallace)	<i>Tale of a Tadpole</i> (Karen Wallace)
<i>The Mystery of the Mummy's Curse</i> (Gertrude Chandler Warner)	<i>The Mystery of the Mummy's Curse</i> (Gertrude Chandler Warner)



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	<b><i>The Journey of a Butterfly</i></b>
	<b><i>The Very First Americans</i></b>
<b><i>The Cherokee People</i></b> (Sarah Machajewski)	
<b><i>The Cheyenne People</i></b> (Shalini Saxena)	
<b><i>The Hopi People</i></b> (Therese Shea)	
<b><i>The Mohawk People</i></b> (Ryan Nagelhout)	
<i>Time Warp Trio: It's All Greek to Me</i> (Jon Scieszka)	<i>Time Warp Trio: It's All Greek to Me</i> (Jon Scieszka)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade 2 ELA</b>	<b>Grade 2 ELA</b>
<i>A New Coat for Anna</i> (Harriet Ziefert)	<i>A New Coat for Anna</i> (Harriet Ziefert)
<i>Alexander, Who Used to Be Rich Last Sunday</i> (Judith Viorst)	<i>Alexander, Who Used to Be Rich Last Sunday</i> (Judith Viorst)
<i>Amelia and Eleanor Go for a Ride</i> (Pam Muñoz Ryan)	<i>Amelia and Eleanor Go for a Ride</i> (Pam Muñoz Ryan)
<i>Arrow to the Sun</i> (Gerald McDermott)	<i>Arrow to the Sun</i> (Gerald McDermott)
<i>Camouflage: Changing to Hide</i> (Bobbie Kalman)	<i>Camouflage: Changing to Hide</i> (Bobbie Kalman)
<i>Cinderella</i> (Marcia Brown)	<i>Cinderella</i> (Marcia Brown)
<b><i>Clang!: Ernst Chladni's Sound Experiments</i></b> (Darcy Pattison)	
<i>Cloudy With a Chance of Meatballs</i> (Judi Barrett)	<i>Cloudy With a Chance of Meatballs</i> (Judi Barrett)
<i>Cracking Up: A Story About Erosion</i> (Jacqui Bailey)	<i>Cracking Up: A Story About Erosion</i> (Jacqui Bailey)
	<b><i>Creatures Yesterday and Today</i></b>
	<b><i>D is for Dancing Dragon: A China Alphabet</i></b>
<i>Dad, Jackie, and Me</i> (Myron Uhlberg)	<i>Dad, Jackie, and Me</i> (Myron Uhlberg)
<i>Going Home: The Mystery of Animal Migration</i> (Marianne Berkes)	<i>Going Home: The Mystery of Animal Migration</i> (Marianne Berkes)
<i>Gooney Bird Greene</i> (Lois Lowry)	<i>Gooney Bird Greene</i> (Lois Lowry)
<i>Helen Keller: Break Down the Walls!</i> (Margaret Fetty)	<i>Helen Keller: Break Down the Walls!</i> (Margaret Fetty)
<i>How a Plant Grows</i> (Bobbie Kalman)	<i>How a Plant Grows</i> (Bobbie Kalman)



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	<b>Hello Ocean</b>
<i>How Do You Raise a Raisin?</i> (Pam Muñoz Ryan)	<i>How Do You Raise a Raisin?</i> (Pam Muñoz Ryan)
<i>Magnets Push, Magnets Pull</i> (Mark Weakland)	<i>Magnets Push, Magnets Pull</i> (Mark Weakland)
<i>Miss Rumphius</i> (Barbara Cooney)	<i>Miss Rumphius</i> (Barbara Cooney)
<i>Mudball</i> (Matt Tavares)	<i>Mudball</i> (Matt Tavares)
<i>My Brother Martin: A Sister Remembers: Growing Up with the Rev. Dr. Martin Luther King, Jr.</i> (Christine King Farris)	<i>My Brother Martin: A Sister Remembers: Growing Up with the Rev. Dr. Martin Luther King, Jr.</i> (Christine King Farris)
<i>My Rows and Piles of Coins</i> (Tololwa M. Mollel)	<i>My Rows and Piles of Coins</i> (Tololwa M. Mollel)
<i>Poppy</i> (Avi)	<i>Poppy</i> (Avi)
<b>Sounds All Around</b> (Wendy Pfeffer)	
<i>Starry Messenger</i> (Peter Sís)	<i>Starry Messenger</i> (Peter Sís)
<b>Starstruck: The Cosmic Journey of Neil deGrasse Tyson</b> (Kathleen Krull and Paul Brewer)	
<i>The Egyptian Cinderella</i> (Shirley Climo)	<i>The Egyptian Cinderella</i> (Shirley Climo)
<i>The Flag We Love</i> (Pam Muñoz Ryan)	<i>The Flag We Love</i> (Pam Muñoz Ryan)
<i>The Girl Who Loved Wild Horses</i> (Paul Goble)	<i>The Girl Who Loved Wild Horses</i> (Paul Goble)
<i>The Legend of the Bluebonnet: An Old Tale of Texas</i> (Tomie dePaola)	<i>The Legend of the Bluebonnet: An Old Tale of Texas</i> (Tomie dePaola)
<i>The Rough-Face Girl</i> (Rafe Martin)	<i>The Rough-Face Girl</i> (Rafe Martin)
<i>The Story of Ruby Bridges</i> (Robert Coles)	<i>The Story of Ruby Bridges</i> (Robert Coles)
<i>The Wall</i> (Eve Bunting)	<i>The Wall</i> (Eve Bunting)
<i>Tornado</i> (Betsey Byars)	<i>Tornado</i> (Betsey Byars)
	<b>What Is It Made Of?</b>
<i>Where in the Wild?: Camouflaged Creatures Concealed...and Revealed</i> (David M. Schwartz)	<i>Where in the Wild?: Camouflaged Creatures Concealed...and Revealed</i> (David M. Schwartz)
<i>Who's Buying? Who's Selling?: Understanding Consumers and Producers</i> (Jennifer S. Larson)	<i>Who's Buying? Who's Selling?: Understanding Consumers and Producers</i> (Jennifer S. Larson)
	<b>Wolf Island</b>



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### Grade 3

First Edition (2022)	BETA
Grade 3 ELA	Grade 3 ELA
<i>A Drop Around the World</i> (Barbara Shaw McKinney)	<i>A Drop Around the World</i> (Barbara Shaw McKinney)
<i>American Tall Tales</i> (Mary Pope Osborne)	<i>American Tall Tales</i> (Mary Pope Osborne)
<i>Boy: Tales of Childhood</i> (Roald Dahl)	<i>Boy: Tales of Childhood</i> (Roald Dahl)
<i>Bringing the Rain to Kapiti Plain</i> (Verna Aardema)	<i>Bringing the Rain to Kapiti Plain</i> (Verna Aardema)
<i>Grandfather's Journey</i> (Allen Say)	<i>Grandfather's Journey</i> (Allen Say)
<i>Harvesting Hope: The Story of Cesar Chavez</i> (Kathleen Krull)	<i>Harvesting Hope: The Story of Cesar Chavez</i> (Kathleen Krull)
<i>Lon Po Po: A Red-Riding Hood Story from China</i> (Ed Young)	<i>Lon Po Po: A Red-Riding Hood Story from China</i> (Ed Young)
<i>Maps and Globes</i> (Jack Knowlton)	<i>Maps and Globes</i> (Jack Knowlton)
<i>One Hen</i> (Katie Smith Milway)	<i>One Hen</i> (Katie Smith Milway)
<i>Pinduli</i> (Janell Cannon)	<i>Pinduli</i> (Janell Cannon)
<i>Rosa</i> (Nikki Giovanni)	<i>Rosa</i> (Nikki Giovanni)
<i>Shiloh</i> (Phyllis Reynolds Naylor)	<i>Shiloh</i> (Phyllis Reynolds Naylor)
<i>Snowflake Bentley</i> (Jacqueline Briggs Martin)	<i>Snowflake Bentley</i> (Jacqueline Briggs Martin)
<i>The BFG</i> (Roald Dahl)	<i>The BFG</i> (Roald Dahl)
<i>The Keeping Quilt</i> (Patricia Polacco)	<i>The Keeping Quilt</i> (Patricia Polacco)
<i>What is a Biome?</i> (Bobbie Kalman)	<i>What is a Biome?</i> (Bobbie Kalman)
<i>When Marian Sang</i> (Pam Muñoz Ryan)	<i>When Marian Sang</i> (Pam Muñoz Ryan)

First Edition (2022)	BETA
Grade 3 Shared Reading	Grade 3 Shared Reading
<i>A Picture Book of Frederick Douglass</i> (David A. Adler)	<i>A Picture Book of Frederick Douglass</i> (David A. Adler)
<i>Ancient Greece</i> (Sandra Newman)	<i>Ancient Greece</i> (Sandra Newman)
<i>And Then What Happened, Paul Revere?</i> (Jean	<i>And Then What Happened, Paul Revere?</i> (Jean



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Fritz)	Fritz)
<i>Because of Winn-Dixie</i> (Kate DiCamillo)	<i>Because of Winn-Dixie</i> (Kate DiCamillo)
<i>Fudge-a-Mania</i> (Judy Blume)	<i>Fudge-a-Mania</i> (Judy Blume)
<i>Here Lies the Librarian</i> (Richard Peck)	<i>Here Lies the Librarian</i> (Richard Peck)
<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i> (Will Osborne and Mary Pope Osborne)	<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i> (Will Osborne and Mary Pope Osborne)
<i>Minerals, Rocks, and Soil</i> (Barbara J. Davis)	<i>Minerals, Rocks, and Soil</i> (Barbara J. Davis)
<i>The Miraculous Journey of Edward Tulane</i> (Kate DiCamillo)	<i>The Miraculous Journey of Edward Tulane</i> (Kate DiCamillo)
<i>Owen Foote, Money Man</i> (Stephanie Greene)	<i>Owen Foote, Money Man</i> (Stephanie Greene)
<b><i>Red Kite, Blue Kite</i> (Ji-li Jiang)</b>	
<i>Soil</i> (Christin Ditchfield)	<i>Soil</i> (Christin Ditchfield)
<i>Susan B. Anthony: Champion of Women's Rights</i> (Helen Albee Monsell)	<i>Susan B. Anthony: Champion of Women's Rights</i> (Helen Albee Monsell)
<b><i>The Boy Who Harnessed the Wind</i> (William Kamkwamba and Bryan Mealer)</b>	
<i>The Congress of the United States</i> (Christine Taylor-Butler)	<i>The Congress of the United States</i> (Christine Taylor-Butler)
<i>The Constitution of the United States</i> (Christine Taylor-Butler)	<i>The Constitution of the United States</i> (Christine Taylor-Butler)
<b><i>The Story of Ruth Bader Ginsburg: A Biography Book for New Readers</i> (Susan B. Katz)</b>	
<b><i>Who is Sonia Sotomayor?</i> (Megan Stine)</b>	
	<b><i>Who was Franklin Roosevelt?</i></b>





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## Grade 4

First Edition (2022)	BETA
Grade 4 ELA	Grade 4 ELA
<i>Alabama Moon</i> (Watt Key)	<i>Alabama Moon</i> (Watt Key)
<b><i>Auntie Yang's Great Soybean Picnic</i> (Ginnie Lo)</b>	
	<b><i>Around the World in a Hundred Years</i></b>
<i>Earthquakes: All about Earth's crust, colliding plates, tsunamis, and more!</i> (Seymour Simon)	<i>Earthquakes: All about Earth's crust, colliding plates, tsunamis, and more!</i> (Seymour Simon)
<i>Freedom on the Menu: The Greensboro Sit-Ins</i> (Carole Boston Weatherford)	<i>Freedom on the Menu: The Greensboro Sit-Ins</i> (Carole Boston Weatherford)
<i>Go Straight to the Source: Super Smart Information Strategies</i> (Kristin Fontichiaro)	<i>Go Straight to the Source: Super Smart Information Strategies</i> (Kristin Fontichiaro)
<i>Hatchet</i> (Gary Paulsen)	<i>Hatchet</i> (Gary Paulsen)
<b><i>Moth and Wasp, Soil and Ocean: Remembering Chinese Scientist Pu Zhelong's Work for Sustainable Farming</i> (Sigrid Schmalzer)</b>	
<i>Miss Alaineus: A Vocabulary Disaster</i> (Debra Frasier)	<i>Miss Alaineus: A Vocabulary Disaster</i> (Debra Frasier)
<i>My Life in Dog Years</i> (Gary Paulsen)	<i>My Life in Dog Years</i> (Gary Paulsen)
<i>Roanoke: The Lost Colony: An Unsolved Mystery from History</i> (Jane Yolen and Heidi Elisabet Yolen Stemple)	<i>Roanoke: The Lost Colony: An Unsolved Mystery from History</i> (Jane Yolen and Heidi Elisabet Yolen Stemple)
<b><i>Shaking Things Up: 14 Young Women Who Changed the World</i> (Susan Hood)</b>	
<i>The Moon Book: New and Updated</i> (Gail Gibbons)	<i>The Moon Book: New and Updated</i> (Gail Gibbons)
<i>Worst of Friends: Thomas Jefferson, John Adams, and the True Story of an American Feud</i> (Suzanne Tripp Jurmain)	<i>Worst of Friends: Thomas Jefferson, John Adams, and the True Story of an American Feud</i> (Suzanne Tripp Jurmain)
	<b><i>Zombies! Evacuate the School</i></b>



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First Edition (2022)	BETA
<b>Grade 4 Shared Reading</b>	<b>Grade 4 Shared Reading</b>
<i>A Strong Right Arm: The Story of Mamie Peanut Johnson</i> (Michelle Y. Green)	
<i>Blood on the River: Jamestown, 1607</i> (Elisa Carbone)	<i>Blood on the River: Jamestown, 1607</i> (Elisa Carbone)
<i>Can't You Make Them Behave, King George?</i> (Jean Fritz)	<i>Can't You Make Them Behave, King George?</i> (Jean Fritz)
	<b><i>Charlie and the Chocolate Factory</i></b>
	<b><i>George Washington's Socks</i></b>
<i>Love, Amalia</i> Alma (Flor Ada and Gabriel M. Zubizarreta)	
<i>My Life as a Book</i> (Janet Tashjian)	<i>My Life as a Book</i> (Janet Tashjian)
<i>Starry River of the Sky</i> (Grace Lin)	
	<b><i>Steal Away Home</i></b>
<i>Tangerine</i> (Edward Bloor)	<i>Tangerine</i> (Edward Bloor)
<i>The Amazing Life of Benjamin Franklin</i> (James Cross Giblin)	<i>The Amazing Life of Benjamin Franklin</i> (James Cross Giblin)



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## Grade 5

First Edition (2022)	BETA
Grade 5 ELA	Grade 5 ELA
<i>A Single Shard</i> (Linda Sue Park)	<i>A Single Shard</i> (Linda Sue Park)
<i>Aunt Harriet's Underground Railroad in the Sky</i> (Faith Ringgold)	<i>Aunt Harriet's Underground Railroad in the Sky</i> (Faith Ringgold)
<b><i>Hoops</i> (Robert Burleigh)</b>	
	<b><u>Bat Poems</u></b>
<i>Keep On!: The Story of Matthew Henson: Co-discoverer of the North Pole</i> (Deborah Hopkinson)	<i>Keep On!: The Story of Matthew Henson: Co-discoverer of the North Pole</i> (Deborah Hopkinson)
<b><i>Messenger, Messenger</i> (Robert Burleigh)</b>	
	<b><u>Mystery Poems</u></b>
<i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i> (Shel Silverstein, Lucille Clifton) <small>*links provided in ELA Lesson Plans</small>	<i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i> (Shel Silverstein, Lucille Clifton)
<i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i> (Ogden Nash, Lilian Moore, and Rachel Field) <small>*links provided in ELA Lesson Plans</small>	<i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i> (Ogden Nash, Lilian Moore, and Rachel Field)
<i>Rats Around Us</i> (Rachel Eagen)	<i>Rats Around Us</i> (Rachel Eagen)
<i>The Boy Who Loved Words</i> (Roni Schotter)	<i>The Boy Who Loved Words</i> (Roni Schotter)
<i>The Flu of 1918: Millions Dead Worldwide!</i> (Jessica Rudolph)	<i>The Flu of 1918: Millions Dead Worldwide!</i> (Jessica Rudolph)
<i>The Porcupine Year</i> (Louise Erdrich)	<i>The Porcupine Year</i> (Louise Erdrich)
<i>The Watsons Go to Birmingham — 1963</i> (Christopher Paul Curtis)	<i>The Watsons Go to Birmingham — 1963</i> (Christopher Paul Curtis)
<i>The Wright Brothers: How They Invented the Airplane</i> (Russell Freedman)	<i>The Wright Brothers: How They Invented the Airplane</i> (Russell Freedman)
<i>Tuck Everlasting</i> (Natalie Babbitt)	<i>Tuck Everlasting</i> (Natalie Babbitt)













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First Edition (2022)	BETA
<b>Grade 5 Shared Reading</b>	<b>Grade 5 Shared Reading</b>
<i>Animal Cells and Life Processes</i> (Barbara A. Somervill)	<i>Animal Cells and Life Processes</i> (Barbara A. Somervill)
<i>Bud, Not Buddy</i> (Christopher Paul Curtis)	<i>Bud, Not Buddy</i> (Christopher Paul Curtis)
<i>Half and Half</i> (Lensey Namioka)	
<i>How Does a Waterfall Become Electricity?</i> (Robert Snedden)	<i>How Does a Waterfall Become Electricity?</i> (Robert Snedden)
<i>Ice to Steam: Changing States of Matter</i> (Penny Johnson)	<i>Ice to Steam: Changing States of Matter</i> (Penny Johnson)
<i>Oceans: All about waves, currents, the gravitational pull of the moon, and more!</i> (Seymour Simon)	<i>Oceans: All about waves, currents, the gravitational pull of the moon, and more!</i> (Seymour Simon)
<i>Plant Cells and Life Processes</i> (Barbara A. Somervill)	<i>Plant Cells and Life Processes</i> (Barbara A. Somervill)
<i>The Mostly True Adventures of Homer P. Figg</i> (Rodman Philbrick)	<i>The Mostly True Adventures of Homer P. Figg</i> (Rodman Philbrick)
<i>The Sun: All about solar flares, eclipses, sunspots, and more!</i> (Seymour Simon)	<i>The Sun: All about solar flares, eclipses, sunspots, and more!</i> (Seymour Simon)
<i>The Westing Game</i> (Ellen Raskin)	<i>The Westing Game</i> (Ellen Raskin)
<i>Volcano: The Eruption and Healing of Mount St. Helens</i> (Patricia Lauber)	<i>Volcano: The Eruption and Healing of Mount St. Helens</i> (Patricia Lauber)
<i>Walk Two Moons</i> (Sharon Creech)	<i>Walk Two Moons</i> (Sharon Creech)

# Revision Quick Guide for bookworms

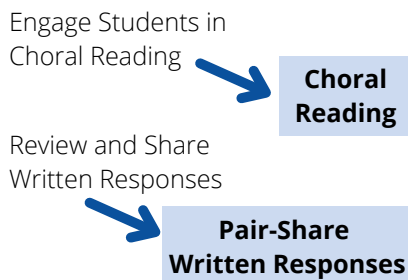
We are very excited for you to see the revised **Bookworms K-5 Reading and Writing!** You will see that the lesson structures, timeframes, and evidence-based practices you have come to know and love remain the same. Here's what's new in this revision:



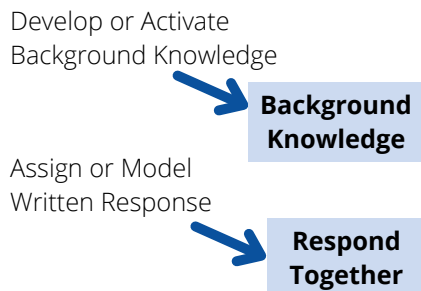
-  Themes!
-  Practice-focused teacher manual
-  Quarterly Module/Unit organization
-  Teaching This Text planning aid for each book
-  Teaching Tips embedded within lessons
-  Word study cards for Grades 2 and 3
-  Text Connection response opportunities in Shared Reading
-  Quarterly Culminating Tasks with accompanying Assessment Rubrics
-  Spelling Tools
-  Speaking and Listening Rubrics

We have renamed many of the lesson components for clarity and more precise language, but rest assured, procedures and practices are the same. Here are some examples from each lesson type:

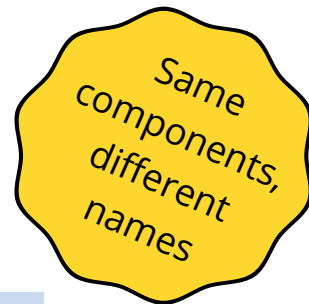
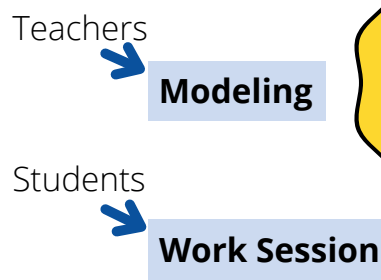
## Shared Reading



## Read Aloud



## Genre Writing



## Characteristics which framed our new book choices across K-5:

- Expanded cultural representation - race, ethnicity, culture
- Consistent with complexity requirements
- Grade-level-appropriate language and content
- Opportunities for
  - culturally-sustaining discussion
  - knowledge building and connections



- For narrative texts:
  - exposure to new settings and themes
  - inspiration for emotions and reactions
- For informational texts:
  - accurate alignment with common social studies and science topics
  - previews of social studies and science topics

Same homemade lemonade, just in new pitchers...

# Revision Quick Guide for Kindergarten



## Beta Shared Reading

- Dialogic Reading**
- Word Walk Words and Introduction
  - During Reading: Dialogic Reading Prompts for Student Discussion
    - Day 1 - Wh Questions
    - Day 2 - Completion
    - Day 3 - Recall
    - Day 4 - Open-Ended/Distancing
    - Day 5 - Retelling
  - After Reading
    - Days 1-4 - Word Walk Revisited
    - Day 5 - Retelling

- Phonological Awareness**
- Day 1 - Introduce Poem or Song
  - Day 2 - Teach the Poem or Song
  - Day 3 - Make Rhyming Words
  - Day 4 - Count Words and Syllables
  - Day 5 - Recite the Poem

- Word Study**
- Alphabet Knowledge
  - Word Study (initial sounds)
  - Word Study (word families)

- Print Concepts**
- Day 1 - Introduce Nursery Rhyme
  - Day 2 - Teach Nursery Rhyme for Memory
  - Day 3 - Teach Print Concepts
  - Day 4 - Teach Concept of Word
  - Day 5 - Review Old Rhymes

- Assignments**
- Handwriting and spelling
  - Included in the workbooks but not called out in the lesson plans

## 2022 Shared Reading

- Dialogic Reading**
- Vocabulary Introduction
  - Prompts for Student Discussion
    - First Lesson - Wh Questions
    - Second Lesson - Completion
    - Third Lesson - Recall
    - Fourth Lesson - Open-Ended/Distancing
    - Fifth Lesson - Retelling
  - Vocabulary Review
  - Retelling - fifth Lesson
- New!** Text Connection - every fifth Lesson

- Phonological Awareness**
- First Lesson - Teach the Text (introduce the poem)
  - Second Lesson - Teaching the Text (echo read the poem)
  - Third Lesson - Rhyming Words
  - Fourth Lesson - Count Words and Syllables
  - Fifth Lesson - Recite

- Word Study**
- Alphabet Knowledge
  - Word Study (initial sounds)
  - Word Study (word families)

- Print Concepts**
- First Lesson - Teach the Text (introduce the nursery rhyme)
  - Second Lesson - Teach the Text (echo read the nursery rhyme)
  - Third Lesson - Demonstrate and Practice (left-right, top-bottom)
  - Fourth Lesson - Demonstrate and Practice (words and spaces)
  - Fifth Lesson - Review

- Assignments**
- Handwriting and spelling
  - included in the workbook and in the plans

# Revision Quick Guide for Kindergarten (con't)



## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together



**Text Connections after the first Lesson of second and later books in Unit**

## Beta Genre Based Writing

- Teachers
- Students
- Sharing



## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 1



## Beta Shared Reading

- Teach Word Study
- Teach High-Frequency Words
- Review and Share Written Response
- Shared Writing
- Dictated Sentence
- Teach Meaning Vocabulary
- Book Introduction
- Provide First Focus
- Engage Students in Choral Reading
- Provide a New Focus for Rereading in Partners
- Teach Text Structure Anchor Chart
- Engage in Comprehension Discussion
- Assign Written Response

## 2022 Shared Reading

- Word Study
- Teach High-Frequency Words
- Pair-Share Responses
- Shared Dictated Sentence
- Dictated Sentence
- Vocabulary
- Introduction
- First Focus
- Choral Reading (or Echo Reading)
- Partner Reading
- Make Anchor Chart
- Discussion
- Assignments

**New!** Text Connection - every fifth Lesson

## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Review and Share Written Responses
- Teach Text Structure
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction (nonfiction)
- Text Structure
- Interactive Read Aloud
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**New!** Text Connections after the first Lesson of second and later books in Unit

## Beta Genre Based Writing

- Teachers
- Students
- Sharing

## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing

**New!** Culminating Tasks





# Revision Quick Guide for Grade 2



### Beta Shared Reading

- Teach Word Study
- Introduction
- Review and Share Written Response
- Preview Text Structure Anchor Chart (nonfiction)
- Teach Meaning Vocabulary
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response

### 2022 Shared Reading

- Word Study
- Introduction
- Pair-Share Responses
- Address Text Structure (nonfiction)
- Vocabulary
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



### Beta Genre Based Writing

- Teachers
- Students
- Sharing

### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 3



### Beta Shared Reading

- Teach Word Study
- Introduction
- Review and Share Written Response
- Preview Text Structure Anchor Chart (nonfiction)
- Teach Meaning Vocabulary
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response

### 2022 Shared Reading

- Word Study
- Introduction
- Pair-Share Responses
- Address Text Structure (nonfiction)
- Vocabulary
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



### Beta Genre Based Writing

- Teachers
- Students
- Sharing

### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 4



## Beta Shared Reading

- Introduction
- Review and Share Written Response
- Teach Meaning Vocabulary
  
- Preview Text Structure Anchor Chart (nonfiction)
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response



## 2022 Shared Reading

- Introduction
- Pair-Share Responses
- Word Study
  - Vocabulary
- Address Text Structure (nonfiction)
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



## Beta Genre Based Writing

- Teachers
- Students
- Sharing



## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**





# Revision Quick Guide for Grade 5



### Beta Shared Reading

- Introduction
- Review and Share Written Response
- Teach Meaning Vocabulary
  
- Preview Text Structure Anchor Chart (nonfiction)
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response

### 2022 Shared Reading

- Introduction
- Pair-Share Responses
- Word Study
  - Vocabulary
- Address Text Structure (nonfiction)
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



### Beta Genre Based Writing

- Teachers
- Students
- Sharing

### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**

# Grade 6 Curriculum Map

## Unit 1: Stories of Change (Suggested Time: 7 weeks)

Reading
<p><b>Goals:</b> <i>To analyze key ideas and details in addition to craft and structure in print and nonprint texts</i></p> <p><b>Genres:</b> short stories, novel excerpts, personal narratives, a myth, a poem, and film clips</p> <p><b>Key Texts:</b> “Thank You, Ma’am,” “The Fun they Had,” “Eleven,” “The Treasure of Lemon Brown,” “The Jacket,” “Pandora and the Whispering Box,” clips from <i>The Lion King</i>, excerpts from <i>Flipped</i>, <i>Walk Two Moons</i>, and <i>Kira-Kira</i></p>

Vocabulary
<p><b>Academic:</b> paraphrase, summarize, synonym, antonym, sequence, cause and effect, analyze, transitions, coherence</p> <p><b>Literary:</b> genre, point of view, diction, narrative, characterization, conflict (internal/external), personal narrative, connotation, denotation, simile, metaphor, sensory language, short story, theme, plot, figurative language, personification, foreshadowing, science fiction</p>

Embedded Assessments
<p>1: Writing a Personal Narrative</p> <p>2: Writing a Short Story</p>

Essential Questions
<p>How can change be significant?</p> <p>What makes a good story?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.6, RL.6.10;            RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.3, W.6.4, W.6.5, W.6.6, W.6.9, W.6.10;            SL.6.1, SL.6.2;            L.6.1, L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompts:</b> Activities 1.4, 1.5, 1.6, 1.9, 1.10, 1.12, 1.13, 1.15, 1.16, 1.17, 1.19</p> <p><b>Citing Textual Evidence:</b> Activities 1.5, 1.6, 1.7, 1.12, 1.15, 1.17, 1.18</p> <p><b>Narrative Analysis Poster:</b> Activity 1.7</p> <p><b>Narrative Memory Map:</b> Activity 1.10</p> <p><b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing</p> <p><b>Unit Assessment:</b> online</p>

Writing and Research
<p><b>Goals:</b> <i>To use narrative techniques such as sequencing, dialogue, and descriptive language</i></p> <p><i>To write narratives to develop real or imagined events</i></p> <p><b>Focus Area:</b> Narrative</p>

Language and Writer’s Craft
<p><b>Focus Areas:</b> pronouns, punctuating dialogue, transitions, vivid verbs, sentence variety</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups</p> <p>Sharing and Discussing Textual Evidence</p> <p>Collaborating to Create a Poster</p> <p>Collaborating to Create a Story Board</p> <p>Viewing Diverse Media</p>

## Grade 6 Curriculum Map

### Unit 2: The Power to Change (Suggested Time: 8 weeks)

Reading
<p><b>Goals:</b> <i>To analyze literary elements</i></p> <p><i>To apply a variety of reading strategies to fiction and nonfiction texts</i></p> <p><b>Genres:</b> novel, film clips, a fairy tale, poetry, expository essay, memoir, news column, autobiographies, and a film biography</p> <p><b>Key Texts:</b> <i>Walk Two Moons</i>, “Saying Farewell to a Faithful Pal,” “Dogs Make Us Human,” excerpt from <i>Travels With Charley</i>, film clips from <i>Up</i> and <i>Temple Grandin</i>, “My Story” from <i>Animals in Translation</i>, excerpt from “The Little Mermaid”</p>

Vocabulary
<p><b>Academic:</b> reflection, compare-contrast, inference, prediction, communication (verbal/nonverbal), synthesize</p> <p><b>Literary:</b> expository writing, topic sentence, supporting details, novel, subplot, setting, literary analysis, stanza, introduction, hook, thesis statement, conclusion, imagery, textual evidence</p>

Embedded Assessments
<p>1: Responding to Literature</p> <p>2: Writing an Expository Essay</p>

Essential Questions
<p>How can talking and working with others help one analyze a novel?</p> <p>How do internal and external forces help people grow?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.9, RL.6.10;            RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.2, W.6.3, W.6.4, W.6.5, W.6.6, W.6.9, W.6.10;            SL.6.1, SL.6.2, SL.6.4, SL.6.6;            L.6.1, L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To write an expository response</i></p> <p><b>Focus Areas:</b> Expository and Response to Literature</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To practice using verb tenses and creating sentence variety</i></p> <p><b>Focus Areas:</b> pronoun usage and agreement, sentence variety, revising for figurative language, parallel structure</p>

Speaking and Listening
<p><b>Goals:</b> <i>To collaborate and communicate effectively</i></p> <p>Literature Circles            Sharing and Responding in Writing Groups            Collaborating to Respond to a Prompt            Viewing Diverse Texts</p>

Additional Assessment Opportunities
<p><b>Expository Writing Prompts:</b> Activities 2.2, 2.3, 2.5, 2.7, 2.10, 2.14, 2.15, 2.16, 2.19, 2.21  <b>Citing Textual Evidence:</b> Activities 2.2, 2.5, 2.6, 2.9, 2.15, 2.18, 2.19  <b>Double-Entry Journal:</b> Activity 2.4  <b>Fishbowl:</b> Activity 2.8  <b>Collaborative Visual Representation:</b> Activity 2.11, 2.13  <b>Research:</b> Activity 2.20</p>

## Grade 6 Curriculum Map

### Unit 3: Changing Perspectives (Suggested Time: 6 weeks)

Reading
<p><b>Goals:</b> <i>To analyze informational texts</i></p> <p><i>To practice nonfiction reading strategies</i></p> <p><b>Genres:</b> an editorial, an online article, news articles, articles, a historical document, an informational text, and a letter</p> <p><b>Key Texts:</b> “Should Dodge Ball be Banned in Schools?” “Most Dangerous ‘Sport’ of all May be Cheerleading,” “Would a Pop Warner Ban Limit Concussions?” “Letter on Thomas Jefferson,” “E-Readers Catch Younger Eyes and Go in Backpacks,” “The Pros and Cons of Social Networking for Teenagers,” “Social Networking’s Good and Bad Impacts on Kids,” “Pro and Con Arguments: Are social networking sites good for our society?” “The First Americans”</p>

Vocabulary
<p><b>Academic:</b> controversy, argument, claim, reasons, evidence, research, citation, plagiarism, credible, relevant, sufficient</p> <p><b>Literary:</b> editorial, formal style, rhetorical appeals, logos, pathos</p>

Embedded Assessments
<p>1: Researching and Debating a Controversy</p> <p>2: Writing an Argumentative Letter</p>

Essential Questions
<p>Why do we have controversy in society?</p> <p>How do we communicate in order to convince others?</p>

Targeted Common Core State Standards
<p>RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.6, RI.6.7, RI.6.8, RI.6.10;            W.6.1, W.6.4, W.6.5, W.6.6, W.6.7, W.6.8, W.6.10;            SL.6.1, SL.6.2, SL.6.3, SL.6.4, SL.6.5, SL.6.6;            L.6.2.b, L.6.3, L.6.4, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To support a claim with reasons and evidence</i></p> <p><i>To write an argumentative letter</i></p> <p><b>Focus Areas:</b> Argumentative Writing; Research with Citations</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To understand and use simple, compound, and complex sentences</i></p> <p><b>Focus Areas:</b> formal style, using appositives, complex sentences</p>

Speaking and Listening
<p><b>Goals:</b> <i>To engage effectively in a variety of collaborative discussions</i></p> <p>Collaborating to Debate            Viewing Diverse Media            Collaborating to Present Research            Collaborating to Evaluate a Claim</p>

Additional Assessment Opportunities
<p><b>Argumentative Writing Prompts:</b> Activities 3.6, 3.7  <b>Citing Textual Evidence:</b> Activities 3.4, 3.5, 3.6, 3.7, 3.8, 3.10, 3.11,  <b>Creating an Argument:</b> Activity 3.3, 3.4, 3.6, 3.7, 3.11  <b>Research:</b> Activities 3.4, 3.5, 3.12  <b>Revision:</b> Activities 3.13, 3.14, 3.15  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

## Grade 6 Curriculum Map

### Unit 4: The Final Act (Suggested Time: 6 weeks)

Reading
<p><b>Goals:</b> <i>To analyze the relationship between setting, characterization, conflict, and plot</i></p> <p><b>Genres:</b> poetry, online article, informational text, essay, drama, film</p> <p><b>Key Texts:</b> “Shakespeare dumbed down in comic strips for bored pupils,” “Shakespeare’s Life,” excerpt from “Reading Shakespeare’s Language,” “The Southpaw,” “Oranges,” “Jabberwocky,” “Fireflies,” excerpts from <i>The Taming of the Shrew</i>, film clips from <i>The Taming of the Shrew</i></p>

Vocabulary
<p><b>Academic:</b> collaborate, source, multimedia, bibliography, evaluate, synthesize, annotate</p> <p><b>Literary:</b> rhythm, iambic pentameter, iamb, tableau, limerick, rhyme scheme, inflection, rate, drama, free verse, alliteration, oral interpretation</p>

Embedded Assessments
<p>1: Researching and Presenting Shakespeare</p> <p>2: Performing Shakespeare</p>

Essential Questions
<p>How can research shape one’s understanding of a literary text?</p> <p>How is reading a text similar to and different from viewing and performing a text?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.6, RL.6.7, RL.6.10;            RI.6.1, RI.6.2, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.1, W.6.2, W.6.4, W.6.5, W.6.6, W.6.7, W.6.8, W.6.9, W.6.10;            SL.6.1;            L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To research a drama from a different time period</i></p> <p><b>Focus Areas:</b> Expository and Research</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To revise for effective sentence variety</i></p> <p><b>Focus Areas:</b> choosing sentence structure, pronoun usage</p>

Speaking and Listening
<p><b>Goals:</b> <i>To rehearse and present an engaging performance of a drama</i></p> <p>Practicing Choral Reading            Delivering Oral and Dramatic Presentations            Collaborating to Synthesize information            Viewing Diverse Media</p>

Additional Assessment Opportunities
<p><b>Expository Writing Prompts:</b> Activities 4.3, 4.4, 4.6, 4.8, 4.15  <b>Citing Textual Evidence:</b> Activities 4.3, 4.4, 4.13, 4.14  <b>Evaluating Argument:</b> Activity 4.3  <b>Multimedia Research Display:</b> Activity 4.5  <b>Evaluating/Reflecting on a Performance:</b> Activities 4.10, 4.11, 4.12, 4.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>



# Grade 7 Curriculum Map

## Unit 1: The Choices We Make (Suggested Time: 7 weeks)

Reading
<p><b>Goals:</b> <i>To analyze genres and their organizational structures</i></p> <p><i>To examine the function of narrative elements</i></p> <p><b>Genres:</b> poetry, a novel excerpt, an autobiography excerpt, a memoir excerpt, an essay, myths, a fable, film clips</p> <p><b>Key Texts:</b> “The Road Not Taken,” “Choices,” excerpts from <i>Staying Fat for Sarah Byrnes</i>, <i>Dust Tracks in the Road</i>, and <i>Bad Boy</i>, “Why Couldn’t I Have Been Named Ashley?” “Phaethon,” “Daedalus and Icarus,” “Arachne,” Aesop’s “The Lion, the Fox, and the Stag,” film clips from <i>The Mighty</i>, “Raven and the Sources of Light”</p>

Vocabulary
<p><b>Academic:</b> effect, effective, consequences, coherence, internal coherence, external coherence, theme, objective, subjective</p> <p><b>Literary:</b> genre, denotation, connotation, stanza, narrative, sensory details, figurative language, characterization, myth, plot, symbol, symbolism, objective camera angle,</p>

Embedded Assessments
<p>1: Revising a Personal Narrative about Choice</p> <p>2: Creating an Illustrated Myth</p>

Essential Questions
<p>How do authors use narrative elements to create a story?</p> <p>What are the elements of effective revision?</p>

Targeted Common Core State Standards
<p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.6, RL.7.10;            RI.7.1, RI.7.2, RI.7.3, RI.7.5, RI.7.6, RI.7.10;            W.7.2, W.7.3, W.7.4, W.7.5, W.7.7, W.7.9, W.7.10;            SL.7.1, SL.7.2, SL.7.4, SL.7.5;            L.7.1, L.7.2, L.7.3, L.7.4, 7.5, L.7.6</p>

Writing and Research
<p><b>Goals:</b> <i>To apply techniques to create coherence and sentence variety in writing</i></p> <p><i>To apply revision techniques in preparing drafts for publication</i></p> <p><b>Focus Area:</b> Narrative</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To apply techniques to create coherence and sentence variety in writing</i></p> <p><i>To apply revision techniques in preparing drafts for publication</i></p> <p><b>Focus Areas:</b> verb tenses, coherence and sentence variety, analogies, coordinate adjectives, pronouns and antecedents</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups            Sharing and Discussing Textual Evidence            Collaborating to Analyze Text            Collaborating to Create a Poster</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompts:</b> Activities 1.6, 1.7, 1.13,  <b>Citing Textual Evidence:</b> Activities 1.3, 1.4, 1.5, 1.6, 1.9, 1.11, 1.12, 1.13, 1.14, 1.18  <b>Revision:</b> Activities 1.8, 1.9, 1.10  <b>Researching a Phenomenon and Creating a Poster:</b> Activities 1.15, 1.17, 1.18  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

# Grade 7 Curriculum Map

## Unit 2: What Influences My Choices? (Suggested Time: 7 weeks)

<p style="text-align: center;"><b>Reading</b></p>	<p style="text-align: center;"><b>Embedded Assessments</b></p>	<p style="text-align: center;"><b>Writing and Research</b></p>
<p><b>Goals:</b> <i>To understand how our lives are affected by media and advertising</i></p> <p><i>To identify and analyze the use of appeals, language, and rhetorical devices in informational and argumentative texts</i></p> <p><b>Genres:</b> informational texts, online texts, documentary film excerpts, news articles, essays, speeches</p> <p><b>Key Texts:</b> “\$211 Billion and So Much to Buy—American Youths, the New Big Spenders,” Facts About Marketing to Children,” excerpts from the documentary film <i>Consuming Kids: The Commercialization of Childhood</i>, “Marketing to kids gets more savvy with new technologies,” “America, The Not-So-Beautiful,” “Ain’t I a Woman?”</p>	<p>1: Writing an Expository Essay and Participating in a Collaborative Discussion</p> <p>2: Writing an Argumentative Essay</p>	<p><b>Goals:</b> <i>To write an expository essay</i></p> <p><i>To write an argumentative essay</i></p> <p><b>Focus Areas:</b> Expository and Argumentation</p>
<p style="text-align: center;"><b>Vocabulary</b></p>	<p style="text-align: center;"><b>Essential Questions</b></p> <p>What role does advertising play in the lives of youth?</p> <p>What makes an effective argument?</p>	<p style="text-align: center;"><b>Language and Writer’s Craft</b></p> <p><b>Focus Areas:</b> revising for cohesion and clarity, revising for precise language and formal style, sentence variety, sentence structure and transitions, using rhetorical devices. phrases and clauses</p>
<p><b>Academic:</b> text features, hypothesize, primary source, secondary source, search term, credibility, inference, valid, norm, consensus, claim, counterclaim</p> <p><b>Literary:</b> expository writing, documentary film. claim. rhetoric</p>	<p style="text-align: center;"><b>Targeted Common Core State Standards</b></p> <p>RI.7.1, RI.7.2, RI.7.3, RI.7.4, RI.7.5, RI.7.6, RI.7.7, RI.7.8, RI.7.9, RI.7.10;  W.7.2, W.7.4, W.7.5, W.7.7, W.7.8, W.7.9, W.7.10;  SL.7.1, SL.7.2, SL.7.6;  L.7.1, L.7.2, L.7.3, L.7.4, L.7.5, L.7.6</p>	<p style="text-align: center;"><b>Speaking and Listening</b></p> <p><b>Goals:</b> <i>To engage in collaborative discussions</i></p> <p>Sharing and Responding in Writing Groups  Sharing and Discussing Textual Evidence  Collaborating for Discussions  Collaborating for Research  Viewing Diverse Media</p>
<p style="text-align: center;"><b>Additional Assessment Opportunities</b></p>	<p><b>Expository/Explanatory Writing Prompts:</b> Activities 2.4, 2.5, 2.6, 2.8, 2.9, 2.10  <b>Argumentative Writing Prompts:</b> Activities 2.14, 2.15, 2.16  <b>Citing Textual Evidence:</b> Activities 2.3, 2.6, 2.8, 2.9, 2.12, 2.13, 2.14, 2.15  <b>Understanding Text Features:</b> Activities 2.2, 2.3, 2.6, 2.7, 2.12, 2.14, 2.16  <b>Evaluating Sources:</b> Activity 2.3, 2.6, 2.13  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>	

## Grade 7 Curriculum Map

### Unit 3: Choices and Consequences (Suggested Time: 6 weeks)

<p style="text-align: center;"><b>Reading</b></p> <p><b>Goals:</b> <i>To use textual evidence to support analysis and inferences</i></p> <p><i>To evaluate, analyze, and synthesize a variety of informational texts</i></p> <p><b>Genres:</b> a novel, film clips, a news article, poetry, biography and autobiography excerpts, nonfiction text, speeches</p> <p><b>Key Texts:</b> <i>Tangerine</i>, “A stunning tale of escape traps its hero in replay” “To an Athlete Dying Young,” film clips from <i>Sandlot</i> and <i>Invictus</i>, Nobel Peace Prize Biography of Nelson Mandela, excerpt from <i>A Long Walk to Freedom</i>, “Invictus,” excerpts from <i>Playing the Enemy: Nelson Mandela and the Game that Made a Nation</i>, Nelson Mandela’s Nobel Prize Acceptance Speech, Speeches by Great Leaders</p>	<p style="text-align: center;"><b>Embedded Assessments</b></p> <p>1: Writing a Literary Analysis Essay</p> <p>2: Creating a Biographical Presentation</p>	<p style="text-align: center;"><b>Writing and Research</b></p> <p><b>Goals:</b> <i>To write a literary analysis essay</i></p> <p><i>To create and present a biographical research project</i></p> <p><b>Focus Areas:</b> Literary analysis; multimedia research presentation</p>
<p style="text-align: center;"><b>Vocabulary</b></p> <p><b>Academic:</b> prediction, inference</p> <p><b>Literary:</b> imagery, motif, setting, flashback, foreshadowing, point of view</p>	<p style="text-align: center;"><b>Essential Questions</b></p> <p>What is the relationship between choices and consequences?</p> <p>What makes a great leader?</p>	<p style="text-align: center;"><b>Language and Writer’s Craft</b></p> <p><b>Focus Areas:</b> subordinate clauses, coordinating conjunctions, active and passive voice, adjectival and prepositional phrases, correcting dangling and misplaced modifiers</p>
	<p style="text-align: center;"><b>Targeted Common Core State Standards</b></p> <p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.6, RL.7.10;          RI.7.1, RI.7.2, RI.7.3, RI.7.5, RI.7.6, RI.7.7, RI.7.9, RI.7.10;          W.7.2, W.7.3, W.7.4, W.7.5, W.7.6, W.7.7, W.7.8, W.7.9, W.7.10;          SL.7.1, SL.7.2, SL.7.3, SL.7.4, SL.7.5;          L.7.1, L.7.3, L.7.4, L.7.5, L.7.6</p>	<p style="text-align: center;"><b>Speaking and Listening</b></p> <p>Sharing and Responding in Writing Groups          Sharing and Discussing Textual Evidence          Collaborating for Discussions          Collaborating for Research          Collaborating to Present Information          Collaborating to Create Visuals          Viewing Diverse Media</p>
	<p><b>Additional Assessment Opportunities</b></p> <p><b>Expository/Explanatory Writing Prompts:</b> Activities 3.4, 3.6, 3.8, 3.9, 3.10, 3.11, 3.12  <b>Citing Textual Evidence:</b> Activities 3.3, 3.4, 3.5, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.17, 3.19, 3.20  <b>Book Cover Design:</b> Activity 3.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>	

## Grade 7 Curriculum Map

### Unit 4: How We Choose to Act (Suggested Time: 8 weeks)

Reading
<p><b>Goals:</b> <i>To increase textual analysis skills across genres</i></p> <p><b>Genres:</b> poetry, monologues, informational text, drama, film</p> <p><b>Key Texts:</b> “Stopping By Woods on a Snowy Evening,” “Mother to Son,” “It Happened in Montgomery,” clip from “Jerry Seinfeld: I’m Telling You for the Last Time,” “The Raven,” “Little Red Riding Hood and the Wolf,” “Casey at the Bat,” “Outlaws and Highwaymen,” “The Highwayman,” “We Wear the Mask,” excerpts from <i>Twelfth Night</i>, both drama and film</p>

Vocabulary
<p><b>Academic:</b> precise, structure, modify, romantic, realistic, improvise, diagram</p> <p><b>Literary:</b> persona, oral interpretation, rhyme, alliteration, assonance, consonance, monologue, pantomime, syntax, poetic devices, internal rhyme, parody, vocal delivery, visual delivery, dialogue, stage directions</p>

Embedded Assessments
<p>1: Creating and Presenting a Monologue</p> <p>2: Performing a Shakespearean Dialogue</p>

Essential Questions
<p>How do writers and speakers use language for effect?</p> <p>How do performers communicate meaning to an audience?</p>

Targeted Common Core State Standards
<p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.5, RL.7.6, RL.7.7, RL.7.9, RL.7.10;            RI.7.2, RI.7.4, RI.7.10;            W.7.2, W.7.3, W.7.4, W.7.5, W.7.9, W.7.10;            SL.7.1, SL.7.2, SL.7.4, SL.7.5, SL.7.6;            L.7.1, L.7.2, L.7.3, L.7.4, L.7.5, L.7.6</p>

Writing and Research
<p><b>Focus Areas:</b> Narrative and Creative Writing</p>

Language and Writer’s Craft
<p><b>Focus Areas:</b> varying syntax for effect, correcting dangling and misplaced modifiers</p>

Speaking and Listening
<p><b>Goals:</b> <i>To strengthen verbal and nonverbal communication skills</i></p> <p><i>To improve oral fluency and presentation skills</i></p> <p><i>To collaborate on a Shakespearean performance</i></p>

Additional Assessment Opportunities
<p><b>Analytical Writing Prompts:</b> Activities 4.2, 4.5  <b>Expository Writing Prompt:</b> Activity 4.14  <b>Creative Writing Prompts:</b> Activities 4.3, 4.6, 4.8  <b>Citing Textual Evidence:</b> Activities 4.2, 4.4, 4.6, 4.8, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17  <b>Creating Visuals:</b> Activities 4.10, 4.11  <b>Performance/Presentation:</b> Activities 4.4, 4.6, 4.7, 4.13, 4.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

# Grade 8 Curriculum Map

## Unit 1: The Challenge of Heroism (Suggested Time: 8 weeks)

### Reading

**Goals:** *To analyze and synthesize a variety of texts to develop an original definition of hero*

*To analyze and evaluate expository texts for ideas, structure and language*

**Genres:** novel excerpts, film clips, a short story, narrative poetry, poetry, articles, an autobiography excerpt, an essay

**Key Texts:** Excerpts from *A Wrinkle in Time*, excerpts from *The Odyssey*, “A Man,” “Sonnet 116,” “Where I Find Heroes,” Excerpt from White House Funeral Sermon for Abraham Lincoln, “O Captain, My Captain!” “Frederick Douglass,” Excerpt from *The Narrative of the Life of Frederick Douglass, an American Slave*, “A Definition of a Gentleman”

### Vocabulary

**Academic:** context, technique, synonyms, antonyms, formal, concise, function, negation

**Literary:** archetype, imagery, setting, point of view, conflict, protagonist, mood, plot, pacing, epic, tone, diction, denotation connotation, nuance, definition essay, allegory, coherence, thesis

### Embedded Assessments

- 1: Writing a Hero’s Journey Narrative
- 2: Writing a Definition Essay

### Essential Questions

- What defines a hero?
- How does the Hero’s Journey archetype appear in stories throughout time?

### Targeted Common Core State Standards

RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.10;  
 RI.8.1, RI.8.2, RI.8.4, RI.8.5, RI.8.6, RI.8.10;  
 W.8.2, W.8.3, W.8.4, W.8.5, W.8.7, W.8.8, W.8.9,  
 W.8.10;  
 SL.8.1, SL.8.2, SL.8.4, SL.8.5, SL.8.6,;  
 L.8.1, L.8.2, L.8.4, L.8.5, L.8.6

### Additional Assessment Opportunities

**Narrative Writing Prompts:** Activities 1.6, 1.7, 1.9  
**Expository Writing Prompts:** Activities 1.13, 1.14, 1.16, 1.17  
**Citing Textual Evidence:** Activities 1.3, 1.6, 1.7, 1.9, 1.12, 1.13, 1.14, 1.16  
**Creating Visuals:** Activities 1.4, 1.6, 1.7, 1.9  
**Presentation:** Activity 1.11  
**Reader/Writer Notebook and Key Ideas and Details Questions:** ongoing  
**Unit Assessment:** online

### Writing and Research

**Goals:** *To create an original illustrated narrative based on the Hero’s Journey Archetype*

*To develop expository texts using strategies of definition*

**Focus Areas:** Narrative, Expository

### Language and Writer’s Craft

**Focus Areas:** Revising and Editing, Verbs and Mood, Transitions and Quotations

### Speaking and Listening

Sharing and Responding in Writing Groups  
 Sharing and Discussing Textual Evidence  
 Collaborating for a Presentation  
 Collaborating to Apply an Archetype  
 Collaborating to Analyze Texts

## Grade 8 Curriculum Map

### Unit 2: The Challenge of Utopia (Suggested Time: 8.5 weeks)

Reading
<p><b>Goals:</b> <i>To analyze a novel for archetype and theme</i></p> <p><i>To analyze and evaluate a variety of expository and argumentative texts for ideas, structure, and language</i></p> <p><b>Genres:</b> an essay, a short story, a novel, an informational text, articles</p> <p><b>Key Texts:</b> <i>The Giver</i> or <i>Fahrenheit 451</i>, "Grant and Lee: A Study in Contrasts," "Harrison Bergeron," "Banned Books Week: Celebrating the Freedom to Read," "Parents Share Son's Fatal Text Message to Warn against Texting &amp; Driving," "The Science Behind Distracted Driving," "How the Brain Reacts," "Cellphones and driving: As dangerous as we think?"</p>
Vocabulary
<p><b>Academic:</b> compare/contrast, utopia, dystopia, argument, debate, controversy, research, search terms, universal, seminar, Socratic</p> <p><b>Literary:</b> antagonist</p>

Embedded Assessments
<p>1: Writing an Expository Essay</p> <p>2: Writing an Argumentative Essay</p>

Essential Questions
<p>To what extent can a perfect or ideal society exist?</p> <p>What makes an argument effective?</p>

Targeted Common Core State Standards
<p>RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RI.8.6, RI.8.9, RL.8.10;</p> <p>RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.8;</p> <p>W.8.1, W.8.2, W.8.3, W.8.4, W.8.5, W.8.6, W.8.7, W.8.8, W.8.9, W.8.10;</p> <p>SL.8.1, SL.8.3, SL.8.4, SL.8.6;</p> <p>L.8.1, L.8.2, SL.8.3, L.8.4, L.8.5, L.8.6</p>

Writing and Research
<p><b>Goals:</b> <i>To develop informative/explanatory texts using the comparison/contrast organizational structure</i></p> <p><i>To develop effective arguments using logical reasoning, relevant evidence, and persuasive appeals for effect</i></p> <p><b>Focus Areas:</b> Expository, Argumentative</p>

Language and Writer's Craft
<p><b>Goals:</b> <i>To understand the use of active and passive voice</i></p> <p><b>Focus Areas:</b> embedding direct quotations, active and passive voice, maintaining voice and mood</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups</p> <p>Sharing and Discussing Textual Evidence</p> <p>Collaborating for Research</p> <p>Collaborating for Debate</p>

Additional Assessment Opportunities
<p><b>Argumentative Writing Prompts:</b> Activities 2.13, 2.15, 2.16</p> <p><b>Expository Writing Prompts:</b> Activities 2.2, 2.3, 2.5.2.7, 2.9</p> <p><b>Citing Textual Evidence:</b> Activities 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.11, 2.13, 2.15, 2.16</p> <p><b>Creating Visuals:</b> Activities 2.4, 2.5</p> <p><b>Socratic Seminar/Discussion/Debate:</b> Activity 2.6, 2.8, 2.12, 2.17</p> <p><b>Annotated Bibliography:</b> Activity 2.16</p> <p><b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing</p> <p><b>Unit Assessment:</b> online</p>

## Grade 8 Curriculum Map

### Unit 3: The Challenge to Make a Difference (8 weeks)

Reading
<p><b>Goals:</b> <i>To analyze the development of a theme or central idea of a text</i></p> <p><b>Genres:</b> memoirs, poetry, a children’s book, film clips, a drama excerpt, novels, a diary excerpt, a speech excerpt, informational texts, an article</p> <p><b>Key Texts</b> teacher-selected Holocaust narratives, excerpt from <i>Night</i>, “First They Came for the Communists,” <i>Terrible Things: An Allegory of the Holocaust</i>, film clips from <i>Life is Beautiful</i>, excerpts from <i>The Diary of Anne Frank</i>, excerpt from <i>The Boy in the Striped Pajamas</i>, excerpt from <i>The Diary of a Young Girl</i>, excerpt from Elie Wiesel’s Nobel Peace Prize Acceptance Speech, from <i>Do Something! A Handbook for Young Activists</i>, “Famine as a Weapon...It’s Time to Stop Starvation in Sudan”</p>

Vocabulary
<p><b>Academic:</b> communication, resume, euphemism, slogan, campaign, media, media channels, target audience, evaluate</p> <p><b>Literary:</b> enunciation, call to action, found poem</p>

Embedded Assessments
<p>1: Presenting Voices of the Holocaust</p> <p>2: Presenting a Multimedia Campaign</p>

Essential Questions
<p>Why is it important to learn about the Holocaust?</p> <p>How can one person make a difference?</p>

Targeted Common Core State Standards
<p>RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.6, RL.8.7, RL.8.8, RL.8.10;            RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.7, RI.8.8, RI.8.10;            W.8.1, W.8.2, W.8.3, W.8.4, W.8.5, W.8.6, W.8.7, W.8.8, W.8.9, W.8.10;            SL.8.1, SL.8.2, SL.8.3, SL.8.4, SL.8.5, SL.8.6;            L.8.1, L.8.2, SL.8.3, L.8.4, L.8.5, L.8.6</p>

Writing and Research
<p><b>Goals:</b> <i>To research an issue of national or global significance</i></p> <p><i>To create an informative and persuasive multimedia presentation</i></p> <p><b>Focus Areas:</b> Narrative, Expository</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To strengthen writing through the effective use of voice and mood</i></p> <p><b>Focus Areas:</b> Voice and Mood for Effect, Participial Phrases, Clauses</p>

Speaking and Listening
<p><b>Goals:</b> <i>To engage effectively in a range of collaborative discussions</i></p> <p>Engaging in Literature Circles            Collaborating for Researching and Presenting            Viewing Diverse Media</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompt:</b> Activities 3.8  <b>Expository Writing Prompts:</b> Activities 3.5, 3.9, 3.10  <b>Argumentative Writing Prompts:</b> Activity 3.15  <b>Citing Textual Evidence:</b> Activities 3.3, 3.4, 3.5, 3.6, 3.10, 3.11, 3.12, 3.15, 3.17, 3.18, 3.19  <b>Presentation:</b> Activity 3.7, 3.8, 3.11  <b>Research/Investigation:</b> Activities 3.14, 3.16  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

## Grade 8 Curriculum Map

### Unit 4: The Challenge of Comedy (Suggested Time: 8.5 weeks)

Reading
<p><b>Goals:</b> <i>To analyze how a variety of authors create humor in print and nonprint texts</i></p> <p><i>To analyze how humor is used to reveal a universal truth or theme</i></p> <p><i>To analyze a scene from a Shakespearean comedy</i></p> <p><b>Genres:</b> essays, comic strips, political cartoons, an article, film clips, a short story, a novel excerpt, poetry, drama, an informational text</p> <p><b>Key Texts:</b> “Made You Laugh,” from <i>Brothers</i>, “I’ve got a few pet peeves about sea creatures,” “The Open Window,” from <i>The Adventures of Tom Sawyer</i>, “They Have Yarns,” “Moose,” “Is Traffic Jam Delectable?” “The Power of Pets,” print and film excerpts from <i>A Midsummer Night’s Dream</i>, from “Fear Busters—10 Tips to Overcome Stage Fright”</p>

Vocabulary
<p><b>Academic:</b> juxtaposition, caricature, deride, denounce</p> <p><b>Literary:</b> satire, persona, irony, dialect, yarn, alliteration, comedy, performance</p>

Embedded Assessments
<p>1: Writing an Analysis of a Humorous Text</p> <p>2: Performing Shakespearean Comedy</p>

Essential Questions
<p>How do writers and speakers use humor to convey truth?</p> <p>What makes an effective performance of a Shakespearean comedy?</p>

Targeted Common Core State Standards
<p>RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.6, RL.8.7, RL.8.9, RL.8.10;            RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.10;            W.8.2, W.8.3, W.8.4, W.8.5, W.8.7, W.8.9, W.8.10;            SL.8.1, SL.8.2, SL.8.4, SL.8.5, SL.8.6;            L.8.1, L.8.4, L.8.5, L.8.6</p>

Writing and Research
<p><b>Goals:</b> <i>To write a well-developed analysis of a humorous text</i></p> <p><b>Focus Areas:</b> Narrative, Expository,</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To understand verbals and how they are used in writing</i></p> <p><b>Focus Areas:</b> verbals</p>

Speaking and Listening
<p><b>Goals:</b> <i>To perform a scene from a Shakespearean comedy</i></p> <p>Sharing and Discussing Textual Evidence            Sharing and Responding in Writing Groups            Collaborating for Performance</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompt:</b> Activities 4.4, 4.13  <b>Expository Writing Prompts:</b> Activities 4.3, 4.4, 4.4, 4.5, 4.6, 4.8, 4.9, 4.10  <b>Citing Textual Evidence:</b> Activities 4.2, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11, 4.15  <b>Rehearsal/Performance:</b> Activities 4.14, 4.16, 4.17, 4.18, 4.20  <b>Visual Representation:</b> Activity 4.13  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>





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CPSIA Code:

# Unit 1

## Purposeful Writing

In this unit, students will learn that authors write for different purposes and audiences and will explore both narrative and informative structures.

- In *Narrative Writing: Personal Narrative*, students will identify narrative writing elements, evaluate narrative texts, and learn to use transition words and phrases to move the story along, then use what they have learned to collaboratively plan and write a class narrative.
- In *Introduction to Informative Writing*, students will identify informative text components and use this understanding to evaluate informative writing.

The lessons in this unit work together to reinforce understanding of text structure and purpose through both producing new text and through analyzing existing text. They also demonstrate the idea that the same theme can be expressed across multiple texts, whether that text is produced by the students themselves, or by professional authors.



## Narrative Writing

# Personal Narrative

### Assessment Planning

- Consider collecting students' writing to use as a baseline for evaluating narrative writing progress in the future using the Narrative Writing Rubric (Appendix B, page 35).
- You might choose to share students' work after completion: compile it into a class book for your classroom library, hang it up for display, and/or send copies home for students to share with their families.

### Curriculum Connections

In these genre writing lessons, we will help students make connections to what they have learned so far in lessons across the curriculum. Below is a list of those connections:

- In Lesson 3 of these *Personal Narrative Writing* lessons, students will make connections to what they have learned about narrative text structure from Shared Reading and the book, *Fudge-a-Mania*.

## Module Y Unit 1

# Lesson 1

W.3.3 W.3.10

### Planning Notes

Consider providing students with a Writing Folder. Students could use this folder throughout the year to hold all papers, checklists, organizers, drafts, and other writing work they need as they complete their work in each writing lesson.

### Modeling

Today I am going to ask you to plan and write a narrative on your own. In this story, you will tell the reader about something that happened to you. It could be a story about something that happened to you at home or at school or anywhere. Think about all the things that happened. Then you can plan what you want to write. When you've finished the plan, you can start writing the story.

### Work Session

Students write their narratives with minimal guidance and support.

### Sharing

Turn and share your story with a partner.

## Lesson 2

SL.3.1.b

SL.3.1.d

W.3.3

### Planning Notes

Choose a team-building activity to use in this lesson. You will need to complete the activity before Lesson 4 to write about a class participation activity.

### Materials

- “A Terrible Tuesday” (Appendix C, page 39): for display
- “Futuristic Cars” (Appendix C, page 40): for display
- “My Lost Kittens” (Appendix C, page 41): for student copies
- “The Carnival” (Appendix C, page 42): for student copies
- “The Best Pet” (Appendix C, page 43): for student copies

### Modeling

Yesterday you wrote a narrative, or a story, to tell about something that happened to you at home or at school. There are different types of writing and a narrative is only one type. Because you wrote a true story about something you experienced, it is called a personal narrative. Each type of writing has different elements or parts. Let’s think about the important parts that you included in your story. Turn and talk to your partner about what needs to be included when you are telling a story.

Circulate to provide support.

Let’s share what you think are the important parts of a narrative.

Keep a Parts of a Narrative List. The parts are: *introduce the narrator and/or characters, setting, problem, solution, organize an event sequence, use dialogue, use temporal words and phrases to signal order, provide a sense of closure*. If there are missing parts, provide instruction.

## Module Y Unit 1

For example, if the students leave out events, here is an example of what you could say: *One part of a narrative that we did not discuss is called an event. An event is something that happens in a narrative. For example, if I were writing a narrative about what happened to me one time on my way to school, I would include several events. I would tell that I was driving on the highway. Then I would say that suddenly, I got a flat tire. The next event would be that I had to pull off the road and call for help. Each one of those things that happened is an event that is linked together in the narrative. Remember that an event is a thing that happened.*



Now that we have created a Parts of a Narrative List, we are going to look at different texts and decide if the text is a narrative or not a narrative. Let's practice together first. We will read each text together and then we will decide if it is a narrative or not based on our list of elements.

Display and read "A Terrible Tuesday" chorally to get the gist. Then help students identify elements.

Give a thumbs-up if you think the text is a narrative. We can check to see if you are right by going back through the story and looking to see if it has all of the parts of a narrative that we listed.

Read aloud a sentence or more at a time and mark each part as it is identified.

After: **I had overslept.**

I know the story has a character or a narrator, because it states *I woke up* and *I yelled*. The writer is talking about herself. There is also a problem, because the narrator tells us that he/she woke up late for school and had to rush to get there on time.

After: **Now I am going to be late.**

The author uses description of the characters' actions and thoughts and dialogue to develop events and show the response of the character to the situation, so we can check events and dialogue. Remember that dialogue is what people actually say.

After: **'Yep, a flat tire.'**

Here is another event that adds to the character's terrible Tuesday.

After: **Sue arrived a few minutes later.**

Discuss with your partner other events that we just read about.

Partners share the events. After: **We arrived before the buses.**

Now we know the problem has been solved.

After: **I will always set two alarms from now on!**

This sentence establishes a sense of closure.

So do you think this is or isn't a narrative? Look back over our chart to help you decide. Put a thumbs-up if you think it is a narrative and a thumbs-down if you think it is not a narrative.

I agree with those of you who said *A Terrible Tuesday* is a narrative, because it has all of the parts that we listed on our chart.

Let's read another piece of text together.

Display and read "Futuristic Cars" chorally to get the gist. Then have student pairs identify elements.

Turn to your partner and discuss whether you think the text is a narrative or not. Be sure to give reasons for your decision.

Circulate to provide support.

Give me a thumbs-up if you think *Futuristic Cars* is a narrative. We can determine which groups are correct by reading through the passage again and thinking about our list of elements.

After: **They can even park themselves.**

Narratives need to have characters. A car could be a character in a fantasy, but this seems like all cars in general. We did not read about any characters in this first section, so we cannot check characters off on our list. A narrative also needs a situation or a setting. I know that the story takes place in Las Vegas in a parking lot.

Mark the first sentence.

So that's the setting of the text.



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After the last sentence of paragraph three.

We also decided that a narrative needs several events and so far, we haven't read a series of events. We also said that narratives need to have dialogue. Have we read dialogue between characters?

Pause for students to respond.

No, then we cannot check dialogue off on our list of narrative elements.

Now you will work with a partner and read some passages and decide which ones are narratives and which ones are not. You will have a highlighter to mark sentences to show which elements you find in the passage. You will also have sticky notes to write why you labeled each text narrative or not narrative.

Let's look at our list. We only checked one of the elements of narratives for the car story, so this passage cannot be a narrative since it only has one element.

### Work Session

Students will work in partners or small groups to determine whether texts are narrative or not narrative. Remind students to be prepared to share why they labeled each text narrative or not narrative.

Each pair or small group will need "My Lost Kittens", "The Carnival", and "The Best Pet", or you can use narrative texts you have available to you.

### Sharing

You and your partner will share which text was a narrative and why. Remember to use the Parts of a Narrative List in your explanation.

## Lesson 3

SL.3.1.b

SL.3.1.d

W.3.3

### Materials

- *Fudge-a-Mania*
- “Rescue Dog” (Appendix C, page 44): for display
- “The Barn Cat” (Appendix C, page 45): for student copies
- “Farm Chores” (Appendix C, page 46): for student copies
- “The Family Who Traveled West” (Appendix C, page 47): for student copies
- Narrative Checklist (Appendix A, page 31): for display and three copies per student

### Modeling

Display Narrative Checklist.

This is our Narrative Checklist. It was created based on the Parts of a Narrative List that we talked about yesterday. We can use the checklist to not only determine whether the text is a narrative, but also whether it is a strong piece of narrative writing. Watch how I use the checklist while I am reading the first page from *Fudge-a-Mania*.

Model using the Narrative Checklist with the first page of the book.

I will read an excerpt from *Fudge-a-Mania* and as I read it I will use the checklist to check off each element as I find it.

Start reading the excerpt. After: **‘No,’ he said.**

I know that Pete and Fudge are the characters in this passage and that the situation is Fudge telling his brother that he is getting married. So, I am going to check off establish a situation/setting and introduces characters/narrators.

After: **Are you alright?**

I have read a lot of dialogue between the characters.

Read aloud several different examples of dialogue.

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The dialogue helps develop the events and shows us how Pete reacts to the announcement that Fudge made. I'm going to check use dialogue on the checklist.

I'm going to mark *Then* and *Next* because they are temporal words that help signal the order of the events. Remember that temporal words tell time. The checklist says that a narrative needs temporal words and phrases. This excerpt only has two words to signal order so I am going to place a check in the second column next to temporal words on the checklist because this element could be better.

After the last sentence.

This sentence does provide a sense of closure, because it sounds like Peter might stop laughing since mom ignores him. I'm going to check off provides a sense of closure. A sense of closure helps you to end your narrative.

Now we will read another narrative and use the checklist to determine if it is a strong or weak narrative.

Display and read "Rescue Dog". Invite students to give a thumbs-up when they hear an element so the teacher can check it off on the checklist.

Now that we have completed two checklists we can compare them to see if one has more elements included.

Compare the two.

This narrative text has more narrative elements from our checklist. Thumbs-up if you think that it creates a stronger narrative. Turn and talk to your partner about why you think this text creates a stronger narrative.

## Work Session

Now you will have a chance to evaluate other narratives with a partner.

Display and provide copies of "The Barn Cat", "Farm Chores", and "The Family Who Traveled West".

You will work around the room with your partner. First you will read the text with your partner, then you will reread while checking off the elements on the checklist that the text has, just like we did together. Once you have done this

with all three pieces of text, you will decide which narrative text is the strongest. Be prepared to tell why you chose the piece.

### **Sharing**

Now you and your partner will share with another pair of partners which opinion text you believe is the strongest and why. Remember, you should use your Narrative Checklist in your explanation.

## Lesson 4

W.3.3.a

W.3.3.b

W.3.3.c

W.3.5

### Modeling

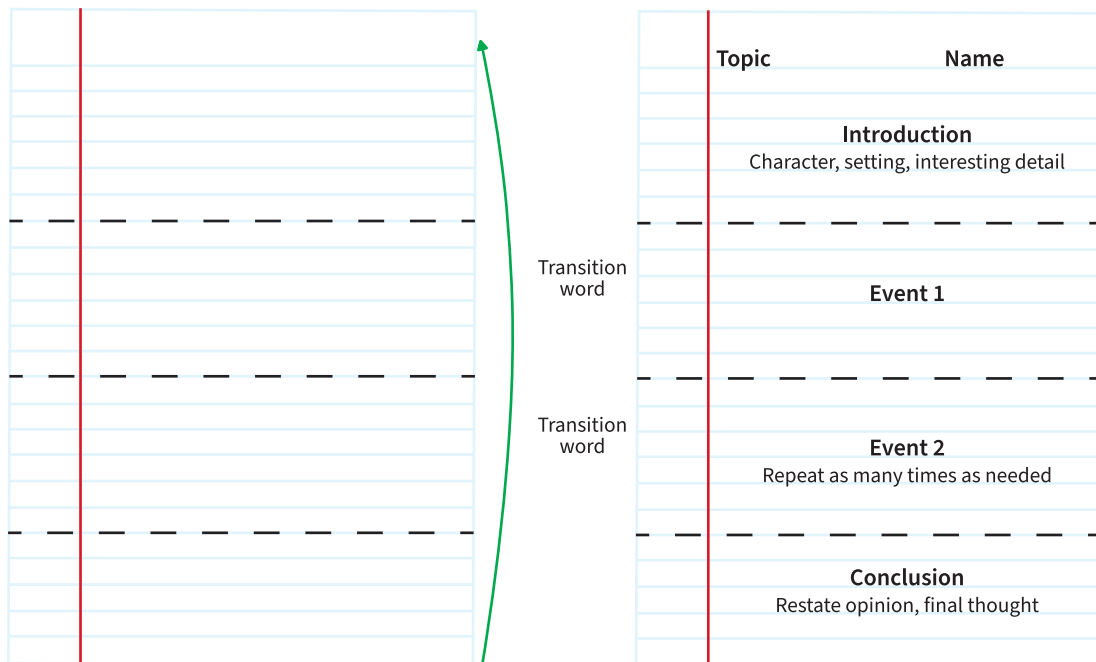
Yesterday we evaluated pieces of narrative writing using our Narrative Checklist. Turn and talk to your partner about the important elements of a narrative.

Provide 1 minute.

Today I am going to show you how to use a graphic organizer to plan a personal narrative.

Take the lined paper and fold it to the margin line in half and in half again. This will give you 4 sections on the front and 4 on the back.

The graphic organizer will be a folded sheet of lined paper so that students may make the organizer themselves and use the same strategy for every genre. Try to make the teacher's chart paper look like a sheet of lined paper.



Additional events and the conclusion section of the graphic organizer may end up being sections on the back of the lined paper graphic organizer.



The first thing we need is a good topic for a personal narrative. I think that I'll write about the Hula Hoop game we played on the first day of school since it is an event that we all experienced.

This is just an example. Choose something that is specific to your classroom or school so that students can participate.

The first thing I need to do is to think about the introduction. I should probably tell the reader what this is about and maybe something interesting. Hmm... Let me think. I should say something about our class going outside to practice teamwork by playing a Hula Hoop game. In the top margin, I will write: ***Hula Hoop game*** and I will write my name.

Remember in a graphic organizer we don't write down every word or every detail. We just write words or phrases to remind us what to write later in our paper.

I am going to include a detail about the hula hoop game in my introduction. This was a first day of school activity to help us learn to work together as a team. I will write: ***first day of school*** and ***teamwork game***.

Okay, that wasn't too tough.

So the next thing I need to do is think about the first event. Well, the first thing we did was go outside and we made a big circle.

In the next section, I'll write: ***outside*** and ***made a circle***. We need a temporal word to tell order. Since this was the first thing that we did, I'll write ***first***. I'll write that in the left margin.

Then I want to add details. Hmm... Well, I remember I explained the rules and everyone was very nervous about trying the game. Some of you even complained that it wouldn't be any fun.

So I'll write: ***rules, students complaining***. Notice how I didn't write the entire sentence in the box, I just wrote phrases to remind me later. I also need another

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temporal word or phrase to keep the story moving, so I'll write *after that*. I'll write that in the left margin.

We need to add at least two more events to our graphic organizer to finish telling about our Hula Hoop game. I want you to help by adding the rest of the details and the linking words. You will talk with your partner and decide the rest of the details about our game.

### Work Session

Invite students to work with a partner to add at least two more events to the graphic organizer. Each group can use one sheet of lined paper for the graphic organizer.

Circulate to provide support.

Assign roles such as writer, leader, timekeeper, etc.



### Sharing

As I walked around and met with groups I heard some really great ideas. It sounded to me that many groups chose these events to tell about what happened next.

Choose events that came up in more than one group that tell about your class personal narrative and add them to the shared graphic organizer.

I am going to have a few groups share their details for each of these events.

Allow groups to share examples.

Nice job today. We are almost done with our graphic organizer. Tomorrow we will add the conclusion and then turn this into an actual piece of narrative writing.

## Lesson 5

SL.3.1.b

W.3.3

W.3.3.d

W.3.4

### Materials

- Narrative Checklist (Appendix A, page 31): for display
- Narrative Graphic Organizer (from Lesson 4)

### Modeling

Yesterday we completed most of our graphic organizer for our personal narrative about the Hula Hoop game. Let's review the organizer before we add the conclusion.

Have students read the graphic organizer with you.

Now we need to write the conclusion. How did we feel about the Hula Hoop game? Talk with your partner about the feelings you had.

Circulate to provide support.

All of your feelings were very positive at the end even though you were complaining and nervous in the beginning. You enjoyed the game and wished we could play it again and again. For our conclusion, I can write: *teamwork, fun*. I think that sounds great.

Now we have finished our graphic organizer. Remember this is our plan to help us remember what we want to write about in our personal narrative. We will also use the narrative checklist to help us make sure we don't leave out any parts.

Let me show you how to use the organizer and the checklist to write a good narrative paper. First, I need to write the introduction. In the introduction, I need to establish the setting so my readers know where the narrative begins and I need to include the characters. Let me look at the graphic organizer. I wrote, *Hula Hoop game* and for the details I wrote *First day of school* and *team work game*. I need to write a sentence or two about that. Sometimes it's hard for me to go from notes to actual writing. I try to think about how my details can go



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together. I will write: *Our class went outside on the first day of school to play a teamwork building game with a hula hoop.*

I included the characters which is *our class* and the situation was *the Hula Hoop game*.

Now I will look at my graphic organizer for the first event. Our organizer says we *made a circle* and for the details I wrote *rules* and *complaining students*. The checklist says we need to describe what happens, so I am going to write sentences to tell about what happened. We used first as our temporal word so I'll write: *First, we went outside on the playground and our class got into a giant circle. We were all trying to guess what we were going to do.*

I want to give a lot of details in the next part of my personal narrative so that my readers will understand that you were nervous and complaining about the Hula Hoop game. Our organizer says *complaining students*, so I will write about how you were feeling. Hmm... Let me think. That's hard for me to do. When I get stuck I try to picture the situation in my mind. Oh, I remember. All of you were looking at one another and whispering about how you were going to make it work while holding hands. So I will write: *We looked around the circle at each other with wide eyes and began to whisper about how in the world we were going to do that. Everyone started complaining that it would be impossible while we were holding hands.*

Our checklist says we need to have dialogue. Dialogue tells when a character is talking. We will learn more about that the next time we write a narrative, but I'm going to include it here, because it's on our checklist and it makes sense here. I'll write: *David said, "I know! We will have to step through the Hula Hoop."* *Susan yelled, "And use our arms together to bounce it over our heads."*

Next, I need to tell more about me telling you the directions and I'll include dialogue here too: *"You will have to be creative," continued Mrs. Green, "and yes you will need to move your bodies in lots of different positions."*

Now you will work in groups of four and use the graphic organizer to help you add to the rest of our personal narrative. Remember the organizer is just the plan. You will need to write more details to describe the events when you are telling what happened next in our Hula Hoop game.

## Work Session

Group students in four groups. Instruct two groups to write paragraph 2 and the other two groups to write paragraph 3. Circulate to provide support.

Assign roles such as writer, leader, timekeeper, etc.



## Sharing

As I was walking around, I noticed several groups added a lot of details to describe what happened during our Hula Hoop game. That is what good writers do. Let's chorally read the introduction and the three body paragraphs. Ready, go.

Chorally read all of the writing. Do the same for the second text thread. Since you had two groups working on event 2 and two groups on event 3, the class constructed two different narratives. Read both.

These personal narratives sound like they have events connected to the topic and strong details, but let's evaluate our writing with the checklist to be sure.

Go through the checklist, pointing to items in the list and where they are in the narrative. Check off as you go.

Now we are still missing one part. Let's look at our checklist to decide. Yes, we are missing the conclusion. I know that I need to look back at the organizer to remind myself what we were thinking.

Refer to the graphic organizer.

We wrote *teamwork* and *fun*. I think we should write: ***The Hula Hoop game that we played on the first day of school was a great teamwork activity. We had so much fun and we want to try it again and again.***

That will work to provide closure to our personal narrative. Next week you will learn about another type of writing called informative writing.



## Informative Writing

# Introduction to Informative Writing

### Assessment Planning

- Consider collecting students' writing to use as a baseline for evaluating informative writing progress going forward using the Informative Writing Rubric (Appendix B, page 36).
- You might choose to share students' work after completion: compile into a class book for your classroom library, hang up for display, and/or send copies home for students to share with their families.

### Curriculum Connections

Throughout these Informative Writing lessons, you will see that we support students in making connections to what they have learned so far in lessons across the curriculum. Below is a list of those connections:

- In Lessons 6 and 8, we connect to the elements, structure, and purpose of narrative writing.
- In Lessons 6 and 7, we connect content from two upcoming books that students will read in Module 1—*The Constitution of the United States* and *The BFG*.

## Lesson 6

SL.3.1.b SL.3.1.d SL.3.4 W.3.2

### Materials

- *Boy: Tales of Childhood*
- Copies of informational articles
- Sticky notes

### Modeling

So far this year we have learned about narrative writing. Turn and talk to your partner about the parts of narrative writing.

Circulate to provide support.

We know that narrative writing is just one type of writing, and one reason why author's write: to tell a story. Today we are going to learn about a second type of writing. We are going to learn about informative writing. We will soon read a book about the author, Roald Dahl, which is an informational book. It is about Roald Dahl's childhood. Listen to this part.

Read page 23, the paragraph that begins with **On the other hand...**

Turn and tell your partner how this part of the text describes Roald to us.

Give students time to highlight the big ideas that were shared on this page.

I heard partners sharing many details about Roald that this text told us. One thing that pieces of informative writing have in common is that they tell us details about one topic. In this one, the topic is Roald. We call this specific type of informative text an autobiography, where the topic is a person and the person is the author.

I have gathered many samples of informative texts.

Utilize memberships to news articles that you have available to you at your school, use free news sites online, or gather informative texts from your classroom library.



I want you to look through some of these resources. I want you and your partner to keep a list of what you notice these text examples have in common. Think about things that they have in common with each other and things that they have in common with the Roald Dahl book. When time is up we are going to share what we found.

### Work Session

Invite students to work in partners or small groups around the room with small sets of text.

- There can be pre-selected groupings of texts or students may be permitted to work with one book at a time, coming up to get a new one once they have finished.
- Provide students with sticky notes or some kind of note-taking document to write down the similarities among the informative texts.
- If printed articles are utilized consider allowing students to highlight similar elements directly on the printed sheet.



### Sharing

As I walked around I heard you finding many excellent similarities. Together we are going to use those similarities to figure out the parts of informative writing. Turn to another partner pair sitting near you and as a group decide on the two similarities that you think are most important to include in informative writing.

Invite one group to share one of their two. Survey the class to see if anyone else had that similarity as an important part. If yes add it to the anchor chart. Move through the groups this way until your anchor chart includes: an introduction that names the topic, facts, definitions, and details, linking words, conclusion.

For any of the elements missed, provide instruction.

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For example, if the students do not share definitions, you can say: *One element that many informative texts include is definitions. Definitions tell us what a word means and sometimes that is really important for the reader to understand. For example, if I was describing Roald Dahl and I say that he is an author, it might be important for me to define what an author is for the reader.*



This seems like a complete list. Just like we were able to do with narrative writing, we will be able to use this list to determine whether a piece of text is informative or not. We will do that tomorrow.

## Lesson 7

SL.3.1.b

W.3.2

W.3.2.c

W.3.4

### Materials

- Prepared sentence strips (see modeling)
- Informative Elements List (from Lesson 6)
- Informative Checklist (Appendix A, page 33): for display

### Modeling

Yesterday you did such a good job noticing what must be in an informative piece, like a topic, details and what else?

Write the items they share in the proper order: *introduce the topic, definition or facts about the topic, details that describe the topic, linking words, conclusion.*

I think you are ready to put together an informative piece that is out of order. It is like putting a puzzle together. Soon we will read an informative text about the Constitution of the United States. We are going to work with some sentences from that text right now.

Lay all of the sentence strips out — you could use an interactive board, a pocket chart, or the floor with your students sitting around you.



### Sentences in order

(mix them up for the activity)

- The first three articles of the Constitution set up the federal government.
- The articles explain the duties of each branch of our government.
- Each branch has different powers.
- One of the branches is the legislative branch which has the power to make laws.
- This branch is the Congress.
- Another branch is the executive branch which enforces laws.



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- It is made up of a president, a vice-president, and the president's staff.
- The final branch is the judicial branch which makes sure that the laws are written and used correctly.
- The U.S. Supreme Court and other federal courts are part of this branch.
- These are the branches that the Constitution created.

The sentences from the book about the Constitution are out of order. I am going to read each of these sentences. Then, I am going to show you how I put them in order so that it makes an informative piece.

Read all of the sentence strips. Model how to put the segments in order by using a think-aloud as you make decisions about the order.

For example: *Hmm... I know that according to the list we made yesterday, the first thing an Informative piece of writing has is an introduction of the topic. Let me see if I can find a sentence that sounds like it is introducing the topic. Let's see. One of these branches is... no that sounds like a detail or definition. This branch is congress... no that sounds like a fact and not big enough to introduce a topic. The first three articles of the Constitution set... yes! This is a good contender as the topic sentence. It is introducing a topic. I am going to move this sentence up top.*

Continue modeling in this think-aloud fashion.

Now let's read this together to see if it makes sense.

Make adjustments if necessary.

## Work Session

Now it is your turn to put an informative paragraph together. I will leave this model up here for you to reference and I will leave the chart up. You will work with a partner to put a new paragraph back together.

### Sentences:

- The first 10 amendments are called the Bill of Rights, and the states approved them in 1791.
- James Madison proposed these amendments to give people more protection from the government.
- The Bill of Rights protects all Americans.

## Introduction to Informative Writing: Lesson 7

- The rights include freedom of speech.
- That allows people to say and write what they think.
- Another right the Bill of Rights promises Americans is freedom of religion.
- It also gives Americans the right to a trial by jury.
- That way, no one can be put in jail without a fair trial.
- These are just 3 of the first 10 Bill of Rights.

### Sharing

You and your partners will share your paragraphs with other pairs. Remember to use the Informative Checklist to explain your reasoning.

## Lesson 8

SL.3.1.b SL.3.1.d W.3.2

### Materials

- Informative Writing Elements List (from Lesson 6)
- Highlighters
- Sticky notes
- “African Elephants” (Appendix C, page 48): for display
- “Emma the Elephant” (Appendix C, page 49): for display
- “Cheetahs” (Appendix C, page 50): for student copies
- “The Coolest Animal Ever” (Appendix C, page 51): for student copies
- “The Race” (Appendix C, page 52): for student copies

### Modeling

Yesterday we spent some time putting a text in order using the informative elements list. Turn and tell your partner the elements in informative writing in order.

Circulate to provide support.

Today we are going to read different texts to decide whether the text is an informative piece or if it is some other type of writing. First, I will model how I can tell if a writing piece is informative or not. Then you will have some time to practice. I have two writing pieces about elephants. I am going to read both aloud then I will show you how I can use our list of informative elements to figure out which one is an informative.

Display and read “African Elephants” and “Emma the Elephant”.

Now that I have read both, I am going to use the list to remind me of what should be included in informative writing. I am going to look closely for an introduction of a topic, facts, details and/or definitions, and a conclusion. I think the first text is informative because it tells me information about the topic of African Elephants...

Point to each spot in the text as you talk about it.

...has an introduction here with facts...(read the sentence)...details with facts...(point out facts)...and it has a conclusion...(point to the conclusion)

The second text about Emma the Elephant is a story. It has the elements of a narrative that we learned about earlier... there are some events and the writer doesn't just describe one topic.

### Work Session

Give students “Cheetahs”, “The Coolest Animal Ever”, and “The Race”.

Now it is your turn to try. I am going to give each partner pair three different texts. You will have to use our parts list to determine if the text is informative or not. Be prepared to share why you think that when we come back together.

Invite students to work in partners or small groups to determine whether texts are informative or not informative. Students can use sticky notes and highlighters to keep track of the informative elements while working.

### Sharing

Let's share why we thought these texts were examples or were not examples of informative writing.

Use an every-student-responds technique. For example, ask students to show thumbs-up if this text is an informative piece, thumbs-down if it is not. Students can share how they made their choice.









# Appendix A

## Checklists

# Narrative Checklist





Element	Check for:	Missing	Not quite	Almost	I've got it!
Beginning	Characters: Did I name and describe the main characters?				
	Time: Did I tell when the story took place?				
	Place: Did I describe the place clearly?				
Middle	Problem: Did I set the story in motion with a clearly described problem?				
	Events: Did I include a clear, logical sequence of events to try to solve the problem?				
	Complications: Did I include clear, logical complications that bring on new events or problems?				
Ending	Solution: Did I provide a sense of closure?				
	Emotion: Did I show how the character(s) feel?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Other	<p><b>Temporal Words:</b> Did I use temporal words and phrases to show event order?</p> <p><b>Tone:</b> Is my tone appropriate for the audience?</p>				



## Informative Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Introduction	Did I introduce the topic?				
	Did I define the topic and set my purpose?				
Middle	Did I include multiple subtopics that describe the topic?				
	Did I provide details, facts, and definitions about the subtopics?				
	Did I use linking words to show connections between ideas?				
Closing	Did I restate the topic?				
	Did I leave the reader with a message to think about?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

# Appendix B

## Rubrics

# Narrative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Story Elements</b>	A situation is clearly established, a narrator and/or characters are introduced in detail, and a sequence of events is organized clearly, unfolding naturally.	A situation is established, a narrator and/or characters are introduced with enough detail, and a sequence of events is included.	A situation and a narrator and/or characters are included, but each is not introduced clearly, or a sequence of events is included, but is incomplete.	Story elements are absent.
<b>Narrative Techniques</b>	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are used, clearly developing experiences and events or showing the response of characters to situations.	Some dialogue and descriptions of the actions, thoughts, and feelings of the characters are used to develop experiences and events or show the response of characters to situations.	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are occasionally used, but not with enough detail to develop experiences and events or show the response of characters to situations.	Narrative techniques are absent.
<b>Temporal Words</b>	Three or more temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	Two temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	One temporal word or phrase (e.g., <i>beginning with</i> , <i>from then on</i> ) is used appropriately.	Temporal words are absent or are not used appropriately.
<b>Conclusion</b>	More than one sentence is used to provide a sense of closure.	At least one sentence is used to provide a sense of closure.	A clause or phrase is used to provide a sense of closure.	A sense of closure is absent.

# Informative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Focus</b>	The topic is explicitly introduced, and the writer groups related information together, including illustrations when useful to aiding comprehension.	The topic is introduced and clear, and the writer groups information that is somewhat related or includes an illustration that somewhat aids in comprehension.	The topic is unclear or is not sufficiently described, and the writer neither groups information together nor includes illustrations to aid in comprehension.	The topic is absent or copied directly from text.
<b>Development</b>	Facts, definitions, and details from the text that are relevant to the topic are used to develop the topic.	Facts, definitions, and details from the text that are somewhat related to the topic are used or, there is only one relevant fact, definition, or detail supplied.	Facts, definitions, and details from the text are present, but they are unclear and do not develop the topic.	Facts, definitions, and details are absent or copied directly from the text.
<b>Cohesion</b>	Linking words and phrases are used to connect related ideas within categories of information.	Linking words and phrases are used to connect ideas that are somewhat related or there is only one relevant linking word or phrase used.	Linking words and phrases are present, but they are unclear and are not used to connect ideas.	Linking words and phrases are absent.
<b>Conclusion</b>	A clear conclusion is present that is related to the topic.	A conclusion is present that is somewhat related to the topic.	A conclusion is present, but not related to the topic.	A conclusion is absent or copied directly from the text.

## Module Y

# Appendix C

## Text Excerpts

## A Terrible Tuesday

What a way to start my first day of the new school year! I woke up and noticed the sun streaming through my window. "Wait a minute," I yelled! It is supposed to be dark when I wake up for school. "Oh, NO!" I had overslept. I jumped out of bed and quickly got ready for work. I ran out of the house, jumped in my car, and took off. Hopefully I would beat the buses. As I was driving along the highway, my car started to sound and feel very funny. "What could be happening now?" I screamed out loud. I pulled off on the side of the road and leaped out of my car and looked all around it. Yep, it was a flat tire. Now I am really going to be late. I called my principal and said, "I'm sorry that I am going to be late, but I am on the side of the road with a flat tire." She said, "No worries. Stay safe and I will send someone to pick you up."

I called for a tow truck to pick up my car and my friend Sue arrived a few minutes later. We actually managed to beat the busses to school. The rest of my day was awesome. Everything worked out, but I will always set two alarms from now on!

## Futuristic Cars

A car show like no other was held in Las Vegas last winter and hundreds of people came from near and far to check out the car of the future. These cars are shaped like eggs and are available in every color of the rainbow. They are powered by electricity, run on two wheels and can only hold two people. They are so tiny that six cars can fit in one parking spot. They can even park themselves and return to their owner with a simple tap on a cell phone.

This new car is called the EN-V (pronounced like envy). It is manufactured by General Motors and could be what people in busy cities use to move quickly around busy highways and through downtown areas.

People are always looking for cars that make their lives easier, so scientists and engineers are inventing new ways to have cars do more for their drivers. For example, cars of the future could remind you to take your medicine or of upcoming appointments. Electric cars could send you text message reminders, too. Cars may even be able to drive themselves one day.



## My Lost Kittens

*Written by third graders. Retrieved July 12, 2017, from achievethecore.org*

One sunny day, my mom and I took our kittens for a walk around our house. The kittens were very excited because it was their first time. My kittens' names are Flounder and Ariel. Ariel is a girl and Flounder is a boy with a circle on his side. They are both the colors yellow and white. When we took the kittens outside, we had to be very careful so they would not get loose. Then a car drove by. It scared them and they ran. Their harnesses got loose and they went into the woods. We went inside to put away the harnesses and the leashes. Then we went back outside to look for them in the woods. We looked left and right, but we couldn't find them. We went back home to make signs to put up that said: LOST KITTENS: yellow and white, call 569-9823. We were very sad.

After a few months, still no one could find them. But, when we were looking for them, the kittens were looking for us! They really wanted to find their way home. The kittens asked a cat named Shadow for help. Shadow said, "Your family lives next door, but they are not home. They are on vacation." Shadow brought them inside to Theresa. When Theresa saw them, she knew who they lived with. Theresa took care of them until we came home. She called us and said, "I have a surprise for you!!" I thought that she had found our kittens!

When we went over to her house, we followed her up to the bedroom and saw a cage. When she opened the door, we saw our kittens in it. We were so happy that we went right over and unlocked it. The kittens ran out of the cage and over to us. We took them home and thanked Theresa. We were very happy to see them, and they were happy to see us too!

## The Carnival

One of my favorite places to go in the summer is the carnival. My whole family picks at least one night to go and sometimes we each get to take a friend! I bring my friend Sam most of the time. The first thing we do is get in line for arm bands so we don't have to count out tickets for each ride. Then we all choose what we would like to eat for dinner. There are so many choices and my mom and dad let us each pick something different if we want. I usually choose a corn dog and fries, because we never have corn dogs at home and I love them! We scarf our dinners down, because we can't wait to get in line for our favorite ride the Scrambler.

The Scrambler is so much fun because it goes super fast and blows our hair everywhere. We all laugh at each other when the ride stops and choose the King of the Crazy Hair! Sometimes we feel queasy and one time my brother got sick when we got off the Scrambler and didn't ride any more rides the whole night.

The next ride we usually choose is the Bumper Cars. We love to see who can make the hardest bumps. We always try to block someone in so they can't move for a while. That is so funny to see them turn their wheels all around and go nowhere.

We usually save the roller coaster for last. The line is too long when we first get there, but later in the night it is shorter. Sometimes we can ride two times in a row before we have to leave. The roller coaster at our carnival doesn't go very high, but it goes really fast. One time my sister's hat blew off and we had to find it when the ride was over.

## The Best Pet

*Written by third graders. Retrieved July 14, 2017, from <https://achievethecore.org>*

Are you looking for a new pet? I'd recommend a cat. For one thing they aren't that expensive. You could find one on your porch and adopt it. Cats usually bathe themselves. Cats will sleep with you and can help you calm down when you're upset or mad. Cats also don't need training and you can leave cats home for the day. Cats do not need much exercise. So if you are looking for a pet, maybe you can find some cats, and you might find yourself a great pet!

## Rescue Dog

One day I was walking my dog downtown when I smelled smoke. All of a sudden, my dog broke away from me and ran into the burning building. I was terrified that he wouldn't come back out. I didn't know what to do. I knew I shouldn't go in after him in case I couldn't get out, but I didn't want him to be in there by himself either. Thank goodness, after just a few minutes, he came running out with a small child. The little girl looked so scared, but happy that she was rescued. I hugged my dog and told him I was proud of him. He even won a medal of honor from the fire department for saving the little girl.

## The Barn Cat

*Written by third graders. Retrieved July 12, 2017, from achievethecore.org*

“We should get a barn cat,” Mrs. Thurlow told Mr. Thurlow.

Bandit, Sonya and Sam’s ears popped up. Bandit, Sonya and Sam were their barn dogs. “Yes! A cat to chase!” Bandit yelled. Then Mr. Thurlow said, “Sure, but what are we going to name her?” Sam thought for a moment. Then Sam walked up to Mr. Thurlow and started to bark. This is what bandit and Sonya heard Sam say, “Whatever you do don’t name her Samantha, don’t name her Samantha, DON’T name her Samantha!” Mrs. Thurlow said, “How about Baby?” Mr. and Mrs. Thurlow thought for a while. After much thought, Mr. Thurlow announced “A splendid idea! Let’s get her tomorrow!” Then the two farmers fed the dogs, ate dinner, did the chores, and then went to bed.

The next morning at 6:00, they did the morning chores. They were ready to pick up Baby at 8:15 a.m. When they got to The Pet Shop in Woodstock, they were in and out. Mr. and Mrs. Thurlow gave Baby a collar when they got home. Also Bandit, Sonya, and Sam gave Baby a tour of everything they own. When they got to the barn, Bandit started to chase Baby, and he said, “I can’t resist!” Sam and Sonya tried to stop Bandit, but Bandit was too fast! Baby ran to the barn across the street. “We’re not supposed to be here!” Sam and Sonya yelled to Baby, so she ran back home, and the dogs followed. Baby jumped on a footrest and then calmed down. Bandit agreed to never chase Baby again.

## Farm Chores

Every morning before we leave for school, we have to take care of a lot of chores around the farm. There are three children in my family, and we each have specific jobs that we have to do. I am the oldest, so I have the most responsibility. The hardest job that I have to do is milk the cows. We only have a few cows, so we still milk them by hand instead of with machines. It can take a long time, so I have to start before the sun rises.

First, I put on my farm clothes and head down to the barn. Next, I gather the buckets and a stool to sit on while I milk. Then I go get the first cow. I like to start with Lucy, because she usually cooperates the whole time. I start milking her and fill a bucket in no time. I finish up with the other cows, bring two buckets of milk to my mom, and change into my school clothes.

Growing up on a farm is hard work. Everyone has to do their part so that the farm runs smoothly. I don't mind milking the cows even if it takes a long time. It sure is better than having to clean out the cow stalls like my younger brother has to do.

## The Family Who Traveled West

*Written by third graders. Retrieved July 13, 2017, from [achievethecore.org](http://achievethecore.org)*

Once upon a time there was a pioneer family that was moving west. They were moving west because they wanted to find more gold. They had to gather their livestock. They used horses. They packed pots and pans, food and drinks. The family was traveling from Massachusetts to Oregon. They started to go. Ann, their little girl said, "I wish something would happen," and it did. They came upon Indians. The Indians were nice enough to let them go past. A few days later they came upon Oregon. "Yay!" everyone shouted. Ma said, "Let's unpack and pan for gold." Pa said, "After we dig for gold, let's build a farm to keep our livestock in and to live on." They lived happily ever after.

## African Elephants

African Elephants are large social mammals that rely on their incredible trunks. A trunk is a long nose and upper lip. Their trunks can be 7 feet long! That is taller than the average human. African Elephants use their trunk for smelling, to keep cool by spraying water on themselves, and as a snorkel while swimming. They can even use their trunks to help elephant babies over obstacles or to hug and show affection. African Elephants rely on their trunks to get them through their day.



## Emma the Elephant

Emma the elephant had a big problem. She had a cold! This meant that her trunk was all stuffed up. She couldn't smell, she couldn't suck up water to spray herself, and she couldn't go snorkeling with her friends at the lake. Emma was miserable and today was her birthday! She heard a quiet knock at her door. It was her best friend, Eloise. Eloise convinced Emma to come outside. All of her closest friends were there. As soon as Emma stepped out they sprayed her with a rainfall of water. They decided that since Emma couldn't snorkel they would bring the water party to her. It was the best birthday Emma could remember.

## Cheetahs

Cheetahs are the fastest mammals to live on land. They can run at speeds of 60 to 70 miles per hour. A cheetah often catches its prey at speeds about half their top running speed. After chasing down the prey, a cheetah needs about thirty minutes to catch his breath before eating.

Cheetahs live mostly in the grasslands of Africa and the Middle East. They are often hard to spy, because their spotted coats act as camouflage against the tall grasses. A cheetah's eyesight is so keen that he can find his prey very easily during the day. When he spots his prey, he makes a sudden bolt from the tall grasses and knocks his prey to the ground. Cheetahs often kill their prey with a swift bite to its throat.

## The Coolest Animal Ever

Cheetahs are by far the coolest animal out there. One reason the cheetah is cool is because it is the fastest mammal on land. It can run as fast as we drive on highways, 60–70 miles per hour! Another reason the cheetah is cool is because it has excellent eyesight. Cheetahs can spot their prey from 3 miles away. Finally, cheetahs are cool because they can camouflage in their surroundings. Their spotted coats help them blend into the tall grass of their habitat. These reasons make the cheetah the absolute coolest animal in the world.

## The Race

One day the Chester Cheetah family were out for a family dinner. They were crouched down in the tall grass chatting quietly while scanning the plains for a delicious meal. "I bet I can run faster than you," Brother cheetah said to Sister. "You're on!" shouted Sister cheetah. They both took off running. They were neck and neck and heading straight for the lake. Neither one wanted to lose, so neither one slowed down. They couldn't believe what happened next. They ran right into the lake with a giant splash! All of the other animals laughed. Emma the elephant even said, "Haha! For having such great eyesight, you two sure struggled to see this giant lake!" Brother and Sister climbed out of the lake and couldn't help but giggle. "I'll beat you next time!" Brother laughed as he shook off the water.

# Unearthing Character Traits

Three evaluation areas: Content Knowledge, Literacy Knowledge, Integration of Knowledge and Ideas.

For evaluation of conventions, spelling, and grammar—use the Editing and Revision Rubric.







Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
Content Knowledge	The writer assigns a clear character trait to the BFG.	The writer implies a character trait for the BFG.	The writer includes a character trait, but the relationship between the trait and the BFG is unclear.	No clear character trait is assigned to the BFG.
	The writer includes three or more reasons to support the assigned character trait for the BFG.	The writer includes two reasons to support the assigned character trait for the BFG.	The writer includes one reason to support the assigned character trait for the BFG.	No reasons are included in writing.
	The writer includes three or more examples of text evidence that support the assigned character trait for the BFG.	The writer includes two examples of text evidence that support the assigned character trait for the BFG.	The writer includes one example of text evidence that supports the assigned character trait for the BFG.	Examples of text evidence are absent.
Literacy Knowledge	The title of the text is explicitly introduced and relationship of text to opinion is clear.	The title of the text is introduced, but relationship between text and opinion is not explicit.	There is an unclear or implicit introduction of the text and no relationship between text and opinion is present.	The title of text is absent; no relationship between text and opinion is present.
	The opinion takes a clear position on the topic.	The opinion is mostly clear, and the position on the topic can be inferred.	The opinion is unclear and/or does not take a clear position on the topic.	A statement of opinion is absent; no clear position on the topic is taken.
	Clear reasons that support the opinion are present.	Somewhat clear reasons that support the opinion are present.	The reasons – if present – do not support the opinion.	Clear reasons that support the opinion are absent.

	All reasons are supported by relevant evidence from the text.	Evidence from the text is somewhat relevant to the reasons and/or is not provided for all reasons.	Evidence from the text – if present – is unclear and does not support any reasons that are included.	No supporting evidence from the text is provided.
	The relationship between the opinion and reasons is linked effectively using specific linking words and phrases (because, therefore, since, for example).	The relationship between the opinion and some reasons is linked somewhat effectively using specific linking words and phrases (because, therefore, since, for example).	The relationship between the opinion and reasons is linked using linking words, but not effectively.	Linking words and phrases are absent.
	A definite conclusion is present that is related to the opinion.	A conclusion is present that is somewhat related to the opinion.	A conclusion is present, but is not related to the opinion.	A conclusion is absent.
<b>Integration of Knowledge and Ideas</b>	The writing shows evidence of ideas, knowledge, and vocabulary gained from three or more sources (narrative text, background knowledge, class discussions, partner discussions).	The writing shows evidence of ideas, knowledge, and vocabulary gained from two sources (narrative text, background knowledge, class discussions, partner discussions).	The writing shows evidence of ideas, knowledge and vocabulary gained from one source (narrative text, background knowledge, class discussions, partner discussions).	The writing shows no evidence of use of sources to support ideas or statements provided.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Editing Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Capitalization	I capitalized the first word in each sentence.				
	I capitalized the pronoun <i>I</i> .				
	I capitalized names, holidays, locations, dates, and appropriate words in titles.				
Punctuation	I used end punctuation for sentences.				
	I used commas in greetings and closings of a letter, dates, and in a series.				
	I used commas, end punctuation, and quotation marks correctly in dialogue.				
	I used apostrophes for contractions and to show ownership.				
Sentence Structure	Each of my sentences has a subject and a predicate.				
	Each of my sentences makes sense.				
Spelling	I used spelling patterns I know to help me spell words I don't know.				
Word Choice	I used strong, interesting words that help the reader understand my ideas.				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3-5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

## Editing and Revision

When considering students’ editing and revision skills, use your sentence composing instruction as a guide to determine whether students are applying grammar knowledge to their writing. It is important to note that grammar instruction spirals throughout the year, and skills are continually revisited. In Bookworms, we teach and practice grammar skills in context, so our evaluation should be conducted in a similar manner. Rather than grading on specific grammar skills that have been taught in a particular time frame, we think a more accurate measure of student learning is to evaluate the quality of student writing at the time it is written, and to look for evidence of improvement over time across multiple writing samples. We have provided guidelines for this work below:

### When evaluating student writing for grammar knowledge, consider:

- Is the student’s writing clear and understandable?
- Does the student use well-constructed sentences (e.g., subject and predicate, correct use of clauses)?
- Does the student correctly use conventions of print (e.g., punctuation, capitalization)?
- Is the student’s sentence construction becoming increasingly more complex?
- Is the student using increasingly more descriptive language in their writing?

Element	Check for:	Never	Rarely	Sometimes	Always
Capitalization	The student uses grade-appropriate capitalization (e.g., first word in sentence, pronoun I, names of holidays, locations, dates, appropriate words in titles).				







Punctuation	The student uses appropriate ending punctuation.				
	The student uses appropriate comma placement.				
	The student uses appropriate apostrophe placement to show ownership or within contractions.				
	The student uses commas, end punctuation, and quotation marks correctly in dialogue.				
Grammar	The student's writing is clear and understandable.				
	The student uses well-constructed sentences (e.g., subject and predicate, correct use of clauses).				
	The student demonstrates appropriate use of descriptive language to support their ideas.				
Spelling	The student spells learned words correctly.				
	The student closely approximates spelling of				

	unknown or unfamiliar words.				
<b>Word Choice</b>	The student uses strong, interesting words that help the reader understand the student's ideas.				

Name \_\_\_\_\_

Date \_\_\_\_\_

## Informative Checklist





Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Introduction	Did I introduce the topic?				
	Did I define the topic and set my purpose?				
Middle	Did I include multiple subtopics that describe the topic?				
	Did I provide details, facts, and definitions about the subtopics?				
	Did I use linking words to show connections between ideas?				
Closing	Did I restate the topic?				
	Did I leave the reader with a message to think about?				

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Name \_\_\_\_\_

Date \_\_\_\_\_

## Narrative Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Beginning	<b>Characters:</b> Did I name and describe the main characters?				
	<b>Time:</b> Did I tell when the story took place?				
	<b>Place:</b> Did I describe the place clearly?				
	<b>Problem:</b> Did I set the story in motion with a clearly described problem?				
Middle	<b>Events:</b> Did I include a clear, logical sequence of events to try to solve the problem?				
	<b>Complications:</b> Did I include clear, logical complications that bring on new events or problems?				
Ending	<b>Solution:</b> Did I provide a sense of closure?				
	<b>Emotion:</b> Did I show how the character(s) feel?				
Other	<b>Temporal Words:</b> Did I use temporal words and phrases to show event order?				
	<b>Tone:</b> Is my tone appropriate for the audience?				

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# Narrative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Story Elements</b>	A situation is clearly established, a narrator and/or characters are introduced in detail, and a sequence of events is organized clearly, unfolding naturally.	A situation is established, a narrator and/or characters are introduced with enough detail, and a sequence of events is included.	A situation and a narrator and/or characters are included, but each is not introduced clearly, or a sequence of events is included, but is incomplete.	Story elements are absent.
<b>Narrative Techniques</b>	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are used, clearly developing experiences and events or showing the response of characters to situations.	Some dialogue and descriptions of the actions, thoughts, and feelings of the characters are used to develop experiences and events or show the response of characters to situations.	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are occasionally used, but not with enough detail to develop experiences and events or show the response of characters to situations.	Narrative techniques are absent.
<b>Temporal Words</b>	Three or more temporal words and/or phrases (e.g., <i>beginning with, from then on</i> ) are used appropriately.	Two temporal words and/or phrases (e.g., <i>beginning with, from then on</i> ) are used appropriately.	One temporal word or phrase (e.g., <i>beginning with, from then on</i> ) is used appropriately.	Temporal words are absent or are not used appropriately.
<b>Conclusion</b>	More than one sentence is used to provide a sense of closure.	At least one sentence is used to provide a sense of closure.	A clause or phrase is used to provide a sense of closure.	A sense of closure is absent.

Name \_\_\_\_\_

Date \_\_\_\_\_





## Opinion Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Beginning	<b>Topic:</b> Did I introduce the topic and tell why the reader should care about it?				
	<b>Opinion:</b> Did I state my opinion clearly?				
Middle	<b>Reason 1:</b> Is this reason connected to the opinion and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
	<b>Reason 2:</b> Is the second reason connected to the opinion, and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
	<b>Reason 3:</b> Is the third reason connected to the opinion, and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
Ending	<b>Closure:</b> Did I restate my opinion and leave the reader with a concluding thought?				

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Name \_\_\_\_\_

Date \_\_\_\_\_

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Other	<b>Transition Words:</b> Did I use transition words and phrases?				
	<b>Tone:</b> Is my tone appropriate for the audience?				

# Evaluating Sources: How Credible Are They?

## ACTIVITY 2.6

### Learning Targets

- Identify and gather relevant information from a variety of research sources.
- Differentiate between primary and secondary sources.
- Examine research sources for reliability and credibility.

### Preview

In this activity, you will evaluate research sources for reliability, accuracy, credibility, timeliness, and purpose/audience.

### Research Sources

After choosing a topic and writing research questions, the next step is to find sources of information. Sources might be books, magazines, documentary films, or online information. Not all sources are equal, however. Some are better than others. Learning how to tell the difference is a skill you need for both your academic success and your life.

### Evaluating Sources

1. You can evaluate both print and online resources using five separate criteria, including authority, accuracy, **credibility**, timeliness, and purpose/audience. Use a dictionary or work with your classmates and teacher to define each term in the graphic organizer that follows. Then add questions that you can ask yourself when evaluating sources based on this criterion.

Source Criteria	Definition	Questions to Consider
1. Authority		Who is the author? What organization is behind this information? What are the qualifications of the author or organization to write about this topic?
2. Accuracy		Determine if the content of the source is fact, opinion, or propaganda. If you think the source is offering facts, are the sources clearly indicated?
3. Credibility		Is the information trustworthy? Does it show any biases for or against the topic?
4. Timeliness		How old is the source? Some sources become dated when new research is available, but other sources of information can remain quite sound.
5. Purpose/Audience		What is the purpose of the information? To whom is it directed?

### Learning Strategies

Predicting  
Note-taking  
Graphic Organizer  
Questioning the Text  
RAFT

### ACADEMIC

**Credibility** comes from the word *credible*, which means “believable or trustworthy.” A source that is credible should be free from bias, and present the facts fairly.

### VOCABULARY

## ACTIVITY 2.6

### PLAN

**Materials:** a major brand’s policy on marketing to children, research sources/Internet, two preselected websites for evaluation, highlighters  
**Suggested Pacing:** 3 50-minute class periods

### TEACH

- 1 Now that students have done some preliminary research, they need to understand how to evaluate the sources they are consulting.
- 2 **Vocabulary Development:** Review the meaning of the term *credibility* with students. Have them work in pairs to define the term in their own words and think of both examples and non-examples of people or things that have credibility.
- 3 First, read the introductory paragraph. Then, guide students to complete the graphic organizer by predicting or using a print or digital resource to determine the meaning of each source evaluation criterion. Then have students take notes to define each criterion presented.



### TEACHER TO TEACHER

Many major brands that sell goods aimed at young people have policies on marketing to children. They can be found online easily by searching for the key terms “marketing to children policy.” Some brands that have policies about marketing to children include Coca-Cola, McDonald’s, Nestlé, and Mars.

### College and Career Readiness Standards

#### Focus Standards:

**RI.7.3** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

**RI.7.8** Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.

**W.7.2e** Establish and maintain a formal style.

**W.7.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.



## ACTIVITY 2.6 continued

**4** Read the Preview and the Setting a Purpose for Reading sections with students.

**5 FIRST READ:** Conduct a shared reading of the informational text in this activity. Pause at the end of the second paragraph and ask students how this text connects to ideas presented in the other texts they've read in this unit. Elicit a few responses before continuing with the reading.



### TEXT COMPLEXITY

**Overall:** Very Complex

**Lexile:** 1370L

**Qualitative:** High Difficulty

**Task:** Challenging (Evaluate)

**6** As students are reading, monitor their progress. Be sure they are annotating the text by underlining resources and evidence and circling unfamiliar words. Remind them that they can revisit the unfamiliar words after they finish reading the text the first time.

**7** Point out that the idea of a Trojan Horse comes from a story where an enemy army sneaked inside a fortress by hiding inside a large wooden horse given as a gift. Have students discuss how this reference affects how the audience is meant to view the advertisements.

## 2.6

### My Notes

### Reading for Credibility

In this part of the activity, you will read a letter to a kids' magazine publisher. You will practice evaluating the text and another text provided to you by your teacher using the criteria you learned earlier in the activity.

### Setting a Purpose for Reading

- As you read, underline the reasons and evidence that are mentioned in the text.
- Circle unknown words and phrases. Try to determine the meaning of the words by using context clues, word parts, or a dictionary.

### Informational Text

## Re: Advertising in the New York Times For Kids

December 20, 2017

Arthur O. Sulzberger, Jr., Chairman  
The New York Times Company  
620 Eighth Avenue  
New York, NY, 10018

Re: Advertising in the New York Times For Kids  
from Campaign for a Commercial-Free Childhood website

Dear Mr. Sulzberger:

- 1 We are writing to urge the New York Times ("the Times") to make future editions of the New York Times For Kids ("the Times For Kids") advertising-free.
- 2 We applaud the concept of a children's **supplement** of the Times to **foster** an interest in reading the newspaper. But when we reviewed the November 19, 2017 edition of the Times For Kids, we were **dismayed** to find that five of its 16 pages—31% of the supplement—were full-page ads for the Google Home Mini.
- 3 Parents who trust the Times for its well-deserved reputation for journalism likely had no idea the supplement was merely a Trojan horse for Google advertising, particularly if they followed the supplement's "Editor's Note" which said, "This section should not be read by grown-ups." And since the advertisements were unfairly disguised as content, children probably didn't know they were being targeted with marketing.

- 4 Marketing directed at children is always unfair. Children are considerably more vulnerable to the effects of advertising than adults. Research has found that most children do not understand the persuasive intent of advertising until they reach the age of 11 or 12.<sup>1</sup> That research is based on children's

<sup>1</sup> Owen B.J. Carter, et al., Children's understanding of the selling versus persuasive intent of junk food advertising: Implications for regulation, Science Direct, <http://www.sciencedirect.com/science/article/pii/S027795361100061X> ("Highlights" section on webpage) (last visited Nov. 29, 2017).

**supplement:** additional publication

**foster:** develop

**dismayed:** upset

## College and Career Readiness Standards

**L.7.3a** Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.

**Additional Standards Addressed:**  
RI.7.4, RI.7.6, L.7.3, L.7.4, W.7.5

understanding of television advertising, where regulations dictate clear separation between ads and programming. When such separation doesn't exist, it's even harder for children to recognize and understand advertising.<sup>2</sup>

5 Such is the case with the November 19 edition of the Times For Kids. The ads were brightly colorful cartoon drawings, with interwoven questions in bubbles meant to engage children—a visual style quite similar to much of the editorial content of the supplement. Each ad was disguised as a puzzle for kids, with this question at the bottom referring to Google characters **embedded** in the ads: “Can you find the donut, G, and Android in each drawing?” These advertisements were **deceptive** to children and **violated** the guidelines of the Children’s Advertising Review Unit, an industry self-regulatory program, which state: “Advertising should not be presented in a manner that blurs the distinction between advertising and program/editorial content in ways that would be misleading to children.”

6 We believe the advertisements also violated the Times’ own Advertising Acceptability Manual, which says “Advertisements that, in our opinion, **simulate** New York Times news or editorial matter or that may be confused with our news or editorial matter are unacceptable.” If such advertisements are unacceptable for all Times readers, they are especially unfair when directed at children...

7 ...The Times has announced it will publish the Times For Kids monthly, beginning in January 2018. Getting kids in the habit of reading your newspaper will undoubtedly pay long-term benefits for The New York Times Company. Rather than trying to squeeze out additional profits at the expense of families who have already paid for the Sunday newspaper, the Times should make future editions of the Times For Kids completely free of advertising. We welcome the opportunity to meet with you to discuss our concerns.

Sincerely,  
Campaign for a Commercial-Free Childhood  
Center for Digital Democracy  
Consumer Action  
Consumer Federation of America  
Consumer Watchdog  
Corporate Accountability  
New Dream Parent Coalition for Student Privacy  
Public Citizen's Commercial Alert  
The Story of Stuff Project

cc: Arthur Gregg Sulzberger, Deputy Publisher, NY Times Sundar Pichai, CEO, Google, Inc. Children's Advertising Review Unit

<sup>2</sup> Dr. Barbie Clarke & Siv Svanaes, Digital marketing and advertising to children: a literature review, Advertising Education Forum 45 (2012) (citing Mallinckrodt and Mizerski 2007; Ali, Blades et al. 2009).

### My Notes

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**embedded:** that were placed  
**deceptive:** misleading  
**violated:** ignored  
**simulate:** look like

8 Guide students to respond to the Working From the Text questions by working in small groups to reread the text and respond to the questions. Remind them to use evidence in their responses. Move from group to group and listen in as students answer the questions.

9 Point out the two events mentioned in the text: the November 19, 2017 issue of the publication and the beginning of the monthly edition in 2018. Guide a discussion about the role these events play in the creation of the letter and the purpose of the letter.

10 Allow students to collaboratively complete the chart in order to analyze the two texts.

## ACTIVITY 2.6 continued

**11** Share with students a company’s policy about marketing to children from the Internet. Allow students to read the statement and ask them to discuss the purpose of the text with a partner.

### LEVELED DIFFERENTIATED INSTRUCTION

In this activity, students may need support analyzing the text.

**Developing** Guide students in analyzing the author’s claim and evidence by using the **Idea and Argument Evaluator** graphic organizer.

**Expanding** Have students work in pairs to complete the **Idea and Argument Evaluator** graphic organizer.

**Bridging** Have students complete the **Idea and Argument Evaluator** graphic organizer independently. Then have student pairs use the **discourse starters** in the resource section to hold a discussion on their findings.

**Support** Provide students with one example of evidence from the text. Then have student pairs work together to complete the remaining sections of the **Idea and Argument Evaluator** graphic organizer.

**12** Ask students to identify the differences between a primary source and a secondary source to give examples of each. To transition to the topic of evaluating online sources, help students see that online sources can be either primary or secondary. Ask students to name some examples of primary and secondary sources found on the Internet (primary: interviews with newsmakers, government archives that have been digitized, etc.; secondary: news articles, websites devoted to analyzing historical events, etc.).

## 2.6

### VOCABULARY

#### ACADEMIC

A **primary source** is an original account or record created at the time of an event by someone who witnessed or was involved in it. Autobiographies, letters, and government records are types of primary sources.

**Secondary sources** analyze, interpret, or critique primary sources. Textbooks, books about historical events, and works of criticism, such as movie and book reviews, are secondary sources.

### Working from the Text

2. What effect does the advertising most likely have on young readers? How do you know?

The advertising most likely will make children ask for the product from their parents. The letter says that the ads are presented like the rest of the content, making it even harder for them to understand that the ads are trying to persuade them, not inform them like the rest of the content.

3. What evidence does the text provide to support the statement that “These advertisements were deceptive to children and violated the guidelines of the Children’s Advertising Review Unit...”?

The text of the guidelines is quoted directly as “Advertising should not be presented in a manner that blurs the distinction between advertising and program/editorial content in ways that would be misleading to children.” The text also provides a description of the ads that violated the guidelines: “The ads were brightly colorful cartoon drawings, with interwoven questions in bubbles meant to engage children—a visual style quite similar to much of the editorial content of the supplement. Each ad was disguised as a puzzle for kids...”

4. According to the text, what action does the text attempt to persuade the New York Times Company to take for future editions of their kids’ magazine? What next step is provided in the letter?

The argument hopes to convince the New York Times Company to publish their kids’ magazine without any advertising. The next step provided in the letter is a meeting between parties to discuss the concerns outlined in the letter in more depth.

5. Your teacher will provide you with an outside source to read. Read the text closely. Then use the graphic organizer that follows to evaluate “Re: Advertising in the New York Times For Kids” and the text provided to you by your teacher based on the five criteria to determine reliability.

Re: Advertising in the New York Times For Kids	Outside Source
Authority:	Authority:
Accuracy:	Accuracy:
Credibility:	Credibility:
Timeliness:	Timeliness:
Purpose/Audience:	Purpose/Audience:

### Primary and Secondary Sources

When choosing credible and reliable sources, you will find **primary** and **secondary sources**. Primary sources are original documents; they are often used in historical

research. For example, if you are researching the era of the Civil War, you might use the primary resource of Lincoln’s Gettysburg Address. You might find that speech in a secondary source written about the Civil War or on the Internet.

6. Revisit the texts you have read so far in the unit, including the advertisements you have analyzed. Are they primary or secondary sources? How do you know?

The two articles in 2.2 and 2.3 are secondary sources because both report on data and information about advertisements and how people interact with ads and mobile devices. The report mentioned in the Methodology section of “Mobile Kids” would be a primary source. The advertisements are a primary source.

### Evaluating Online Resources

Anyone can publish writing on the Internet. This openness is both one of the strengths and one of the weaknesses of the Internet. Being aware of the differences in quality among websites is an important step toward becoming an effective researcher.

A good place to start evaluating a website’s credibility and reliability is by looking at its domain suffix. The domain suffix, the letters that follow the dot, can help you determine who created the website. The most commonly used domain suffixes are described in the following graphic organizer.

Domain Suffix	Definition/Description
.com	Stands for “commercial.” Usually, websites with this suffix intend to make some sort of profit from their Internet services. Typically, these are the websites that sell goods or services.
.org	Stands for “organization.” Primarily used by not-for-profit groups such as charities and professional organizations.
.net	Stands for “network.” Often used by Internet service providers or web-hosting companies.
.edu	Stands for “education.” Used by colleges, universities, educational organizations, or other institutions.
.gov	Stands for “government.” Used by federal, state, and local government sites.

7. Which of the domain suffixes do you associate with more credible information? Why?

### Searching for Sources

When using the Internet for research, your first step might be to use a search engine to find sources. Depending on the term you enter into the search a search engine, for example, if you enter the search term “advertising,” you will get many sites

#### WORD CONNECTIONS

##### Etymology

The word **bias** comes from the Old French word *biais* and means “slant or slope.” The noun *bias* refers to a preference, especially one that prevents impartial judgment.

**13** To evaluate online resources, begin by reviewing the information on the various Internet domain suffixes. Guide students to understand which websites, based on the domain suffixes, would be most likely to provide valid information. Have them apply this information as a further criterion for evaluating sources.

**14** Have students read the Searching for Sources information and then answer the questions relating to search terms. Have students share their ideas for search terms with the class and create a class list of viable terms.

**15** Have students use search terms to do online research for the research topic. They should choose one or two sites that look useful and then evaluate those sites using the graphic organizer provided.

## ACTIVITY 2.6 continued

**16** Have students evaluate the two sources based on the questions in the graphic organizer. Ask students to compare the two sources and say which site was more credible, giving evidence to support their answer. Then have students read about reliability and determine if their sources are reliable.



### TEACHER TO TEACHER

Pairs or triads work best for grouping in this activity. It is difficult for groups with more than three members to share a computer.

## 2.6

because the term is so broad. If you are just looking for information about celebrity endorsements, narrowing your search to that term would give you better results.

8. To research the effect of marketing and advertising to young people, what search terms might you use? Refine your terms to narrow your results as you go.
9. Using your search term(s), find information on the topic of marketing and advertising aimed at young people. Choose one or two sites to explore further. Record the URLs in the graphic organizer that follows. As you look through each site, use the criteria and questions in the graphic organizer to help you decide whether the website provides reliable information without bias.

Search Term	Number of Results	Sites to Explore Further

Criteria	Question	Notes
<b>Authority</b>	<ul style="list-style-type: none"> <li>• Is it clear who is sponsoring this page?</li> <li>• Is there information available describing the purpose of the sponsoring organization?</li> <li>• Is there a way to verify the credibility of the page's sponsor? (For instance, is a phone number or address available to contact for more information?)</li> <li>• Is it clear who developed and wrote the material? Are his or her qualifications for writing on this topic clearly stated? Is there contact information for the author of the material?</li> </ul>	
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>• Are the sources for factual information given so they can be verified?</li> <li>• If information is presented in graphs or charts, is it labeled clearly?</li> <li>• Does the information appear to have errors?</li> </ul>	
<b>Credibility</b>	<ul style="list-style-type: none"> <li>• Is the page and the information from a reliable source?</li> <li>• Is it free of advertising?</li> <li>• If there is advertising on the page, is it clearly separated from the informational content?</li> <li>• Are there any signs of bias?</li> </ul>	
<b>Timeliness</b>	<ul style="list-style-type: none"> <li>• Do dates on the page indicate when the page was written or last revised?</li> <li>• Are there any other indications that the material is updated frequently to ensure timely information?</li> <li>• If the information is published in print in different editions, is it clear what edition the page is from?</li> </ul>	

Criteria	Question	Notes
<b>Purpose/ Audience</b>	<ul style="list-style-type: none"> <li>Does the site indicate who the intended audience is?</li> <li>Is there any evidence of why the information is provided?</li> </ul>	

### Reliability

A source is considered reliable if you can find a pattern of true facts from that source. In order to determine if a source is reliable, you can select facts from that source and look them up in another source. You can also research the source to see if they have been caught presenting wrong information before. Review your sources to determine if they can be considered reliable.

### Focus on the Sentence

Think about your analysis of the two websites' credibility. Write two sentences about the websites using the words that follow.

although/credible Although anyone can post on the Internet, some Internet sources are very credible.

since/domain suffix Since my website has the domain suffix .gov, I know that it comes from a government website.

### Faulty Reasoning

Sometimes, you can determine the credibility of a source by examining where it came from. Other times, the way that the author uses language can indicate how reliable the text is. When you read sources for your research project, look for faulty reasoning that can reveal an unreliable source.

10. Read the graphic organizer that follows. Then revisit the websites you analyzed and look for examples of faulty reasoning to add to the graphic organizer.

Term	Definition	Sample	Examples from Sources
emotional appeal	statements that create an emotional response in order to persuade the audience	Our children depend on us to protect them from harmful advertising!	
stereotype	a widely held belief about a person or thing that is often an oversimplified idea or opinion	Teenagers want to fit in, so they are especially vulnerable to bandwagon advertisements.	
hyperbole	an exaggerated claim that is not meant to be taken literally	My brother is on social media 24/7. He must see a million ads a week!	

**17** Have students complete the Focus on the Sentence. Model the task by constructing a sentence with *although/credible* with the class. Point out that the sentence has a dependent clause, a comma, and an independent clause. Then have students write their own sentences. Check that students are able to use their newly acquired vocabulary terms *credible* and *domain suffix* correctly.

**18** Help students identify the terms in the graphic organizer and read the examples of each. Explain that these terms are particularly relevant to advertisements and persuasive and argumentative writing. Have them look for examples of faulty reasoning in the two sites they analyzed.

## ACTIVITY 2.6 continued

**19** Review the information on precise language and formal style. Provide examples of domain-specific language, such as *authority* and *reliability*. Have students discuss the examples of precise diction and informal versus formal style. Ask students to create their own examples by having them do **quickwrites** about a topic. Then, as a class, choose two or three to revise from informal to formal language.

**20** Have students respond to the informational writing prompt.

### ASSESS

Review students' responses to the Focus on the Sentence task to ensure that students understand the meanings of *credibility*, and *domain suffix*. Then evaluate students' responses to the writing prompt to ensure that they are able to correctly use formal, academic language; transitions that create coherence; and a concluding statement that explains why the source is credible.

### ADAPT

If students need additional help understanding how to evaluate their sources, guide them as they use the questions in the graphic organizer to evaluate two sources on a topic for which they have prior knowledge. For example, consider using two reviews of an electronic device, one from a reputable organization that offers unbiased reviews and another from a person who recently bought the device.

## 2.6

### Check Your Understanding

Describe how you will check your research sources for faulty reasoning.

#### LANGUAGE & WRITER'S CRAFT: Revising for Precise Language and Formal Style

When writing for an academic audience, you should use precise and domain-specific language and a formal writing style. Domain-specific language is language related to the topic. When you revise your writing, pay close attention to your word choice: consider how choosing one word instead of another improves your clarity and message. Remember to keep your audience in mind as you revise and publish your writing.

**Domain-specific language:** Your choice of words (diction) should include the domain-specific terms that you are learning, as they apply to the topic. For example:

**Original:** The advertisement used a celebrity to help sell its product.

**Revised:** The advertisement used the advertising technique of a testimonial to sell its product by using the professional athlete Derek Jeter.

**Precise language:** Another way to strengthen your writing is to provide detailed information about a text or resource you are citing.

**Original:** In the news story it says that ...

**Revised:** In the news story from the *New York Times* on Sunday, March 18, the author claims that ...

**Formal language:** Formal language avoids slang, and it generally does not use contractions. Most slang that you might use in everyday language is too casual for academic writing. Words or phrases you use with your peers may not be understood by different audiences or appropriate for an academic topic.

**Original:** I'm a teenager, and, like, most of us look at famous people as cool and in the know.

**Revised:** Teenagers generally believe that famous people are models for their own thoughts and behavior.

**PRACTICE** In your Reader/Writer notebook, revise the examples that follow to include precise and domain-specific language as well as a formal writing style. Work to eliminate wordiness and redundancy, or unnecessarily repeated ideas. Then, look back at the paragraph you wrote in Activity 2.5. Look for sentences that you can revise for formal language and precise writing.

There was this ad I saw for a video game and it made it seem like everyone wanted one when I watched the video game ad. It's not cool when advertisers use famous people to sell things and convince people something is so great when people might not have wanted it in the first place.

### Writing to Sources: Informational Text

Using information from one of your searches, write a paragraph summarizing the information you found about marketing to young people. Be sure to:

- Use precise and formal language to present information.
- Use transitions that create coherence.
- Include a concluding statement that explains why the source is credible, and if the source is also reliable.



### WRITING TO SOURCES: INFORMATIONAL TEXT

The following standards are addressed in the writing prompt:

- W.7.2d, W.7.2e
- W.7.2c
- W.7.2f, W.7.8

**Professional Development Center for Educators  
(PDCE)**

# Bookworms Reading and Writing Professional Learning Opportunities

## 1. Transitioning to Bookworms '22 Curriculum Revision

Teachers transitioning to the newest edition of Bookworms K–5 Reading & Writing from the beta version receive a half-day training to dive into the improvements and updates in the revised curriculum. The 3-hour training includes a keynote from Dr. Sharon Walpole, an overview of the changes to each grade level, time to dig into the lessons and manuals, and a chance to get questions answered. Register with Open Up Resources.

**Training date: July 26**

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## 2. New Teacher Induction

New teachers receive a five half-days of guided, explicit training in all of the Bookworms curriculum components, including time and guidance to prepare for the first month of school. Training emphasizes skilled practice of the instructional routines delivered during shared reading, interactive read-aloud, genre-based writing, and differentiated instruction. Literacy specialists from UD will deliver grade-specific training for kindergarten through eighth grade via Zoom, with content available via Canvas for the duration of the school year.

**Training dates: August 8-12**

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## 3. Asynchronous Professional Learning

This course is designed for teachers and leaders launching their implementation of Bookworms K–5 Reading & Writing, or for those who may be new to the curriculum in schools already implementing Bookworms. The series is on demand and self paced. It is designed for teachers who need relatively little initial support. Modules include the rationale for lessons and many video examples. Purchasers have access for one month.

\*This course pertains to the Bookworms Reading and Writing Curriculum in its current iteration (BETA), not the revised curriculum launched in 2022.

\*New adopters of Bookworms will receive access to a revised site.



**Professional Development Center for Educators  
(PDCE)**

# Bookworms Reading and Writing Professional Learning Opportunities

## 4. Bookworms Intensive Academy

Bookworms Intensive is a multi-tiered system of support that addresses unique learners' needs in all three tiers of instruction, including special education. Bookworms Intensive adds explicit enhancements to the core curriculum, but also requires that teachers' withdraw the enhancements as students gain independence. This Academy invites experienced special educators, literacy/reading specialists, and teachers of multi-lingual learners to collaborate meaningfully and deliver the core Bookworms curriculum in the most inclusive, rigorous way for ALL learners. Additionally, participants learn systematic procedures for progress monitoring, implementing, and fading Tier II and Tier III interventions. Initial training will be delivered over three days during the summer, and participants continue their collaborative learning throughout the school year during monthly 1-hour PLCs. On the same date as the PLC, individuals may receive 1:1 coaching virtually or face-to-face, as schedules permit. Each month, participants will receive additional support toward completing DDOE literacy micro-credentials for 10 PD hours and \$175 stipend when passed. Participants must apply and be willing to share anonymous student-level data, recorded lessons, and give/receive peer coaching. Contact Dr. Jaime True Daley for an application and registration at [jtdaley@udel.edu](mailto:jtdaley@udel.edu).

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**Offering one cohort with up to 25 Delaware educators:**

**August 31 - September 1**

**PLC & Coaching Dates on the 3rd Wednesday of the month**

**9/21/22; 10/19, 11/16, 12/21, 1/4, 2/15, 3/15, 4/19, 5/17**

**District-specific cohorts may also be available.**

**Contact Jaime True Daley at [jtdaley@udel.edu](mailto:jtdaley@udel.edu)**



# Professional Development Center for Educators (PDCE)

## SERVICE OFFERINGS 2021-22

# LITERACY

### *HQIM: Bookworms Reading and Writing Differentiated Training and Coaching (Grades K-8)*

#### **Initial Adoption: Training and Coaching**

- **New Teacher Induction:** We offer grade-level specific sessions in June, July, and August to fully train new BW teachers in the curricular shifts and implementation of shared reading, ELA, and differentiated instruction that include lesson simulations, guided practice, discussion, and preparation for the first module of the curriculum. These sessions are not sponsored by DDOE and must be contracted through PDCE or OpenUp Resources
- **School-based coaching:** Effective implementation of HQIM benefits from 90-minutes of collaborative inquiry (CI) per month, during which grade-level teams study and practice upcoming lessons and evaluate student work to set instructional goals. Literacy specialists will observe lessons linked to goals and deliver actionable feedback between monthly CI team meetings. Partnerships benefit from 28 days of coaching per school grade-level band (K-2, 3-5, 6-8) during the first year.

#### **Ongoing Implementation Integrity: Coaching**

- During years two and three of implementation, literacy specialists observe instruction and share actionable feedback with individual teachers and grade-level teams. We lead collaborative inquiry with time for studying and practicing upcoming lessons and analyzing student work. We recommend 18 days in year 2 and 9 days in year 3 for each grade level band.

#### **Advanced Bookworms Implementation: Collective Inquiry (CI) Cohorts**

- **Differentiated Reading Cohort:** Educators strengthen implementation of Walpole's & McKenna's (2017) approach to differentiated reading in K-3, and/or apply additional research to differentiate reading for intermediate level students in grades 4-8.
- **Differentiated Writing Cohort:** Educators deepen their understanding of the science of reading and the cognitive models of reading and writing. Through half-day virtual or in-person training delivered quarterly during the school year, grade-level teams marry Bookworms reading and writing instructional routines and materials to deliver coherent instruction during Tier I. Then, cohorts learn systematic work analysis and instructional goal setting protocols that drive "Day 5" differentiated instruction procedures during the DI literacy block.
- **Bookworms Leadership Cohort:** School-based leaders unite within and across districts to conduct walk-throughs and consider actionable feedback for high-quality implementation of Bookworms K-8. Six half-day face-to-face sessions begin with a needs assessment, continue with school-based PL with walk-throughs and conclude with an evaluation and district-wide portfolio of implementation.



# Professional Development Center for Educators (PDCE)

## SERVICE OFFERINGS 2021-22

# LITERACY

Contact: [Jaime True Daley](#)

### ***HQIM: Co-teaching K-8 Bookworms Reading and Writing Training and/or Coaching***

For schools using BW, we can work specifically with teams of general education teachers, special education teachers, and teachers of multi-lingual learners to institute effective co-teaching practices. Teams learn a set of co-teaching models and strategies for adapting materials to reach children who need curriculum enhancements. These partnerships will engage teachers in initial training and ongoing coaching.

### **HQIM: Bookworms Reading and Writing District/School-Led Virtual Training Management Site**

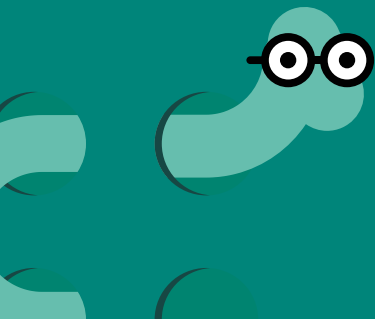
We offer a training site via the *Canvas* platform with everything a district or school needs to use to deliver BW training for K-5 shared reading, ELA, and differentiated instruction. The site includes facilitation guides, videos, and discussion boards that districts or schools can use for contracted periods of time to support teachers to implement the curriculum with local support. (BETA site available now. Revised site available July, 2012)

### ***HQIM: Middle and High School Literacy: Evidence-based Practices***

There are currently few HQIM choices for middle and high school literacy. If teachers have access to trade books and anthologies with texts at grade-appropriate levels of difficulty, we can help them use an evidence-based model to plan instruction for reading and writing narratives, information texts, literary analyses, and argumentative texts. These partnerships include training days, curriculum design days, and ongoing coaching.

[Return to List](#)





# PROFESSIONAL LEARNING OPPORTUNITIES for *Bookworms K–5 Reading and Writing*

## Summer Professional Learning Opportunities



### About the Curriculum

Bookworms K–5 Reading and Writing was developed by Dr. Sharon Walpole and Dr. Michael McKenna with the support of the University of Delaware. Bookworms is built upon the science of reading and has generated impressive results for improving student achievement through straightforward routines. The Bookworms team at the University of Delaware is equipped to support teachers, coaches and administrators with professional learning to ensure a successful and sustainable implementation of Bookworms.

### *Bookworms K–5 Reading & Writing New Teacher Training*

New teachers receive five half-days of guided, explicit training in all of the Bookworms curriculum components, including time and guidance to prepare for the first month of school. Training emphasizes skilled practice of the instructional routines delivered during shared reading, interactive read-aloud, genre-based writing, and differentiated instruction. [Register here!](#)

**DATES:** June 13-17, July 18-22, August 15-19      **COST:** \$500/teacher

### *Transitioning from the beta version of Bookworms K–5 Reading & Writing*

Teachers transitioning to the newest edition of Bookworms K–5 Reading & Writing from the beta version receive a half-day training to dive into the improvements and updates in the curriculum. The 3-hour training includes a keynote from Dr. Sharon Walpole, an overview of the changes to each grade level, time to dig into the lessons and manuals, and a chance to get questions answered. [Register here!](#)

**DATE:** July 26      **COST:** \$150/teacher

### *Advanced Bookworms*

Experienced educators, including teachers, coaches, and administrators experience a two day virtual conference with keynote presentations and six session choices. Sessions reflect on the innovations brought forth through the pandemic and leveraging high-quality BW implementation to accelerate literacy gains. For example, participants can dig deeply into genre-based writing and practice effective instruction with Bookworms coaches. [Register here!](#)

**DATE:** August 25-26      **COST:** \$500/teacher

### *Bookworms Intensive*

Bookworms Intensive is a multi-tiered system of support that addresses unique learners' needs in all three tiers of instruction, including special education. Bookworms Intensive adds explicit enhancements to the core curriculum to flexibly respond to diverse learners' needs, but also requires that teachers' withdraw the enhancements as students gain independence. This Academy invites experienced, special educators, literacy/reading specialists, and ESOL teachers to collaborate meaningfully and deliver the core Bookworms curriculum

## Summer Professional Learning Opportunities

in the most inclusive, rigorous way for ALL learners. Additionally, participants learn systematic procedures for progress monitoring, implementing, and fading Tier II and Tier III interventions. Initial training will be delivered over three days during the summer, and participants continue their collaborative learning throughout the school year during monthly 1-hour PLCs. Participants must be willing to share recorded lessons and give/receive peer coaching. [Apply here!](#)

DATE: August 3-5      COST: \$1000/teacher\*

\*Must apply and be admitted to the BW Intensive Cohort

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## Asynchronous Professional Learning Opportunities

### 3-Day Initial Training

This course is designed for teachers and leaders launching their implementation of Bookworms K-5 Reading & Writing, or for those who may be new to the curriculum in schools already implementing Bookworms. The series is on demand and self paced. It is designed for teachers who need relatively little initial support. Modules include the rationale for lessons and many video examples. Purchasers have access for one month. \*This course pertains to the Bookworms Reading and Writing Curriculum in its current iteration, not the revised curriculum launched in 2022.

One Month Access to Self-Paced Course \$150/teacher

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### DI Block Videos

On-demand video collection of Bookworms K-5 Reading & Writing DI Block lessons. The videos lessons are housed in a password-protected site that includes videos for all lessons in the DI Block. This video lesson collection can be utilized as professional learning for teachers/leaders, as they demonstrate every lesson in the first two staircase levels. Each site also includes a share link for teachers to provide student access to engage in video-based instruction.

COST: \$5000/District/Year

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## Ongoing Professional Learning Opportunities

### Virtual School-Based Coaching

After teachers have engaged in our virtual training course to launch the curriculum, members of the Bookworms design team at University of Delaware can provide expert coaching virtually. Coaching sessions are 90 minutes each and 4 grade-level teams can be scheduled in a day. Sessions include adult lesson simulations, collaborative analysis of site-based teacher videos, and/or review of student work. Virtual coaching (facilitated over Zoom) costs 1800/day. In two days with four sessions per day, we can work with each grade-level team, specialists, and administrators. We recommend two days every six weeks.

COST: \$1,800/day

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### On-site Teacher Observation and Feedback

After teachers have engaged in our virtual training course to launch the curriculum, members of the Bookworms design team at University of Delaware provide site-based observation and feedback. These two-day services begin with

a day of observation of the curriculum in action, with coach time scheduled by the school. On the second day, the coach will meet with grade-level teams in 45-minute segments and then with the school leadership team to problem solve and set implementation quality goals. We recommend every 9 weeks.

**COST:** \$5,500/2 days

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### **On-site Administrator Training**

Leaders with strong understanding of Bookworms instruction can facilitate strong implementation. Members of the Bookworms design team at University of Delaware provide site-based support for these leaders. These two-day services begin with a day's introduction to observation tools and implementation descriptions. On the second day, the coach will visit classrooms with leaders, ensuring that they can use observation tools as intended. We recommend it twice per year.

**COST:** \$5,500/2 days

### **ELA Professional Learning Opportunities**

- **New Teachers**
  - All new teachers receive five (5) days of initial Bookworms training provided by DOE/Open Up Resources
- **Returning Teachers**
  - Returning teachers are encouraged to attend summer Professional Learning opportunities provided by DOE/Open Up Resources (deep-dive into specific content areas)
- **All Teachers**
  - All teachers receive monthly coaching by the Bookworms coach through the University of Delaware PDCE
  - Teachers participate in both individual observations and small group PLC meetings

### **Academic MTSS Process for Reading**

- **Benchmark Screening**
  - DIBELS Assessment: Fall, Winter, Spring
- **Diagnostics**
  - Data meetings after each Benchmark Screening to track and analyze all students
  - Monthly data meetings for Tier 2 & Tier 3 students
- **Evidence-Based Interventions**
  - All students receive Differentiated Instruction (DI) 5x/week, for 15 minutes a day
  - Tier 3 students receive Bookworms Intensive (BWI) Differentiated Instruction (DI) 5x/week, for 30 minutes a day
- **Progress Monitoring**
  - DIBELS
    - Tier 2: Biweekly monitoring
    - Tier 3: Weekly monitoring
  - Mid and End of Cycle Differentiated Instruction (DI) Assessments
    - Part of Bookworms framework
    - All students tested every 3 or 6 weeks depending on length of cycle

## ELA Curriculum Resubmission Memo

### **DDOE Early Review Submission Expectation 1: Specify which edition of Springboard has been adopted.**

TECS Response: Springboard (2021 College Board edition)

### **DDOE Early Review Submission Expectation 2: Describe the professional learning opportunities provided for the ELA teachers of grades 6-8.**

TECS Response: New Teachers attend a three-day Initial Institute or four 1.5-hour virtual classes provided by Springboard. These trainings focus on the nuts and bolts of the program, emphasizing planning and instructional support. This training also immerses teachers into the digital platform and print edition. During the school year, new teachers participate in a one-day Initial Institute Follow-Up PD.

Returning Teachers are encouraged to attend a training (either one full day in person or two 2.5-hour virtual sessions) focusing on purposeful planning.

All teachers receive monthly observations and coaching and participate in grade-level and content-area PLC meetings.

### **DDOE Early Review Submission Expectation 3: Describe the MTSS process in reading for grades 6-8.**

#### Component 1: Benchmark Screening

DIBELS Assessment: Fall, Winter, Spring (Acadience Reading 7–8 for students in Grades 7–8)

#### Component 2: Diagnostics

- Data meetings after each Benchmark Screening to track and analyze all students
- Data meetings for Tier 2 & Tier 3 students after 6-week cycles of intervention

#### Component 3: Evidence-Based Interventions

- Tier 2:
  - Students receive 15 minutes per day of additional intervention support (push in, small group, or individual) to meet their targeted needs
- Tier 3:
  - Students receive 30 minutes per day of small group intervention to meet their targeted needs
- Interventions Used:
  - Leveled Literacy Intervention (LLI)
  - Achieve3000

#### Component 4: Progress Monitoring

- DIBELS
- Tier 2 & 3: Biweekly monitoring



## **Appendix 2 - Curriculum Documents :: English Language Arts**

## English Language Arts Curriculum Documents

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## Kindergarten Overview

Kindergarten Shared Reading, Module 1	
Unit 1: The World Around Us	
1–5	<i>Miss Bindergarten Gets Ready for Kindergarten</i>
6–10	<i>Rosie’s Walk</i>
11–15	<i>Cookie’s Week</i>
16–20	<i>Lola at the Library</i>
21–25	<i>Biscuit Loves the Library</i>
26–30	<i>Paddington Sets Sail</i>
31–35	<i>Fred and Ted Go Camping</i>
36–40	<i>Pumpkin Day!</i>
41–45	<i>My Trip to the Hospital</i>

Kindergarten ELA, Module 1	
Unit 1: Listening to Stories	
1–2	<i>Caps for Sale</i>
3–4	<i>The Most Magnificent Thing</i>
5	Subjects and Predicates
6–7	<i>Frederick</i>
8–10	<i>Rosie’s Walk</i>
11–12	<i>The Doorbell Rang</i>
13–15	<i>Charlie Needs a Cloak</i>
16–18	<i>The Full Belly Bowl</i>
19–20	Book Review Sentences
Unit 2: Learning New Information	
21–22	<i>A Tree for All Seasons</i>
23–25	<i>Forest Bright, Forest Night</i>
26–28	<i>What Lives in a Shell?</i>
29–30	Shell Facts
31–33	<i>What Magnets Can Do</i>
34–35	Magnet Facts
Unit 3: Coping With Problems	
36–37	<i>The Ugly Pumpkin</i>
38–40	Pumpkin Day Event
41–43	<i>Owen</i>
44–45	<b>Little Critter Retelling</b>

## Choosing and Using Books

Kindergarten Shared Reading, Module 2	
Unit 1: Insects	
1–5	<i>A Bee's Life</i>
6–10	<i>Hi! Fly Guy</i>
11–15	<i>Super Fly Guy</i>
Unit 2: Meeting New Friends	
16–20	<i>Sarah Morton's Day</i>
21–25	<i>Sammy the Seal</i>
26–30	<i>Little Lucy</i>
31–35	<i>Are You My Mother?</i>
Unit 3: Sounds in Our World	
36–40	<i>Roadwork</i>
41–45	<i>Rap a Tap Tap</i>

Kindergarten ELA, Module 2	
Unit 1: Our Changing Environment	
1–3	<i>A Log's Life</i>
4–5	Bee Facts
6–8	<i>Building with Dad</i>
9–10	How to Build a School
Unit 2: Learning About America	
11–13	<i>Can We Ring the Liberty Bell?</i>
14–15	<i>Fry Bread</i>
16–19	<i>Of Thee I Sing</i>
20	Famous American Facts
21–22	<i>America is...</i>
23–25	Sequence of Events
Unit 3: Funny Animal Characters	
26–27	<i>Giggle, Giggle, Quack</i>
28–30	Sammy the Seal
31–35	<i>Make Way for Ducklings</i>
Unit 4: Being Brave	
36–38	<i>Sheila Rae, the Brave</i>
39–40	My Favorite Character
41–43	<i>Happy Birthday, Martin Luther King</i>
44–45	<b>What's Your Opinion?</b>

## Kindergarten Overview

Kindergarten Shared Reading, Module 3	
Unit 1: Fantasy Characters	
1–5	<i>Bunny Cakes</i>
6–10	<i>Good Night, Wind</i>
11–15	<i>Snowmen at Night</i>
Unit 2: Author Study: Ezra Jack Keats	
16–20	<i>Whistle for Willie</i>
21–25	<i>The Snowy Day</i>
26–30	<i>Peter’s Chair</i>
Unit 3: Life Cycles	
31–35	<i>From Tadpole to Frog</i>
36–40	<i>From Caterpillar to Butterfly</i>
41–45	<i>How Plants Grow</i>

Kindergarten ELA, Module 3	
Unit 1: Learning Together	
1–2	<i>Nothing Sticks Like a Shadow</i>
3–5	My Day
6–8	<i>Chrysanthemum</i>
9–10	A Sad Event
11–13	<i>Miss Bindergarten Celebrates the 100th Day</i>
14–15	A Weather Story
Unit 2: Learning About Our Past	
16–18	<i>George Washington</i>
19–20	A Special Person
21–22	<i>Wind Flyers</i>
23–25	Wind Flyers Book Review
Unit 3: Our Families	
26–28	<i>Grandfather’s Wrinkles</i>
29–30	Book Reviews
31–33	<i>The Pain and the Great One</i>
34–35	Book Review
Unit 4: Life Cycles	
36–37	<i>How a Seed Grows</i>
38–40	Have You Ever Wondered...?
41–43	<i>In a Nutshell</i>
44–45	<b>All About Plants</b>

## Choosing and Using Books

Kindergarten Shared Reading, Module 4	
Unit 1: Making a Difference	
1–5	<i>Daring Amelia</i>
6–10	<i>Follow the Moon Home</i>
11–15	<i>The World is Not a Rectangle</i>
16–20	<i>Harriet Tubman</i>
21–25	<i>Dancing Hands</i>
Unit 2: Animal Sidekicks	
26–30	<i>Have You Seen My Dinosaur?</i>
31–35	<i>Henry and Mudge and the Wild Wind</i>
36–40	<i>Harry the Dirty Dog</i>
41–45	<i>Tarra &amp; Bella</i>

Kindergarten ELA, Module 4	
Unit 1: Describing Our World	
1–2	<i>Actual Size</i>
3–5	<i>Actual Size</i>
6–8	<i>Follow the Water from Brook to Ocean</i>
9–10	Book Reviews
11–14	<i>Clouds</i>
15	Cloud Observation Report
Unit 2: Wonderful You!	
16–18	<i>Career Day</i>
19–20	Book Reviews
21–22	<i>Amazing Grace</i>
23–25	Harriet Tubman Report
26–30	<b>Book of the Year</b>
31–33	<i>A Bad Case of Stripes</i>
34–35	An Interesting Event
36–38	<i>Ada's Violin</i>
39–40	An Exciting Adventure
41	<i>Leo the Late Bloomer</i>
42–45	<b>Wonderful Me!</b>

## Grade 1 Overview

Grade 1 Shared Reading, Module 1	Grade 1 ELA, Module 1
Unit 1: Playing Games	Unit 1: Becoming a Writer
1–5 <i>Hooray for Snail!</i>	1–25 Learning to Write Sentences
6–10 <i>Soccer Game!</i>	
Unit 2: Animal Characters	
11–15 <i>“What Is That?” Said the Cat</i>	
16–20 <i>Biscuit</i>	
21–25 <i>Biscuit Finds a Friend</i>	
26–30 <i>Biscuit Goes to School</i>	Unit 2: Learning and Growing
31–35 <i>The Fat Cat Sat on the Mat</i>	26–27 <i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i>
Unit 3: New Experiences	28–30 <i>Pepper’s Journal</i>
36–40 <i>Little Critter Going to the Sea Park</i>	31–32 <i>The Art Lesson</i>
41–45 <i>Little Critter Sleeps Over</i>	33–35 Book Reviews
	Unit 3: Learning About Fall
	36–37 <i>How Do Apples Grow?</i>
	38 <i>Possum’s Harvest Moon</i>
	39–40 <i>Why Do Leaves Change Color?</i>
	41 <i>In November</i>
	42–45 <b>Informative Writing: Fall Research Report</b>

## Choosing and Using Books

Grade 1 Shared Reading, Module 2	
Unit 1: Imaginary Friends	
1–5	<i>Danny and the Dinosaur Go to Camp</i>
6–15	<i>Danny and the Dinosaur</i>
16–20	<i>The Horse in Harry’s Room</i>
21–30	<i>Oliver</i>
31–35	<i>Danny and the Dinosaur and the Sand Castle Contest</i>
36–40	<i>Danny and the Dinosaur Ride a Bike</i>
41–45	<i>Morris the Moose</i>

Grade 1 ELA, Module 2	
Unit 1: Stories from Our Past	
1	<i>Raven</i>
2–4	<i>Why Mosquitoes Buzz in People’s Ears</i>
5	<i>Stone Soup</i>
6–7	<i>Strega Nona</i>
8–10	Book Reviews
11–13	<i>Eleanor</i>
14–15	<i>A. Lincoln and Me</i>
16–18	<i>Now and Ben</i>
19–20	<i>Duke Ellington</i>
21–25	All About Me
Unit 2: Making Good Decisions	
26–27	<i>When I Grow Up</i>
28–30	Best Job for Me
31–32	<i>Do I Need It? Or Do I Want It?</i>
33–35	Needs and Wants
36–37	<i>Max’s Words</i>
38–40	<i>Just a Dream</i>
41–45	<b>The Best of Syd Hoff</b>



## Grade 1 Overview

Grade 1 Shared Reading, Module 3	Grade 1 ELA, Module 3
Unit 1: Telling Stories	Unit 1: Telling Our Stories
1–5 <i>Little Bear’s Friend</i>	1–5 A Very Special Day
6–10 <i>Father Bear Comes Home</i>	6–7 <i>The Relatives Came</i>
11–15 <i>Little Bear’s Visit</i>	8–9 <i>Thunder Cake</i>
16–20 <i>The Fire Cat</i>	10 <i>Owl Moon</i>
21–25 <i>Frog and Toad are Friends</i>	11–12 <i>A Chair for My Mother</i>
26–30 <i>Frog and Toad All Year</i>	13–14 <i>Metal Man</i>
Unit 2: Learning Our History	15 <i>My Brother Charlie</i>
31–35 <i>Long, Tall Lincoln</i>	16–20 A Special Memory
36–40 <i>Harriet Tubman</i>	Unit 2: United States Symbols
41–45 <i>Martin Luther King Jr.</i>	21–22 <i>Presidents’ Day</i>
	23–24 <i>The Washington Monument</i>
	25 <i>Is a Bald Eagle Really Bald?</i>
	Unit 3: Telling Stories
	26–27 <i>Blueberries for Sal</i>
	28–32 My Family Adventure
	33–34 <i>Wings</i>
	35 Wings Book Review
	Unit 4: Wonderful You!
	36–38 <i>The Rainbow Tulip</i>
	39 <i>Stand Tall, Molly Lou Melon!</i>
	40 <i>The Thing Lou Couldn’t Do</i>
	41–45 <b>Wonderful Me!</b>

## Choosing and Using Books

Grade 1 Shared Reading, Module 4	
Unit 1: Solving Mysteries	
1–5	<i>Young Cam Jansen and the Library Mystery</i>
6–15	<i>Nate the Great Saves the King of Sweden</i>
16–25	<i>Nate the Great and the Fishy Prize</i>
Unit 2: Coping with Challenges	
26–35	<i>The Chalk Box Kid</i>
36–45	<i>The Paint Brush Kid</i>

Grade 1 ELA, Module 4	
Unit 1: Exploring Our World	
1–2	<i>The Popcorn Book</i>
3–10	How to Make Popcorn
11–12	<i>Tops and Bottoms</i>
13–14	<i>From Seed to Plant</i>
15	Our Favorite Plant Book
16–17	<i>Newton and Me</i>
18–20	Force and Motion Observation Report
Unit 2: Summing It Up	
21–30	A Mystery
31	<i>Apple Pie 4th of July</i>
32–35	A Family Tradition
36–40	Kindness Counts!
41–45	<b>Book of the Year</b>

## Grade 2 Overview

Grade 2 Shared Reading, Module 1	
Unit 1: New Beginnings	
1–5	<i>Arthur’s Back to School Day</i>
6–10	<i>Henry and Mudge</i>
Unit 2: Friendship	
11–15	<i>Pinky and Rex</i>
16–25	<i>Ivy + Bean</i>
Unit 3: Life Cycles	
26–30	<i>Tale of a Tadpole</i>
31–35	<i>From Tadpole to Frog</i>
36–40	<i>Caterpillar to Butterfly</i>
41–45	<i>Great Migrations</i>

Grade 2 ELA, Module 1	
Unit 1: Telling Our Stories	
1–5	Personal Narrative
6–10	Learning to Write Book Reviews
11–12	<i>A New Coat for Anna</i>
13	Planning a Book Review
14–20	<i>Gooney Bird Greene</i>
Unit 2: Ways Our World Works	
21–22	<i>Magnets Push, Magnets Pull</i>
23–28	<i>Sounds All Around</i>
29–32	<i>Clang!</i>
Unit 3: Animals in the Wild	
33–34	<i>Where in the Wild?</i>
35–37	<i>Camouflage</i>
38–45	<b>Frogs Research Report</b>

## Choosing and Using Books

Grade 2 Shared Reading, Module 2	
Unit 1: Native Americans	
1–5	<i>The Hopi People</i>
6–10	<i>The Cheyenne People</i>
11–15	<i>The Cherokee People</i>
16–20	<i>The Mohawk People</i>
Unit 2: Actions and Consequences	
21–31	<i>A-Z Mysteries</i>
32–40	<i>Cam Jansen Case #27</i>
41–45	<i>Practice Makes Perfect for Rotten Ralph</i>

Grade 2 ELA, Module 2	
Unit 1: Weather	
1–2	<i>Going Home</i>
3–9	<i>Tornado</i>
10–12	<i>Cloudy With a Chance of Meatballs</i>
13	Weather Report for Chewandswallow
Unit 2: Native American Legends	
14–15	<i>The Girl Who Loved Wild Horses</i>
16–17	<i>The Legend of the Bluebonnet</i>
18–19	<i>Arrow to the Sun</i>
20–27	<b>Informative Writing: Native Americans Research Report</b>
Unit 3: Our Money, Our Choices: Earning, Saving, Spending	
28–29	<i>Alexander, Who Used to Be Rich Last Sunday</i>
30–31	<i>Who’s Buying? Who’s Selling?</i>
32–33	<i>My Rows and Piles of Coins</i>
34–35	My Earning/Saving/Spending Plan
Unit 4: My Story, Your Story	
36–42	My Experience
43–44	<i>Miss Rumphius</i>
45	Book Review of Miss Rumphius

## Grade 2 Overview

Grade 2 Shared Reading, Module 3	Grade 2 ELA, Module 3
Unit 1: Making a Difference in Our World	Unit 1: Breaking Barriers
1–11 <i>Judy Moody Saves the World</i>	1–3 <i>Helen Keller</i>
	4–5 <i>Amelia and Eleanor Go for a Ride</i>
	6–7 <i>Mudball</i>
	8 <i>Breaking Barriers</i>
Unit 2: Changing the Game	Unit 2: My Story, My Feelings
12–30 <i>Abraham Lincoln</i>	9–18 <i>My Feelings</i>
	Unit 3: Making History
	19–20 <i>Dad, Jackie, and Me</i>
	21–22 <i>The Story of Ruby Bridges</i>
	23–25 <i>My Brother Martin</i>
31–35 <i>Jackie Robinson</i>	26–30 <b>Opinion Writing: Making Good Choices</b>
Unit 3: Mysterious Mummies	Unit 4: Making a Difference in Your World
36–40 <i>Mummies</i>	31–50 <i>Poppy</i>
41–50 <i>The Mystery of the Mummy’s Curse</i>	

## Choosing and Using Books

Grade 2 Shared Reading, Module 4		Grade 2 ELA, Module 4	
Unit 1: Books and Culture		Unit 1: For Love of Country	
1–10	<i>Magic Tree House: Day of the Dragon King</i>	1–3	<i>The Flag We Love</i>
		4–5	<i>The Wall</i>
		Unit 2: A Cinderella Story	
11–20	<i>Magic Tree House Fact Tracker: China</i>	6–7	<i>Cinderella</i>
		8–9	<i>The Rough-Face Girl</i>
		10–11	<i>The Egyptian Cinderella</i>
		12–16	Comparing Cinderella Stories
Unit 2: Myths and Culture		Unit 3: Earth and Space: Moving, Growing, Changing	
21–30	<i>Time Warp Trio: It’s All Greek to Me</i>	17–19	<i>Starry Messenger</i>
		20–22	<i>Starstruck</i>
		23–25	<i>Cracking Up</i>
		26–28	<i>How a Plant Grows</i>
		29–30	<i>How Do You Raise a Raisin?</i>
31–40	<i>Magic Tree House Fact Tracker: Ancient Greece and the Olympics</i>	Unit 4: Look How Far I’ve Come!	
		31–35	<b>Opinion Writing: Book Advertisement</b>
		36–40	<b>Narrative Writing: Reading and Writing Identity</b>

## Grade 3 Overview

Grade 3 Shared Reading, Module 1	Grade 3 ELA, Module 1
Unit 1: Life's Lessons	Unit 1: Purposeful Writing
1–10 <i>Owen Foote, Money Man</i>	1–5 Personal Narrative
	6–8 Introduction to Informative Writing
	Unit 2: Becoming a Writer
11–20 <i>Fudge-a-Mania</i>	9–12 <i>Boy</i>
	13–32 <i>The BFG</i>
Unit 2: Government for the People	
21–30 <i>The Constitution of the United States</i>	
31–40 <i>The Congress of the United States</i>	33–40 <b>Opinion Writing: Unearthing Character Traits</b>

## Choosing and Using Books

Grade 3 Shared Reading, Module 2	
Unit 1: Geology	
1–5	<i>Soil</i>
6–15	<i>Minerals, Rocks, and Soil</i>
16–25	<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i>
Unit 2: Powerful Connections	
26–40	<i>Because of Winn-Dixie</i>
41–45	<i>Red Kite, Blue Kite</i>

Grade 3 ELA, Module 2	
Unit 1: Patterns in Our World	
1–5	<i>Maps and Globes</i>
6–8	<i>A Drop Around the World</i>
9–15	<i>What is a Biome?</i>
16–25	Minerals and Rocks Research Report
Unit 2: Family Connections	
26–27	<i>The Keeping Quilt</i>
28–29	<i>Grandfather’s Journey</i>
30–32	Book Review
Unit 3: Timeless Tales	
33–34	<i>Lon Po Po</i>
35–40	<i>American Tall Tales</i>
41–45	<b>Narrative Writing: Tall Tale Alternate Ending</b>



## Grade 3 Overview

Grade 3 Shared Reading, Module 3	Grade 3 ELA, Module 3
Unit 1: Fight for What's Right	Unit 1: Fearless American Females
1–5 <i>A Picture Book of Frederick Douglass</i>	1–5 <i>Rosa</i>
6–25 <i>Susan B. Anthony</i>	6–10 <i>When Marian Sang</i>
	Unit 2: Astonishing Accomplishments
	11–14 <i>Harvesting Hope</i>
	15–17 <i>Snowflake Bentley</i>
	18–25 <b>Informative Writing: Biography Research Report</b>
Unit 2: Reaching Our Goals	Unit 3: Exposing Injustice
26–30 <i>And Then What Happened, Paul Revere?</i>	26–40 <i>Shiloh</i>
31–40 <i>Who is Sonia Sotomayor?</i>	
41–45 <i>The Story of Ruth Bader Ginsburg</i>	41–45 <b>Opinion Writing: Exposing Injustice</b>

## Choosing and Using Books

Grade 3 Shared Reading, Module 4	
Unit 1: A Journey of Self Discovery	
1–15	<i>The Miraculous Journey of Edward Tulane</i>
16–20	<i>The Boy Who Harnessed the Wind</i>
Unit 2: A Journey to the Past	
21–25	<i>Ancient Greece</i>
26–40	<i>Here Lies the Librarian</i>

Grade 3 ELA, Module 4	
Unit 1: Actions and Consequences	
1–3	<i>Bringing the Rain to Kapiti Plain</i>
4–7	<i>One Hen</i>
8–10	<i>Pinduli</i>
11–20	Pinduli Adaptation
Unit 2: Readers are Writers	
21–30	Ancient Greece Infographic
31–35	<b>Opinion Writing: Book Advertisement</b>
Unit 3: Look How Far I've Come	
36–40	<b>Narrative Writing: Reading and Writing Identity</b>

## Grade 4 Overview

Grade 4 Shared Reading, Module 1	Grade 4 ELA, Module 1
Unit 1: Our Changing Relationships	Unit 1: Writing for a Purpose
1–20 <i>A Strong Right Arm</i>	1–5 Personal Narrative
	6–10 Opinion Written Response
	Unit 2: Natural Disasters
	11–15 <i>Earthquakes</i>
	16–20 <i>Go Straight to the Source</i>
21–38 <i>Love, Amalia</i>	21–30 <b>Informative Writing: Natural Disasters Research Project</b>
	Unit 3: Mysterious Exploration
	31–33 <i>Roanoke: The Lost Colony</i>
	34–38 News Article

## Choosing and Using Books

Grade 4 Shared Reading, Module 2	
Unit 1: Change and Conflict	
1–33	<i>Blood on the River</i>
34–40	<i>Can't You Make Them Behave, King George?</i>

Grade 4 ELA, Module 2	
Unit 1: The Mysteries of Friendship	
1–8	Mystery
9–11	<i>Worst of Friends</i>
12–18	Compare and Contrast
Unit 2: Tracking Relationships	
19–27	<i>My Life in Dog Years</i>
28	Compare and Contrast
29–30	<i>Shaking Things Up</i>
31–40	<b>Opinion Writing: Persuasive Letter</b>

## Grade 4 Overview

Grade 4 Shared Reading, Module 3	Grade 4 ELA, Module 3
Unit 1: Looking Beneath the Surface	Unit 1: Finding Courage
1–36 <i>Tangerine</i>	1–3 <i>Shaking Things Up</i>
	4–22 <i>Hatchet</i>
	23–28 <b>Narrative Writing: Survival Story</b>
37–55 <i>My Life as a Book</i>	29–55 <i>Alabama Moon</i>

## Choosing and Using Books

Grade 4 Shared Reading, Module 4	Grade 4 ELA, Module 4
Unit 1: Understanding Each Other	Unit 1: The Power of Words
1–30 <i>Starry River of the Sky</i>	1–3 <i>Miss Alaineus</i>
	4–8 Doing What’s Right
	Unit 2: The Power of Actions
	9–12 <i>Freedom on the Menu</i>
	13 <i>Shaking Things Up</i>
	Unit 3: Understanding Our World
	14–19 <i>The Moon Book</i>
	20–23 <i>Moth and Wasp, Soil and Ocean</i>
	24–27 <i>Auntie Yang’s Great Soybean Picnic</i>
Unit 2: Making a Difference	Unit 4: My Journey in Literacy This Year
31–37 <i>The Amazing Life of Benjamin Franklin</i>	28–32 <b>Opinion Writing: Book Advertisement</b>
	33–37 <b>Narrative Writing: Reading and Writing Identity</b>

## Grade 5 Overview

Grade 5 Shared Reading, Module 1	Grade 5 ELA, Module 1
Unit 1: Self-Discovery	Unit 1: Writing With a Purpose
1–30 <i>Walk Two Moons</i>	1–5 Personal Narrative
	6–10 Learning to Write Opinions
	11–13 <i>Keep On!</i>
	14–19 Learning About Informative Writing
	20–25 <i>Rats Around Us</i>
	26–35 Adventure Story
Unit 2: Life Science	Unit 2: Powerful Words
31–37 <i>Animal Cells and Life Processes</i>	36 <i>Messenger, Messenger</i>
	37 <i>Hoops</i>
	38–40 <i>The Boy Who Loved Words</i>
38–45 <i>Plant Cells and Life Processes</i>	Unit 3: Compare and Contrast
	41–45 <b>Informative Writing: Compare/Contrast Cells Research Project</b>

## Choosing and Using Books

Grade 5 Shared Reading, Module 2	
Unit 1: Earth Science	
1–5	<i>Volcano</i>
6–10	<i>Oceans</i>
11–15	<i>The Sun</i>
Unit 2: Unlikely Alliances	
16–45	<i>The Westing Game</i>

Grade 5 ELA, Module 2	
Unit 1: History of Science	
1–4	<i>The Flu of 1918</i>
5–14	<i>The Wright Brothers</i>
Unit 2: History of Civil Rights	
15–32	<i>The Watsons Go to Birmingham — 1963</i>
33–45	<b>Informative Writing: Civil Rights Research Paper</b>



## Grade 5 Overview

Grade 5 Shared Reading, Module 3	Grade 5 ELA, Module 3
Unit 1: Hope and Perseverance	Unit 1: Themes in Poetry
1–20 <i>Bud, Not Buddy</i>	1–2 <i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i>
	3–4 <i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i>
Unit 2: Physics	Unit 2: The Underground Railroad
21–26 <i>How Does a Waterfall Become Electricity?</i>	5–8 <i>Aunt Harriet’s Underground Railroad in the Sky</i>
27–35 <i>Ice to Steam</i>	9–12 Compare/Contrast Underground Railroad Project
	Unit 3: Doing What’s Right
	13–25 <i>A Single Shard</i>
	26–35 <b>Opinion Writing: Doing What’s Right</b>

## Choosing and Using Books

Grade 5 Shared Reading, Module 4	Grade 5 ELA, Module 4
Unit 1: Demonstrating Courage	Unit 1: Trail of Tears
1–30 <i>The Mostly True Adventures of Homer P. Figg</i>	1–16 <i>The Porcupine Year</i>
	17–22 Trail of Tears Research Project
	Unit 2: The Importance of Story
	23–35 <i>Tuck Everlasting</i>
31–45 <i>Half and Half</i>	36–40 <b>Opinion Writing: Book Advertisement</b>
	Unit 3: Look How Far I've Come
	41–45 <b>Narrative Writing: Reading and Writing Identity</b>



\*These lists were created and reviewed by both OUR and the *Bookworms* Team on March 30th, 2022.

## Bookworms K-5 Shared Reading & ELA Required Trade Books

Key: New Title

Removed Title (from revisions)

### Grade K

First Edition (2022)	BETA
<b>Grade K Shared Reading</b>	<b>Grade K Shared Reading</b>
<i>A Bee's Life</i> (Dona Herweck Rice)	<i>A Bee's Life</i> (Dona Herweck Rice)
<i>Are You My Mother?</i> (P. D. Eastman)	<i>Are You My Mother?</i> (P. D. Eastman)
<i>Biscuit Loves the Library</i> (Alyssa Satin Capucilli)	<i>Biscuit Loves the Library</i> (Alyssa Satin Capucilli)
<i>Bunny Cakes</i> (Rosemary Wells)	<i>Bunny Cakes</i> (Rosemary Wells)
<i>Cookie's Week</i> (Cindy Ward)	<i>Cookie's Week</i> (Cindy Ward)
<span style="background-color: yellow;">Dancing Hands: How Teresa Carreño Played the Piano for President Lincoln</span> (Margarita Engle)	
<i>Daring Amelia</i> (Barbara Lowell)	<i>Daring Amelia</i> (Barbara Lowell)
<i>Follow the Moon Home: A Tale of One Idea, Twenty Kids, and a Hundred Sea Turtles</i> (Philippe Cousteau and Deborah Hopkinson)	<i>Follow the Moon Home: A Tale of One Idea, Twenty Kids, and a Hundred Sea Turtles</i> (Philippe Cousteau and Deborah Hopkinson)
<i>Fred and Ted Go Camping</i> (Peter Eastman)	<i>Fred and Ted Go Camping</i> (Peter Eastman)
<i>From Caterpillar to Butterfly</i> (Deborah Heiligman)	<i>From Caterpillar to Butterfly</i> (Deborah Heiligman)
<i>From Tadpole to Frog</i> (Kathleen Weidner Zoehfeld)	<i>From Tadpole to Frog</i> (Kathleen Weidner Zoehfeld)
<span style="background-color: yellow;">Good Night, Wind: A Yiddish Folktale</span> (Linda Elovitz Marshall)	
<i>Harriet Tubman: Follow the North Star</i> (Violet Findley)	<i>Harriet Tubman: Follow the North Star</i> (Violet Findley)
<i>Harry the Dirty Dog</i> (Gene Zion)	<i>Harry the Dirty Dog</i> (Gene Zion)
<i>Have You Seen My Dinosaur?</i> (Jon Surgal)	<i>Have You Seen My Dinosaur?</i> (Jon Surgal)
<i>Henry and Mudge and the Wild Wind</i> (Cynthia Rylant)	<i>Henry and Mudge and the Wild Wind</i> (Cynthia Rylant)
<i>Hi! Fly Guy</i> (Tedd Arnold)	<i>Hi! Fly Guy</i> (Tedd Arnold)
<i>How Plants Grow</i> (Dona Herweck Rice)	<i>How Plants Grow</i> (Dona Herweck Rice)



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<i>Little Lucy</i> (Ilene Cooper)	<i>Little Lucy</i> (Ilene Cooper)
<i>Lola at the Library</i> (Anna McQuinn)	<i>Lola at the Library</i> (Anna McQuinn)
<i>Miss Bindergarten Gets Ready for Kindergarten</i> (Joseph Slate)	<i>Miss Bindergarten Gets Ready for Kindergarten</i> (Joseph Slate)
<i>My Trip to the Hospital</i> (Mercer Mayer)	<i>My Trip to the Hospital</i> (Mercer Mayer)
<i>Paddington Sets Sail</i> (Michael Bond)	<i>Paddington Sets Sail</i> (Michael Bond)
<i>Peter's Chair</i> (Ezra Jack Keats)	<i>Peter's Chair</i> (Ezra Jack Keats)
<i>Pumpkin Day!</i> (Candice Ransom)	<i>Pumpkin Day!</i> (Candice Ransom)
<i>Rap a Tap Tap: Here's Bojangles—Think of That!</i> (Leo Dillon and Diane Dillon)	<i>Rap a Tap Tap: Here's Bojangles—Think of That!</i> (Leo Dillon and Diane Dillon)
<i>Roadwork</i> (Sally Sutton)	<i>Roadwork</i> (Sally Sutton)
<i>Rosie's Walk</i> (Pat Hutchins)	<i>Rosie's Walk</i> (Pat Hutchins)
<i>Sammy the Seal</i> (Syd Hoff)	<i>Sammy the Seal</i> (Syd Hoff)
<i>Sarah Morton's Day: A Day in the Life of a Pilgrim Girl</i> (Kate Waters)	<i>Sarah Morton's Day: A Day in the Life of a Pilgrim Girl</i> (Kate Waters)
<i>Snowmen at Night</i> (Caralyn Buehner)	<i>Snowmen at Night</i> (Caralyn Buehner)
<i>Super Fly Guy</i> (Tedd Arnold)	<i>Super Fly Guy</i> (Tedd Arnold)
<i>Tarra &amp; Bella: The Elephant and Dog Who Became Best Friends</i> (Carol Buckley)	<i>Tarra &amp; Bella: The Elephant and Dog Who Became Best Friends</i> (Carol Buckley)
<i>The Snowy Day</i> (Ezra Jack Keats)	<i>The Snowy Day</i> (Ezra Jack Keats)
	<b><i>Up in the Garden and Down in the Dirt</i></b>
	<b><i>What Makes a Magnet?</i></b>
<b><i>The World is Not a Rectangle: A Portrait of Architect Zaha Hadid</i> (Jeanette Winter)</b>	
<i>Whistle for Willie</i> (Ezra Jack Keats)	<i>Whistle for Willie</i> (Ezra Jack Keats)
<i>Treasury for All Seasons</i> (Julie Andrews and Emma Walton Hamilton)	<i>Treasury for All Seasons</i> (Julie Andrews and Emma Walton Hamilton)
<i>Mary Engelbreit's Mother Goose: One Hundred Best-Loved Verses</i> (Mary Engelbreit)	<i>Mary Engelbreit's Mother Goose: One Hundred Best-Loved Verses</i> (Mary Engelbreit)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade K ELA</b>	<b>Grade K ELA</b>
<i>A Bad Case of Stripes</i> (David Shannon)	<i>A Bad Case of Stripes</i> (David Shannon)
<i>A Log's Life</i> (Wendy Pfeffer)	<i>A Log's Life</i> (Wendy Pfeffer)



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<i>A Tree for All Seasons</i> (Robin Bernard)	<i>A Tree for All Seasons</i> (Robin Bernard)
<i>Actual Size</i> (Steve Jenkins)	<i>Actual Size</i> (Steve Jenkins)
<i>Ada's Violin: The Story of the Recycled Orchestra of Paraguay</i> (Susan Hood) (moved from Grade K BETA Shared Reading)	
<i>Amazing Grace</i> (Mary Hoffman)	<i>Amazing Grace</i> (Mary Hoffman)
<i>America is...</i> (Louise Borden)	<i>America is...</i> (Louise Borden)
<i>Building with Dad</i> (Carol Nevius)	<i>Building with Dad</i> (Carol Nevius)
<i>Can We Ring the Liberty Bell?</i> (Martha E. H. Rustard)	
<i>Caps for Sale</i> (Esphyr Slobodkina)	<i>Caps for Sale</i> (Esphyr Slobodkina)
<i>Career Day</i> (Anne Rockwell)	<i>Career Day</i> (Anne Rockwell)
<i>Charlie Needs a Cloak</i> (Tomie dePaola)	<i>Charlie Needs a Cloak</i> (Tomie dePaola)
<i>Chrysanthemum</i> (Kevin Henkes)	<i>Chrysanthemum</i> (Kevin Henkes)
<i>Clouds</i> (Anne Rockwell)	<i>Clouds</i> (Anne Rockwell)
<i>Follow the Water from Brook to Ocean</i> (Artuhur Dorros)	<i>Follow the Water from Brook to Ocean</i> (Artuhur Dorros)
<i>Forest Bright, Forest Night</i> (Jennifer Ward)	<i>Forest Bright, Forest Night</i> (Jennifer Ward)
<i>Frederick</i> (Leo Lionni)	<i>Frederick</i> (Leo Lionni)
<i>Fry Bread: A Native American Family Story</i> (Kevin Noble Maillard)	
<i>George Washington: Our First President</i> (Garnet Jackson)	<i>George Washington: Our First President</i> (Garnet Jackson)
<i>Giggle, Giggle, Quack</i> (Doreen Cronin)	<i>Giggle, Giggle, Quack</i> (Doreen Cronin)
<i>Grandfather's Wrinkles</i> (Kathryn England)	<i>Grandfather's Wrinkles</i> (Kathryn England)
<i>Happy Birthday, Martin Luther King</i> (Jean Marzollo)	<i>Happy Birthday, Martin Luther King</i> (Jean Marzollo)
<i>How a Seed Grows</i> (Helene Jordan)	<i>How a Seed Grows</i> (Helene Jordan)
<i>In a Nutshell</i> (Joseph Anthony)	<i>In a Nutshell</i> (Joseph Anthony)
<i>Leo the Late Bloomer</i> (Robert Kraus)	
<i>Make Way for Ducklings</i> (Robert McCloskey)	<i>Make Way for Ducklings</i> (Robert McCloskey)



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<i>Miss Bindergarten Celebrates the 100th Day</i> (Joseph Slate)	<i>Miss Bindergarten Celebrates the 100th Day</i> (Joseph Slate)
<i>Nothing Sticks Like a Shadow</i> (Ann Tompert)	<i>Nothing Sticks Like a Shadow</i> (Ann Tompert)
<i>Of Thee I Sing: A Letter to My Daughters</i> (Barack Obama)	
<i>Owen</i> (Kevin Henkes)	<i>Owen</i> (Kevin Henkes)
<i>Sheila Rae, the Brave</i> (Kevin Henkes)	<i>Sheila Rae, the Brave</i> (Kevin Henkes)
<i>The Doorbell Rang</i> (Pat Hutchins)	<i>The Doorbell Rang</i> (Pat Hutchins)
<i>The Full Belly Bowl</i> (Jim Aylesworth)	<i>The Full Belly Bowl</i> (Jim Aylesworth)
	<b><i>Thanksgiving on Plymouth Plantation</i></b>
	<b><i>The Egg</i></b>
<i>The Most Magnificent Thing</i> (Ashley Spires)	
<i>The Pain and the Great One</i> (Judy Blume)	<i>The Pain and the Great One</i> (Judy Blume)
	<b><i>The Story of Pocahontas</i></b>
<i>The Ugly Pumpkin</i> (Dave Horowitz)	<i>The Ugly Pumpkin</i> (Dave Horowitz)
	<b><i>Tikki Tikki Tembo</i></b>
<i>What Lives in a Shell?</i> (Kathleen Weidner Zoehfeld)	<i>What Lives in a Shell?</i> (Kathleen Weidner Zoehfeld)
<i>What Magnets Can Do</i> (Allan Fowler)	<i>What Magnets Can Do</i> (Allan Fowler)
<i>Wind Flyers</i> (Angela Johnson)	<i>Wind Flyers</i> (Angela Johnson)



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## Grade 1

First Edition (2022)	BETA
Grade 1 Shared Reading	Grade 1 Shared Reading
	<b><u>Barn Storm</u></b>
<i>Biscuit Alyssa</i> (Satin Capucilli)	<i>Biscuit Alyssa</i> (Satin Capucilli)
<i>Biscuit Finds a Friend Alyssa</i> (Satin Capucilli)	<i>Biscuit Finds a Friend Alyssa</i> (Satin Capucilli)
<i>Biscuit Goes to School Alyssa</i> (Satin Capucilli)	<i>Biscuit Goes to School Alyssa</i> (Satin Capucilli)
<i>Danny and the Dinosaur</i> (Syd Hoff)	<i>Danny and the Dinosaur</i> (Syd Hoff)
<b><u><i>Danny and the Dinosaur and the Sand Castle Contest</i></u></b> (Syd Hoff)	
<i>Danny and the Dinosaur Go to Camp</i> (Syd Hoff)	<i>Danny and the Dinosaur Go to Camp</i> (Syd Hoff)
<b><u><i>Danny and the Dinosaur Ride a Bike</i></u></b> (Syd Hoff)	
<i>Father Bear Comes Home</i> Else (Holmelund Minarik)	<i>Father Bear Comes Home</i> Else (Holmelund Minarik)
<i>Frog and Toad are Friends</i> (Arnold Lobel)	<i>Frog and Toad are Friends</i> (Arnold Lobel)
<b><u><i>Frog and Toad All Year</i></u></b> (Arnold Lobel)	
<b><u><i>Harriet Tubman: Freedom Fighter</i></u></b> (Nadia L. Hohn)	
<i>Hooray for Snail!</i> (John Stadler)	<i>Hooray for Snail!</i> (John Stadler)
<i>Little Bear's Friend</i> (Else Holmelund Minarik)	<i>Little Bear's Friend</i> (Else Holmelund Minarik)
<i>Little Bear's Visit</i> (Else Holmelund Minarik)	<i>Little Bear's Visit</i> (Else Holmelund Minarik)
<b><u><i>Little Critter Going to the Sea Park</i></u></b> (Mercer Mayer)	
<i>Little Critter Sleeps Over</i> (Mercer Mayer)	<i>Little Critter Sleeps Over</i> (Mercer Mayer)
<b><u><i>Long, Tall Lincoln</i></u></b> (Jennifer Dussling)	
<b><u><i>Martin Luther King Jr.: A Peaceful Leader</i></u></b> (Sarah Albee)	
	<b><u>Morris Goes to School</u></b>
<i>Morris the Moose</i> (Bernard Wiseman)	<i>Morris the Moose</i> (Bernard Wiseman)
<i>Nate the Great and the Fishy Prize</i> (Marjorie Weinman Sharmat)	<i>Nate the Great and the Fishy Prize</i> (Marjorie Weinman Sharmat)
<i>Nate the Great Saves the King of Sweden</i> (Marjorie Weinman Sharmat)	<i>Nate the Great Saves the King of Sweden</i> (Marjorie Weinman Sharmat)
<i>Oliver</i> (Syd Hoff)	<i>Oliver</i> (Syd Hoff)



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<i>Soccer Game!</i> (Grace Maccarone)	<i>Soccer Game!</i> (Grace Maccarone)
<i>The Chalk Box Kid</i> (Clyde Robert Bulla)	<i>The Chalk Box Kid</i> (Clyde Robert Bulla)
<i>The Fat Cat Sat on the Mat</i> (Nurit Karlin)	<i>The Fat Cat Sat on the Mat</i> (Nurit Karlin)
<i>The Fire Cat</i> (Esther H. Averill)	<i>The Fire Cat</i> (Esther H. Averill)
<i>The Horse in Harry's Room</i> (Syd Hoff)	<i>The Horse in Harry's Room</i> (Syd Hoff)
<i>The Paint Brush Kid</i> (Clyde Robert Bulla)	<i>The Paint Brush Kid</i> (Clyde Robert Bulla)
<i>Young Cam Jansen and the Library Mystery</i> (David A. Adler)	<i>Young Cam Jansen and the Library Mystery</i> (David A. Adler)
	<b><i>Young Cam Jansen and the Pizza Shop Mystery</i></b>
<i>"What Is That? Said the Cat"</i> (Grace Maccarone)	<i>"What Is That? Said the Cat"</i> (Grace Maccarone)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade 1 ELA</b>	<b>Grade 1 ELA</b>
<i>A Chair for My Mother</i> (Vera B. Williams)	<i>A Chair for My Mother</i> (Vera B. Williams)
<i>A. Lincoln and Me</i> (Louise Borden)	<i>A. Lincoln and Me</i> (Louise Borden)
<i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i> (Judith Viorst)	<i>Alexander and the Terrible, Horrible, No Good, Very Bad Day</i> (Judith Viorst)
<i>Apple Pie 4th of July</i> (Janet S. Wong)	<i>Apple Pie 4th of July</i> (Janet S. Wong)
<i>Blueberries for Sal</i> (Robert McCloskey)	<i>Blueberries for Sal</i> (Robert McCloskey)
<i>Do I Need It? Or Do I Want It?: Making Budget Choices</i> (Jennifer S. Larson)	<i>Do I Need It? Or Do I Want It?: Making Budget Choices</i> (Jennifer S. Larson)
<b><i>Duke Ellington: The Piano Prince and His Orchestra</i> (Andrea Davis Pinkney)</b>	
	<b><i>City Dog, Country Frog</i></b>
<i>Eleanor</i> (Barbara Cooney)	<i>Eleanor</i> (Barbara Cooney)
<i>From Seed to Plant</i> (Gail Gibbons)	<i>From Seed to Plant</i> (Gail Gibbons)
<i>How Do Apples Grow?</i> (Betsy Maestro)	<i>How Do Apples Grow?</i> (Betsy Maestro)
<i>In November</i> (Cynthia Rylant)	<i>In November</i> (Cynthia Rylant)
<i>Just a Dream</i> (Chris Van Allsburg)	<i>Just a Dream</i> (Chris Van Allsburg)
<b><i>Is a Bald Eagle Really Bald?</i> (Martha E. H. Rustad)</b>	
<i>Max's Words</i> (Kate Banks)	<i>Max's Words</i> (Kate Banks)
<i>Metal Man</i> (Aaron Reynolds)	<i>Metal Man</i> (Aaron Reynolds)





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<i>Newton and Me</i> (Lynne Mayer)	<i>Newton and Me</i> (Lynne Mayer)
<i>My Brother Charlie</i> (Holly Robinson Peete and Ryan Elizabeth Peete)	
<i>Now and Ben: The Modern Inventions of Benjamin Franklin</i> (Gene Barretta)	<i>Now and Ben: The Modern Inventions of Benjamin Franklin</i> (Gene Barretta)
<i>Owl Moon</i> (Jane Yolen)	<i>Owl Moon</i> (Jane Yolen)
<i>Peppers Journal: A Kitten's First Year</i> (Stuart J. Murphy)	<i>Peppers Journal: A Kitten's First Year</i> (Stuart J. Murphy)
	<b><i>A Picture Book of George Washington Carver</i></b>
<i>Possum's Harvest Moon</i> (Anne Hunter)	<i>Possum's Harvest Moon</i> (Anne Hunter)
<i>Presidents Day</i> (Anne Rockwell)	<i>Presidents Day</i> (Anne Rockwell)
<i>Raven: A Trickster Tale from the Pacific Northwest</i> (Gerald McDermott)	
<i>Stand Tall, Molly Lou Melon!</i> (Patty Lovell)	<i>Stand Tall, Molly Lou Melon!</i> (Patty Lovell)
<i>Stone Soup</i> (Ann McGovern)	<i>Stone Soup</i> (Ann McGovern)
<i>Strega Nona</i> (Tomie dePaola)	<i>Strega Nona</i> (Tomie dePaola)
<i>The Art Lesson</i> (Tomie dePaola)	<i>The Art Lesson</i> (Tomie dePaola)
	<b><i>The Bald Eagle</i></b>
	<b><i>The Dog Who Cried Wolf</i></b>
	<b><i>The Pilgrims' First Thanksgiving</i></b>
<i>The Popcorn Book</i> (Tomie dePaola)	<i>The Popcorn Book</i> (Tomie dePaola)
<i>The Rainbow Tulip</i> (Pat Mora)	
<i>The Relatives Came</i> (Cynthia Rylant)	<i>The Relatives Came</i> (Cynthia Rylant)
<i>The Thing Lou Couldn't Do</i> (Ashley Spires)	
<i>The Washington Monument</i> (Kristin L. Nelson)	<i>The Washington Monument</i> (Kristin L. Nelson)
<i>Thunder Cake</i> (Patricia Polacco)	<i>Thunder Cake</i> (Patricia Polacco)
<i>Tops and Bottoms</i> (Janet Stevens)	<i>Tops and Bottoms</i> (Janet Stevens)
<i>When I Grow Up</i> (Al Yankovic)	<i>When I Grow Up</i> (Al Yankovic)
<i>Why Do Leaves Change Color?</i> (Betsy Maestro)	<i>Why Do Leaves Change Color?</i> (Betsy Maestro)
<i>Why Mosquitoes Buzz in Peoples Ears: A West African Tale</i> (Verna Aardema)	
<i>Wings</i> (Christopher Myers)	



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## Grade 2

First Edition (2022)	BETA
Grade 2 Shared Reading	Grade 2 Shared Reading
<i>A-Z Mysteries: The Kidnapped King</i> (Ron Roy)	<i>A-Z Mysteries: The Kidnapped King</i> (Ron Roy)
<i>Abraham Lincoln: The Great Emancipator</i> (Augusta Stevenson)	<i>Abraham Lincoln: The Great Emancipator</i> (Augusta Stevenson)
<i>Arthur's Back to School Day</i> (Lillian Hoban)	<i>Arthur's Back to School Day</i> (Lillian Hoban)
<i>Cam Jansen Case #27: The Mystery Writer Mystery</i> (David A. Adler)	<i>Cam Jansen Case #27: The Mystery Writer Mystery</i> (David A. Adler)
	<b><i>From Caterpillar to Butterfly</i></b>
<b><i>Caterpillar to Butterfly</i> (Laura Marsh)</b>	
<i>From Tadpole to Frog</i> (Wendy Pfeffer)	<i>From Tadpole to Frog</i> (Wendy Pfeffer)
<i>Henry and Mudge: The First Book</i> (Cynthia Rylant)	<i>Henry and Mudge: The First Book</i> (Cynthia Rylant)
<b><i>Great Migrations: Butterflies</i> (Laura Marsh)</b>	
	<b><i>If You Lived with the Cherokee</i></b>
<i>Ivy + Bean</i> (Annie Barrows)	<i>Ivy + Bean</i> (Annie Barrows)
<i>Jackie Robinson</i> (Sally M. Walker)	<i>Jackie Robinson</i> (Sally M. Walker)
<i>Judy Moody Saves the World</i> (Megan McDonald)	<i>Judy Moody Saves the World</i> (Megan McDonald)
<b><i>Magic Tree House Fact Tracker: Ancient Greece and the Olympics</i> (Mary Pope Osborne and Natalie Pope Boyce)</b>	
<b><i>Magic Tree House Fact Tracker: China: Land of the Emperor's Great Wall</i> (Mary Pope Osborne and Natalie Pope Boyce)</b>	
<i>Magic Tree House: Day of the Dragon King</i> (Mary Pope Osborne)	<i>Magic Tree House: Day of the Dragon King</i> (Mary Pope Osborne)
<i>Mummies</i> (Joyce Milton)	<i>Mummies</i> (Joyce Milton)
<i>Pinky and Rex</i> (James Howe)	<i>Pinky and Rex</i> (James Howe)
<i>Practice Makes Perfect for Rotten Ralph</i> (Jack Gantos)	<i>Practice Makes Perfect for Rotten Ralph</i> (Jack Gantos)
<i>Tale of a Tadpole</i> (Karen Wallace)	<i>Tale of a Tadpole</i> (Karen Wallace)
<i>The Mystery of the Mummy's Curse</i> (Gertrude Chandler Warner)	<i>The Mystery of the Mummy's Curse</i> (Gertrude Chandler Warner)



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	<b><i>The Journey of a Butterfly</i></b>
	<b><i>The Very First Americans</i></b>
<b><i>The Cherokee People</i></b> (Sarah Machajewski)	
<b><i>The Cheyenne People</i></b> (Shalini Saxena)	
<b><i>The Hopi People</i></b> (Therese Shea)	
<b><i>The Mohawk People</i></b> (Ryan Nagelhout)	
<i>Time Warp Trio: It's All Greek to Me</i> (Jon Scieszka)	<i>Time Warp Trio: It's All Greek to Me</i> (Jon Scieszka)

<b>First Edition (2022)</b>	<b>BETA</b>
<b>Grade 2 ELA</b>	<b>Grade 2 ELA</b>
<i>A New Coat for Anna</i> (Harriet Ziefert)	<i>A New Coat for Anna</i> (Harriet Ziefert)
<i>Alexander, Who Used to Be Rich Last Sunday</i> (Judith Viorst)	<i>Alexander, Who Used to Be Rich Last Sunday</i> (Judith Viorst)
<i>Amelia and Eleanor Go for a Ride</i> (Pam Muñoz Ryan)	<i>Amelia and Eleanor Go for a Ride</i> (Pam Muñoz Ryan)
<i>Arrow to the Sun</i> (Gerald McDermott)	<i>Arrow to the Sun</i> (Gerald McDermott)
<i>Camouflage: Changing to Hide</i> (Bobbie Kalman)	<i>Camouflage: Changing to Hide</i> (Bobbie Kalman)
<i>Cinderella</i> (Marcia Brown)	<i>Cinderella</i> (Marcia Brown)
<b><i>Clang!: Ernst Chladni's Sound Experiments</i></b> (Darcy Pattison)	
<i>Cloudy With a Chance of Meatballs</i> (Judi Barrett)	<i>Cloudy With a Chance of Meatballs</i> (Judi Barrett)
<i>Cracking Up: A Story About Erosion</i> (Jacqui Bailey)	<i>Cracking Up: A Story About Erosion</i> (Jacqui Bailey)
	<b><i>Creatures Yesterday and Today</i></b>
	<b><i>D is for Dancing Dragon: A China Alphabet</i></b>
<i>Dad, Jackie, and Me</i> (Myron Uhlberg)	<i>Dad, Jackie, and Me</i> (Myron Uhlberg)
<i>Going Home: The Mystery of Animal Migration</i> (Marianne Berkes)	<i>Going Home: The Mystery of Animal Migration</i> (Marianne Berkes)
<i>Gooney Bird Greene</i> (Lois Lowry)	<i>Gooney Bird Greene</i> (Lois Lowry)
<i>Helen Keller: Break Down the Walls!</i> (Margaret Fetty)	<i>Helen Keller: Break Down the Walls!</i> (Margaret Fetty)
<i>How a Plant Grows</i> (Bobbie Kalman)	<i>How a Plant Grows</i> (Bobbie Kalman)



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	<b>Hello Ocean</b>
<i>How Do You Raise a Raisin?</i> (Pam Muñoz Ryan)	<i>How Do You Raise a Raisin?</i> (Pam Muñoz Ryan)
<i>Magnets Push, Magnets Pull</i> (Mark Weakland)	<i>Magnets Push, Magnets Pull</i> (Mark Weakland)
<i>Miss Rumphius</i> (Barbara Cooney)	<i>Miss Rumphius</i> (Barbara Cooney)
<i>Mudball</i> (Matt Tavares)	<i>Mudball</i> (Matt Tavares)
<i>My Brother Martin: A Sister Remembers: Growing Up with the Rev. Dr. Martin Luther King, Jr.</i> (Christine King Farris)	<i>My Brother Martin: A Sister Remembers: Growing Up with the Rev. Dr. Martin Luther King, Jr.</i> (Christine King Farris)
<i>My Rows and Piles of Coins</i> (Tololwa M. Mollel)	<i>My Rows and Piles of Coins</i> (Tololwa M. Mollel)
<i>Poppy</i> (Avi)	<i>Poppy</i> (Avi)
<b>Sounds All Around</b> (Wendy Pfeffer)	
<i>Starry Messenger</i> (Peter Sís)	<i>Starry Messenger</i> (Peter Sís)
<b>Starstruck: The Cosmic Journey of Neil deGrasse Tyson</b> (Kathleen Krull and Paul Brewer)	
<i>The Egyptian Cinderella</i> (Shirley Climo)	<i>The Egyptian Cinderella</i> (Shirley Climo)
<i>The Flag We Love</i> (Pam Muñoz Ryan)	<i>The Flag We Love</i> (Pam Muñoz Ryan)
<i>The Girl Who Loved Wild Horses</i> (Paul Goble)	<i>The Girl Who Loved Wild Horses</i> (Paul Goble)
<i>The Legend of the Bluebonnet: An Old Tale of Texas</i> (Tomie dePaola)	<i>The Legend of the Bluebonnet: An Old Tale of Texas</i> (Tomie dePaola)
<i>The Rough-Face Girl</i> (Rafe Martin)	<i>The Rough-Face Girl</i> (Rafe Martin)
<i>The Story of Ruby Bridges</i> (Robert Coles)	<i>The Story of Ruby Bridges</i> (Robert Coles)
<i>The Wall</i> (Eve Bunting)	<i>The Wall</i> (Eve Bunting)
<i>Tornado</i> (Betsey Byars)	<i>Tornado</i> (Betsey Byars)
	<b>What Is It Made Of?</b>
<i>Where in the Wild?: Camouflaged Creatures Concealed...and Revealed</i> (David M. Schwartz)	<i>Where in the Wild?: Camouflaged Creatures Concealed...and Revealed</i> (David M. Schwartz)
<i>Who's Buying? Who's Selling?: Understanding Consumers and Producers</i> (Jennifer S. Larson)	<i>Who's Buying? Who's Selling?: Understanding Consumers and Producers</i> (Jennifer S. Larson)
	<b>Wolf Island</b>



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### Grade 3

First Edition (2022)	BETA
Grade 3 ELA	Grade 3 ELA
<i>A Drop Around the World</i> (Barbara Shaw McKinney)	<i>A Drop Around the World</i> (Barbara Shaw McKinney)
<i>American Tall Tales</i> (Mary Pope Osborne)	<i>American Tall Tales</i> (Mary Pope Osborne)
<i>Boy: Tales of Childhood</i> (Roald Dahl)	<i>Boy: Tales of Childhood</i> (Roald Dahl)
<i>Bringing the Rain to Kapiti Plain</i> (Verna Aardema)	<i>Bringing the Rain to Kapiti Plain</i> (Verna Aardema)
<i>Grandfather's Journey</i> (Allen Say)	<i>Grandfather's Journey</i> (Allen Say)
<i>Harvesting Hope: The Story of Cesar Chavez</i> (Kathleen Krull)	<i>Harvesting Hope: The Story of Cesar Chavez</i> (Kathleen Krull)
<i>Lon Po Po: A Red-Riding Hood Story from China</i> (Ed Young)	<i>Lon Po Po: A Red-Riding Hood Story from China</i> (Ed Young)
<i>Maps and Globes</i> (Jack Knowlton)	<i>Maps and Globes</i> (Jack Knowlton)
<i>One Hen</i> (Katie Smith Milway)	<i>One Hen</i> (Katie Smith Milway)
<i>Pinduli</i> (Janell Cannon)	<i>Pinduli</i> (Janell Cannon)
<i>Rosa</i> (Nikki Giovanni)	<i>Rosa</i> (Nikki Giovanni)
<i>Shiloh</i> (Phyllis Reynolds Naylor)	<i>Shiloh</i> (Phyllis Reynolds Naylor)
<i>Snowflake Bentley</i> (Jacqueline Briggs Martin)	<i>Snowflake Bentley</i> (Jacqueline Briggs Martin)
<i>The BFG</i> (Roald Dahl)	<i>The BFG</i> (Roald Dahl)
<i>The Keeping Quilt</i> (Patricia Polacco)	<i>The Keeping Quilt</i> (Patricia Polacco)
<i>What is a Biome?</i> (Bobbie Kalman)	<i>What is a Biome?</i> (Bobbie Kalman)
<i>When Marian Sang</i> (Pam Muñoz Ryan)	<i>When Marian Sang</i> (Pam Muñoz Ryan)

First Edition (2022)	BETA
Grade 3 Shared Reading	Grade 3 Shared Reading
<i>A Picture Book of Frederick Douglass</i> (David A. Adler)	<i>A Picture Book of Frederick Douglass</i> (David A. Adler)
<i>Ancient Greece</i> (Sandra Newman)	<i>Ancient Greece</i> (Sandra Newman)
<i>And Then What Happened, Paul Revere?</i> (Jean	<i>And Then What Happened, Paul Revere?</i> (Jean



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Fritz)	Fritz)
<i>Because of Winn-Dixie</i> (Kate DiCamillo)	<i>Because of Winn-Dixie</i> (Kate DiCamillo)
<i>Fudge-a-Mania</i> (Judy Blume)	<i>Fudge-a-Mania</i> (Judy Blume)
<i>Here Lies the Librarian</i> (Richard Peck)	<i>Here Lies the Librarian</i> (Richard Peck)
<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i> (Will Osborne and Mary Pope Osborne)	<i>Magic Tree House Fact Tracker: Twisters and Other Terrible Storms</i> (Will Osborne and Mary Pope Osborne)
<i>Minerals, Rocks, and Soil</i> (Barbara J. Davis)	<i>Minerals, Rocks, and Soil</i> (Barbara J. Davis)
<i>The Miraculous Journey of Edward Tulane</i> (Kate DiCamillo)	<i>The Miraculous Journey of Edward Tulane</i> (Kate DiCamillo)
<i>Owen Foote, Money Man</i> (Stephanie Greene)	<i>Owen Foote, Money Man</i> (Stephanie Greene)
<b><i>Red Kite, Blue Kite</i> (Ji-li Jiang)</b>	
<i>Soil</i> (Christin Ditchfield)	<i>Soil</i> (Christin Ditchfield)
<i>Susan B. Anthony: Champion of Women's Rights</i> (Helen Albee Monsell)	<i>Susan B. Anthony: Champion of Women's Rights</i> (Helen Albee Monsell)
<b><i>The Boy Who Harnessed the Wind</i> (William Kamkwamba and Bryan Mealer)</b>	
<i>The Congress of the United States</i> (Christine Taylor-Butler)	<i>The Congress of the United States</i> (Christine Taylor-Butler)
<i>The Constitution of the United States</i> (Christine Taylor-Butler)	<i>The Constitution of the United States</i> (Christine Taylor-Butler)
<b><i>The Story of Ruth Bader Ginsburg: A Biography Book for New Readers</i> (Susan B. Katz)</b>	
<b><i>Who is Sonia Sotomayor?</i> (Megan Stine)</b>	
	<b><i>Who was Franklin Roosevelt?</i></b>



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## Grade 4

First Edition (2022)	BETA
Grade 4 ELA	Grade 4 ELA
<i>Alabama Moon</i> (Watt Key)	<i>Alabama Moon</i> (Watt Key)
<i>Auntie Yang's Great Soybean Picnic</i> (Ginnie Lo)	
	<b><i>Around the World in a Hundred Years</i></b>
<i>Earthquakes: All about Earth's crust, colliding plates, tsunamis, and more!</i> (Seymour Simon)	<i>Earthquakes: All about Earth's crust, colliding plates, tsunamis, and more!</i> (Seymour Simon)
<i>Freedom on the Menu: The Greensboro Sit-Ins</i> (Carole Boston Weatherford)	<i>Freedom on the Menu: The Greensboro Sit-Ins</i> (Carole Boston Weatherford)
<i>Go Straight to the Source: Super Smart Information Strategies</i> (Kristin Fontichiaro)	<i>Go Straight to the Source: Super Smart Information Strategies</i> (Kristin Fontichiaro)
<i>Hatchet</i> (Gary Paulsen)	<i>Hatchet</i> (Gary Paulsen)
<i>Moth and Wasp, Soil and Ocean: Remembering Chinese Scientist Pu Zhelong's Work for Sustainable Farming</i> (Sigrid Schmalzer)	
<i>Miss Alaineus: A Vocabulary Disaster</i> (Debra Frasier)	<i>Miss Alaineus: A Vocabulary Disaster</i> (Debra Frasier)
<i>My Life in Dog Years</i> (Gary Paulsen)	<i>My Life in Dog Years</i> (Gary Paulsen)
<i>Roanoke: The Lost Colony: An Unsolved Mystery from History</i> (Jane Yolen and Heidi Elisabet Yolen Stemple)	<i>Roanoke: The Lost Colony: An Unsolved Mystery from History</i> (Jane Yolen and Heidi Elisabet Yolen Stemple)
<i>Shaking Things Up: 14 Young Women Who Changed the World</i> (Susan Hood)	
<i>The Moon Book: New and Updated</i> (Gail Gibbons)	<i>The Moon Book: New and Updated</i> (Gail Gibbons)
<i>Worst of Friends: Thomas Jefferson, John Adams, and the True Story of an American Feud</i> (Suzanne Tripp Jurmain)	<i>Worst of Friends: Thomas Jefferson, John Adams, and the True Story of an American Feud</i> (Suzanne Tripp Jurmain)
	<b><i>Zombies! Evacuate the School</i></b>



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First Edition (2022)	BETA
<b>Grade 4 Shared Reading</b>	<b>Grade 4 Shared Reading</b>
<i>A Strong Right Arm: The Story of Mamie Peanut Johnson</i> (Michelle Y. Green)	
<i>Blood on the River: Jamestown, 1607</i> (Elisa Carbone)	<i>Blood on the River: Jamestown, 1607</i> (Elisa Carbone)
<i>Can't You Make Them Behave, King George?</i> (Jean Fritz)	<i>Can't You Make Them Behave, King George?</i> (Jean Fritz)
	<b><i>Charlie and the Chocolate Factory</i></b>
	<b><i>George Washington's Socks</i></b>
<i>Love, Amalia</i> Alma (Flor Ada and Gabriel M. Zubizarreta)	
<i>My Life as a Book</i> (Janet Tashjian)	<i>My Life as a Book</i> (Janet Tashjian)
<i>Starry River of the Sky</i> (Grace Lin)	
	<b><i>Steal Away Home</i></b>
<i>Tangerine</i> (Edward Bloor)	<i>Tangerine</i> (Edward Bloor)
<i>The Amazing Life of Benjamin Franklin</i> (James Cross Giblin)	<i>The Amazing Life of Benjamin Franklin</i> (James Cross Giblin)





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## Grade 5

First Edition (2022)	BETA
Grade 5 ELA	Grade 5 ELA
<i>A Single Shard</i> (Linda Sue Park)	<i>A Single Shard</i> (Linda Sue Park)
<i>Aunt Harriet's Underground Railroad in the Sky</i> (Faith Ringgold)	<i>Aunt Harriet's Underground Railroad in the Sky</i> (Faith Ringgold)
<b><i>Hoops</i> (Robert Burleigh)</b>	
	<b><u>Bat Poems</u></b>
<i>Keep On!: The Story of Matthew Henson: Co-discoverer of the North Pole</i> (Deborah Hopkinson)	<i>Keep On!: The Story of Matthew Henson: Co-discoverer of the North Pole</i> (Deborah Hopkinson)
<b><i>Messenger, Messenger</i> (Robert Burleigh)</b>	
	<b><u>Mystery Poems</u></b>
<i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i> (Shel Silverstein, Lucille Clifton) <small>*links provided in ELA Lesson Plans</small>	<i>Poetry: Long-Leg Lou and Short-Leg Sue, The Earth is a Living Thing</i> (Shel Silverstein, Lucille Clifton)
<i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i> (Ogden Nash, Lilian Moore, and Rachel Field) <small>*links provided in ELA Lesson Plans</small>	<i>Poetry: The Grackle, Pigeon, Something Told the Wild Geese</i> (Ogden Nash, Lilian Moore, and Rachel Field)
<i>Rats Around Us</i> (Rachel Eagen)	<i>Rats Around Us</i> (Rachel Eagen)
<i>The Boy Who Loved Words</i> (Roni Schotter)	<i>The Boy Who Loved Words</i> (Roni Schotter)
<i>The Flu of 1918: Millions Dead Worldwide!</i> (Jessica Rudolph)	<i>The Flu of 1918: Millions Dead Worldwide!</i> (Jessica Rudolph)
<i>The Porcupine Year</i> (Louise Erdrich)	<i>The Porcupine Year</i> (Louise Erdrich)
<i>The Watsons Go to Birmingham — 1963</i> (Christopher Paul Curtis)	<i>The Watsons Go to Birmingham — 1963</i> (Christopher Paul Curtis)
<i>The Wright Brothers: How They Invented the Airplane</i> (Russell Freedman)	<i>The Wright Brothers: How They Invented the Airplane</i> (Russell Freedman)
<i>Tuck Everlasting</i> (Natalie Babbitt)	<i>Tuck Everlasting</i> (Natalie Babbitt)













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First Edition (2022)	BETA
<b>Grade 5 Shared Reading</b>	<b>Grade 5 Shared Reading</b>
<i>Animal Cells and Life Processes</i> (Barbara A. Somervill)	<i>Animal Cells and Life Processes</i> (Barbara A. Somervill)
<i>Bud, Not Buddy</i> (Christopher Paul Curtis)	<i>Bud, Not Buddy</i> (Christopher Paul Curtis)
<i>Half and Half</i> (Lensey Namioka)	
<i>How Does a Waterfall Become Electricity?</i> (Robert Snedden)	<i>How Does a Waterfall Become Electricity?</i> (Robert Snedden)
<i>Ice to Steam: Changing States of Matter</i> (Penny Johnson)	<i>Ice to Steam: Changing States of Matter</i> (Penny Johnson)
<i>Oceans: All about waves, currents, the gravitational pull of the moon, and more!</i> (Seymour Simon)	<i>Oceans: All about waves, currents, the gravitational pull of the moon, and more!</i> (Seymour Simon)
<i>Plant Cells and Life Processes</i> (Barbara A. Somervill)	<i>Plant Cells and Life Processes</i> (Barbara A. Somervill)
<i>The Mostly True Adventures of Homer P. Figg</i> (Rodman Philbrick)	<i>The Mostly True Adventures of Homer P. Figg</i> (Rodman Philbrick)
<i>The Sun: All about solar flares, eclipses, sunspots, and more!</i> (Seymour Simon)	<i>The Sun: All about solar flares, eclipses, sunspots, and more!</i> (Seymour Simon)
<i>The Westing Game</i> (Ellen Raskin)	<i>The Westing Game</i> (Ellen Raskin)
<i>Volcano: The Eruption and Healing of Mount St. Helens</i> (Patricia Lauber)	<i>Volcano: The Eruption and Healing of Mount St. Helens</i> (Patricia Lauber)
<i>Walk Two Moons</i> (Sharon Creech)	<i>Walk Two Moons</i> (Sharon Creech)

# Revision Quick Guide for bookworms

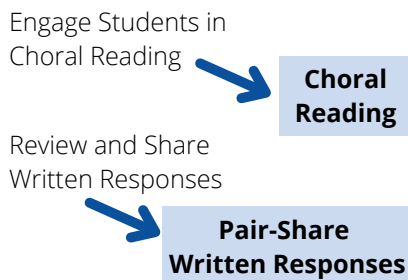
We are very excited for you to see the revised **Bookworms K-5 Reading and Writing**! You will see that the lesson structures, timeframes, and evidence-based practices you have come to know and love remain the same. Here's what's new in this revision:



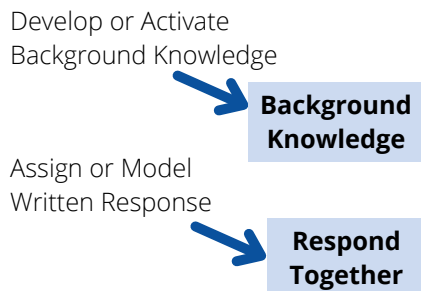
-  Themes!
-  Practice-focused teacher manual
-  Quarterly Module/Unit organization
-  Teaching This Text planning aid for each book
-  Teaching Tips embedded within lessons
-  Word study cards for Grades 2 and 3
-  Text Connection response opportunities in Shared Reading
-  Quarterly Culminating Tasks with accompanying Assessment Rubrics
-  Spelling Tools
-  Speaking and Listening Rubrics

We have renamed many of the lesson components for clarity and more precise language, but rest assured, procedures and practices are the same. Here are some examples from each lesson type:

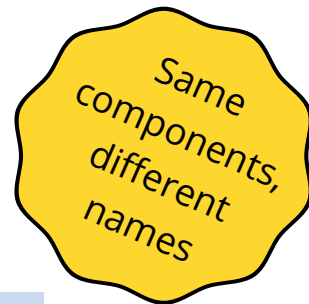
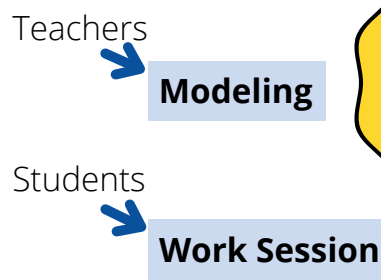
## Shared Reading



## Read Aloud



## Genre Writing



## Characteristics which framed our new book choices across K-5:

- Expanded cultural representation - race, ethnicity, culture
- Consistent with complexity requirements
- Grade-level-appropriate language and content
- Opportunities for
  - culturally-sustaining discussion
  - knowledge building and connections



- For narrative texts:
  - exposure to new settings and themes
  - inspiration for emotions and reactions
- For informational texts:
  - accurate alignment with common social studies and science topics
  - previews of social studies and science topics

Same homemade lemonade, just in new pitchers...

# Revision Quick Guide for Kindergarten



## Beta Shared Reading

- Dialogic Reading**
- Word Walk Words and Introduction
  - During Reading: Dialogic Reading Prompts for Student Discussion
    - Day 1 - Wh Questions
    - Day 2 - Completion
    - Day 3 - Recall
    - Day 4 - Open-Ended/Distancing
    - Day 5 - Retelling
  - After Reading
    - Days 1-4 - Word Walk Revisited
    - Day 5 - Retelling

- Phonological Awareness**
- Day 1 - Introduce Poem or Song
  - Day 2 - Teach the Poem or Song
  - Day 3 - Make Rhyming Words
  - Day 4 - Count Words and Syllables
  - Day 5 - Recite the Poem

- Word Study**
- Alphabet Knowledge
  - Word Study (initial sounds)
  - Word Study (word families)

- Print Concepts**
- Day 1 - Introduce Nursery Rhyme
  - Day 2 - Teach Nursery Rhyme for Memory
  - Day 3 - Teach Print Concepts
  - Day 4 - Teach Concept of Word
  - Day 5 - Review Old Rhymes

- Assignments**
- Handwriting and spelling
  - Included in the workbooks but not called out in the lesson plans

## 2022 Shared Reading

- Dialogic Reading**
- Vocabulary Introduction
  - Prompts for Student Discussion
    - First Lesson - Wh Questions
    - Second Lesson - Completion
    - Third Lesson - Recall
    - Fourth Lesson - Open-Ended/Distancing
    - Fifth Lesson - Retelling
  - Vocabulary Review
  - Retelling - fifth Lesson
- New!** Text Connection - every fifth Lesson

- Phonological Awareness**
- First Lesson - Teach the Text (introduce the poem)
  - Second Lesson - Teaching the Text (echo read the poem)
  - Third Lesson - Rhyming Words
  - Fourth Lesson - Count Words and Syllables
  - Fifth Lesson - Recite

- Word Study**
- Alphabet Knowledge
  - Word Study (initial sounds)
  - Word Study (word families)

- Print Concepts**
- First Lesson - Teach the Text (introduce the nursery rhyme)
  - Second Lesson - Teach the Text (echo read the nursery rhyme)
  - Third Lesson - Demonstrate and Practice (left-right, top-bottom)
  - Fourth Lesson - Demonstrate and Practice (words and spaces)
  - Fifth Lesson - Review

- Assignments**
- Handwriting and spelling
  - included in the workbook and in the plans

# Revision Quick Guide for Kindergarten (con't)



## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together



**Text Connections after the first Lesson of second and later books in Unit**

## Beta Genre Based Writing

- Teachers
- Students
- Sharing



## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 1



### Beta Shared Reading

- Teach Word Study
- Teach High-Frequency Words
- Review and Share Written Response
- Shared Writing
- Dictated Sentence
- Teach Meaning Vocabulary
- Book Introduction
- Provide First Focus
- Engage Students in Choral Reading
- Provide a New Focus for Rereading in Partners
- Teach Text Structure Anchor Chart
- Engage in Comprehension Discussion
- Assign Written Response

### 2022 Shared Reading

- Word Study
- Teach High-Frequency Words
- Pair-Share Responses
- Shared Dictated Sentence
- Dictated Sentence
- Vocabulary
- Introduction
- First Focus
- Choral Reading (or Echo Reading)
- Partner Reading
- Make Anchor Chart
- Discussion
- Assignments

**New!** Text Connection - every fifth Lesson

### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Review and Share Written Responses
- Teach Text Structure
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction (nonfiction)
- Text Structure
- Interactive Read Aloud
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**New!** Text Connections after the first Lesson of second and later books in Unit

### Beta Genre Based Writing

- Teachers
- Students
- Sharing

### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing

**New!** Culminating Tasks



# Revision Quick Guide for Grade 2



## Beta Shared Reading

- Teach Word Study
- Introduction
- Review and Share Written Response
- Preview Text Structure Anchor Chart (nonfiction)
- Teach Meaning Vocabulary
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response

## 2022 Shared Reading

- Word Study
- Introduction
- Pair-Share Responses
- Address Text Structure (nonfiction)
- Vocabulary
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response

## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



## Beta Genre Based Writing

- Teachers
- Students
- Sharing

## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 3



### Beta Shared Reading

- Teach Word Study
- Introduction
- Review and Share Written Response
- Preview Text Structure Anchor Chart (nonfiction)
- Teach Meaning Vocabulary
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response



### 2022 Shared Reading

- Word Study
- Introduction
- Pair-Share Responses
- Address Text Structure (nonfiction)
- Vocabulary
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



### Beta Genre Based Writing

- Teachers
- Students
- Sharing



### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**





# Revision Quick Guide for Grade 4



## Beta Shared Reading

- Introduction
- Review and Share Written Response
- Teach Meaning Vocabulary
  
- Preview Text Structure Anchor Chart (nonfiction)
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response



## 2022 Shared Reading

- Introduction
- Pair-Share Responses
- Word Study
  - Vocabulary
- Address Text Structure (nonfiction)
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



## Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



## 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



## Beta Genre Based Writing

- Teachers
- Students
- Sharing



## 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Revision Quick Guide for Grade 5



### Beta Shared Reading

- Introduction
- Review and Share Written Response
- Teach Meaning Vocabulary
  
- Preview Text Structure Anchor Chart (nonfiction)
- Provide First Focus
- Engage Students in Choral Reading
  
- Provide a New Focus for Rereading in Partners
- Engage in Comprehension Discussion
- Teach Text Structure Anchor Chart
- Assign Written Response



### 2022 Shared Reading

- Introduction
- Pair-Share Responses
- Word Study
  - Vocabulary
- Address Text Structure (nonfiction)
- First Focus
- Choral Reading
- Discuss Focus
- Partner Focus
- Discussion
- Make Anchor Chart
- Assignments

**Text Connection - every fifth Lesson**



### Beta Interactive Read Aloud

- Develop or Activate Background Knowledge (fiction)
- Introduce Book and Preview Technical Vocabulary (nonfiction)
- Teach Text Structure
- Review and Share Written Responses
- Model a Comprehension Strategy and Ask Questions During Reading
- Engage Students in Discussion
- Update Text Structure Anchor Chart
- Teach Meaning Vocabulary
- Teach Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Assign or Model Written Response



### 2022 Interactive Read Aloud

- Background Knowledge (fiction)
- Introduction
- Text Structure
  
- Interactive Read Aloud
  
- Discussion
- Make Anchor Chart
- Vocabulary
- Sentence Composing
  - Two of the four options
    - Imitate
    - Expand
    - Unscramble
    - Combine
- Respond Together

**Text Connections after the first Lesson of second and later books in Unit**



### Beta Genre Based Writing

- Teachers
- Students
- Sharing



### 2022 Genre Based Writing

- Modeling
- Work Session
- Sharing



**Culminating Tasks**



# Grade 6 Curriculum Map

## Unit 1: Stories of Change (Suggested Time: 7 weeks)

Reading
<p><b>Goals:</b> <i>To analyze key ideas and details in addition to craft and structure in print and nonprint texts</i></p> <p><b>Genres:</b> short stories, novel excerpts, personal narratives, a myth, a poem, and film clips</p> <p><b>Key Texts:</b> “Thank You, Ma’am,” “The Fun they Had,” “Eleven,” “The Treasure of Lemon Brown,” “The Jacket,” “Pandora and the Whispering Box,” clips from <i>The Lion King</i>, excerpts from <i>Flipped</i>, <i>Walk Two Moons</i>, and <i>Kira-Kira</i></p>

Vocabulary
<p><b>Academic:</b> paraphrase, summarize, synonym, antonym, sequence, cause and effect, analyze, transitions, coherence</p> <p><b>Literary:</b> genre, point of view, diction, narrative, characterization, conflict (internal/external), personal narrative, connotation, denotation, simile, metaphor, sensory language, short story, theme, plot, figurative language, personification, foreshadowing, science fiction</p>

Embedded Assessments
<p>1: Writing a Personal Narrative</p> <p>2: Writing a Short Story</p>

Essential Questions
<p>How can change be significant?</p> <p>What makes a good story?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.6, RL.6.10;            RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.3, W.6.4, W.6.5, W.6.6, W.6.9, W.6.10;            SL.6.1, SL.6.2;            L.6.1, L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompts:</b> Activities 1.4, 1.5, 1.6, 1.9, 1.10, 1.12, 1.13, 1.15, 1.16, 1.17, 1.19</p> <p><b>Citing Textual Evidence:</b> Activities 1.5, 1.6, 1.7, 1.12, 1.15, 1.17, 1.18</p> <p><b>Narrative Analysis Poster:</b> Activity 1.7</p> <p><b>Narrative Memory Map:</b> Activity 1.10</p> <p><b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing</p> <p><b>Unit Assessment:</b> online</p>

Writing and Research
<p><b>Goals:</b> <i>To use narrative techniques such as sequencing, dialogue, and descriptive language</i></p> <p><i>To write narratives to develop real or imagined events</i></p> <p><b>Focus Area:</b> Narrative</p>

Language and Writer’s Craft
<p><b>Focus Areas:</b> pronouns, punctuating dialogue, transitions, vivid verbs, sentence variety</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups</p> <p>Sharing and Discussing Textual Evidence</p> <p>Collaborating to Create a Poster</p> <p>Collaborating to Create a Story Board</p> <p>Viewing Diverse Media</p>

## Grade 6 Curriculum Map

### Unit 2: The Power to Change (Suggested Time: 8 weeks)

Reading
<p><b>Goals:</b> <i>To analyze literary elements</i></p> <p><i>To apply a variety of reading strategies to fiction and nonfiction texts</i></p> <p><b>Genres:</b> novel, film clips, a fairy tale, poetry, expository essay, memoir, news column, autobiographies, and a film biography</p> <p><b>Key Texts:</b> <i>Walk Two Moons</i>, “Saying Farewell to a Faithful Pal,” “Dogs Make Us Human,” excerpt from <i>Travels With Charley</i>, film clips from <i>Up</i> and <i>Temple Grandin</i>, “My Story” from <i>Animals in Translation</i>, excerpt from “The Little Mermaid”</p>

Vocabulary
<p><b>Academic:</b> reflection, compare-contrast, inference, prediction, communication (verbal/nonverbal), synthesize</p> <p><b>Literary:</b> expository writing, topic sentence, supporting details, novel, subplot, setting, literary analysis, stanza, introduction, hook, thesis statement, conclusion, imagery, textual evidence</p>

Embedded Assessments
<p>1: Responding to Literature</p> <p>2: Writing an Expository Essay</p>

Essential Questions
<p>How can talking and working with others help one analyze a novel?</p> <p>How do internal and external forces help people grow?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.9, RL.6.10;            RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.2, W.6.3, W.6.4, W.6.5, W.6.6, W.6.9, W.6.10;            SL.6.1, SL.6.2, SL.6.4, SL.6.6;            L.6.1, L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To write an expository response</i></p> <p><b>Focus Areas:</b> Expository and Response to Literature</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To practice using verb tenses and creating sentence variety</i></p> <p><b>Focus Areas:</b> pronoun usage and agreement, sentence variety, revising for figurative language, parallel structure</p>

Speaking and Listening
<p><b>Goals:</b> <i>To collaborate and communicate effectively</i></p> <p>Literature Circles            Sharing and Responding in Writing Groups            Collaborating to Respond to a Prompt            Viewing Diverse Texts</p>

Additional Assessment Opportunities
<p><b>Expository Writing Prompts:</b> Activities 2.2, 2.3, 2.5, 2.7, 2.10, 2.14, 2.15, 2.16, 2.19, 2.21  <b>Citing Textual Evidence:</b> Activities 2.2, 2.5, 2.6, 2.9, 2.15, 2.18, 2.19  <b>Double-Entry Journal:</b> Activity 2.4  <b>Fishbowl:</b> Activity 2.8  <b>Collaborative Visual Representation:</b> Activity 2.11, 2.13  <b>Research:</b> Activity 2.20</p>

## Grade 6 Curriculum Map

### Unit 3: Changing Perspectives (Suggested Time: 6 weeks)

Reading
<p><b>Goals:</b> <i>To analyze informational texts</i></p> <p><i>To practice nonfiction reading strategies</i></p> <p><b>Genres:</b> an editorial, an online article, news articles, articles, a historical document, an informational text, and a letter</p> <p><b>Key Texts:</b> “Should Dodge Ball be Banned in Schools?” “Most Dangerous ‘Sport’ of all May be Cheerleading,” “Would a Pop Warner Ban Limit Concussions?” “Letter on Thomas Jefferson,” “E-Readers Catch Younger Eyes and Go in Backpacks,” “The Pros and Cons of Social Networking for Teenagers,” “Social Networking’s Good and Bad Impacts on Kids,” “Pro and Con Arguments: Are social networking sites good for our society?” “The First Americans”</p>

Vocabulary
<p><b>Academic:</b> controversy, argument, claim, reasons, evidence, research, citation, plagiarism, credible, relevant, sufficient</p> <p><b>Literary:</b> editorial, formal style, rhetorical appeals, logos, pathos</p>

Embedded Assessments
<p>1: Researching and Debating a Controversy</p> <p>2: Writing an Argumentative Letter</p>

Essential Questions
<p>Why do we have controversy in society?</p> <p>How do we communicate in order to convince others?</p>

Targeted Common Core State Standards
<p>RI.6.1, RI.6.2, RI.6.3, RI.6.4, RI.6.5, RI.6.6, RI.6.7, RI.6.8, RI.6.10;            W.6.1, W.6.4, W.6.5, W.6.6, W.6.7, W.6.8, W.6.10;            SL.6.1, SL.6.2, SL.6.3, SL.6.4, SL.6.5, SL.6.6;            L.6.2.b, L.6.3, L.6.4, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To support a claim with reasons and evidence</i></p> <p><i>To write an argumentative letter</i></p> <p><b>Focus Areas:</b> Argumentative Writing; Research with Citations</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To understand and use simple, compound, and complex sentences</i></p> <p><b>Focus Areas:</b> formal style, using appositives, complex sentences</p>

Speaking and Listening
<p><b>Goals:</b> <i>To engage effectively in a variety of collaborative discussions</i></p> <p>Collaborating to Debate            Viewing Diverse Media            Collaborating to Present Research            Collaborating to Evaluate a Claim</p>

Additional Assessment Opportunities
<p><b>Argumentative Writing Prompts:</b> Activities 3.6, 3.7  <b>Citing Textual Evidence:</b> Activities 3.4, 3.5, 3.6, 3.7, 3.8, 3.10, 3.11,  <b>Creating an Argument:</b> Activity 3.3, 3.4, 3.6, 3.7, 3.11  <b>Research:</b> Activities 3.4, 3.5, 3.12  <b>Revision:</b> Activities 3.13, 3.14, 3.15  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

## Grade 6 Curriculum Map

### Unit 4: The Final Act (Suggested Time: 6 weeks)

Reading
<p><b>Goals:</b> <i>To analyze the relationship between setting, characterization, conflict, and plot</i></p> <p><b>Genres:</b> poetry, online article, informational text, essay, drama, film</p> <p><b>Key Texts:</b> “Shakespeare dumbed down in comic strips for bored pupils,” “Shakespeare’s Life,” excerpt from “Reading Shakespeare’s Language,” “The Southpaw,” “Oranges,” “Jabberwocky,” “Fireflies,” excerpts from <i>The Taming of the Shrew</i>, film clips from <i>The Taming of the Shrew</i></p>

Vocabulary
<p><b>Academic:</b> collaborate, source, multimedia, bibliography, evaluate, synthesize, annotate</p> <p><b>Literary:</b> rhythm, iambic pentameter, iamb, tableau, limerick, rhyme scheme, inflection, rate, drama, free verse, alliteration, oral interpretation</p>

Embedded Assessments
<p>1: Researching and Presenting Shakespeare</p> <p>2: Performing Shakespeare</p>

Essential Questions
<p>How can research shape one’s understanding of a literary text?</p> <p>How is reading a text similar to and different from viewing and performing a text?</p>

Targeted Common Core State Standards
<p>RL.6.1, RL.6.2, RL.6.3, RL.6.4, RL.6.5, RL.6.6, RL.6.7, RL.6.10;            RI.6.1, RI.6.2, RI.6.4, RI.6.5, RI.6.7, RI.6.10;            W.6.1, W.6.2, W.6.4, W.6.5, W.6.6, W.6.7, W.6.8, W.6.9, W.6.10;            SL.6.1;            L.6.2, L.6.3, L.6.4, L.6.5, L.6.6</p>

Writing and Research
<p><b>Goals:</b> <i>To research a drama from a different time period</i></p> <p><b>Focus Areas:</b> Expository and Research</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To revise for effective sentence variety</i></p> <p><b>Focus Areas:</b> choosing sentence structure, pronoun usage</p>

Speaking and Listening
<p><b>Goals:</b> <i>To rehearse and present an engaging performance of a drama</i></p> <p>Practicing Choral Reading            Delivering Oral and Dramatic Presentations            Collaborating to Synthesize information            Viewing Diverse Media</p>

Additional Assessment Opportunities
<p><b>Expository Writing Prompts:</b> Activities 4.3, 4.4, 4.6, 4.8, 4.15  <b>Citing Textual Evidence:</b> Activities 4.3, 4.4, 4.13, 4.14  <b>Evaluating Argument:</b> Activity 4.3  <b>Multimedia Research Display:</b> Activity 4.5  <b>Evaluating/Reflecting on a Performance:</b> Activities 4.10, 4.11, 4.12, 4.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

# Grade 7 Curriculum Map

## Unit 1: The Choices We Make (Suggested Time: 7 weeks)

Reading
<p><b>Goals:</b> <i>To analyze genres and their organizational structures</i></p> <p><i>To examine the function of narrative elements</i></p> <p><b>Genres:</b> poetry, a novel excerpt, an autobiography excerpt, a memoir excerpt, an essay, myths, a fable, film clips</p> <p><b>Key Texts:</b> “The Road Not Taken,” “Choices,” excerpts from <i>Staying Fat for Sarah Byrnes</i>, <i>Dust Tracks in the Road</i>, and <i>Bad Boy</i>, “Why Couldn’t I Have Been Named Ashley?” “Phaethon,” “Daedalus and Icarus,” “Arachne,” Aesop’s “The Lion, the Fox, and the Stag,” film clips from <i>The Mighty</i>, “Raven and the Sources of Light”</p>

Vocabulary
<p><b>Academic:</b> effect, effective, consequences, coherence, internal coherence, external coherence, theme, objective, subjective</p> <p><b>Literary:</b> genre, denotation, connotation, stanza, narrative, sensory details, figurative language, characterization, myth, plot, symbol, symbolism, objective camera angle,</p>

Embedded Assessments
<p>1: Revising a Personal Narrative about Choice</p> <p>2: Creating an Illustrated Myth</p>

Essential Questions
<p>How do authors use narrative elements to create a story?</p> <p>What are the elements of effective revision?</p>

Targeted Common Core State Standards
<p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.6, RL.7.10;            RI.7.1, RI.7.2, RI.7.3, RI.7.5, RI.7.6, RI.7.10;            W.7.2, W.7.3, W.7.4, W.7.5, W.7.7, W.7.9, W.7.10;            SL.7.1, SL.7.2, SL.7.4, SL.7.5;            L.7.1, L.7.2, L.7.3, L.7.4, 7.5, L.7.6</p>

Writing and Research
<p><b>Goals:</b> <i>To apply techniques to create coherence and sentence variety in writing</i></p> <p><i>To apply revision techniques in preparing drafts for publication</i></p> <p><b>Focus Area:</b> Narrative</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To apply techniques to create coherence and sentence variety in writing</i></p> <p><i>To apply revision techniques in preparing drafts for publication</i></p> <p><b>Focus Areas:</b> verb tenses, coherence and sentence variety, analogies, coordinate adjectives, pronouns and antecedents</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups            Sharing and Discussing Textual Evidence            Collaborating to Analyze Text            Collaborating to Create a Poster</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompts:</b> Activities 1.6, 1.7, 1.13,  <b>Citing Textual Evidence:</b> Activities 1.3, 1.4, 1.5, 1.6, 1.9, 1.11, 1.12, 1.13, 1.14, 1.18  <b>Revision:</b> Activities 1.8, 1.9, 1.10  <b>Researching a Phenomenon and Creating a Poster:</b> Activities 1.15, 1.17, 1.18  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

## Grade 7 Curriculum Map

### Unit 2: What Influences My Choices? (Suggested Time: 7 weeks)

<p style="text-align: center;"><b>Reading</b></p>	<p style="text-align: center;"><b>Embedded Assessments</b></p>	<p style="text-align: center;"><b>Writing and Research</b></p>
<p><b>Goals:</b> <i>To understand how our lives are affected by media and advertising</i></p> <p><i>To identify and analyze the use of appeals, language, and rhetorical devices in informational and argumentative texts</i></p> <p><b>Genres:</b> informational texts, online texts, documentary film excerpts, news articles, essays, speeches</p> <p><b>Key Texts:</b> “\$211 Billion and So Much to Buy—American Youths, the New Big Spenders,” Facts About Marketing to Children,” excerpts from the documentary film <i>Consuming Kids: The Commercialization of Childhood</i>, “Marketing to kids gets more savvy with new technologies,” “America, The Not-So-Beautiful,” “Ain’t I a Woman?”</p>	<p>1: Writing an Expository Essay and Participating in a Collaborative Discussion</p> <p>2: Writing an Argumentative Essay</p>	<p><b>Goals:</b> <i>To write an expository essay</i></p> <p><i>To write an argumentative essay</i></p> <p><b>Focus Areas:</b> Expository and Argumentation</p>
<p style="text-align: center;"><b>Vocabulary</b></p>	<p style="text-align: center;"><b>Essential Questions</b></p> <p>What role does advertising play in the lives of youth?</p> <p>What makes an effective argument?</p>	<p style="text-align: center;"><b>Language and Writer’s Craft</b></p> <p><b>Focus Areas:</b> revising for cohesion and clarity, revising for precise language and formal style, sentence variety, sentence structure and transitions, using rhetorical devices. phrases and clauses</p>
<p><b>Academic:</b> text features, hypothesize, primary source, secondary source, search term, credibility, inference, valid, norm, consensus, claim, counterclaim</p> <p><b>Literary:</b> expository writing, documentary film. claim. rhetoric</p>	<p style="text-align: center;"><b>Targeted Common Core State Standards</b></p> <p>RI.7.1, RI.7.2, RI.7.3, RI.7.4, RI.7.5, RI.7.6, RI.7.7, RI.7.8, RI.7.9, RI.7.10;  W.7.2, W.7.4, W.7.5, W.7.7, W.7.8, W.7.9, W.7.10;  SL.7.1, SL.7.2, SL.7.6;  L.7.1, L.7.2, L.7.3, L.7.4, L.7.5, L.7.6</p>	<p style="text-align: center;"><b>Speaking and Listening</b></p> <p><b>Goals:</b> <i>To engage in collaborative discussions</i></p> <p>Sharing and Responding in Writing Groups  Sharing and Discussing Textual Evidence  Collaborating for Discussions  Collaborating for Research  Viewing Diverse Media</p>
<p style="text-align: center;"><b>Additional Assessment Opportunities</b></p>	<p><b>Expository/Explanatory Writing Prompts:</b> Activities 2.4, 2.5, 2.6, 2.8, 2.9, 2.10  <b>Argumentative Writing Prompts:</b> Activities 2.14, 2.15, 2.16  <b>Citing Textual Evidence:</b> Activities 2.3, 2.6, 2.8, 2.9, 2.12, 2.13, 2.14, 2.15  <b>Understanding Text Features:</b> Activities 2.2, 2.3, 2.6, 2.7, 2.12, 2.14, 2.16  <b>Evaluating Sources:</b> Activity 2.3, 2.6, 2.13  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>	



## Grade 7 Curriculum Map

### Unit 3: Choices and Consequences (Suggested Time: 6 weeks)

<p style="text-align: center;"><b>Reading</b></p> <p><b>Goals:</b> <i>To use textual evidence to support analysis and inferences</i></p> <p><i>To evaluate, analyze, and synthesize a variety of informational texts</i></p> <p><b>Genres:</b> a novel, film clips, a news article, poetry, biography and autobiography excerpts, nonfiction text, speeches</p> <p><b>Key Texts:</b> <i>Tangerine</i>, “A stunning tale of escape traps its hero in replay” “To an Athlete Dying Young,” film clips from <i>Sandlot</i> and <i>Invictus</i>, Nobel Peace Prize Biography of Nelson Mandela, excerpt from <i>A Long Walk to Freedom</i>, “Invictus,” excerpts from <i>Playing the Enemy: Nelson Mandela and the Game that Made a Nation</i>, Nelson Mandela’s Nobel Prize Acceptance Speech, Speeches by Great Leaders</p>	<p style="text-align: center;"><b>Embedded Assessments</b></p> <p>1: Writing a Literary Analysis Essay</p> <p>2: Creating a Biographical Presentation</p>	<p style="text-align: center;"><b>Writing and Research</b></p> <p><b>Goals:</b> <i>To write a literary analysis essay</i></p> <p><i>To create and present a biographical research project</i></p> <p><b>Focus Areas:</b> Literary analysis; multimedia research presentation</p>
<p style="text-align: center;"><b>Vocabulary</b></p> <p><b>Academic:</b> prediction, inference</p> <p><b>Literary:</b> imagery, motif, setting, flashback, foreshadowing, point of view</p>	<p style="text-align: center;"><b>Essential Questions</b></p> <p>What is the relationship between choices and consequences?</p> <p>What makes a great leader?</p>	<p style="text-align: center;"><b>Language and Writer’s Craft</b></p> <p><b>Focus Areas:</b> subordinate clauses, coordinating conjunctions, active and passive voice, adjectival and prepositional phrases, correcting dangling and misplaced modifiers</p>
	<p style="text-align: center;"><b>Targeted Common Core State Standards</b></p> <p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.6, RL.7.10;          RI.7.1, RI.7.2, RI.7.3, RI.7.5, RI.7.6, RI.7.7, RI.7.9, RI.7.10;          W.7.2, W.7.3, W.7.4, W.7.5, W.7.6, W.7.7, W.7.8, W.7.9, W.7.10;          SL.7.1, SL.7.2, SL.7.3, SL.7.4, SL.7.5;          L.7.1, L.7.3, L.7.4, L.7.5, L.7.6</p>	<p style="text-align: center;"><b>Speaking and Listening</b></p> <p>Sharing and Responding in Writing Groups          Sharing and Discussing Textual Evidence          Collaborating for Discussions          Collaborating for Research          Collaborating to Present Information          Collaborating to Create Visuals          Viewing Diverse Media</p>
	<p><b>Additional Assessment Opportunities</b></p> <p><b>Expository/Explanatory Writing Prompts:</b> Activities 3.4, 3.6, 3.8, 3.9, 3.10, 3.11, 3.12  <b>Citing Textual Evidence:</b> Activities 3.3, 3.4, 3.5, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.17, 3.19, 3.20  <b>Book Cover Design:</b> Activity 3.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>	

## Grade 7 Curriculum Map

### Unit 4: How We Choose to Act (Suggested Time: 8 weeks)

Reading
<p><b>Goals:</b> <i>To increase textual analysis skills across genres</i></p> <p><b>Genres:</b> poetry, monologues, informational text, drama, film</p> <p><b>Key Texts:</b> “Stopping By Woods on a Snowy Evening,” “Mother to Son,” “It Happened in Montgomery,” clip from “Jerry Seinfeld: I’m Telling You for the Last Time,” “The Raven,” “Little Red Riding Hood and the Wolf,” “Casey at the Bat,” “Outlaws and Highwaymen,” “The Highwayman,” “We Wear the Mask,” excerpts from <i>Twelfth Night</i>, both drama and film</p>

Vocabulary
<p><b>Academic:</b> precise, structure, modify, romantic, realistic, improvise, diagram</p> <p><b>Literary:</b> persona, oral interpretation, rhyme, alliteration, assonance, consonance, monologue, pantomime, syntax, poetic devices, internal rhyme, parody, vocal delivery, visual delivery, dialogue, stage directions</p>

Embedded Assessments
<p>1: Creating and Presenting a Monologue</p> <p>2: Performing a Shakespearean Dialogue</p>

Essential Questions
<p>How do writers and speakers use language for effect?</p> <p>How do performers communicate meaning to an audience?</p>

Targeted Common Core State Standards
<p>RL.7.1, RL.7.2, RL.7.3, RL.7.4, RL.7.5, RL.7.6, RL.7.7, RL.7.9, RL.7.10;            RI.7.2, RI.7.4, RI.7.10;            W.7.2, W.7.3, W.7.4, W.7.5, W.7.9, W.7.10;            SL.7.1, SL.7.2, SL.7.4, SL.7.5, SL.7.6;            L.7.1, L.7.2, L.7.3, L.7.4, L.7.5, L.7.6</p>

Writing and Research
<p><b>Focus Areas:</b> Narrative and Creative Writing</p>

Language and Writer’s Craft
<p><b>Focus Areas:</b> varying syntax for effect, correcting dangling and misplaced modifiers</p>

Speaking and Listening
<p><b>Goals:</b> <i>To strengthen verbal and nonverbal communication skills</i></p> <p><i>To improve oral fluency and presentation skills</i></p> <p><i>To collaborate on a Shakespearean performance</i></p>

Additional Assessment Opportunities
<p><b>Analytical Writing Prompts:</b> Activities 4.2, 4.5  <b>Expository Writing Prompt:</b> Activity 4.14  <b>Creative Writing Prompts:</b> Activities 4.3, 4.6, 4.8  <b>Citing Textual Evidence:</b> Activities 4.2, 4.4, 4.6, 4.8, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17  <b>Creating Visuals:</b> Activities 4.10, 4.11  <b>Performance/Presentation:</b> Activities 4.4, 4.6, 4.7, 4.13, 4.14  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>

# Grade 8 Curriculum Map

## Unit 1: The Challenge of Heroism (Suggested Time: 8 weeks)

### Reading

**Goals:** *To analyze and synthesize a variety of texts to develop an original definition of hero*

*To analyze and evaluate expository texts for ideas, structure and language*

**Genres:** novel excerpts, film clips, a short story, narrative poetry, poetry, articles, an autobiography excerpt, an essay

**Key Texts:** Excerpts from *A Wrinkle in Time*, excerpts from *The Odyssey*, “A Man,” “Sonnet 116,” “Where I Find Heroes,” Excerpt from White House Funeral Sermon for Abraham Lincoln, “O Captain, My Captain!” “Frederick Douglass,” Excerpt from *The Narrative of the Life of Frederick Douglass, an American Slave*, “A Definition of a Gentleman”

### Vocabulary

**Academic:** context, technique, synonyms, antonyms, formal, concise, function, negation

**Literary:** archetype, imagery, setting, point of view, conflict, protagonist, mood, plot, pacing, epic, tone, diction, denotation connotation, nuance, definition essay, allegory, coherence, thesis

### Embedded Assessments

- 1: Writing a Hero’s Journey Narrative
- 2: Writing a Definition Essay

### Essential Questions

- What defines a hero?
- How does the Hero’s Journey archetype appear in stories throughout time?

### Targeted Common Core State Standards

RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.10;  
 RI.8.1, RI.8.2, RI.8.4, RI.8.5, RI.8.6, RI.8.10;  
 W.8.2, W.8.3, W.8.4, W.8.5, W.8.7, W.8.8, W.8.9,  
 W.8.10;  
 SL.8.1, SL.8.2, SL.8.4, SL.8.5, SL.8.6,;  
 L.8.1, L.8.2, L.8.4, L.8.5, L.8.6

### Additional Assessment Opportunities

**Narrative Writing Prompts:** Activities 1.6, 1.7, 1.9  
**Expository Writing Prompts:** Activities 1.13, 1.14, 1.16, 1.17  
**Citing Textual Evidence:** Activities 1.3, 1.6, 1.7, 1.9, 1.12, 1.13, 1.14, 1.16  
**Creating Visuals:** Activities 1.4, 1.6, 1.7, 1.9  
**Presentation:** Activity 1.11  
**Reader/Writer Notebook and Key Ideas and Details Questions:** ongoing  
**Unit Assessment:** online

### Writing and Research

**Goals:** *To create an original illustrated narrative based on the Hero’s Journey Archetype*

*To develop expository texts using strategies of definition*

**Focus Areas:** Narrative, Expository

### Language and Writer’s Craft

**Focus Areas:** Revising and Editing, Verbs and Mood, Transitions and Quotations

### Speaking and Listening

Sharing and Responding in Writing Groups  
 Sharing and Discussing Textual Evidence  
 Collaborating for a Presentation  
 Collaborating to Apply an Archetype  
 Collaborating to Analyze Texts

## Grade 8 Curriculum Map

### Unit 2: The Challenge of Utopia (Suggested Time: 8.5 weeks)

Reading
<p><b>Goals:</b> <i>To analyze a novel for archetype and theme</i></p> <p><i>To analyze and evaluate a variety of expository and argumentative texts for ideas, structure, and language</i></p> <p><b>Genres:</b> an essay, a short story, a novel, an informational text, articles</p> <p><b>Key Texts:</b> <i>The Giver</i> or <i>Fahrenheit 451</i>, "Grant and Lee: A Study in Contrasts," "Harrison Bergeron," "Banned Books Week: Celebrating the Freedom to Read," "Parents Share Son's Fatal Text Message to Warn against Texting &amp; Driving," "The Science Behind Distracted Driving," "How the Brain Reacts," "Cellphones and driving: As dangerous as we think?"</p>
Vocabulary
<p><b>Academic:</b> compare/contrast, utopia, dystopia, argument, debate, controversy, research, search terms, universal, seminar, Socratic</p> <p><b>Literary:</b> antagonist</p>

Embedded Assessments
<p>1: Writing an Expository Essay</p> <p>2: Writing an Argumentative Essay</p>

Essential Questions
<p>To what extent can a perfect or ideal society exist?</p> <p>What makes an argument effective?</p>

Targeted Common Core State Standards
<p>RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RI.8.6, RI.8.9, RL.8.10;</p> <p>RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.8;</p> <p>W.8.1, W.8.2, W.8.3, W.8.4, W.8.5, W.8.6, W.8.7, W.8.8, W.8.9, W.8.10;</p> <p>SL.8.1, SL.8.3, SL.8.4, SL.8.6;</p> <p>L.8.1, L.8.2, SL.8.3, L.8.4, L.8.5, L.8.6</p>

Writing and Research
<p><b>Goals:</b> <i>To develop informative/explanatory texts using the comparison/contrast organizational structure</i></p> <p><i>To develop effective arguments using logical reasoning, relevant evidence, and persuasive appeals for effect</i></p> <p><b>Focus Areas:</b> Expository, Argumentative</p>

Language and Writer's Craft
<p><b>Goals:</b> <i>To understand the use of active and passive voice</i></p> <p><b>Focus Areas:</b> embedding direct quotations, active and passive voice, maintaining voice and mood</p>

Speaking and Listening
<p>Sharing and Responding in Writing Groups</p> <p>Sharing and Discussing Textual Evidence</p> <p>Collaborating for Research</p> <p>Collaborating for Debate</p>

Additional Assessment Opportunities
<p><b>Argumentative Writing Prompts:</b> Activities 2.13, 2.15, 2.16</p> <p><b>Expository Writing Prompts:</b> Activities 2.2, 2.3, 2.5.2.7, 2.9</p> <p><b>Citing Textual Evidence:</b> Activities 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.11, 2.13, 2.15, 2.16</p> <p><b>Creating Visuals:</b> Activities 2.4, 2.5</p> <p><b>Socratic Seminar/Discussion/Debate:</b> Activity 2.6, 2.8, 2.12, 2.17</p> <p><b>Annotated Bibliography:</b> Activity 2.16</p> <p><b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing</p> <p><b>Unit Assessment:</b> online</p>

## Grade 8 Curriculum Map

### Unit 3: The Challenge to Make a Difference (8 weeks)

#### Reading

**Goals:** *To analyze the development of a theme or central idea of a text*

**Genres:** memoirs, poetry, a children’s book, film clips, a drama excerpt, novels, a diary excerpt, a speech excerpt, informational texts, an article

**Key Texts** teacher-selected Holocaust narratives, excerpt from *Night*, “First They Came for the Communists,” *Terrible Things: An Allegory of the Holocaust*, film clips from *Life is Beautiful*, excerpts from *The Diary of Anne Frank*, excerpt from *The Boy in the Striped Pajamas*, excerpt from *The Diary of a Young Girl*, excerpt from Elie Wiesel’s Nobel Peace Prize Acceptance Speech, from *Do Something! A Handbook for Young Activists*, “Famine as a Weapon...It’s Time to Stop Starvation in Sudan”

#### Vocabulary

**Academic:** communication, resume, euphemism, slogan, campaign, media, media channels, target audience, evaluate

**Literary:** enunciation, call to action, found poem

#### Embedded Assessments

- 1: Presenting Voices of the Holocaust
- 2: Presenting a Multimedia Campaign

#### Essential Questions

Why is it important to learn about the Holocaust?

How can one person make a difference?

#### Targeted Common Core State Standards

RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.6, RL.8.7, RL.8.8, RL.8.10;  
 RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.7, RI.8.8, RI.8.10;  
 W.8.1, W.8.2, W.8.3, W.8.4, W.8.5, W.8.6, W.8.7, W.8.8, W.8.9, W.8.10;  
 SL.8.1, SL.8.2, SL.8.3, SL.8.4, SL.8.5, SL.8.6;  
 L.8.1, L.8.2, SL.8.3, L.8.4, L.8.5, L.8.6

#### Additional Assessment Opportunities

**Narrative Writing Prompt:** Activities 3.8

**Expository Writing Prompts:** Activities 3.5, 3.9, 3.10

**Argumentative Writing Prompts:** Activity 3.15

**Citing Textual Evidence:** Activities 3.3, 3.4, 3.5, 3.6, 3.10, 3.11, 3.12, 3.15, 3.17, 3.18, 3.19

**Presentation:** Activity 3.7, 3.8, 3.11

**Research/Investigation:** Activities 3.14, 3.16

**Reader/Writer Notebook and Key Ideas and Details Questions:** ongoing

**Unit Assessment:** online

#### Writing and Research

**Goals:** *To research an issue of national or global significance*

*To create an informative and persuasive multimedia presentation*

**Focus Areas:** Narrative, Expository

#### Language and Writer’s Craft

**Goals:** *To strengthen writing through the effective use of voice and mood*

**Focus Areas:** Voice and Mood for Effect, Participial Phrases, Clauses

#### Speaking and Listening

**Goals:** *To engage effectively in a range of collaborative discussions*

Engaging in Literature Circles  
 Collaborating for Researching and Presenting  
 Viewing Diverse Media

## Grade 8 Curriculum Map

### Unit 4: The Challenge of Comedy (Suggested Time: 8.5 weeks)

Reading
<p><b>Goals:</b> <i>To analyze how a variety of authors create humor in print and nonprint texts</i></p> <p><i>To analyze how humor is used to reveal a universal truth or theme</i></p> <p><i>To analyze a scene from a Shakespearean comedy</i></p> <p><b>Genres:</b> essays, comic strips, political cartoons, an article, film clips, a short story, a novel excerpt, poetry, drama, an informational text</p> <p><b>Key Texts:</b> “Made You Laugh,” from <i>Brothers</i>, “I’ve got a few pet peeves about sea creatures,” “The Open Window,” from <i>The Adventures of Tom Sawyer</i>, “They Have Yarns,” “Moose,” “Is Traffic Jam Delectable?” “The Power of Pets,” print and film excerpts from <i>A Midsummer Night’s Dream</i>, from “Fear Busters—10 Tips to Overcome Stage Fright”</p>

Vocabulary
<p><b>Academic:</b> juxtaposition, caricature, deride, denounce</p> <p><b>Literary:</b> satire, persona, irony, dialect, yarn, alliteration, comedy, performance</p>

Embedded Assessments
<p>1: Writing an Analysis of a Humorous Text</p> <p>2: Performing Shakespearean Comedy</p>

Essential Questions
<p>How do writers and speakers use humor to convey truth?</p> <p>What makes an effective performance of a Shakespearean comedy?</p>

Targeted Common Core State Standards
<p>RL.8.1, RL.8.2, RL.8.3, RL.8.4, RL.8.5, RL.8.6, RL.8.7, RL.8.9, RL.8.10;            RI.8.1, RI.8.2, RI.8.3, RI.8.4, RI.8.5, RI.8.6, RI.8.10;            W.8.2, W.8.3, W.8.4, W.8.5, W.8.7, W.8.9, W.8.10;            SL.8.1, SL.8.2, SL.8.4, SL.8.5, SL.8.6;            L.8.1, L.8.4, L.8.5, L.8.6</p>

Writing and Research
<p><b>Goals:</b> <i>To write a well-developed analysis of a humorous text</i></p> <p><b>Focus Areas:</b> Narrative, Expository,</p>

Language and Writer’s Craft
<p><b>Goals:</b> <i>To understand verbals and how they are used in writing</i></p> <p><b>Focus Areas:</b> verbals</p>

Speaking and Listening
<p><b>Goals:</b> <i>To perform a scene from a Shakespearean comedy</i></p> <p>Sharing and Discussing Textual Evidence            Sharing and Responding in Writing Groups            Collaborating for Performance</p>

Additional Assessment Opportunities
<p><b>Narrative Writing Prompt:</b> Activities 4.4, 4.13  <b>Expository Writing Prompts:</b> Activities 4.3, 4.4, 4.4, 4.5, 4.6, 4.8, 4.9, 4.10  <b>Citing Textual Evidence:</b> Activities 4.2, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11, 4.15  <b>Rehearsal/Performance:</b> Activities 4.14, 4.16, 4.17, 4.18, 4.20  <b>Visual Representation:</b> Activity 4.13  <b>Reader/Writer Notebook and Key Ideas and Details Questions:</b> ongoing  <b>Unit Assessment:</b> online</p>



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CPSIA Code:

# Unit 1

## Purposeful Writing

In this unit, students will learn that authors write for different purposes and audiences and will explore both narrative and informative structures.

- In *Narrative Writing: Personal Narrative*, students will identify narrative writing elements, evaluate narrative texts, and learn to use transition words and phrases to move the story along, then use what they have learned to collaboratively plan and write a class narrative.
- In *Introduction to Informative Writing*, students will identify informative text components and use this understanding to evaluate informative writing.

The lessons in this unit work together to reinforce understanding of text structure and purpose through both producing new text and through analyzing existing text. They also demonstrate the idea that the same theme can be expressed across multiple texts, whether that text is produced by the students themselves, or by professional authors.





## Narrative Writing

# Personal Narrative

### Assessment Planning

- Consider collecting students' writing to use as a baseline for evaluating narrative writing progress in the future using the Narrative Writing Rubric (Appendix B, page 35).
- You might choose to share students' work after completion: compile it into a class book for your classroom library, hang it up for display, and/or send copies home for students to share with their families.

### Curriculum Connections

In these genre writing lessons, we will help students make connections to what they have learned so far in lessons across the curriculum. Below is a list of those connections:

- In Lesson 3 of these *Personal Narrative Writing* lessons, students will make connections to what they have learned about narrative text structure from Shared Reading and the book, *Fudge-a-Mania*.

## Lesson 1

W.3.3 W.3.10

### Planning Notes

Consider providing students with a Writing Folder. Students could use this folder throughout the year to hold all papers, checklists, organizers, drafts, and other writing work they need as they complete their work in each writing lesson.

### Modeling

Today I am going to ask you to plan and write a narrative on your own. In this story, you will tell the reader about something that happened to you. It could be a story about something that happened to you at home or at school or anywhere. Think about all the things that happened. Then you can plan what you want to write. When you've finished the plan, you can start writing the story.

### Work Session

Students write their narratives with minimal guidance and support.

### Sharing

Turn and share your story with a partner.

## Lesson 2

SL.3.1.b

SL.3.1.d

W.3.3

### Planning Notes

Choose a team-building activity to use in this lesson. You will need to complete the activity before Lesson 4 to write about a class participation activity.

### Materials

- “A Terrible Tuesday” (Appendix C, page 39): for display
- “Futuristic Cars” (Appendix C, page 40): for display
- “My Lost Kittens” (Appendix C, page 41): for student copies
- “The Carnival” (Appendix C, page 42): for student copies
- “The Best Pet” (Appendix C, page 43): for student copies

### Modeling

Yesterday you wrote a narrative, or a story, to tell about something that happened to you at home or at school. There are different types of writing and a narrative is only one type. Because you wrote a true story about something you experienced, it is called a personal narrative. Each type of writing has different elements or parts. Let’s think about the important parts that you included in your story. Turn and talk to your partner about what needs to be included when you are telling a story.

Circulate to provide support.

Let’s share what you think are the important parts of a narrative.

Keep a Parts of a Narrative List. The parts are: *introduce the narrator and/or characters, setting, problem, solution, organize an event sequence, use dialogue, use temporal words and phrases to signal order, provide a sense of closure*. If there are missing parts, provide instruction.

## Module Y Unit 1

For example, if the students leave out events, here is an example of what you could say: *One part of a narrative that we did not discuss is called an event. An event is something that happens in a narrative. For example, if I were writing a narrative about what happened to me one time on my way to school, I would include several events. I would tell that I was driving on the highway. Then I would say that suddenly, I got a flat tire. The next event would be that I had to pull off the road and call for help. Each one of those things that happened is an event that is linked together in the narrative. Remember that an event is a thing that happened.*



Now that we have created a Parts of a Narrative List, we are going to look at different texts and decide if the text is a narrative or not a narrative. Let's practice together first. We will read each text together and then we will decide if it is a narrative or not based on our list of elements.

Display and read "A Terrible Tuesday" chorally to get the gist. Then help students identify elements.

Give a thumbs-up if you think the text is a narrative. We can check to see if you are right by going back through the story and looking to see if it has all of the parts of a narrative that we listed.

Read aloud a sentence or more at a time and mark each part as it is identified.

After: **I had overslept.**

I know the story has a character or a narrator, because it states *I woke up* and *I yelled*. The writer is talking about herself. There is also a problem, because the narrator tells us that he/she woke up late for school and had to rush to get there on time.

After: **Now I am going to be late.**

The author uses description of the characters' actions and thoughts and dialogue to develop events and show the response of the character to the situation, so we can check events and dialogue. Remember that dialogue is what people actually say.

After: **'Yep, a flat tire.'**

Here is another event that adds to the character's terrible Tuesday.

After: **Sue arrived a few minutes later.**

Discuss with your partner other events that we just read about.

Partners share the events. After: **We arrived before the buses.**

Now we know the problem has been solved.

After: **I will always set two alarms from now on!**

This sentence establishes a sense of closure.

So do you think this is or isn't a narrative? Look back over our chart to help you decide. Put a thumbs-up if you think it is a narrative and a thumbs-down if you think it is not a narrative.

I agree with those of you who said *A Terrible Tuesday* is a narrative, because it has all of the parts that we listed on our chart.

Let's read another piece of text together.

Display and read "Futuristic Cars" chorally to get the gist. Then have student pairs identify elements.

Turn to your partner and discuss whether you think the text is a narrative or not. Be sure to give reasons for your decision.

Circulate to provide support.

Give me a thumbs-up if you think *Futuristic Cars* is a narrative. We can determine which groups are correct by reading through the passage again and thinking about our list of elements.

After: **They can even park themselves.**

Narratives need to have characters. A car could be a character in a fantasy, but this seems like all cars in general. We did not read about any characters in this first section, so we cannot check characters off on our list. A narrative also needs a situation or a setting. I know that the story takes place in Las Vegas in a parking lot.

Mark the first sentence.

So that's the setting of the text.

## Module Y Unit 1

After the last sentence of paragraph three.

We also decided that a narrative needs several events and so far, we haven't read a series of events. We also said that narratives need to have dialogue. Have we read dialogue between characters?

Pause for students to respond.

No, then we cannot check dialogue off on our list of narrative elements.

Now you will work with a partner and read some passages and decide which ones are narratives and which ones are not. You will have a highlighter to mark sentences to show which elements you find in the passage. You will also have sticky notes to write why you labeled each text narrative or not narrative.

Let's look at our list. We only checked one of the elements of narratives for the car story, so this passage cannot be a narrative since it only has one element.

### Work Session

Students will work in partners or small groups to determine whether texts are narrative or not narrative. Remind students to be prepared to share why they labeled each text narrative or not narrative.

Each pair or small group will need "My Lost Kittens", "The Carnival", and "The Best Pet", or you can use narrative texts you have available to you.

### Sharing

You and your partner will share which text was a narrative and why. Remember to use the Parts of a Narrative List in your explanation.

## Lesson 3

SL.3.1.b

SL.3.1.d

W.3.3

### Materials

- *Fudge-a-Mania*
- “Rescue Dog” (Appendix C, page 44): for display
- “The Barn Cat” (Appendix C, page 45): for student copies
- “Farm Chores” (Appendix C, page 46): for student copies
- “The Family Who Traveled West” (Appendix C, page 47): for student copies
- Narrative Checklist (Appendix A, page 31): for display and three copies per student

### Modeling

Display Narrative Checklist.

This is our Narrative Checklist. It was created based on the Parts of a Narrative List that we talked about yesterday. We can use the checklist to not only determine whether the text is a narrative, but also whether it is a strong piece of narrative writing. Watch how I use the checklist while I am reading the first page from *Fudge-a-Mania*.

Model using the Narrative Checklist with the first page of the book.

I will read an excerpt from *Fudge-a-Mania* and as I read it I will use the checklist to check off each element as I find it.

Start reading the excerpt. After: **‘No,’ he said.**

I know that Pete and Fudge are the characters in this passage and that the situation is Fudge telling his brother that he is getting married. So, I am going to check off establish a situation/setting and introduces characters/narrators.

After: **Are you alright?**

I have read a lot of dialogue between the characters.

Read aloud several different examples of dialogue.



## Module Y Unit 1

The dialogue helps develop the events and shows us how Pete reacts to the announcement that Fudge made. I'm going to check use dialogue on the checklist.

I'm going to mark *Then* and *Next* because they are temporal words that help signal the order of the events. Remember that temporal words tell time. The checklist says that a narrative needs temporal words and phrases. This excerpt only has two words to signal order so I am going to place a check in the second column next to temporal words on the checklist because this element could be better.

After the last sentence.

This sentence does provide a sense of closure, because it sounds like Peter might stop laughing since mom ignores him. I'm going to check off provides a sense of closure. A sense of closure helps you to end your narrative.

Now we will read another narrative and use the checklist to determine if it is a strong or weak narrative.

Display and read "Rescue Dog". Invite students to give a thumbs-up when they hear an element so the teacher can check it off on the checklist.

Now that we have completed two checklists we can compare them to see if one has more elements included.

Compare the two.

This narrative text has more narrative elements from our checklist. Thumbs-up if you think that it creates a stronger narrative. Turn and talk to your partner about why you think this text creates a stronger narrative.

## Work Session

Now you will have a chance to evaluate other narratives with a partner.

Display and provide copies of "The Barn Cat", "Farm Chores", and "The Family Who Traveled West".

You will work around the room with your partner. First you will read the text with your partner, then you will reread while checking off the elements on the checklist that the text has, just like we did together. Once you have done this

with all three pieces of text, you will decide which narrative text is the strongest. Be prepared to tell why you chose the piece.

### **Sharing**

Now you and your partner will share with another pair of partners which opinion text you believe is the strongest and why. Remember, you should use your Narrative Checklist in your explanation.

## Lesson 4

W.3.3.a

W.3.3.b

W.3.3.c

W.3.5

### Modeling

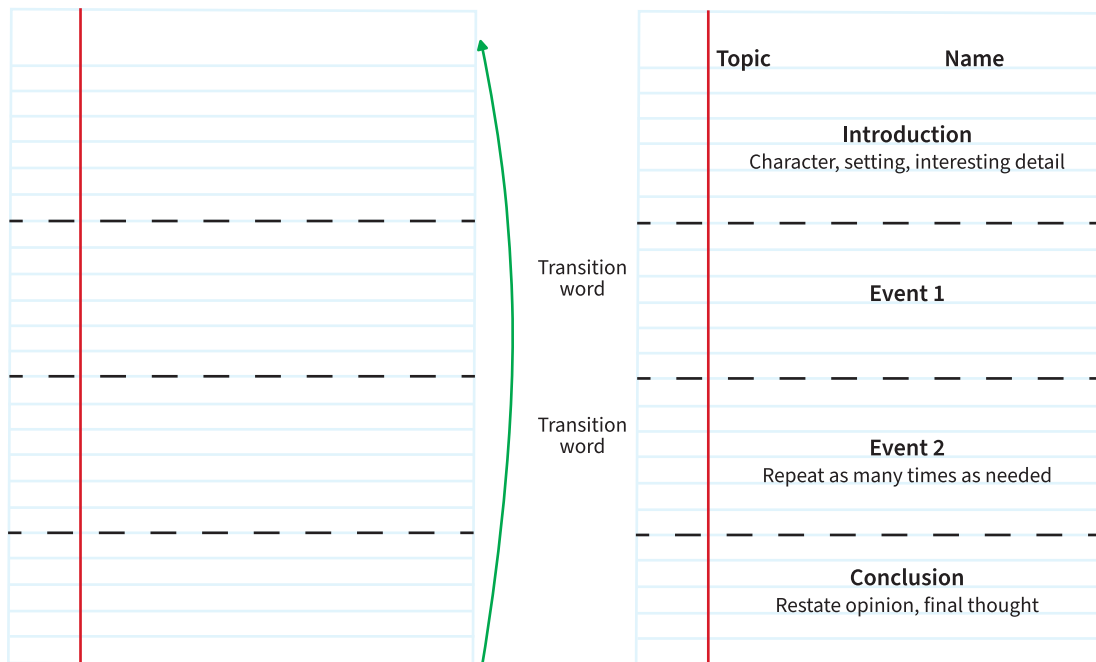
Yesterday we evaluated pieces of narrative writing using our Narrative Checklist. Turn and talk to your partner about the important elements of a narrative.

Provide 1 minute.

Today I am going to show you how to use a graphic organizer to plan a personal narrative.

Take the lined paper and fold it to the margin line in half and in half again. This will give you 4 sections on the front and 4 on the back.

The graphic organizer will be a folded sheet of lined paper so that students may make the organizer themselves and use the same strategy for every genre. Try to make the teacher's chart paper look like a sheet of lined paper.



Additional events and the conclusion section of the graphic organizer may end up being sections on the back of the lined paper graphic organizer.



The first thing we need is a good topic for a personal narrative. I think that I'll write about the Hula Hoop game we played on the first day of school since it is an event that we all experienced.

This is just an example. Choose something that is specific to your classroom or school so that students can participate.

The first thing I need to do is to think about the introduction. I should probably tell the reader what this is about and maybe something interesting. Hmm... Let me think. I should say something about our class going outside to practice teamwork by playing a Hula Hoop game. In the top margin, I will write: ***Hula Hoop game*** and I will write my name.

Remember in a graphic organizer we don't write down every word or every detail. We just write words or phrases to remind us what to write later in our paper.

I am going to include a detail about the hula hoop game in my introduction. This was a first day of school activity to help us learn to work together as a team. I will write: ***first day of school*** and ***teamwork game***.

Okay, that wasn't too tough.

So the next thing I need to do is think about the first event. Well, the first thing we did was go outside and we made a big circle.

In the next section, I'll write: ***outside*** and ***made a circle***. We need a temporal word to tell order. Since this was the first thing that we did, I'll write ***first***. I'll write that in the left margin.

Then I want to add details. Hmm... Well, I remember I explained the rules and everyone was very nervous about trying the game. Some of you even complained that it wouldn't be any fun.

So I'll write: ***rules, students complaining***. Notice how I didn't write the entire sentence in the box, I just wrote phrases to remind me later. I also need another

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temporal word or phrase to keep the story moving, so I'll write *after that*. I'll write that in the left margin.

We need to add at least two more events to our graphic organizer to finish telling about our Hula Hoop game. I want you to help by adding the rest of the details and the linking words. You will talk with your partner and decide the rest of the details about our game.

### Work Session

Invite students to work with a partner to add at least two more events to the graphic organizer. Each group can use one sheet of lined paper for the graphic organizer.

Circulate to provide support.

Assign roles such as writer, leader, timekeeper, etc.



### Sharing

As I walked around and met with groups I heard some really great ideas. It sounded to me that many groups chose these events to tell about what happened next.

Choose events that came up in more than one group that tell about your class personal narrative and add them to the shared graphic organizer.

I am going to have a few groups share their details for each of these events.

Allow groups to share examples.

Nice job today. We are almost done with our graphic organizer. Tomorrow we will add the conclusion and then turn this into an actual piece of narrative writing.

## Lesson 5

SL.3.1.b

W.3.3

W.3.3.d

W.3.4

### Materials

- Narrative Checklist (Appendix A, page 31): for display
- Narrative Graphic Organizer (from Lesson 4)

### Modeling

Yesterday we completed most of our graphic organizer for our personal narrative about the Hula Hoop game. Let's review the organizer before we add the conclusion.

Have students read the graphic organizer with you.

Now we need to write the conclusion. How did we feel about the Hula Hoop game? Talk with your partner about the feelings you had.

Circulate to provide support.

All of your feelings were very positive at the end even though you were complaining and nervous in the beginning. You enjoyed the game and wished we could play it again and again. For our conclusion, I can write: *teamwork, fun*. I think that sounds great.

Now we have finished our graphic organizer. Remember this is our plan to help us remember what we want to write about in our personal narrative. We will also use the narrative checklist to help us make sure we don't leave out any parts.

Let me show you how to use the organizer and the checklist to write a good narrative paper. First, I need to write the introduction. In the introduction, I need to establish the setting so my readers know where the narrative begins and I need to include the characters. Let me look at the graphic organizer. I wrote, *Hula Hoop game* and for the details I wrote *First day of school* and *team work game*. I need to write a sentence or two about that. Sometimes it's hard for me to go from notes to actual writing. I try to think about how my details can go

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together. I will write: *Our class went outside on the first day of school to play a teamwork building game with a hula hoop.*

I included the characters which is *our class* and the situation was *the Hula Hoop game*.

Now I will look at my graphic organizer for the first event. Our organizer says we *made a circle* and for the details I wrote *rules* and *complaining students*. The checklist says we need to describe what happens, so I am going to write sentences to tell about what happened. We used first as our temporal word so I'll write: *First, we went outside on the playground and our class got into a giant circle. We were all trying to guess what we were going to do.*

I want to give a lot of details in the next part of my personal narrative so that my readers will understand that you were nervous and complaining about the Hula Hoop game. Our organizer says *complaining students*, so I will write about how you were feeling. Hmm... Let me think. That's hard for me to do. When I get stuck I try to picture the situation in my mind. Oh, I remember. All of you were looking at one another and whispering about how you were going to make it work while holding hands. So I will write: *We looked around the circle at each other with wide eyes and began to whisper about how in the world we were going to do that. Everyone started complaining that it would be impossible while we were holding hands.*

Our checklist says we need to have dialogue. Dialogue tells when a character is talking. We will learn more about that the next time we write a narrative, but I'm going to include it here, because it's on our checklist and it makes sense here. I'll write: *David said, "I know! We will have to step through the Hula Hoop."* *Susan yelled, "And use our arms together to bounce it over our heads."*

Next, I need to tell more about me telling you the directions and I'll include dialogue here too: *"You will have to be creative," continued Mrs. Green, "and yes you will need to move your bodies in lots of different positions."*

Now you will work in groups of four and use the graphic organizer to help you add to the rest of our personal narrative. Remember the organizer is just the plan. You will need to write more details to describe the events when you are telling what happened next in our Hula Hoop game.

## Work Session

Group students in four groups. Instruct two groups to write paragraph 2 and the other two groups to write paragraph 3. Circulate to provide support.

Assign roles such as writer, leader, timekeeper, etc.



## Sharing

As I was walking around, I noticed several groups added a lot of details to describe what happened during our Hula Hoop game. That is what good writers do. Let's chorally read the introduction and the three body paragraphs. Ready, go.

Chorally read all of the writing. Do the same for the second text thread. Since you had two groups working on event 2 and two groups on event 3, the class constructed two different narratives. Read both.

These personal narratives sound like they have events connected to the topic and strong details, but let's evaluate our writing with the checklist to be sure.

Go through the checklist, pointing to items in the list and where they are in the narrative. Check off as you go.

Now we are still missing one part. Let's look at our checklist to decide. Yes, we are missing the conclusion. I know that I need to look back at the organizer to remind myself what we were thinking.

Refer to the graphic organizer.

We wrote *teamwork* and *fun*. I think we should write: ***The Hula Hoop game that we played on the first day of school was a great teamwork activity. We had so much fun and we want to try it again and again.***

That will work to provide closure to our personal narrative. Next week you will learn about another type of writing called informative writing.





## Informative Writing

# Introduction to Informative Writing

### Assessment Planning

- Consider collecting students' writing to use as a baseline for evaluating informative writing progress going forward using the Informative Writing Rubric (Appendix B, page 36).
- You might choose to share students' work after completion: compile into a class book for your classroom library, hang up for display, and/or send copies home for students to share with their families.

### Curriculum Connections

Throughout these Informative Writing lessons, you will see that we support students in making connections to what they have learned so far in lessons across the curriculum. Below is a list of those connections:

- In Lessons 6 and 8, we connect to the elements, structure, and purpose of narrative writing.
- In Lessons 6 and 7, we connect content from two upcoming books that students will read in Module 1—*The Constitution of the United States* and *The BFG*.

## Lesson 6

SL.3.1.b SL.3.1.d SL.3.4 W.3.2

### Materials

- *Boy: Tales of Childhood*
- Copies of informational articles
- Sticky notes

### Modeling

So far this year we have learned about narrative writing. Turn and talk to your partner about the parts of narrative writing.

Circulate to provide support.

We know that narrative writing is just one type of writing, and one reason why author's write: to tell a story. Today we are going to learn about a second type of writing. We are going to learn about informative writing. We will soon read a book about the author, Roald Dahl, which is an informational book. It is about Roald Dahl's childhood. Listen to this part.

Read page 23, the paragraph that begins with **On the other hand...**

Turn and tell your partner how this part of the text describes Roald to us.

Give students time to highlight the big ideas that were shared on this page.

I heard partners sharing many details about Roald that this text told us. One thing that pieces of informative writing have in common is that they tell us details about one topic. In this one, the topic is Roald. We call this specific type of informative text an autobiography, where the topic is a person and the person is the author.

I have gathered many samples of informative texts.

Utilize memberships to news articles that you have available to you at your school, use free news sites online, or gather informative texts from your classroom library.



I want you to look through some of these resources. I want you and your partner to keep a list of what you notice these text examples have in common. Think about things that they have in common with each other and things that they have in common with the Roald Dahl book. When time is up we are going to share what we found.

### Work Session

Invite students to work in partners or small groups around the room with small sets of text.

- There can be pre-selected groupings of texts or students may be permitted to work with one book at a time, coming up to get a new one once they have finished.
- Provide students with sticky notes or some kind of note-taking document to write down the similarities among the informative texts.
- If printed articles are utilized consider allowing students to highlight similar elements directly on the printed sheet.



### Sharing

As I walked around I heard you finding many excellent similarities. Together we are going to use those similarities to figure out the parts of informative writing. Turn to another partner pair sitting near you and as a group decide on the two similarities that you think are most important to include in informative writing.

Invite one group to share one of their two. Survey the class to see if anyone else had that similarity as an important part. If yes add it to the anchor chart. Move through the groups this way until your anchor chart includes: an introduction that names the topic, facts, definitions, and details, linking words, conclusion.

For any of the elements missed, provide instruction.

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For example, if the students do not share definitions, you can say: *One element that many informative texts include is definitions. Definitions tell us what a word means and sometimes that is really important for the reader to understand. For example, if I was describing Roald Dahl and I say that he is an author, it might be important for me to define what an author is for the reader.*



This seems like a complete list. Just like we were able to do with narrative writing, we will be able to use this list to determine whether a piece of text is informative or not. We will do that tomorrow.

## Lesson 7

SL.3.1.b

W.3.2

W.3.2.c

W.3.4

### Materials

- Prepared sentence strips (see modeling)
- Informative Elements List (from Lesson 6)
- Informative Checklist (Appendix A, page 33): for display

### Modeling

Yesterday you did such a good job noticing what must be in an informative piece, like a topic, details and what else?

Write the items they share in the proper order: *introduce the topic, definition or facts about the topic, details that describe the topic, linking words, conclusion.*

I think you are ready to put together an informative piece that is out of order. It is like putting a puzzle together. Soon we will read an informative text about the Constitution of the United States. We are going to work with some sentences from that text right now.

Lay all of the sentence strips out — you could use an interactive board, a pocket chart, or the floor with your students sitting around you.



### Sentences in order

(mix them up for the activity)

- The first three articles of the Constitution set up the federal government.
- The articles explain the duties of each branch of our government.
- Each branch has different powers.
- One of the branches is the legislative branch which has the power to make laws.
- This branch is the Congress.
- Another branch is the executive branch which enforces laws.

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- It is made up of a president, a vice-president, and the president's staff.
- The final branch is the judicial branch which makes sure that the laws are written and used correctly.
- The U.S. Supreme Court and other federal courts are part of this branch.
- These are the branches that the Constitution created.

The sentences from the book about the Constitution are out of order. I am going to read each of these sentences. Then, I am going to show you how I put them in order so that it makes an informative piece.

Read all of the sentence strips. Model how to put the segments in order by using a think-aloud as you make decisions about the order.

For example: *Hmm... I know that according to the list we made yesterday, the first thing an Informative piece of writing has is an introduction of the topic. Let me see if I can find a sentence that sounds like it is introducing the topic. Let's see. One of these branches is... no that sounds like a detail or definition. This branch is congress... no that sounds like a fact and not big enough to introduce a topic. The first three articles of the Constitution set... yes! This is a good contender as the topic sentence. It is introducing a topic. I am going to move this sentence up top.*

Continue modeling in this think-aloud fashion.

Now let's read this together to see if it makes sense.

Make adjustments if necessary.

## Work Session

Now it is your turn to put an informative paragraph together. I will leave this model up here for you to reference and I will leave the chart up. You will work with a partner to put a new paragraph back together.

### Sentences:

- The first 10 amendments are called the Bill of Rights, and the states approved them in 1791.
- James Madison proposed these amendments to give people more protection from the government.
- The Bill of Rights protects all Americans.

## Introduction to Informative Writing: Lesson 7

- The rights include freedom of speech.
- That allows people to say and write what they think.
- Another right the Bill of Rights promises Americans is freedom of religion.
- It also gives Americans the right to a trial by jury.
- That way, no one can be put in jail without a fair trial.
- These are just 3 of the first 10 Bill of Rights.

### Sharing

You and your partners will share your paragraphs with other pairs. Remember to use the Informative Checklist to explain your reasoning.



## Lesson 8

SL.3.1.b SL.3.1.d W.3.2

### Materials

- Informative Writing Elements List (from Lesson 6)
- Highlighters
- Sticky notes
- “African Elephants” (Appendix C, page 48): for display
- “Emma the Elephant” (Appendix C, page 49): for display
- “Cheetahs” (Appendix C, page 50): for student copies
- “The Coolest Animal Ever” (Appendix C, page 51): for student copies
- “The Race” (Appendix C, page 52): for student copies

### Modeling

Yesterday we spent some time putting a text in order using the informative elements list. Turn and tell your partner the elements in informative writing in order.

Circulate to provide support.

Today we are going to read different texts to decide whether the text is an informative piece or if it is some other type of writing. First, I will model how I can tell if a writing piece is informative or not. Then you will have some time to practice. I have two writing pieces about elephants. I am going to read both aloud then I will show you how I can use our list of informative elements to figure out which one is an informative.

Display and read “African Elephants” and “Emma the Elephant”.

Now that I have read both, I am going to use the list to remind me of what should be included in informative writing. I am going to look closely for an introduction of a topic, facts, details and/or definitions, and a conclusion. I think the first text is informative because it tells me information about the topic of African Elephants...

Point to each spot in the text as you talk about it.

...has an introduction here with facts...(read the sentence)...details with facts...(point out facts)...and it has a conclusion...(point to the conclusion)

The second text about Emma the Elephant is a story. It has the elements of a narrative that we learned about earlier... there are some events and the writer doesn't just describe one topic.

### Work Session

Give students “Cheetahs”, “The Coolest Animal Ever”, and “The Race”.

Now it is your turn to try. I am going to give each partner pair three different texts. You will have to use our parts list to determine if the text is informative or not. Be prepared to share why you think that when we come back together.

Invite students to work in partners or small groups to determine whether texts are informative or not informative. Students can use sticky notes and highlighters to keep track of the informative elements while working.

### Sharing

Let's share why we thought these texts were examples or were not examples of informative writing.

Use an every-student-responds technique. For example, ask students to show thumbs-up if this text is an informative piece, thumbs-down if it is not. Students can share how they made their choice.









# Appendix A

## Checklists





# Narrative Checklist

Element	Check for:	Missing	Not quite	Almost	I've got it!
Beginning	Characters: Did I name and describe the main characters?				
	Time: Did I tell when the story took place?				
	Place: Did I describe the place clearly?				
Middle	Problem: Did I set the story in motion with a clearly described problem?				
	Events: Did I include a clear, logical sequence of events to try to solve the problem?				
	Complications: Did I include clear, logical complications that bring on new events or problems?				
Ending	Solution: Did I provide a sense of closure?				
	Emotion: Did I show how the character(s) feel?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Other	Temporal Words: Did I use temporal words and phrases to show event order?  Tone: Is my tone appropriate for the audience?				

## Informative Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
<b>Introduction</b>	Did I introduce the topic?				
	Did I define the topic and set my purpose?				
<b>Middle</b>	Did I include multiple subtopics that describe the topic?				
	Did I provide details, facts, and definitions about the subtopics?				
	Did I use linking words to show connections between ideas?				
<b>Closing</b>	Did I restate the topic?				
	Did I leave the reader with a message to think about?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

# Appendix B

## Rubrics



# Narrative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Story Elements</b>	A situation is clearly established, a narrator and/or characters are introduced in detail, and a sequence of events is organized clearly, unfolding naturally.	A situation is established, a narrator and/or characters are introduced with enough detail, and a sequence of events is included.	A situation and a narrator and/or characters are included, but each is not introduced clearly, or a sequence of events is included, but is incomplete.	Story elements are absent.
<b>Narrative Techniques</b>	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are used, clearly developing experiences and events or showing the response of characters to situations.	Some dialogue and descriptions of the actions, thoughts, and feelings of the characters are used to develop experiences and events or show the response of characters to situations.	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are occasionally used, but not with enough detail to develop experiences and events or show the response of characters to situations.	Narrative techniques are absent.
<b>Temporal Words</b>	Three or more temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	Two temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	One temporal word or phrase (e.g., <i>beginning with</i> , <i>from then on</i> ) is used appropriately.	Temporal words are absent or are not used appropriately.
<b>Conclusion</b>	More than one sentence is used to provide a sense of closure.	At least one sentence is used to provide a sense of closure.	A clause or phrase is used to provide a sense of closure.	A sense of closure is absent.

# Informative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Focus</b>	The topic is explicitly introduced, and the writer groups related information together, including illustrations when useful to aiding comprehension.	The topic is introduced and clear, and the writer groups information that is somewhat related or includes an illustration that somewhat aids in comprehension.	The topic is unclear or is not sufficiently described, and the writer neither groups information together nor includes illustrations to aid in comprehension.	The topic is absent or copied directly from text.
<b>Development</b>	Facts, definitions, and details from the text that are relevant to the topic are used to develop the topic.	Facts, definitions, and details from the text that are somewhat related to the topic are used or, there is only one relevant fact, definition, or detail supplied.	Facts, definitions, and details from the text are present, but they are unclear and do not develop the topic.	Facts, definitions, and details are absent or copied directly from the text.
<b>Cohesion</b>	Linking words and phrases are used to connect related ideas within categories of information.	Linking words and phrases are used to connect ideas that are somewhat related or there is only one relevant linking word or phrase used.	Linking words and phrases are present, but they are unclear and are not used to connect ideas.	Linking words and phrases are absent.
<b>Conclusion</b>	A clear conclusion is present that is related to the topic.	A conclusion is present that is somewhat related to the topic.	A conclusion is present, but not related to the topic.	A conclusion is absent or copied directly from the text.

## Module Y

# Appendix C

## Text Excerpts

## A Terrible Tuesday

What a way to start my first day of the new school year! I woke up and noticed the sun streaming through my window. "Wait a minute," I yelled! It is supposed to be dark when I wake up for school. "Oh, NO!" I had overslept. I jumped out of bed and quickly got ready for work. I ran out of the house, jumped in my car, and took off. Hopefully I would beat the buses. As I was driving along the highway, my car started to sound and feel very funny. "What could be happening now?" I screamed out loud. I pulled off on the side of the road and leaped out of my car and looked all around it. Yep, it was a flat tire. Now I am really going to be late. I called my principal and said, "I'm sorry that I am going to be late, but I am on the side of the road with a flat tire." She said, "No worries. Stay safe and I will send someone to pick you up."

I called for a tow truck to pick up my car and my friend Sue arrived a few minutes later. We actually managed to beat the busses to school. The rest of my day was awesome. Everything worked out, but I will always set two alarms from now on!

## Futuristic Cars

A car show like no other was held in Las Vegas last winter and hundreds of people came from near and far to check out the car of the future. These cars are shaped like eggs and are available in every color of the rainbow. They are powered by electricity, run on two wheels and can only hold two people. They are so tiny that six cars can fit in one parking spot. They can even park themselves and return to their owner with a simple tap on a cell phone.

This new car is called the EN-V (pronounced like envy). It is manufactured by General Motors and could be what people in busy cities use to move quickly around busy highways and through downtown areas.

People are always looking for cars that make their lives easier, so scientists and engineers are inventing new ways to have cars do more for their drivers. For example, cars of the future could remind you to take your medicine or of upcoming appointments. Electric cars could send you text message reminders, too. Cars may even be able to drive themselves one day.

## My Lost Kittens

*Written by third graders. Retrieved July 12, 2017, from achievethecore.org*

One sunny day, my mom and I took our kittens for a walk around our house. The kittens were very excited because it was their first time. My kittens' names are Flounder and Ariel. Ariel is a girl and Flounder is a boy with a circle on his side. They are both the colors yellow and white. When we took the kittens outside, we had to be very careful so they would not get loose. Then a car drove by. It scared them and they ran. Their harnesses got loose and they went into the woods. We went inside to put away the harnesses and the leashes. Then we went back outside to look for them in the woods. We looked left and right, but we couldn't find them. We went back home to make signs to put up that said: LOST KITTENS: yellow and white, call 569-9823. We were very sad.

After a few months, still no one could find them. But, when we were looking for them, the kittens were looking for us! They really wanted to find their way home. The kittens asked a cat named Shadow for help. Shadow said, "Your family lives next door, but they are not home. They are on vacation." Shadow brought them inside to Theresa. When Theresa saw them, she knew who they lived with. Theresa took care of them until we came home. She called us and said, "I have a surprise for you!!" I thought that she had found our kittens!

When we went over to her house, we followed her up to the bedroom and saw a cage. When she opened the door, we saw our kittens in it. We were so happy that we went right over and unlocked it. The kittens ran out of the cage and over to us. We took them home and thanked Theresa. We were very happy to see them, and they were happy to see us too!

## The Carnival

One of my favorite places to go in the summer is the carnival. My whole family picks at least one night to go and sometimes we each get to take a friend! I bring my friend Sam most of the time. The first thing we do is get in line for arm bands so we don't have to count out tickets for each ride. Then we all choose what we would like to eat for dinner. There are so many choices and my mom and dad let us each pick something different if we want. I usually choose a corn dog and fries, because we never have corn dogs at home and I love them! We scarf our dinners down, because we can't wait to get in line for our favorite ride the Scrambler.

The Scrambler is so much fun because it goes super fast and blows our hair everywhere. We all laugh at each other when the ride stops and choose the King of the Crazy Hair! Sometimes we feel queasy and one time my brother got sick when we got off the Scrambler and didn't ride any more rides the whole night.

The next ride we usually choose is the Bumper Cars. We love to see who can make the hardest bumps. We always try to block someone in so they can't move for a while. That is so funny to see them turn their wheels all around and go nowhere.

We usually save the roller coaster for last. The line is too long when we first get there, but later in the night it is shorter. Sometimes we can ride two times in a row before we have to leave. The roller coaster at our carnival doesn't go very high, but it goes really fast. One time my sister's hat blew off and we had to find it when the ride was over.



## The Best Pet

*Written by third graders. Retrieved July 14, 2017, from <https://achievethecore.org>*

Are you looking for a new pet? I'd recommend a cat. For one thing they aren't that expensive. You could find one on your porch and adopt it. Cats usually bathe themselves. Cats will sleep with you and can help you calm down when you're upset or mad. Cats also don't need training and you can leave cats home for the day. Cats do not need much exercise. So if you are looking for a pet, maybe you can find some cats, and you might find yourself a great pet!

## Rescue Dog

One day I was walking my dog downtown when I smelled smoke. All of a sudden, my dog broke away from me and ran into the burning building. I was terrified that he wouldn't come back out. I didn't know what to do. I knew I shouldn't go in after him in case I couldn't get out, but I didn't want him to be in there by himself either. Thank goodness, after just a few minutes, he came running out with a small child. The little girl looked so scared, but happy that she was rescued. I hugged my dog and told him I was proud of him. He even won a medal of honor from the fire department for saving the little girl.

## The Barn Cat

*Written by third graders. Retrieved July 12, 2017, from achievethecore.org*

"We should get a barn cat," Mrs. Thurlow told Mr. Thurlow.

Bandit, Sonya and Sam's ears popped up. Bandit, Sonya and Sam were their barn dogs. "Yes! A cat to chase!" Bandit yelled. Then Mr. Thurlow said, "Sure, but what are we going to name her?" Sam thought for a moment. Then Sam walked up to Mr. Thurlow and started to bark. This is what bandit and Sonya heard Sam say, "Whatever you do don't name her Samantha, don't name her Samantha, DON'T name her Samantha!" Mrs. Thurlow said, "How about Baby?" Mr. and Mrs. Thurlow thought for a while. After much thought, Mr. Thurlow announced "A splendid idea! Let's get her tomorrow!" Then the two farmers fed the dogs, ate dinner, did the chores, and then went to bed.

The next morning at 6:00, they did the morning chores. They were ready to pick up Baby at 8:15 a.m. When they got to The Pet Shop in Woodstock, they were in and out. Mr. and Mrs. Thurlow gave Baby a collar when they got home. Also Bandit, Sonya, and Sam gave Baby a tour of everything they own. When they got to the barn, Bandit started to chase Baby, and he said, "I can't resist!" Sam and Sonya tried to stop Bandit, but Bandit was too fast! Baby ran to the barn across the street. "We're not supposed to be here!" Sam and Sonya yelled to Baby, so she ran back home, and the dogs followed. Baby jumped on a footrest and then calmed down. Bandit agreed to never chase Baby again.

## Farm Chores

Every morning before we leave for school, we have to take care of a lot of chores around the farm. There are three children in my family, and we each have specific jobs that we have to do. I am the oldest, so I have the most responsibility. The hardest job that I have to do is milk the cows. We only have a few cows, so we still milk them by hand instead of with machines. It can take a long time, so I have to start before the sun rises.

First, I put on my farm clothes and head down to the barn. Next, I gather the buckets and a stool to sit on while I milk. Then I go get the first cow. I like to start with Lucy, because she usually cooperates the whole time. I start milking her and fill a bucket in no time. I finish up with the other cows, bring two buckets of milk to my mom, and change into my school clothes.

Growing up on a farm is hard work. Everyone has to do their part so that the farm runs smoothly. I don't mind milking the cows even if it takes a long time. It sure is better than having to clean out the cow stalls like my younger brother has to do.

## The Family Who Traveled West

*Written by third graders. Retrieved July 13, 2017, from [achievethecore.org](http://achievethecore.org)*

Once upon a time there was a pioneer family that was moving west. They were moving west because they wanted to find more gold. They had to gather their livestock. They used horses. They packed pots and pans, food and drinks. The family was traveling from Massachusetts to Oregon. They started to go. Ann, their little girl said, "I wish something would happen," and it did. They came upon Indians. The Indians were nice enough to let them go past. A few days later they came upon Oregon. "Yay!" everyone shouted. Ma said, "Let's unpack and pan for gold." Pa said, "After we dig for gold, let's build a farm to keep our livestock in and to live on." They lived happily ever after.

## African Elephants

African Elephants are large social mammals that rely on their incredible trunks. A trunk is a long nose and upper lip. Their trunks can be 7 feet long! That is taller than the average human. African Elephants use their trunk for smelling, to keep cool by spraying water on themselves, and as a snorkel while swimming. They can even use their trunks to help elephant babies over obstacles or to hug and show affection. African Elephants rely on their trunks to get them through their day.

## Emma the Elephant

Emma the elephant had a big problem. She had a cold! This meant that her trunk was all stuffed up. She couldn't smell, she couldn't suck up water to spray herself, and she couldn't go snorkeling with her friends at the lake. Emma was miserable and today was her birthday! She heard a quiet knock at her door. It was her best friend, Eloise. Eloise convinced Emma to come outside. All of her closest friends were there. As soon as Emma stepped out they sprayed her with a rainfall of water. They decided that since Emma couldn't snorkel they would bring the water party to her. It was the best birthday Emma could remember.

## Cheetahs

Cheetahs are the fastest mammals to live on land. They can run at speeds of 60 to 70 miles per hour. A cheetah often catches its prey at speeds about half their top running speed. After chasing down the prey, a cheetah needs about thirty minutes to catch his breath before eating.

Cheetahs live mostly in the grasslands of Africa and the Middle East. They are often hard to spy, because their spotted coats act as camouflage against the tall grasses. A cheetah's eyesight is so keen that he can find his prey very easily during the day. When he spots his prey, he makes a sudden bolt from the tall grasses and knocks his prey to the ground. Cheetahs often kill their prey with a swift bite to its throat.



## The Coolest Animal Ever

Cheetahs are by far the coolest animal out there. One reason the cheetah is cool is because it is the fastest mammal on land. It can run as fast as we drive on highways, 60–70 miles per hour! Another reason the cheetah is cool is because it has excellent eyesight. Cheetahs can spot their prey from 3 miles away. Finally, cheetahs are cool because they can camouflage in their surroundings. Their spotted coats help them blend into the tall grass of their habitat. These reasons make the cheetah the absolute coolest animal in the world.

## The Race

One day the Chester Cheetah family were out for a family dinner. They were crouched down in the tall grass chatting quietly while scanning the plains for a delicious meal. "I bet I can run faster than you," Brother cheetah said to Sister. "You're on!" shouted Sister cheetah. They both took off running. They were neck and neck and heading straight for the lake. Neither one wanted to lose, so neither one slowed down. They couldn't believe what happened next. They ran right into the lake with a giant splash! All of the other animals laughed. Emma the elephant even said, "Haha! For having such great eyesight, you two sure struggled to see this giant lake!" Brother and Sister climbed out of the lake and couldn't help but giggle. "I'll beat you next time!" Brother laughed as he shook off the water.

# Unearthing Character Traits

Three evaluation areas: Content Knowledge, Literacy Knowledge, Integration of Knowledge and Ideas.

For evaluation of conventions, spelling, and grammar—use the Editing and Revision Rubric.







Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
Content Knowledge	The writer assigns a clear character trait to the BFG.	The writer implies a character trait for the BFG.	The writer includes a character trait, but the relationship between the trait and the BFG is unclear.	No clear character trait is assigned to the BFG.
	The writer includes three or more reasons to support the assigned character trait for the BFG.	The writer includes two reasons to support the assigned character trait for the BFG.	The writer includes one reason to support the assigned character trait for the BFG.	No reasons are included in writing.
	The writer includes three or more examples of text evidence that support the assigned character trait for the BFG.	The writer includes two examples of text evidence that support the assigned character trait for the BFG.	The writer includes one example of text evidence that supports the assigned character trait for the BFG.	Examples of text evidence are absent.
Literacy Knowledge	The title of the text is explicitly introduced and relationship of text to opinion is clear.	The title of the text is introduced, but relationship between text and opinion is not explicit.	There is an unclear or implicit introduction of the text and no relationship between text and opinion is present.	The title of text is absent; no relationship between text and opinion is present.
	The opinion takes a clear position on the topic.	The opinion is mostly clear, and the position on the topic can be inferred.	The opinion is unclear and/or does not take a clear position on the topic.	A statement of opinion is absent; no clear position on the topic is taken.
	Clear reasons that support the opinion are present.	Somewhat clear reasons that support the opinion are present.	The reasons – if present – do not support the opinion.	Clear reasons that support the opinion are absent.

	All reasons are supported by relevant evidence from the text.	Evidence from the text is somewhat relevant to the reasons and/or is not provided for all reasons.	Evidence from the text – if present – is unclear and does not support any reasons that are included.	No supporting evidence from the text is provided.
	The relationship between the opinion and reasons is linked effectively using specific linking words and phrases (because, therefore, since, for example).	The relationship between the opinion and some reasons is linked somewhat effectively using specific linking words and phrases (because, therefore, since, for example).	The relationship between the opinion and reasons is linked using linking words, but not effectively.	Linking words and phrases are absent.
	A definite conclusion is present that is related to the opinion.	A conclusion is present that is somewhat related to the opinion.	A conclusion is present, but is not related to the opinion.	A conclusion is absent.
<b>Integration of Knowledge and Ideas</b>	The writing shows evidence of ideas, knowledge, and vocabulary gained from three or more sources (narrative text, background knowledge, class discussions, partner discussions).	The writing shows evidence of ideas, knowledge, and vocabulary gained from two sources (narrative text, background knowledge, class discussions, partner discussions).	The writing shows evidence of ideas, knowledge and vocabulary gained from one source (narrative text, background knowledge, class discussions, partner discussions).	The writing shows no evidence of use of sources to support ideas or statements provided.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Editing Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Capitalization	I capitalized the first word in each sentence.				
	I capitalized the pronoun <i>I</i> .				
	I capitalized names, holidays, locations, dates, and appropriate words in titles.				
Punctuation	I used end punctuation for sentences.				
	I used commas in greetings and closings of a letter, dates, and in a series.				
	I used commas, end punctuation, and quotation marks correctly in dialogue.				
	I used apostrophes for contractions and to show ownership.				
Sentence Structure	Each of my sentences has a subject and a predicate.				
	Each of my sentences makes sense.				
Spelling	I used spelling patterns I know to help me spell words I don't know.				
Word Choice	I used strong, interesting words that help the reader understand my ideas.				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3-5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

## Editing and Revision

When considering students’ editing and revision skills, use your sentence composing instruction as a guide to determine whether students are applying grammar knowledge to their writing. It is important to note that grammar instruction spirals throughout the year, and skills are continually revisited. In Bookworms, we teach and practice grammar skills in context, so our evaluation should be conducted in a similar manner. Rather than grading on specific grammar skills that have been taught in a particular time frame, we think a more accurate measure of student learning is to evaluate the quality of student writing at the time it is written, and to look for evidence of improvement over time across multiple writing samples. We have provided guidelines for this work below:

### When evaluating student writing for grammar knowledge, consider:

- Is the student’s writing clear and understandable?
- Does the student use well-constructed sentences (e.g., subject and predicate, correct use of clauses)?
- Does the student correctly use conventions of print (e.g., punctuation, capitalization)?
- Is the student’s sentence construction becoming increasingly more complex?
- Is the student using increasingly more descriptive language in their writing?

Element	Check for:	Never	Rarely	Sometimes	Always
Capitalization	The student uses grade-appropriate capitalization (e.g., first word in sentence, pronoun I, names of holidays, locations, dates, appropriate words in titles).				

Punctuation	The student uses appropriate ending punctuation.				
	The student uses appropriate comma placement.				
	The student uses appropriate apostrophe placement to show ownership or within contractions.				
	The student uses commas, end punctuation, and quotation marks correctly in dialogue.				
Grammar	The student's writing is clear and understandable.				
	The student uses well-constructed sentences (e.g., subject and predicate, correct use of clauses).				
	The student demonstrates appropriate use of descriptive language to support their ideas.				
Spelling	The student spells learned words correctly.				
	The student closely approximates spelling of				





	unknown or unfamiliar words.				
<b>Word Choice</b>	The student uses strong, interesting words that help the reader understand the student's ideas.				



Name \_\_\_\_\_

Date \_\_\_\_\_

## Informative Checklist





Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Introduction	Did I introduce the topic?				
	Did I define the topic and set my purpose?				
Middle	Did I include multiple subtopics that describe the topic?				
	Did I provide details, facts, and definitions about the subtopics?				
	Did I use linking words to show connections between ideas?				
Closing	Did I restate the topic?				
	Did I leave the reader with a message to think about?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Narrative Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Beginning	<b>Characters:</b> Did I name and describe the main characters?				
	<b>Time:</b> Did I tell when the story took place?				
	<b>Place:</b> Did I describe the place clearly?				
	<b>Problem:</b> Did I set the story in motion with a clearly described problem?				
Middle	<b>Events:</b> Did I include a clear, logical sequence of events to try to solve the problem?				
	<b>Complications:</b> Did I include clear, logical complications that bring on new events or problems?				
Ending	<b>Solution:</b> Did I provide a sense of closure?				
	<b>Emotion:</b> Did I show how the character(s) feel?				
Other	<b>Temporal Words:</b> Did I use temporal words and phrases to show event order?				
	<b>Tone:</b> Is my tone appropriate for the audience?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3-5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.





# Narrative Writing

Element	4 – Excellent	3 – Good	2 – Developing	1 – Emerging
<b>Story Elements</b>	A situation is clearly established, a narrator and/or characters are introduced in detail, and a sequence of events is organized clearly, unfolding naturally.	A situation is established, a narrator and/or characters are introduced with enough detail, and a sequence of events is included.	A situation and a narrator and/or characters are included, but each is not introduced clearly, or a sequence of events is included, but is incomplete.	Story elements are absent.
<b>Narrative Techniques</b>	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are used, clearly developing experiences and events or showing the response of characters to situations.	Some dialogue and descriptions of the actions, thoughts, and feelings of the characters are used to develop experiences and events or show the response of characters to situations.	Dialogue and descriptions of the actions, thoughts, and feelings of the characters are occasionally used, but not with enough detail to develop experiences and events or show the response of characters to situations.	Narrative techniques are absent.
<b>Temporal Words</b>	Three or more temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	Two temporal words and/or phrases (e.g., <i>beginning with</i> , <i>from then on</i> ) are used appropriately.	One temporal word or phrase (e.g., <i>beginning with</i> , <i>from then on</i> ) is used appropriately.	Temporal words are absent or are not used appropriately.
<b>Conclusion</b>	More than one sentence is used to provide a sense of closure.	At least one sentence is used to provide a sense of closure.	A clause or phrase is used to provide a sense of closure.	A sense of closure is absent.

Name \_\_\_\_\_

Date \_\_\_\_\_





## Opinion Checklist

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Beginning	<b>Topic:</b> Did I introduce the topic and tell why the reader should care about it?				
	<b>Opinion:</b> Did I state my opinion clearly?				
Middle	<b>Reason 1:</b> Is this reason connected to the opinion and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
	<b>Reason 2:</b> Is the second reason connected to the opinion, and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
	<b>Reason 3:</b> Is the third reason connected to the opinion, and is it clear and convincing?				
	<b>Evidence:</b> Is there enough evidence to support the reason?				
Ending	<b>Closure:</b> Did I restate my opinion and leave the reader with a concluding thought?				

*Developing Strategic Writers through Genre Instruction: Resources for Grades 3–5*, Philippakos, MacArthur, and Coker. 2015. Adapted with permission of The Guilford Press.

Name \_\_\_\_\_

Date \_\_\_\_\_

Element	Check for:	 Missing	 Not quite	 Almost	 I've got it!
Other	<b>Transition Words:</b> Did I use transition words and phrases?				
	<b>Tone:</b> Is my tone appropriate for the audience?				

# Evaluating Sources: How Credible Are They?

## ACTIVITY 2.6

### Learning Targets

- Identify and gather relevant information from a variety of research sources.
- Differentiate between primary and secondary sources.
- Examine research sources for reliability and credibility.

### Preview

In this activity, you will evaluate research sources for reliability, accuracy, credibility, timeliness, and purpose/audience.

### Research Sources

After choosing a topic and writing research questions, the next step is to find sources of information. Sources might be books, magazines, documentary films, or online information. Not all sources are equal, however. Some are better than others. Learning how to tell the difference is a skill you need for both your academic success and your life.

### Evaluating Sources

1. You can evaluate both print and online resources using five separate criteria, including authority, accuracy, **credibility**, timeliness, and purpose/audience. Use a dictionary or work with your classmates and teacher to define each term in the graphic organizer that follows. Then add questions that you can ask yourself when evaluating sources based on this criterion.

Source Criteria	Definition	Questions to Consider
1. Authority		Who is the author? What organization is behind this information? What are the qualifications of the author or organization to write about this topic?
2. Accuracy		Determine if the content of the source is fact, opinion, or propaganda. If you think the source is offering facts, are the sources clearly indicated?
3. Credibility		Is the information trustworthy? Does it show any biases for or against the topic?
4. Timeliness		How old is the source? Some sources become dated when new research is available, but other sources of information can remain quite sound.
5. Purpose/Audience		What is the purpose of the information? To whom is it directed?

### Learning Strategies

Predicting  
Note-taking  
Graphic Organizer  
Questioning the Text  
RAFT

### ACADEMIC

**Credibility** comes from the word *credible*, which means “believable or trustworthy.” A source that is credible should be free from bias, and present the facts fairly.

### VOCABULARY

## ACTIVITY 2.6

### PLAN

**Materials:** a major brand’s policy on marketing to children, research sources/Internet, two preselected websites for evaluation, highlighters  
**Suggested Pacing:** 3 50-minute class periods

### TEACH

- 1 Now that students have done some preliminary research, they need to understand how to evaluate the sources they are consulting.
- 2 **Vocabulary Development:** Review the meaning of the term *credibility* with students. Have them work in pairs to define the term in their own words and think of both examples and non-examples of people or things that have credibility.
- 3 First, read the introductory paragraph. Then, guide students to complete the graphic organizer by predicting or using a print or digital resource to determine the meaning of each source evaluation criterion. Then have students take notes to define each criterion presented.



### TEACHER TO TEACHER

Many major brands that sell goods aimed at young people have policies on marketing to children. They can be found online easily by searching for the key terms “marketing to children policy.” Some brands that have policies about marketing to children include Coca-Cola, McDonald’s, Nestlé, and Mars.

### College and Career Readiness Standards

#### Focus Standards:

**RI.7.3** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

**RI.7.8** Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.

**W.7.2e** Establish and maintain a formal style.

**W.7.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.



understanding of television advertising, where regulations dictate clear separation between ads and programming. When such separation doesn't exist, it's even harder for children to recognize and understand advertising.<sup>2</sup>

5 Such is the case with the November 19 edition of the Times For Kids. The ads were brightly colorful cartoon drawings, with interwoven questions in bubbles meant to engage children—a visual style quite similar to much of the editorial content of the supplement. Each ad was disguised as a puzzle for kids, with this question at the bottom referring to Google characters **embedded** in the ads: "Can you find the donut, G, and Android in each drawing?" These advertisements were **deceptive** to children and **violated** the guidelines of the Children's Advertising Review Unit, an industry self-regulatory program, which state: "Advertising should not be presented in a manner that blurs the distinction between advertising and program/editorial content in ways that would be misleading to children."

6 We believe the advertisements also violated the Times' own Advertising Acceptability Manual, which says "Advertisements that, in our opinion, **simulate** New York Times news or editorial matter or that may be confused with our news or editorial matter are unacceptable." If such advertisements are unacceptable for all Times readers, they are especially unfair when directed at children....

7 ...The Times has announced it will publish the Times For Kids monthly, beginning in January 2018. Getting kids in the habit of reading your newspaper will undoubtedly pay long-term benefits for The New York Times Company. Rather than trying to squeeze out additional profits at the expense of families who have already paid for the Sunday newspaper, the Times should make future editions of the Times For Kids completely free of advertising. We welcome the opportunity to meet with you to discuss our concerns.

Sincerely,  
Campaign for a Commercial-Free Childhood  
Center for Digital Democracy  
Consumer Action  
Consumer Federation of America  
Consumer Watchdog  
Corporate Accountability  
New Dream Parent Coalition for Student Privacy  
Public Citizen's Commercial Alert  
The Story of Stuff Project

cc: Arthur Gregg Sulzberger, Deputy Publisher, NY Times  
Sundar Pichai, CEO, Google, Inc.  
Children's Advertising Review Unit

<sup>2</sup> Dr. Barbie Clarke & Siv Svanaes, Digital marketing and advertising to children: a literature review, Advertising Education Forum 45 (2012) (citing Mallinckrodt and Mizerski 2007; Ali, Blades et al. 2009).

### My Notes

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**embedded:** that were placed  
**deceptive:** misleading  
**violated:** ignored  
**simulate:** look like

8 Guide students to respond to the Working From the Text questions by working in small groups to reread the text and respond to the questions. Remind them to use evidence in their responses. Move from group to group and listen in as students answer the questions.

9 Point out the two events mentioned in the text: the November 19, 2017 issue of the publication and the beginning of the monthly edition in 2018. Guide a discussion about the role these events play in the creation of the letter and the purpose of the letter.

10 Allow students to collaboratively complete the chart in order to analyze the two texts.



## ACTIVITY 2.6 *continued*

**11** Share with students a company’s policy about marketing to children from the Internet. Allow students to read the statement and ask them to discuss the purpose of the text with a partner.

### LEVELED DIFFERENTIATED INSTRUCTION

In this activity, students may need support analyzing the text.

**Developing** Guide students in analyzing the author’s claim and evidence by using the **Idea and Argument Evaluator** graphic organizer.

**Expanding** Have students work in pairs to complete the **Idea and Argument Evaluator** graphic organizer.

**Bridging** Have students complete the **Idea and Argument Evaluator** graphic organizer independently. Then have student pairs use the **discourse starters** in the resource section to hold a discussion on their findings.

**Support** Provide students with one example of evidence from the text. Then have student pairs work together to complete the remaining sections of the **Idea and Argument Evaluator** graphic organizer.

**12** Ask students to identify the differences between a primary source and a secondary source to give examples of each. To transition to the topic of evaluating online sources, help students see that online sources can be either primary or secondary. Ask students to name some examples of primary and secondary sources found on the Internet (primary: interviews with newsmakers, government archives that have been digitized, etc.; secondary: news articles, websites devoted to analyzing historical events, etc.).

## 2.6

### VOCABULARY

#### ACADEMIC

A **primary source** is an original account or record created at the time of an event by someone who witnessed or was involved in it. Autobiographies, letters, and government records are types of primary sources.

**Secondary sources** analyze, interpret, or critique primary sources. Textbooks, books about historical events, and works of criticism, such as movie and book reviews, are secondary sources.

### Working from the Text

2. What effect does the advertising most likely have on young readers? How do you know?

The advertising most likely will make children ask for the product from their parents. The letter says that the ads are presented like the rest of the content, making it even harder for them to understand that the ads are trying to persuade them, not inform them like the rest of the content.

3. What evidence does the text provide to support the statement that “These advertisements were deceptive to children and violated the guidelines of the Children’s Advertising Review Unit...”?

The text of the guidelines is quoted directly as “Advertising should not be presented in a manner that blurs the distinction between advertising and program/editorial content in ways that would be misleading to children.” The text also provides a description of the ads that violated the guidelines: “The ads were brightly colorful cartoon drawings, with interwoven questions in bubbles meant to engage children—a visual style quite similar to much of the editorial content of the supplement. Each ad was disguised as a puzzle for kids...”

4. According to the text, what action does the text attempt to persuade the New York Times Company to take for future editions of their kids’ magazine? What next step is provided in the letter?

The argument hopes to convince the New York Times Company to publish their kids’ magazine without any advertising. The next step provided in the letter is a meeting between parties to discuss the concerns outlined in the letter in more depth.

5. Your teacher will provide you with an outside source to read. Read the text closely. Then use the graphic organizer that follows to evaluate “Re: Advertising in the New York Times For Kids” and the text provided to you by your teacher based on the five criteria to determine reliability.

Re: Advertising in the New York Times For Kids	Outside Source
Authority:	Authority:
Accuracy:	Accuracy:
Credibility:	Credibility:
Timeliness:	Timeliness:
Purpose/Audience:	Purpose/Audience:

### Primary and Secondary Sources

When choosing credible and reliable sources, you will find **primary** and **secondary sources**. Primary sources are original documents; they are often used in historical

research. For example, if you are researching the era of the Civil War, you might use the primary resource of Lincoln’s Gettysburg Address. You might find that speech in a secondary source written about the Civil War or on the Internet.

6. Revisit the texts you have read so far in the unit, including the advertisements you have analyzed. Are they primary or secondary sources? How do you know?

The two articles in 2.2 and 2.3 are secondary sources because both report on data and information about advertisements and how people interact with ads and mobile devices. The report mentioned in the Methodology section of “Mobile Kids” would be a primary source. The advertisements are a primary source.

### Evaluating Online Resources

Anyone can publish writing on the Internet. This openness is both one of the strengths and one of the weaknesses of the Internet. Being aware of the differences in quality among websites is an important step toward becoming an effective researcher.

A good place to start evaluating a website’s credibility and reliability is by looking at its domain suffix. The domain suffix, the letters that follow the dot, can help you determine who created the website. The most commonly used domain suffixes are described in the following graphic organizer.

Domain Suffix	Definition/Description
.com	Stands for “commercial.” Usually, websites with this suffix intend to make some sort of profit from their Internet services. Typically, these are the websites that sell goods or services.
.org	Stands for “organization.” Primarily used by not-for-profit groups such as charities and professional organizations.
.net	Stands for “network.” Often used by Internet service providers or web-hosting companies.
.edu	Stands for “education.” Used by colleges, universities, educational organizations, or other institutions.
.gov	Stands for “government.” Used by federal, state, and local government sites.

7. Which of the domain suffixes do you associate with more credible information? Why?

### Searching for Sources

When using the Internet for research, your first step might be to use a search engine to find sources. Depending on the term you enter into the search a search engine, for example, if you enter the search term “advertising,” you will get many sites

#### WORD CONNECTIONS

##### Etymology

The word **bias** comes from the Old French word *biais* and means “slant or slope.” The noun *bias* refers to a preference, especially one that prevents impartial judgment.

**13** To evaluate online resources, begin by reviewing the information on the various Internet domain suffixes. Guide students to understand which websites, based on the domain suffixes, would be most likely to provide valid information. Have them apply this information as a further criterion for evaluating sources.

**14** Have students read the Searching for Sources information and then answer the questions relating to search terms. Have students share their ideas for search terms with the class and create a class list of viable terms.

**15** Have students use search terms to do online research for the research topic. They should choose one or two sites that look useful and then evaluate those sites using the graphic organizer provided.

## ACTIVITY 2.6 continued

**16** Have students evaluate the two sources based on the questions in the graphic organizer. Ask students to compare the two sources and say which site was more credible, giving evidence to support their answer. Then have students read about reliability and determine if their sources are reliable.



### TEACHER TO TEACHER

Pairs or triads work best for grouping in this activity. It is difficult for groups with more than three members to share a computer.

## 2.6

because the term is so broad. If you are just looking for information about celebrity endorsements, narrowing your search to that term would give you better results.

8. To research the effect of marketing and advertising to young people, what search terms might you use? Refine your terms to narrow your results as you go.
9. Using your search term(s), find information on the topic of marketing and advertising aimed at young people. Choose one or two sites to explore further. Record the URLs in the graphic organizer that follows. As you look through each site, use the criteria and questions in the graphic organizer to help you decide whether the website provides reliable information without bias.

Search Term	Number of Results	Sites to Explore Further

Criteria	Question	Notes
<b>Authority</b>	<ul style="list-style-type: none"> <li>• Is it clear who is sponsoring this page?</li> <li>• Is there information available describing the purpose of the sponsoring organization?</li> <li>• Is there a way to verify the credibility of the page's sponsor? (For instance, is a phone number or address available to contact for more information?)</li> <li>• Is it clear who developed and wrote the material? Are his or her qualifications for writing on this topic clearly stated? Is there contact information for the author of the material?</li> </ul>	
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>• Are the sources for factual information given so they can be verified?</li> <li>• If information is presented in graphs or charts, is it labeled clearly?</li> <li>• Does the information appear to have errors?</li> </ul>	
<b>Credibility</b>	<ul style="list-style-type: none"> <li>• Is the page and the information from a reliable source?</li> <li>• Is it free of advertising?</li> <li>• If there is advertising on the page, is it clearly separated from the informational content?</li> <li>• Are there any signs of bias?</li> </ul>	
<b>Timeliness</b>	<ul style="list-style-type: none"> <li>• Do dates on the page indicate when the page was written or last revised?</li> <li>• Are there any other indications that the material is updated frequently to ensure timely information?</li> <li>• If the information is published in print in different editions, is it clear what edition the page is from?</li> </ul>	

Criteria	Question	Notes
<b>Purpose/ Audience</b>	<ul style="list-style-type: none"> <li>Does the site indicate who the intended audience is?</li> <li>Is there any evidence of why the information is provided?</li> </ul>	

### Reliability

A source is considered reliable if you can find a pattern of true facts from that source. In order to determine if a source is reliable, you can select facts from that source and look them up in another source. You can also research the source to see if they have been caught presenting wrong information before. Review your sources to determine if they can be considered reliable.

### Focus on the Sentence

Think about your analysis of the two websites' credibility. Write two sentences about the websites using the words that follow.

although/credible Although anyone can post on the Internet, some Internet sources are very credible.

since/domain suffix Since my website has the domain suffix .gov, I know that it comes from a government website.

### Faulty Reasoning

Sometimes, you can determine the credibility of a source by examining where it came from. Other times, the way that the author uses language can indicate how reliable the text is. When you read sources for your research project, look for faulty reasoning that can reveal an unreliable source.

10. Read the graphic organizer that follows. Then revisit the websites you analyzed and look for examples of faulty reasoning to add to the graphic organizer.

Term	Definition	Sample	Examples from Sources
emotional appeal	statements that create an emotional response in order to persuade the audience	Our children depend on us to protect them from harmful advertising!	
stereotype	a widely held belief about a person or thing that is often an oversimplified idea or opinion	Teenagers want to fit in, so they are especially vulnerable to bandwagon advertisements.	
hyperbole	an exaggerated claim that is not meant to be taken literally	My brother is on social media 24/7. He must see a million ads a week!	

**17** Have students complete the Focus on the Sentence. Model the task by constructing a sentence with *although/credible* with the class. Point out that the sentence has a dependent clause, a comma, and an independent clause. Then have students write their own sentences. Check that students are able to use their newly acquired vocabulary terms *credible* and *domain suffix* correctly.

**18** Help students identify the terms in the graphic organizer and read the examples of each. Explain that these terms are particularly relevant to advertisements and persuasive and argumentative writing. Have them look for examples of faulty reasoning in the two sites they analyzed.

## ACTIVITY 2.6 continued

**19** Review the information on precise language and formal style. Provide examples of domain-specific language, such as *authority* and *reliability*. Have students discuss the examples of precise diction and informal versus formal style. Ask students to create their own examples by having them do **quickwrites** about a topic. Then, as a class, choose two or three to revise from informal to formal language.

**20** Have students respond to the informational writing prompt.

### ASSESS

Review students' responses to the Focus on the Sentence task to ensure that students understand the meanings of *credibility*, and *domain suffix*. Then evaluate students' responses to the writing prompt to ensure that they are able to correctly use formal, academic language; transitions that create coherence; and a concluding statement that explains why the source is credible.

### ADAPT

If students need additional help understanding how to evaluate their sources, guide them as they use the questions in the graphic organizer to evaluate two sources on a topic for which they have prior knowledge. For example, consider using two reviews of an electronic device, one from a reputable organization that offers unbiased reviews and another from a person who recently bought the device.

## 2.6

### Check Your Understanding

Describe how you will check your research sources for faulty reasoning.

#### LANGUAGE & WRITER'S CRAFT: Revising for Precise Language and Formal Style

When writing for an academic audience, you should use precise and domain-specific language and a formal writing style. Domain-specific language is language related to the topic. When you revise your writing, pay close attention to your word choice: consider how choosing one word instead of another improves your clarity and message. Remember to keep your audience in mind as you revise and publish your writing.

**Domain-specific language:** Your choice of words (diction) should include the domain-specific terms that you are learning, as they apply to the topic. For example:

**Original:** The advertisement used a celebrity to help sell its product.

**Revised:** The advertisement used the advertising technique of a testimonial to sell its product by using the professional athlete Derek Jeter.

**Precise language:** Another way to strengthen your writing is to provide detailed information about a text or resource you are citing.

**Original:** In the news story it says that ...

**Revised:** In the news story from the *New York Times* on Sunday, March 18, the author claims that ...

**Formal language:** Formal language avoids slang, and it generally does not use contractions. Most slang that you might use in everyday language is too casual for academic writing. Words or phrases you use with your peers may not be understood by different audiences or appropriate for an academic topic.

**Original:** I'm a teenager, and, like, most of us look at famous people as cool and in the know.

**Revised:** Teenagers generally believe that famous people are models for their own thoughts and behavior.

**PRACTICE** In your Reader/Writer notebook, revise the examples that follow to include precise and domain-specific language as well as a formal writing style. Work to eliminate wordiness and redundancy, or unnecessarily repeated ideas. Then, look back at the paragraph you wrote in Activity 2.5. Look for sentences that you can revise for formal language and precise writing.

There was this ad I saw for a video game and it made it seem like everyone wanted one when I watched the video game ad. It's not cool when advertisers use famous people to sell things and convince people something is so great when people might not have wanted it in the first place.

### Writing to Sources: Informational Text

Using information from one of your searches, write a paragraph summarizing the information you found about marketing to young people. Be sure to:

- Use precise and formal language to present information.
- Use transitions that create coherence.
- Include a concluding statement that explains why the source is credible, and if the source is also reliable.



### WRITING TO SOURCES: INFORMATIONAL TEXT

The following standards are addressed in the writing prompt:

- W.7.2d, W.7.2e
- W.7.2c
- W.7.2f, W.7.8

**Professional Development Center for Educators  
(PDCE)**

# Bookworms Reading and Writing Professional Learning Opportunities

## 1. Transitioning to Bookworms '22 Curriculum Revision

Teachers transitioning to the newest edition of Bookworms K–5 Reading & Writing from the beta version receive a half-day training to dive into the improvements and updates in the revised curriculum. The 3-hour training includes a keynote from Dr. Sharon Walpole, an overview of the changes to each grade level, time to dig into the lessons and manuals, and a chance to get questions answered. Register with Open Up Resources.

**Training date: July 26**

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## 2. New Teacher Induction

New teachers receive a five half-days of guided, explicit training in all of the Bookworms curriculum components, including time and guidance to prepare for the first month of school. Training emphasizes skilled practice of the instructional routines delivered during shared reading, interactive read-aloud, genre-based writing, and differentiated instruction. Literacy specialists from UD will deliver grade-specific training for kindergarten through eighth grade via Zoom, with content available via Canvas for the duration of the school year.

**Training dates: August 8-12**

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## 3. Asynchronous Professional Learning

This course is designed for teachers and leaders launching their implementation of Bookworms K–5 Reading & Writing, or for those who may be new to the curriculum in schools already implementing Bookworms. The series is on demand and self paced. It is designed for teachers who need relatively little initial support. Modules include the rationale for lessons and many video examples. Purchasers have access for one month.

\*This course pertains to the Bookworms Reading and Writing Curriculum in its current iteration (BETA), not the revised curriculum launched in 2022.

\*New adopters of Bookworms will receive access to a revised site.

**Professional Development Center for Educators  
(PDCE)**

# Bookworms Reading and Writing Professional Learning Opportunities

## 4. Bookworms Intensive Academy

Bookworms Intensive is a multi-tiered system of support that addresses unique learners' needs in all three tiers of instruction, including special education. Bookworms Intensive adds explicit enhancements to the core curriculum, but also requires that teachers' withdraw the enhancements as students gain independence. This Academy invites experienced special educators, literacy/reading specialists, and teachers of multi-lingual learners to collaborate meaningfully and deliver the core Bookworms curriculum in the most inclusive, rigorous way for ALL learners. Additionally, participants learn systematic procedures for progress monitoring, implementing, and fading Tier II and Tier III interventions. Initial training will be delivered over three days during the summer, and participants continue their collaborative learning throughout the school year during monthly 1-hour PLCs. On the same date as the PLC, individuals may receive 1:1 coaching virtually or face-to-face, as schedules permit. Each month, participants will receive additional support toward completing DDOE literacy micro-credentials for 10 PD hours and \$175 stipend when passed. Participants must apply and be willing to share anonymous student-level data, recorded lessons, and give/receive peer coaching. Contact Dr. Jaime True Daley for an application and registration at [jtdaley@udel.edu](mailto:jtdaley@udel.edu).

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**Offering one cohort with up to 25 Delaware educators:**

**August 31 - September 1**

**PLC & Coaching Dates on the 3rd Wednesday of the month**

**9/21/22; 10/19, 11/16, 12/21, 1/4, 2/15, 3/15, 4/19, 5/17**

**District-specific cohorts may also be available.**

**Contact Jaime True Daley at [jtdaley@udel.edu](mailto:jtdaley@udel.edu)**



# Professional Development Center for Educators (PDCE)

## SERVICE OFFERINGS 2021-22

# LITERACY

### *HQIM: Bookworms Reading and Writing Differentiated Training and Coaching (Grades K-8)*

#### **Initial Adoption: Training and Coaching**

- **New Teacher Induction:** We offer grade-level specific sessions in June, July, and August to fully train new BW teachers in the curricular shifts and implementation of shared reading, ELA, and differentiated instruction that include lesson simulations, guided practice, discussion, and preparation for the first module of the curriculum. These sessions are not sponsored by DDOE and must be contracted through PDCE or OpenUp Resources
- **School-based coaching:** Effective implementation of HQIM benefits from 90-minutes of collaborative inquiry (CI) per month, during which grade-level teams study and practice upcoming lessons and evaluate student work to set instructional goals. Literacy specialists will observe lessons linked to goals and deliver actionable feedback between monthly CI team meetings. Partnerships benefit from 28 days of coaching per school grade-level band (K-2, 3-5, 6-8) during the first year.

#### **Ongoing Implementation Integrity: Coaching**

- During years two and three of implementation, literacy specialists observe instruction and share actionable feedback with individual teachers and grade-level teams. We lead collaborative inquiry with time for studying and practicing upcoming lessons and analyzing student work. We recommend 18 days in year 2 and 9 days in year 3 for each grade level band.

#### **Advanced Bookworms Implementation: Collective Inquiry (CI) Cohorts**

- **Differentiated Reading Cohort:** Educators strengthen implementation of Walpole's & McKenna's (2017) approach to differentiated reading in K-3, and/or apply additional research to differentiate reading for intermediate level students in grades 4-8.
- **Differentiated Writing Cohort:** Educators deepen their understanding of the science of reading and the cognitive models of reading and writing. Through half-day virtual or in-person training delivered quarterly during the school year, grade-level teams marry Bookworms reading and writing instructional routines and materials to deliver coherent instruction during Tier I. Then, cohorts learn systematic work analysis and instructional goal setting protocols that drive "Day 5" differentiated instruction procedures during the DI literacy block.
- **Bookworms Leadership Cohort:** School-based leaders unite within and across districts to conduct walk-throughs and consider actionable feedback for high-quality implementation of Bookworms K-8. Six half-day face-to-face sessions begin with a needs assessment, continue with school-based PL with walk-throughs and conclude with an evaluation and district-wide portfolio of implementation.





# Professional Development Center for Educators (PDCE)

## SERVICE OFFERINGS 2021-22

# LITERACY

Contact: [Jaime True Daley](#)

### ***HQIM: Co-teaching K-8 Bookworms Reading and Writing Training and/or Coaching***

For schools using BW, we can work specifically with teams of general education teachers, special education teachers, and teachers of multi-lingual learners to institute effective co-teaching practices. Teams learn a set of co-teaching models and strategies for adapting materials to reach children who need curriculum enhancements. These partnerships will engage teachers in initial training and ongoing coaching.

### **HQIM: Bookworms Reading and Writing District/School-Led Virtual Training Management Site**

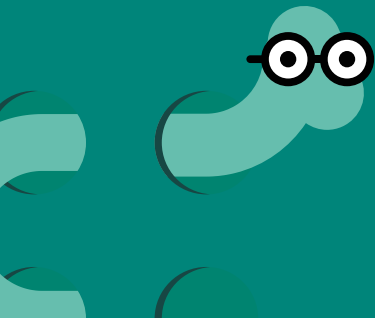
We offer a training site via the *Canvas* platform with everything a district or school needs to use to deliver BW training for K-5 shared reading, ELA, and differentiated instruction. The site includes facilitation guides, videos, and discussion boards that districts or schools can use for contracted periods of time to support teachers to implement the curriculum with local support. (BETA site available now. Revised site available July, 2012)

### ***HQIM: Middle and High School Literacy: Evidence-based Practices***

There are currently few HQIM choices for middle and high school literacy. If teachers have access to trade books and anthologies with texts at grade-appropriate levels of difficulty, we can help them use an evidence-based model to plan instruction for reading and writing narratives, information texts, literary analyses, and argumentative texts. These partnerships include training days, curriculum design days, and ongoing coaching.

[Return to List](#)





# PROFESSIONAL LEARNING OPPORTUNITIES for *Bookworms K–5 Reading and Writing*

## Summer Professional Learning Opportunities



### About the Curriculum

Bookworms K–5 Reading and Writing was developed by Dr. Sharon Walpole and Dr. Michael McKenna with the support of the University of Delaware. Bookworms is built upon the science of reading and has generated impressive results for improving student achievement through straightforward routines. The Bookworms team at the University of Delaware is equipped to support teachers, coaches and administrators with professional learning to ensure a successful and sustainable implementation of Bookworms.

### *Bookworms K–5 Reading & Writing New Teacher Training*

New teachers receive five half-days of guided, explicit training in all of the Bookworms curriculum components, including time and guidance to prepare for the first month of school. Training emphasizes skilled practice of the instructional routines delivered during shared reading, interactive read-aloud, genre-based writing, and differentiated instruction. [Register here!](#)

**DATES:** June 13-17, July 18-22, August 15-19      **COST:** \$500/teacher

### *Transitioning from the beta version of Bookworms K–5 Reading & Writing*

Teachers transitioning to the newest edition of Bookworms K–5 Reading & Writing from the beta version receive a half-day training to dive into the improvements and updates in the curriculum. The 3-hour training includes a keynote from Dr. Sharon Walpole, an overview of the changes to each grade level, time to dig into the lessons and manuals, and a chance to get questions answered. [Register here!](#)

**DATE:** July 26      **COST:** \$150/teacher

### *Advanced Bookworms*

Experienced educators, including teachers, coaches, and administrators experience a two day virtual conference with keynote presentations and six session choices. Sessions reflect on the innovations brought forth through the pandemic and leveraging high-quality BW implementation to accelerate literacy gains. For example, participants can dig deeply into genre-based writing and practice effective instruction with Bookworms coaches. [Register here!](#)

**DATE:** August 25-26      **COST:** \$500/teacher

### *Bookworms Intensive*

Bookworms Intensive is a multi-tiered system of support that addresses unique learners' needs in all three tiers of instruction, including special education. Bookworms Intensive adds explicit enhancements to the core curriculum to flexibly respond to diverse learners' needs, but also requires that teachers' withdraw the enhancements as students gain independence. This Academy invites experienced, special educators, literacy/reading specialists, and ESOL teachers to collaborate meaningfully and deliver the core Bookworms curriculum

## Summer Professional Learning Opportunities

in the most inclusive, rigorous way for ALL learners. Additionally, participants learn systematic procedures for progress monitoring, implementing, and fading Tier II and Tier III interventions. Initial training will be delivered over three days during the summer, and participants continue their collaborative learning throughout the school year during monthly 1-hour PLCs. Participants must be willing to share recorded lessons and give/receive peer coaching. [Apply here!](#)

DATE: August 3-5      COST: \$1000/teacher\*

\*Must apply and be admitted to the BW Intensive Cohort

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## Asynchronous Professional Learning Opportunities

### 3-Day Initial Training

This course is designed for teachers and leaders launching their implementation of Bookworms K-5 Reading & Writing, or for those who may be new to the curriculum in schools already implementing Bookworms. The series is on demand and self paced. It is designed for teachers who need relatively little initial support. Modules include the rationale for lessons and many video examples. Purchasers have access for one month. \*This course pertains to the Bookworms Reading and Writing Curriculum in its current iteration, not the revised curriculum launched in 2022.

One Month Access to Self-Paced Course \$150/teacher

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### DI Block Videos

On-demand video collection of Bookworms K-5 Reading & Writing DI Block lessons. The videos lessons are housed in a password-protected site that includes videos for all lessons in the DI Block. This video lesson collection can be utilized as professional learning for teachers/leaders, as they demonstrate every lesson in the first two staircase levels. Each site also includes a share link for teachers to provide student access to engage in video-based instruction.

COST: \$5000/District/Year

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## Ongoing Professional Learning Opportunities

### Virtual School-Based Coaching

After teachers have engaged in our virtual training course to launch the curriculum, members of the Bookworms design team at University of Delaware can provide expert coaching virtually. Coaching sessions are 90 minutes each and 4 grade-level teams can be scheduled in a day. Sessions include adult lesson simulations, collaborative analysis of site-based teacher videos, and/or review of student work. Virtual coaching (facilitated over Zoom) costs 1800/day. In two days with four sessions per day, we can work with each grade-level team, specialists, and administrators. We recommend two days every six weeks.

COST: \$1,800/day

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### On-site Teacher Observation and Feedback

After teachers have engaged in our virtual training course to launch the curriculum, members of the Bookworms design team at University of Delaware provide site-based observation and feedback. These two-day services begin with

a day of observation of the curriculum in action, with coach time scheduled by the school. On the second day, the coach will meet with grade-level teams in 45-minute segments and then with the school leadership team to problem solve and set implementation quality goals. We recommend every 9 weeks.

**COST:** \$5,500/2 days

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### **On-site Administrator Training**

Leaders with strong understanding of Bookworms instruction can facilitate strong implementation. Members of the Bookworms design team at University of Delaware provide site-based support for these leaders. These two-day services begin with a day's introduction to observation tools and implementation descriptions. On the second day, the coach will visit classrooms with leaders, ensuring that they can use observation tools as intended. We recommend it twice per year.

**COST:** \$5,500/2 days

### **ELA Professional Learning Opportunities**

- **New Teachers**
  - All new teachers receive five (5) days of initial Bookworms training provided by DOE/Open Up Resources
- **Returning Teachers**
  - Returning teachers are encouraged to attend summer Professional Learning opportunities provided by DOE/Open Up Resources (deep-dive into specific content areas)
- **All Teachers**
  - All teachers receive monthly coaching by the Bookworms coach through the University of Delaware PDCE
  - Teachers participate in both individual observations and small group PLC meetings

### **Academic MTSS Process for Reading**

- **Benchmark Screening**
  - DIBELS Assessment: Fall, Winter, Spring
- **Diagnostics**
  - Data meetings after each Benchmark Screening to track and analyze all students
  - Monthly data meetings for Tier 2 & Tier 3 students
- **Evidence-Based Interventions**
  - All students receive Differentiated Instruction (DI) 5x/week, for 15 minutes a day
  - Tier 3 students receive Bookworms Intensive (BWI) Differentiated Instruction (DI) 5x/week, for 30 minutes a day
- **Progress Monitoring**
  - DIBELS
    - Tier 2: Biweekly monitoring
    - Tier 3: Weekly monitoring
  - Mid and End of Cycle Differentiated Instruction (DI) Assessments
    - Part of Bookworms framework
    - All students tested every 3 or 6 weeks depending on length of cycle

## ELA Curriculum Resubmission Memo

### **DDOE Early Review Submission Expectation 1: Specify which edition of Springboard has been adopted.**

TECS Response: Springboard (2021 College Board edition)

### **DDOE Early Review Submission Expectation 2: Describe the professional learning opportunities provided for the ELA teachers of grades 6-8.**

TECS Response: New Teachers attend a three-day Initial Institute or four 1.5-hour virtual classes provided by Springboard. These trainings focus on the nuts and bolts of the program, emphasizing planning and instructional support. This training also immerses teachers into the digital platform and print edition. During the school year, new teachers participate in a one-day Initial Institute Follow-Up PD.

Returning Teachers are encouraged to attend a training (either one full day in person or two 2.5-hour virtual sessions) focusing on purposeful planning.

All teachers receive monthly observations and coaching and participate in grade-level and content-area PLC meetings.

### **DDOE Early Review Submission Expectation 3: Describe the MTSS process in reading for grades 6-8.**

#### Component 1: Benchmark Screening

DIBELS Assessment: Fall, Winter, Spring (Acadience Reading 7–8 for students in Grades 7–8)

#### Component 2: Diagnostics

- Data meetings after each Benchmark Screening to track and analyze all students
- Data meetings for Tier 2 & Tier 3 students after 6-week cycles of intervention

#### Component 3: Evidence-Based Interventions

- Tier 2:
  - Students receive 15 minutes per day of additional intervention support (push in, small group, or individual) to meet their targeted needs
- Tier 3:
  - Students receive 30 minutes per day of small group intervention to meet their targeted needs
- Interventions Used:
  - Leveled Literacy Intervention (LLI)
  - Achieve3000

#### Component 4: Progress Monitoring

- DIBELS
- Tier 2 & 3: Biweekly monitoring

## **Appendix 2 - Curriculum Documents :: Health**

## Health Curriculum Documents

### Table of Contents

K–5 Scope and Sequence	p. 2
6–8 Scope and Sequence	p. 6



**Health Education Curriculum Guide**  
**Grade K-5**

<b>Health Education Core Concepts</b>	<b>K -2</b>	<b>3 – 5</b>
<b>Alcohol, Tobacco, and Drugs (10 hours required)</b>		
Short and long term benefits and risks of medicine	X	X
Influences of Tobacco Use	X	X
Choosing to be tobacco and alcohol free		X
Short and long term effects of tobacco and alcohol		X
Influences on alcohol and drug use		X
Healthful choices about alcohol, tobacco, and drug use		X
Communicating healthful choices about alcohol, tobacco and drug		X
Benefits of not using alcohol, tobacco, and other drugs		X
Tobacco cessation		
<b>Injury Prevention</b>		
Fire safety	X	X
Water safety	X	X
Transportation safety	X	
Personal body safety and child abuse	X	X
Safety in the home	X	X
First aid care and prevention	X	X
HIV prevention	X	X
Gun safety		X
Violence prevention	X	X
Suicide prevention		
<b>Nutrition and Physical Activity</b>		
Healthy eating	X	X
Accessing nutrition information and products	X	X
Influences on food choices and physical activity	X	X
Balancing food intake and physical activity	X	X
Benefits of physical activity and risks of inactivity	X	X
Prevention of sports and exercise injuries	X	X
Food safety	X	X
Effects of alcohol and drugs on fitness	X	X

**Health Education Curriculum Guide**  
**Grade K-5**

<b>Health Education Core Concepts</b>	<b>K -2</b>	<b>3 – 5</b>
<b>Family Life and Sexuality</b>		
Families and relationships	X	X
Personal Body Safety and Child Abuse	X	X
Understanding and respect diversity (e.g., gender, mental, and physical abilities, culture, race/ethnicity, sexual orientation, religion, and age)	X	X
Growth and development		X
HIV/AIDS	X	X
Benefits of healthful sexual decision making		
Dating relationships		
Abstaining from sexual intercourse		
Effects of alcohol and other drugs on sexual behavior		
Pregnancy prevention		
Influences on sexual behavior		
Prevention of sexually transmitted diseases		
<b>MENTAL HEALTH</b>		
Personal assets and strength ( self esteem)	X	X
Emotional health	X	X
Conflict resolution	X	X
Anger management	X	X
Stress management		X
Interpersonal relationship and communication	X	X
Addiction	X	X
Mental health problems (e.g., eating disorder, gambling, self injury, depression)		X
Interaction of alcohol and other drug use with mental health		
Mental health resources		X
<b>PERSONAL HEALTH AND WELLNESS</b>		
Personal health care	X	X
Preventing disease and infection	X	X
Selecting and using health care products and services		X
<b>COMMUNITY AND ENVIRONMENTAL HEALTH</b>		
Community health services	X	
Environmental health resources and conservation		X



**Health Education Curriculum Guide**  
**Grade K-5**

Protecting the health and safety of our community		
Social responsibility for the use of natural resources		
<b>Interpersonal Violence Prevention</b>		
Interpersonal relationship communication	X	X
Healthy ways to manage or resolve conflicts		X
Effectively communicating needs, wants and feelings	X	
Effectively tell a trusted adult when feeling threatened	X	
Empathetic and compassionate towards others	X	X

<b>K-12 Health Education Concepts and Grade/Hours Requirements (Reg. 851)</b>						
<b>Core Concepts for ALL Grades:</b>	Tobacco, Alcohol and other Drugs, Injury Prevention and Safety, Nutrition and Physical Activity, Family Life and Sexuality, Personal Health and Wellness, Mental Health and Community and Environmental Health					
<b>Grade Level</b>	<b>Pre-K</b>	<b>K-4</b>	<b>5-6</b>	<b>7</b>	<b>8</b>	<b>9-12</b>
<b>Hours/Credits</b>	No hours requirement	30 hours each year (10 hours must be drug and alcohol education)	35 hours each year (15 hours must be drug and alcohol education)	60 hours (all 60 hours must be in one year in 7th or 8th and additional 15 hours of drug and alcohol education in other grade)	60 hours (all 60 hours must be in one year in 7th or 8th and additional 15 hours of drug and alcohol education in other grade)	.5 Credit (15 hours must be drug and alcohol education, 2 hours of CPR/AED and Organ donation, 15 hours drug and alcohol education in all other grades)
<b>Grade Specific Requirements</b>	Personal Body Safety and Child Abuse (Law)	Personal Body Safety and Child Abuse	Personal Body Safety and Child Abuse	Consent and respecting others personal boundaries	Consent and respecting others personal boundaries	Consent and respecting others personal boundaries
	Recommended Physical Activity/ Outdoor Play	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education
		(10 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education
	<i>With specific inclusion of the below listed concepts:</i>					

**Health Education Curriculum Guide**  
**Grade K-5**

	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)
	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality
	Fire Safety Education	Fire Safety Education			(2 hours) CPR/AED evidence-based emergency instruction, use of AED and life saving/enhancing effects of organ and tissue donation
	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention program	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention program	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention program	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention program	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention program

**Health Education Curriculum Guide**  
**Grade 6-8**

**Health Education Requirement (Reg. 851)**

*Grade 6: 35 hours each year (15 hours must be drug and alcohol education)*

*Grade 7 and 8: 60 hours (all 60 hours must be in one year in 7th or 8th and additional 15 hours of drug and alcohol education in other grade)*

<b>Health Education Core Concepts</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
<b>Alcohol, Tobacco, and Drugs (15 hours min requirement)</b>			
Short and long term benefits and risks of medicine	X	X	X
influences of Tobacco Use	X		
Choosing to be drug free	X	X	X
Short and long term effects of tobacco use	X		
Short and long term effects of alcohol use		X	
Short and long term effects of drug use			X
Influences on drug use	X	X	X
Communicating healthful choices about tobacco	X		
Communicating healthful choices about alcohol use		X	
Communicating healthful choices about drug use			X
Benefits of not abusing drugs	X	X	X
Tobacco cessation	X		
<b>Injury Prevention</b>			
Emergency safety (fire, crisis, gun, water, flooding)	X	X	X
Transportation safety	X	X	X
Safety in the home	X	X	
First aid care and prevention	X	X	X
HIV prevention			X
Suicide prevention			X
<b>Nutrition and Physical Activity</b>			
Healthy eating	X	X	X
Accessing nutrition information and products	X	X	X
Influences on food choices and physical activity	X	X	X
Balancing food intake and physical activity	X	X	X
Benefits of physical activity and risks of inactivity	X	X	X
Prevention of sports and exercise injuries	X	X	X
Food safety	X	X	X

**Health Education Curriculum Guide**  
**Grade 6-8**

Effects of alcohol and drugs on fitness	X	X	X
Fitnessgram		X	

<b>Comprehensive Sexuality Education/HIV Prevention</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
Families and relationships	X	X	X
Personal Body Safety and Child Abuse (Erin's Law)	X		
Consent Education		X	X
Understanding and respecting diversity	X	X	X
Growth and development	X	X	
HIV/AIDS	X	X	X
Benefits of healthful sexual decision making	X	X	X
Dating relationships (including Consent Education)		X	X
Abstaining from sexual intercourse	X	X	X
Effects of drugs on sexual behavior		X	X
Pregnancy prevention		X	X
Influences on sexual behavior	X	X	X
Prevention of sexually transmitted diseases			X
<b>Mental/Emotional Health</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
Bullying Prevention	X	X	X
Personal assets and strengths (self-esteem)	X	X	X
Decision Making Model	X	X	X
Conflict resolution	X	X	X
Stress management	X	X	X
Character Education	X	X	X
Addiction	X	X	X
Mental health problems (e.g., eating disorders, self-injury, Depression, ADHD, Autism)		X	X
Interaction of drug use with mental health	X	X	X
Mental health resources	X	X	X
<b>Interpersonal Violence Prevention</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
Verbal and non-verbal communication skills	X	X	X
Peer resistance skills	X	X	X
Negotiation skills to avoid or reduce health risks	X	X	X
Manage or resolve conflict	X	X	X

**Health Education Curriculum Guide**  
**Grade 6-8**

Communication of empathy and support for others	X	X	X
<b>Personal Health and Wellness</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
Personal health care	X	X	X
Preventing disease and infection	X	X	X
Selecting and using health care products and services	X	X	X
<b>Community and Environmental Health</b>	<b>6th</b>	<b>7th</b>	<b>8th</b>
Accessing Community Health Services	X	X	X
Environmental health resources and conservation	X		
Protecting the health and safety of our community	X	X	X
Social responsibility for the use of natural resources (Reuse, Reduce, Recycle)	X		

**Health Education Curriculum Guide**  
**Grade 6-8**

<b>K-8 Health Education Concepts and Grade/Hours Requirements (Reg. 851)</b>							
<b>Core Concepts for ALL Grades:</b>	Tobacco, Alcohol and other Drugs, Injury Prevention and Safety, Nutrition and Physical Activity, Family Life and Sexuality, Personal Health and Wellness, Mental Health and Community and Environmental Health						
<b>Grade Level</b>	<b>Pre-K</b>	<b>K-4</b>	<b>5-6</b>	<b>7</b>	<b>8</b>		
<b>Hours/Credits</b>	No hours requirement	30 hours each year (10 hours must be drug and alcohol education)	35 hours each year (15 hours must be drug and alcohol education)	60 hours (all 60 hours must be in one year in 7th or 8th and additional 15 hours of drug and alcohol education in other grade)	60 hours (all 60 hours must be in one year in 7th or 8th and additional 15 hours of drug and alcohol education in other grade)		
<b>Grade Specific Requirements</b>	Personal Body Safety and Child Abuse (Law)	Personal Body Safety and Child Abuse	Personal Body Safety and Child Abuse	Consent and respecting others personal boundaries	Consent and respecting others personal boundaries		
	Recommended Physical Activity/ Outdoor Play	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education	Comprehensive Health Education and Family Life Education		
		(10 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education	(15 hours) Drug and Alcohol Education		
	<i>With specific inclusion of the below listed concepts:</i>						
		Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	Comprehensive Sexuality Education and HIV Prevention (stresses benefits of abstinence)	
		Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	Nutrition, Family Life and Sexuality	
	Fire Safety Education	Fire Safety Education					



**Health Education Curriculum Guide**  
**Grade 6-8**

	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention	Evidence-based tobacco, alcohol, drug and interpersonal violence prevention	
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**Teacher Notes:**

*The following are a brainstorm of topics that support the curriculum grid. This listing is a draft and not comprehensive.*

**6th Grade**

**Basics of Drugs/Medicine**

- **Key Terms:** Drug, Medicine, over the counter, prescription, side effect, tolerance, withdrawal, drug abuse, generic medication, name-brand medication
- Importance of taking medicine as prescribed
- Drugs that can only be abused, used as medicine, or drugs that can be used as either
- Difference between dependence and addiction
- Risks of taking multiple drugs
- Physical, social, and emotional effects of drug use

**Tobacco**

- Addictive effects of tobacco use:
  - How difficult it is to quit (withdrawal symptoms)
  - Resources on how to quit or help someone else quit
  - Nicotine
  - Stimulant
- Short term and long term effects of tobacco use
  - Diseases and conditions caused by tobacco use
    - Emphysema, Lung Cancer, Mouth Cancer
  - Deaths caused by tobacco use
- The different types of tobacco and risks of each
- Tobacco as a gateway drug
- What is in tobacco?
- Benefits of not using tobacco
- Influences on tobacco use (Why do people use tobacco?)
- Strategies to resist using tobacco and peer pressure
- Economics of tobacco
  - Money spent on tobacco advertising.
  - How much money do people spend on tobacco?
- Accepting personal responsibility for choices
- Laws & School policies

**Health Education Curriculum Guide**  
**Grade 6-8**

**Bullying**

- Definition of Bullying
  - Difference between bullying and playing around
- Different forms of Bullying
  - Physical, Social, Emotional
  
- Cyber Bullying
  - Ways to cyber-bully
- Personal and legal consequences of bullying
  - Code of conduct & State Laws
- Different Roles in bullying
  - Bully, victim, bystanders, upstanders, instigators
- Strategies to resist and avoid bullying
- Strategies to get help if you or someone you know is being bullied
- Harmful effects of bullying on those being bullied
- Resources to get help

**Family Life & Sexuality**

- Understanding and respecting diversity
  - Gender, Mental/Physical abilities, culture, race/ethnicity, sexual orientation, religion, and age
- Personal health care
  - Hygiene
  - Preventing disease and infection
    - Sun Screen/Sun Exposure
  - Selecting and using health care products
- Functions of the male and female reproductive systems

**Interpersonal Violence Prevention**

- Erin's Law-Consent Education (One Love Foundation materials)

**Environmental Health**

- Environmental Health resources and conservation
  - Reduce, Reuse, Recycle
- Types of Environments
  - Physical, social, emotional
  - Possible positive and negative effects of each
- Effects of pollution on individuals & society

**Injury Prevention**

- Think First Program

**Comprehensive Health Education/Life Skills: Botvin Program**

**Health Education Curriculum Guide**  
**Grade 6-8**

**7th Grade**

**Alcohol**

- Addictive effects of alcohol use:
  - Depressant
- Alcoholism & Dependency, Tolerance
- Binge Drinking
- Social Drinking
- How difficult it is to quit (withdrawal symptoms)
- Resources on how to quit or help someone else quit
  - AA, Al-Anon, Alateen, Rehab, Intervention, Help/Hotlines
- Short term and long term effects of alcohol use
- Diseases and conditions caused by alcohol use
  - Stages of liver disease, Alcohol Poisoning
    - Deaths caused by alcohol use
- Types of alcohol
  - Comparison of alcoholic beverages
    - Beer, Wine, & Liquor
- BAC
  - Legal Limit
- Healthy Choices
- Influences on alcohol use (Why do people use alcohol ?)
- Strategies to resist using alcohol and peer pressure
- Accepting personal responsibility for choices
- Laws & School policies
  - What is DUI?
  - State DUI differences
  - Underage drinking consequences
  - Zero Tolerance

**Bullying**

- Review Bullying
  - Difference between bullying and playing around
  - Different forms of Bullying
  - Physical, Social, Emotional
  - Application activities (Role-plays/Skits/PSA's)

**Health Education Curriculum Guide**  
**Grade 6-8**

- 
- Personal and legal consequences of bullying
  - Code of conduct & State Laws
- Stereotypes
- Labels
- Prejudice
- Sexual Identity
- Understanding/Appreciating Diversity
- Resources to get help

**Interpersonal Violence Prevention**

- Consent Education (One Love Foundation materials)

**Family Life & Sexuality**

- (ARC, Door of Hope, YWCA)
- Review male/female reproductive systems
  - Functions of the male and female reproductive systems/Diagrams
- Pregnancy
  - Egg + Sperm= Fertilization
  - The different stages of growth and development during pregnancy
  - Different types of pregnancy complications
  - Prenatal Care
- Parenting/Economics
  - Know the roles or responsibilities that a parent provides
  - Household Economics
  - Project Egg/My baby sim app
- Abstinence
- Protection

**Nutrition and Physical Activity**

- (Health Rocks and Up for the Challenge-UD)
- Healthy Eating Habits
- Accessing nutritional information and products
  - Myplate
  - Food Labels
- Food choices and % Daily Value
- Food Intake vs. Physical Activity
  - Fad Diets, Eating Disorders
- Consequences of inactivity
- Physical Fitness
  - Fitnessgram

**Health Education Curriculum Guide**  
**Grade 6-8**

- Safe workout practices
- Exercises that address each component of Physical Fitness
- Use of technology/Apps for fitness

**Injury Prevention**

- Think First Program

**Comprehensive Health Education/Life Skills: Botvin Program**

**8th Grade**

**Drugs**

- Review Drug Vocab
  - withdrawal, tolerance, addiction, prescription, O-T-C,
  - generic vs. name brand
  - Slang terms
  - Categories of drugs (stimulant, depressant, steroids, inhalant, hallucinogen, etc.)
- Recreational (Heroin, Marijuana, Hallucinogens, Crack/Cocaine, Ecstasy, Methamphetamines, Bath Salts, etc.)
- Prescription (Xanax, Percocet, Valium, Adderall, Vicodin)
- Side Effects
  - Short/Long Term Effects
- Addiction
  - Where to access help
    - Detox, Rehab Centers

**Suicide Prevention**

- Lifelines Program
  - Warning Signs
  - Ways to help
  - Application (role plays)
  - Assessment

**Human Sexuality**

- ARC
- Consent Education (One Love Foundation)
- Review Male/Female Reproductive System Terms/Diagrams
- STD's/STI's

## **Health Education Curriculum Guide**

### **Grade 6-8**

- Gonorrhea, Chlamydia, Syphilis, Genital Herpes, HPV, HIV/AIDS (AIDS Delaware), Trichomoniasis, Pubic Lice
  - Curable/Incurable, Viral/Bacterial, Parasitic, Signs/Symptoms, Effects, Treatments, Accessing Resources
  
- Prevention
  - Abstinence
    - (Door of Hope)
  - Gardasil (HPV Vaccine for both genders)
  - Contraception
  - Safer Sex

### **Mental/Emotional Health**

- Self Esteem
- Character Education
- Conditions (What it is, effects)
  - Depression
  - Bipolar Disorder
  - ADD/ADHD
  - Autism

### **Injury Prevention**

- Think First Program

### **Family Life/Sexuality**

- ARC

### **Interpersonal Violence Prevention**

- Consent Education (One Love Foundation materials)

### **Comprehensive Health Education/Life Skills: Botvin Program**

## **Appendix 2 - Curriculum Documents :: Math**

## Mathematics Curriculum Documents

### Table of Contents

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	Pre-Kindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	2015-16*
1st TRIMESTER	M1: Counting to 5 (45 days)	M1: Numbers to 10 (43 days)	M1: Sums and Differences to 10 (45 days)	M1: Sums and Differences to 100 (10 days) M2: Addition and Subtraction of Length Units (12 days)	M1: Properties of Multiplication and Division and Solving Problems with Units of 2-5 and 10 (25 days)	M1: Place Value, Rounding, and Algorithms for Addition and Subtraction (25 days)	M1: Place Value and Decimal Fractions (20 days)	1st QUARTER
	M2: Shapes (15 days)	**M2: 2D and 3D Shapes (12 days)	M2: Introduction to Place Value Through Addition and Subtraction Within 20 (35 days)	M3: Place Value, Counting, and Comparison of Numbers to 1,000 (25 days)	M2: Place Value and Problem Solving with Units of Measure (25 days)	**M2: Unit Conversions (7 days)	M2: Multi-Digit Whole Number and Decimal Fraction Operations (35 days)	
2nd TRIMESTER	M3: Counting to 10 (50 days)	M3: Comparison of Length, Weight, Capacity, and Numbers to 10 (38 days)	M3: Ordering and Comparing Length Measurements as Numbers (15 days)	M4: Addition and Subtraction Within 200 with Word Problems to 100 (35 days)	M3: Multiplication and Division with Units of 0, 1, 6-9, and Multiples of 10 (25 days)	M3: Multi-Digit Multiplication and Division (43 days)	M3: Addition and Subtraction of Fractions (22 days)	2nd QUARTER
	M4: Comparison of Length, Weight, Capacity, and Numbers to 5 (35 days)	M4: Number Pairs, Addition and Subtraction to 10 (47 days)	M4: Place Value, Comparison, Addition and Subtraction to 40 (35 days)	M5: Addition and Subtraction Within 1,000 with Word Problems to 100 (24 days)	M4: Multiplication and Area (20 days)	M4: Angle Measure and Plane Figures (20 days)	M4: Multiplication and Division of Fractions and Decimal Fractions (38 days)	
3rd TRIMESTER	M5: Addition and Subtraction Stories and Counting to 20 (35 days)	M5: Numbers 10-20 and Counting to 100 (30 days)	M5: Identifying, Composing, and Partitioning Shapes (15 days)	M6: Foundations of Multiplication and Division (24 days)	M5: Fractions as Numbers on the Number Line (35 days)	M5: Fraction Equivalence, Ordering, and Operations (45 days)	M5: Addition and Multiplication with Volume and Area (25 days)	3rd QUARTER
	M6: Analyzing, Comparing, and Composing Shapes (10 days)	M6: Place Value, Comparison, Addition and Subtraction to 100 (35 days)	M7: Problem Solving with Length, Money, and Data (30 days)	M7: Time, Shapes, and Fractions as Equal Parts of Shapes (20 days)	M6: Collecting and Displaying Data (10 days)	M6: Decimal Fractions (20 days)	M6: Problem Solving with the Coordinate Plane (40 days)	
					M7: Geometry and Measurement Word Problems (40 days)	M7: Exploring Measurement with Multiplication (20 days)		4th QUARTER

Key:			
Number	Geometry	Number and Geometry, Measurement	Fractions

\*The columns indicating trimesters and quarters are provided to give you a rough guideline. Please use this additional column for your own pacing considerations based on the specific dates of your academic calendar.

\*\*Please refer to the modules themselves to identify partially labeled titles as well as the standards corresponding to all modules.

## Sequence of Kindergarten Modules Aligned with the Standards

Module 1: Numbers to 10

Module 2: Two-Dimensional and Three-Dimensional Shapes

Module 3: Comparison of Length, Weight, Capacity, and Numbers to 10

Module 4: Number Pairs, Addition and Subtraction to 10

Module 5: Numbers 10–20 and Counting to 100

Module 6: Analyzing, Comparing, and Composing Shapes

### Summary of Year

Kindergarten mathematics is about (1) representing, relating, and operating on whole numbers, initially with sets of objects; and (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

**Key Areas of Focus for K–2:** Addition and subtraction—concepts, skills, and problem solving

**Required Fluency:** K.OA.5 Add and subtract within 5.

### Major Emphasis Clusters

#### Counting and Cardinality

- Know number names and count sequence.
- Count to tell the number of objects.
- Compare numbers.

#### Operations and Algebraic Thinking

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

#### Number and Operations in Base Ten

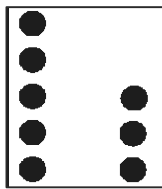
- Work with numbers 11–19 to gain foundations for place value.

### Rationale for Module Sequence in Kindergarten

*A Story of Units* continues in Kindergarten. Just like in Pre-K, ladybugs, fingers, and plastic bears are manipulated and counted in Kindergarten, with work consistently moving to the pictorial and abstract levels. The new, foundational unit introduced in Kindergarten’s Module 5, is the supremely important unit of *one*. By the end of the Kindergarten year, students’ first steps into place value are evidenced as they make precise statements such as, “12 is the same as 10 ones and 2 ones!” Notice how this sets the foundation for later work with decimal units (e.g., in Grade 1, “12 is the same as 1 ten and 2 ones;” in Grade 2, “12 tens is the same as 10 tens and 2 tens or 1 hundred 2 tens;” and in Grade 4, “12 tenths is the same as 10 tenths and 2 tenths or 1 one and 2 tenths”).

To begin the year, Kindergarten students start out classifying and categorizing objects, leading to making one group (e.g., “I made a group of 9 goldfish. Look how I can count them in a line, in rows, and in a circle”). Students learn the way each number from 0 to 10 relates to five using fingers,

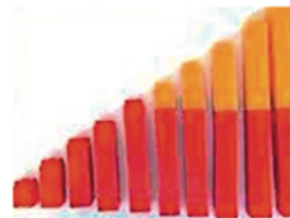
cubes, drawings, 5-groups (pictured below) and the Rekenrek, an abacus with a color change after the fifth bead (pictured below). The materials support students in seeing all numbers to ten in relationship to five, as they also see them on their fingers, the best manipulative of all! This renders 6, 7, 8, 9, and 10 more friendly as they see, for example, the 3 and 5 embedded within 8. Notice how the distribution of 8 beads as 5 beads and 3 beads sets the stage for the distributive property in Grade 3 (“8 fours = 5 fours + 3 fours, so  $(5 \times 4) + (3 \times 4) = 20 + 12 = 32$ ”). Students close the module by investigating patterns of *1 more* and *1 less* (excluding the word *than*) using models such as the number stairs (pictured below right) with a color change after the fifth cube.



5-Group Card



Rekenrek



Number Stairs

In Module 2, students take a needed break from numbers to analyze their environment and describe and identify squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres. During both Modules 2 and 3, students also practice their fluency by counting and manipulating numbers to 10 during their fluency practice, giving them ample time to prepare for the addition and subtraction of Module 4.

In Module 3, students directly compare two quantities, first learning to identify the attribute being compared. The use of the word *than* is carefully developed first in the context of length (e.g., *taller than*, *shorter than*), then weight (*heavier than*, *lighter than*), and finally capacity. Notice how *more than* and *less than* are used to compare capacities (e.g., “The bucket holds *more than* the cup”). This transitions students smoothly into comparing numbers (e.g., “9 chairs is *more than* 6 chairs”). This concrete foundation for comparison is essential to students’ entire K–12 experience. Ask any Grade 5 teacher which of the two following word problems is more challenging for students:

- There are 34.6 kilograms of sand and 3 kilograms more gravel than sand. What is the total weight of the gravel and sand?
- There are 34.6 kilograms of sand and 3 times as much gravel. What is the total weight of the gravel and the sand?

Problem (a) is more challenging because of the language of *more than*. Students consistently struggle to reason about the relationship of quantities, often resorting to using ineffective tricks (e.g., “If the problem says *more than*, subtract,” which is not correct in the sand and gravel problem). Module 3 in Kindergarten is intended to provide a solid foundation to future comparison work in the meaningful context of measurement.

In Module 4, comparison flows into addition and subtraction, as it does in all the elementary grades (e.g., “7 is more than 3” leads to, “ $7 = 3 + 4$ ,” and “ $3 + 4 = 7$ ”). Students represent *add to*, *take away*, and *put together* stories with blocks, drawings, and equations. Toward the end of the module,

students start to reorient from 5 toward 10 ones with “How much more does 7 need to make ten?” These final lessons set the stage for Module 5 wherein 10 ones is the structure on which students build the teen numbers. They are also critical foundation standards for Grade 1. Students must know how much a number needs to make ten in order to use the *make ten* strategy in Grades 1 and 2, shown to be an important route to place value understanding as they master their sums and differences to 20 by the end of Grade 2.

In Module 5, after an extended experience of addition and subtraction with totals up to 10, students progress to investigating numbers 10–20. For example, thirteen beans are decomposed as 10 beans and 3 beans just as 8 beans are decomposed as 5 beans and 3 beans. Students record their decompositions of the teen numbers as equations,  $13 = 10 + 3$ , and start to think, “10. 3 more is 13.” As mentioned at the beginning of the story in Grade 1, the unit *one* is introduced as students learn to think of the teen numbers as 10 ones and some ones. For the first time, *one* is not an object but rather a noun! Notice how this sets the stage for expanded form in the upper grades (e.g.,  $36 = 30 + 6$ , or  $13.6 = 10 + 3 + 0.6$ ).

Module 6 rounds out the year with an exploration of shapes. Students build shapes from components, analyze and compare them, and discover that they can be composed of smaller shapes, just as larger numbers are composed of smaller numbers.

### Alignment Chart<sup>9</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Kindergarten Modules
<b>Module 1:</b> <b>Numbers to 10</b> <sup>10</sup> (43 days)	<p><b>Know number names and the count sequence.</b><sup>11</sup></p> <p><b>K.CC.3</b> Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).</p> <p><b>Count to tell the number of objects.</b><sup>12</sup></p> <p><b>K.CC.4</b> Understand the relationship between numbers and quantities; connect counting to cardinality.</p> <p>a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.</p>

<sup>9</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>10</sup> In this module, standards work is limited to within 10.

<sup>11</sup> The balance of this cluster is addressed in Module 5.

<sup>12</sup> K.CC.4d is addressed in Module 6.

Module and Approximate Number of Instructional Days	Standards Addressed in Kindergarten Modules
	<p>b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.</p> <p>c. Understand that each successive number name refers to a quantity that is one larger.</p> <p><b>K.CC.5</b> Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.</p> <p><b>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</b><sup>13</sup></p> <p><b>K.OA.3</b> Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., <math>5 = 2 + 3</math> and <math>5 = 4 + 1</math>).</p> <p><b>Classify objects and count the number of objects in each category.</b></p> <p><b>K.MD.3</b> Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)</p>
<p><b>Module 2:</b> <b>Two-Dimensional and Three-Dimensional Shapes</b> (12 days)</p>	<p><b>Classify objects and count the number of objects in each category.</b></p> <p><b>K.MD.3</b> Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)</p> <p><b>Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).</b></p> <p><b>K.G.1</b> Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i>, <i>below</i>, <i>beside</i>, <i>in front of</i>, <i>behind</i>, and <i>next to</i>.</p> <p><b>K.G.2</b> Correctly name shapes regardless of their orientations or overall size.</p>

<sup>13</sup> The balance of this cluster is addressed in Module 4.

Module and Approximate Number of Instructional Days	Standards Addressed in Kindergarten Modules
	<p><b>K.G.3</b> Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).</p> <p><b>Analyze, compare, create, and compose shapes.</b><sup>14</sup></p> <p><b>K.G.4</b> Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).</p>
<p><b>Module 3:</b> <b>Comparison of Length, Weight, Capacity, and Numbers to 10</b> (38 days)</p>	<p><b>Compare numbers.</b></p> <p><b>K.CC.6</b> Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)</p> <p><b>K.CC.7</b> Compare two numbers between 1 and 10 presented as written numerals.</p> <p><b>Describe and compare measurable attributes.</b></p> <p><b>K.MD.1</b> Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p><b>K.MD.2</b> Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. <i>For example, directly compare the heights of two children and describe one child as taller/shorter.</i></p>
<p><b>Module 4:</b> <b>Number Pairs, Addition and Subtraction to 10</b> (47 days)</p>	<p><b>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</b></p> <p><b>K.OA.1</b> Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. (Drawings need not show details, but should show the mathematics in the problem.)</p> <p><b>K.OA.2</b> Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.</p>

<sup>14</sup> The balance of this cluster is addressed in Module 6.

Module and Approximate Number of Instructional Days	Standards Addressed in Kindergarten Modules
	<p><b>K.OA.3</b> Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., <math>5 = 2 + 3</math> and <math>5 = 4 + 1</math>).</p> <p><b>K.OA.4</b> For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings and record the answer with a drawing or equation.</p> <p><b>K.OA.5</b> Fluently add and subtract within 5.<sup>15</sup></p>
<p><b>Module 5:</b> <b>Numbers 10–20 and Counting to 100</b> (30 days)</p>	<p><b>Know number names and the count sequence.</b></p> <p><b>K.CC.1</b> Count to 100 by ones and by tens.</p> <p><b>K.CC.2</b> Count forward beginning from a given number within the known sequence (instead of having to begin at 1).</p> <p><b>K.CC.3</b> Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).</p> <p><b>Count to tell the number of objects.<sup>16</sup></b></p> <p><b>K.CC.4</b> Understand the relationship between numbers and quantities; connect counting to cardinality.</p> <p>b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.</p> <p>c. Understand that each successive number name refers to a quantity that is one larger.</p> <p><b>K.CC.5</b> Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.</p>

<sup>15</sup> From this point forward, fluency practice is part of students’ on-going experience.

<sup>16</sup> K.CC.4a, K.CC.4b, and K.CC.4c are addressed in Module 1; K.CC.4d is addressed in Module 6.

Module and Approximate Number of Instructional Days	Standards Addressed in Kindergarten Modules
	<p><b>Work with numbers 11–19 to gain foundations for place value.</b></p> <p><b>K.NBT.1</b> Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings and record each composition or decomposition by a drawing or equation (such as <math>18 = 10 + 8</math>); understand that these numbers are composed of ten ones and one, two three, four, five, six, seven, eight or nine ones.</p>
<p><b>Module 6:</b> <b>Analyzing, Comparing, and Composing Shapes</b> (10 days)</p>	<p><b>Count to tell the number of objects.<sup>17</sup></b></p> <p><b>K.CC.4</b> Understand the relationship between numbers and quantities: connect counting to cardinality.</p> <p>d. Develop understanding of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.<sup>18</sup></p> <p><b>Analyze, compare, create and compose shapes.<sup>19</sup></b></p> <p><b>K.G.5</b> Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</p> <p><b>K.G.6</b> Compose simple shapes to form larger shapes. <i>For example, “Can you join these two triangles with full sides touching to make a rectangle?”</i></p>

<sup>17</sup> Ordinality is introduced in the context of constructing and manipulating shapes. The balance of this cluster is addressed in Modules 1 and 5.

<sup>18</sup> K.CC.4d originates from the New York State Common Core Learning Standards and is not part of the CCSS-M.

<sup>19</sup> K.G.4 is addressed in Module 2.



## Sequence of Grade 1 Modules Aligned with the Standards

Module 1: Sums and Differences to 10

Module 2: Introduction to Place Value Through Addition and Subtraction Within 20

Module 3: Ordering and Comparing Length Measurements as Numbers

Module 4: Place Value, Comparison, Addition and Subtraction to 40

Module 5: Identifying, Composing, and Partitioning Shapes

Module 6: Place Value, Comparison, Addition and Subtraction to 100

### Summary of Year

Grade 1 mathematics is about (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

**Key Areas of Focus for K–2:** Addition and subtraction—concepts, skills, and problem solving

**Required Fluency:** 1.OA.6 Add and subtract within 10.

### Major Emphasis Clusters

#### Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

#### Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

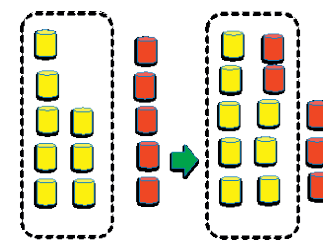
#### Measurement and Data

- Measure lengths indirectly and by iterating length units.

### Rationale for Module Sequence in Grade 1

In Grade 1, work with numbers to 10 continues to be a major stepping-stone in learning the place value system. In Module 1, students work to further understand the meaning of addition and subtraction begun in Kindergarten, largely within the context of the Grade 1 word problem types. They begin intentionally and energetically building fluency with addition and subtraction facts—a major gateway to later grades.

In Module 2, students add and subtract within 20. Work begins by modeling *adding and subtracting across ten* in word problems and with equations. Solutions involving decomposition and composition like that shown to the right for  $8 + 5$  reinforce the need to *make 10*. In Module 1, students grouped 10 objects, saw numbers 0 to 9 in relationship to ten, added to make ten, and subtracted from ten. They now transition to conceptualizing that ten as a single unit (e.g., using 10 linking cubes stuck together). This is the next major stepping-stone in understanding place value, learning to group *10 ones* as a single unit: 1 ten. Learning to *complete a unit* empowers students in later grades to understand *renaming* in the addition algorithm, to add 298 and 35 mentally (i.e.,  $298 + 2 + 33$ ), and to add measurements like 4 m, 80 cm, and 50 cm (i.e.,  $4 \text{ m} + 80 \text{ cm} + 20 \text{ cm} + 30 \text{ cm} = 4 \text{ m} + 1 \text{ m} + 30 \text{ cm} = 5 \text{ m } 30 \text{ cm}$ ).



$$8 + 5 = 8 + (2 + 3) = (8 + 2) + 3 = 10 + 3 = 13$$

Adding Across a Ten

Module 3, which focuses on measuring and comparing lengths indirectly and by iterating length units, gives students a few weeks to practice and internalize *making a 10* during daily fluency activities.

Module 4 returns to understanding place value. Addition and subtraction within 40 rest on firmly establishing a *ten* as a unit that can be counted, first introduced at the close of Module 2. Students begin to see a problem like  $23 + 6$  as an opportunity to separate the 2 tens in 23 and concentrate on the familiar addition problem  $3 + 6$ . Adding  $8 + 5$  is related to solving  $28 + 5$ ; complete a unit of ten and add 3 more.

In Module 5, students think about attributes of shapes and practice composing and decomposing geometric shapes. They also practice working with addition and subtraction within 40 during daily fluency activities (from Module 4). Thus, this module provides important internalization time for students between two intense number-based modules. The module placement also gives more spatially-oriented students the opportunity to build their confidence before they return to arithmetic.

Although Module 6 focuses on *adding and subtracting within 100*, the learning goal differs from the *within 40* module. Here, the new level of complexity is to build off the place value understanding and mental math strategies that were introduced in earlier modules. Students explore by using simple examples and the familiar units of 10 made out of linking cubes, bundles, and drawings. Students also count to 120 and represent any number within that range with a numeral.

Alignment Chart<sup>20</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
<p><b>Module 1:</b> <b>Sums and Differences to 10</b><sup>21</sup> (45 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b><sup>22</sup></p> <p><b>1.OA.1</b> Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Understand and apply properties of operations and the relationship between addition and subtraction.</b></p> <p><b>1.OA.3</b> Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.) <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i></p> <p><b>1.OA.4</b> Understand subtraction as an unknown-addend problem. <i>For example, subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8.</i></p> <p><b>Add and subtract within 20.</b></p> <p><b>1.OA.5</b> Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</p> <p><b>1.OA.6</b> Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math>); decomposing a number leading to a ten (e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math>); using the relationship between addition and subtraction (e.g., knowing that <math>8 + 4 = 12</math>, one knows <math>12 - 8 = 4</math>); and creating equivalent but easier or known sums (e.g., adding <math>6 + 7</math> by creating the known equivalent <math>6 + 6 + 1 = 12 + 1 = 13</math>).</p>

<sup>20</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>21</sup> In this module, work is limited to within 10.

<sup>22</sup> 1.OA.2 is addressed in Module 2.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p><b>Work with addition and subtraction equations.</b></p> <p><b>1.OA.7</b> Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. <i>For example, which of the following equations are true and which are false? <math>6 = 6</math>, <math>7 = 8 - 1</math>, <math>5 + 2 = 2 + 5</math>, <math>4 + 1 = 5 + 2</math>.</i></p> <p><b>1.OA.8</b> Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 + ? = 11</math>, <math>5 = \_ - 3</math>, <math>6 + 6 = \_</math>.</i></p>
<p><b>Module 2:</b>  <b>Introduction to Place Value Through Addition and Subtraction Within 20</b>            (35 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b></p> <p><b>1.OA.1</b> Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>1.OA.2</b> Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p> <p><b>Understand and apply properties of operations and the relationship between addition and subtraction.</b></p> <p><b>1.OA.3</b> Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.) <i>Examples: If <math>8 + 3 = 11</math> is known, then <math>3 + 8 = 11</math> is also known. (Commutative property of addition.) To add <math>2 + 6 + 4</math>, the second two numbers can be added to make a ten, so <math>2 + 6 + 4 = 2 + 10 = 12</math>. (Associative property of addition.)</i></p> <p><b>1.OA.4</b> Understand subtraction as an unknown-addend problem. <i>For example, subtract <math>10 - 8</math> by finding the number that makes 10 when added to 8.</i></p>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p><b>Add and subtract within 20.</b><sup>23</sup></p> <p><b>1.OA.6</b> Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., <math>8 + 6 = 8 + 2 + 4 = 10 + 4 = 14</math>); decomposing a number leading to a ten (e.g., <math>13 - 4 = 13 - 3 - 1 = 10 - 1 = 9</math>); using the relationship between addition and subtraction (e.g., knowing that <math>8 + 4 = 12</math>, one knows <math>12 - 8 = 4</math>); and creating equivalent but easier or known sums (e.g., adding <math>6 + 7</math> by creating the known equivalent <math>6 + 6 + 1 = 12 + 1 = 13</math>).</p> <p><b>Understand place value.</b><sup>24</sup></p> <p><b>1.NBT.2</b> Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <ol style="list-style-type: none"> <li>10 can be thought of as a bundle of ten ones—called a “ten.”</li> <li>The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</li> </ol>
<p><b>Module 3:</b> <b>Ordering and Comparing Length Measurements as Numbers</b> (15 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b><sup>25</sup></p> <p><b>1.OA.1</b> Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Measure lengths indirectly and by iterating length units.</b></p> <p><b>1.MD.1</b> Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p>

<sup>23</sup> From this point forward, fluency practice is part of students’ on-going experience; the balance of this cluster is addressed in Module 1.

<sup>24</sup> Focus in this module is on numbers to 20. The balance of this cluster is addressed in Modules 4 and 6.

<sup>25</sup> The balance of this cluster is addressed in Module 2.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p><b>1.MD.2</b> Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. <i>Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i></p> <p><b>Represent and interpret data.</b></p> <p><b>1.MD.4</b> Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p>
<p><b>Module 4:</b> <b>Place Value, Comparison, Addition and Subtraction to 40</b><sup>26</sup> (35 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b><sup>27</sup></p> <p><b>1.OA.1</b> Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Extend the counting sequence.</b><sup>28</sup></p> <p><b>1.NBT.1</b> Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</p> <p><b>Understand place value.</b><sup>29</sup></p> <p><b>1.NBT.2</b> Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <ol style="list-style-type: none"> <li>10 can be thought of as a bundle of ten ones—called a “ten.”</li> </ol>

<sup>26</sup> While pennies and dimes are used throughout the module, 1.MD.3 is not a focus grade level standard in Module 4. Instead, this standard becomes a focal standard in Module 6, when all coins are introduced and used.

<sup>27</sup> The balance of this cluster is addressed in Module 2.

<sup>28</sup> Focus on numbers to 40.

<sup>29</sup> Focus on numbers to 40; 1.NBT.2b is addressed in Module 2.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p>c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</p> <p><b>1.NBT.3</b> Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, and <math>&lt;</math>.</p> <p><b>Use place value understanding and properties of operations to add and subtract.</b><sup>30</sup></p> <p><b>1.NBT.4</b> Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p> <p><b>1.NBT.5</b> Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</p> <p><b>1.NBT.6</b> Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p>
<p><b>Module 5:</b> <b>Identifying, Composing, and Partitioning Shapes</b> (15 days)</p>	<p><b>Tell and write time and money.</b><sup>31</sup></p> <p><b>1.MD.3</b> Tell and write time in hours and half-hours using analog and digital clocks. Recognize and identify coins, their names, and their value.</p> <p><b>Reason with shapes and their attributes.</b></p> <p><b>1.G.1</b> Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</p>

<sup>30</sup> Focus on numbers to 40.

<sup>31</sup> Time alone is addressed in this module. Although money is not addressed until Grade 2 in the CCSS-M, it is addressed in Grade 1 Module 6.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p><b>1.G.2</b> Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as “right rectangular prism.”)</p> <p><b>1.G.3</b> Partition circles and rectangles into two and four equal shares, describe the shares using the words <i>halves</i>, <i>fourths</i>, and <i>quarters</i>, and use the phrases <i>half of</i>, <i>fourth of</i>, and <i>quarter of</i>. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.</p>
<p><b>Module 6:</b> <b>Place Value, Comparison, Addition and Subtraction to 100</b> (35 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b><sup>32</sup></p> <p><b>1.OA.1</b> Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Extend the counting sequence.</b></p> <p><b>1.NBT.1</b> Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</p> <p><b>Understand place value.</b><sup>33</sup></p> <p><b>1.NBT.2</b> Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</p> <ol style="list-style-type: none"> <li>10 can be thought of as a bundle of ten ones—called a “ten.”</li> <li>The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</li> </ol>

<sup>32</sup> The balance of this cluster is addressed in Module 2.

<sup>33</sup> 1.NBT.2b is addressed in Module 2.



Module and Approximate Number of Instructional Days	Standards Addressed in Grade 1 Modules
	<p><b>1.NBT.3</b> Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, and <math>&lt;</math>.</p> <p><b>Use place value understanding and properties of operations to add and subtract.</b></p> <p><b>1.NBT.4</b> Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p> <p><b>1.NBT.5</b> Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count: explain the reasoning used.</p> <p><b>1.NBT.6</b> Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p> <p><b>Tell and write time and money.</b><sup>34</sup></p> <p><b>1.MD.3</b> Tell and write time in hours and half-hours using analog and digital clocks. Recognize and identify coins, their names, and their value.</p>

<sup>34</sup> Although money is not addressed until Grade 2 in the CCSS-M, money is addressed in this module. Time is addressed in Module 5.

## Sequence of Grade 2 Modules Aligned with the Standards

Module 1: Sums and Differences to 100

Module 2: Addition and Subtraction of Length Units

Module 3: Place Value, Counting, and Comparison of Numbers to 1,000

Module 4: Addition and Subtraction Within 200 with Word Problems to 100

Module 5: Addition and Subtraction Within 1,000 with Word Problems to 100

Module 6: Foundations of Multiplication and Division

Module 7: Problem Solving with Length, Money, and Data

Module 8: Time, Shapes, and Fractions as Equal Parts of Shapes

### Summary of Year

Grade 2 mathematics is about (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

**Key Areas of Focus for K–2:** Addition and subtraction—concepts, skills, and problem solving

**Required Fluency:**

2.OA.2	Add and subtract within 20.
2.NBT.5	Add and subtract within 100.

### Major Emphasis Clusters

#### Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.

#### Number and Operations in Base Ten

- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

#### Measurement and Data

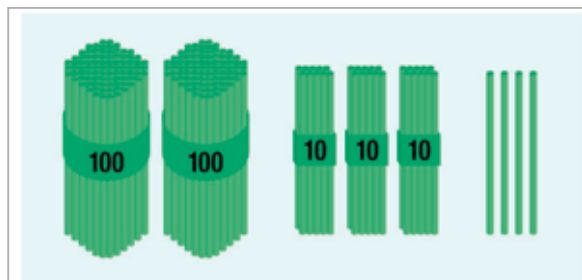
- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.

### Rationale for Module Sequence in Grade 2

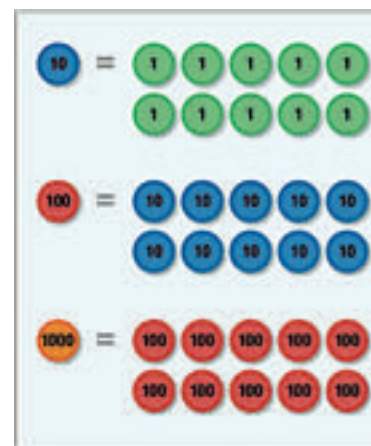
From Grade 1, students have fluency of addition and subtraction within 10 and extensive experience working with numbers to 100. Module 1 of Grade 2 establishes a motivating, differentiated fluency program in the first few weeks that will provide each student with enough practice to achieve mastery of the new required fluencies (i.e., adding and subtracting within 20 and within 100) by the end of the year. Students also solve all addition and subtraction word problem situations (See the Standards Glossary, Table 1) that do not involve comparison using the Read-Draw-Write process, a practice that will also continue throughout the year. Though encouraged to use math drawings that are intuitive for them, each situation is also modeled using the tape diagram, encouraging students to generalize and analyze part–whole relationships.

In Module 2, students learn to measure and estimate using standard units for length and solve measurement problems involving addition and subtraction of length, now encountering the word problem situations involving comparison. A major objective is for students to use measurement tools with the understanding that linear measure involves an iteration of units and that the smaller a unit, the more iterations are necessary to cover a given length. Students work exclusively with metric units (e.g., centimeters and meters) in this module to support upcoming work with place value concepts in Module 3. Units also play a central role in the addition and subtraction algorithms of Modules 4 and 5. An underlying goal for this module is for students to learn the meaning of a *unit* in a different context, that of length. This understanding serves as the foundation of arithmetic, measurement, and geometry in elementary school. Students also solve word problems involving all addition and subtraction comparison situations, so that by the end of Module 2, they have encountered the full set of situations.

All arithmetic algorithms are manipulations of place value units: ones, tens, hundreds, etc. In Module 3, students extend their understanding of base-ten notation and apply their understanding of place value to count and compare numbers to 1,000. In Grade 2, the place value units move from a proportional model to a non-proportional number disk model (see the pictures below). The place value table with number disks can be used through Grade 5 for modeling very large numbers and decimals, thus providing students greater facility with, and understanding of, mental math and algorithms.



Proportional Model for Place Value



Non-Proportional Model for Place Value

In Module 4, students apply their work with place value units to add and subtract within 200, moving from concrete to pictorial to abstract. This work deepens their understanding of base ten, place value, and the properties of operations. It also challenges them to apply their knowledge to one-step and two-step word problems. During this module, students also continue to develop one of the required fluencies of the grade: addition and subtraction within 100.

Module 5 builds upon the work of Module 4. Students again use place value strategies, manipulatives, and math drawings to extend their conceptual understanding of the addition and subtraction algorithms to numbers within 1,000. They maintain addition and subtraction fluency within 100 through daily application work to solve one- and two-step word problems of all types. A key component of Modules 4 and 5 is that students use place value reasoning to explain why their addition and subtraction strategies work.

In Module 6, students extend their understanding of a unit to build the foundation for multiplication and division wherein any number, not just powers of ten, can be a unit. Making equal groups of *four apples each* establishes the unit *four apples* (or just *four*) that can then be counted: *1 four, 2 fours, 3 fours*, etc. Relating the new unit to the one used to create it lays the foundation for multiplication: *3 groups of 4 apples equal 12 apples* (or *3 fours is 12*).

Module 7 provides another opportunity for students to practice their algorithms and problem-solving skills with perhaps the most well-known, interesting units of all: dollars, dimes, pennies, quarters, and nickels. Measuring and estimating length is revisited in this module in the context of units from both the customary system (e.g., inches and feet) and the metric system (e.g., centimeters and meters). As they study money and length, students represent data given by measurement and money data using picture graphs, bar graphs, and line plots.

Students finish Grade 2 by describing and analyzing shapes in terms of their sides and angles. In Module 8, students investigate, describe, and reason about the composition and decomposition of shapes to form other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Alignment Chart<sup>35</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
<p><b>Module 1:</b> <b>Sums and Differences to 100</b> (10 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b><sup>36</sup></p> <p><b>2.OA.1</b> Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Add and subtract within 20.</b><sup>37</sup></p> <p><b>2.OA.2</b> Fluently add and subtract within 20 using mental strategies. (See standard 1.OA.6 for a list of mental strategies.) By end of Grade 2, know from memory all sums of two one-digit numbers.</p> <p><b>Use place value understanding and properties of operations to add and subtract.</b><sup>38</sup></p> <p><b>2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>
<p><b>Module 2:</b> <b>Addition and Subtraction of Length Units</b> (12 days)</p>	<p><b>Measure and estimate lengths in standard units.</b><sup>39</sup></p> <p><b>2.MD.1</b> Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p><b>2.MD.2</b> Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p> <p><b>2.MD.3</b> Estimate lengths using units of inches, feet, centimeters, and meters.</p>

<sup>35</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>36</sup> In this module, word problems focus primarily on result unknown and change unknown situations.

<sup>37</sup> From this point forward, fluency practice with addition and subtraction to 20 is part of students' ongoing experience.

<sup>38</sup> This standard is addressed again in Modules 4 and 7; the balance of this cluster is addressed in Modules 4 and 5.

<sup>39</sup> Focus is on metric measurement in preparation for place value in Module 3. Customary measurement is addressed in Module 7.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
	<p><b>2.MD.4</b> Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p><b>Relate addition and subtraction to length.</b></p> <p><b>2.MD.5</b> Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p> <p><b>2.MD.6</b> Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.</p>
<p><b>Module 3:</b>  <b>Place Value, Counting, and Comparison of Numbers to 1,000</b>            (25 days)</p>	<p><b>Understand place value.</b></p> <p><b>2.NBT.1</b> Understand that the three digits of a three-digit number represent amounts of hundreds, tens and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <ol style="list-style-type: none"> <li>100 can be thought of as a bundle of ten tens—called a “hundred.”</li> <li>The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</li> </ol> <p><b>2.NBT.2</b> Count within 1000; skip-count by 5s<sup>40</sup>, 10s, and 100s.</p> <p><b>2.NBT.3</b> Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p><b>2.NBT.4</b> Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p>

<sup>40</sup> Use an analog clock to provide a context for skip-counting by fives.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
<p><b>Module 4:</b> <b>Addition and Subtraction Within 200 with Word Problems to 100</b> (35 days)</p>	<p><b>Represent and solve problems involving addition and subtraction.</b></p> <p><b>2.OA.1</b> Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 1.)</p> <p><b>Use place value understanding and properties of operations to add and subtract.<sup>41</sup></b></p> <p><b>2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><b>2.NBT.6</b> Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p><b>2.NBT.7</b> Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> <p><b>2.NBT.8</b> Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p> <p><b>2.NBT.9</b> Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)</p>
<p><b>Module 5:</b> <b>Addition and Subtraction Within 1,000 with Word Problems to 100</b> (24 days)</p>	<p><b>Use place value understanding and properties of operations to add and subtract.<sup>42</sup></b></p> <p><b>2.NBT.7</b> Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is</p>

<sup>41</sup> In this module, work is limited to within 200. This work is extended to numbers within 1,000 in the next module.

<sup>42</sup> The balance of this cluster is addressed in Modules 1, 4, and 7.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
	<p>necessary to compose or decompose tens or hundreds.</p> <p><b>2.NBT.8</b> Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p> <p><b>2.NBT.9</b> Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)</p>
<p><b>Module 6:</b> <b>Foundations of Multiplication and Division</b> (24 days)</p>	<p><b>Work with equal groups of objects to gain foundations for multiplication.</b></p> <p><b>2.OA.3</b> Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s: write an equation to express an even number as a sum of two equal addends.</p> <p><b>2.OA.4</b> Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.</p> <p><b>Reason with shapes and their attributes.</b><sup>43</sup></p> <p><b>2.G.2</b> Partition a rectangle into rows and columns of same size squares and count to find the total number of them.</p>
<p><b>Module 7:</b> <b>Problem Solving with Length, Money, and Data</b> (30 days)</p>	<p><b>Use place value understanding and properties of operations to add and subtract.</b><sup>44</sup></p> <p><b>2.NBT.5</b> Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><b>Measure and estimate lengths in standard units.</b></p> <p><b>2.MD.1</b> Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p>

<sup>43</sup> 2.G.2 is included in this module because the array model is so important to the foundation for multiplication. The balance of this cluster is addressed in Module 8.

<sup>44</sup> This standard is also addressed in Modules 1 and 4; the balance of this cluster is addressed in Modules 4 and 5.



Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
	<p><b>2.MD.2</b> Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p> <p><b>2.MD.3</b> Estimate lengths using units of inches, feet, centimeters, and meters.</p> <p><b>2.MD.4</b> Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p><b>Relate addition and subtraction to length.</b></p> <p><b>2.MD.5</b> Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p> <p><b>2.MD.6</b> Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.</p> <p><b>Work with time and money.</b><sup>45</sup></p> <p><b>2.MD.8</b> Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i></p> <p><b>Represent and interpret data.</b></p> <p><b>2.MD.9</b> Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.</p> <p><b>2.MD.10</b> Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems (See Standards Glossary, Table 1.) using information presented in a bar graph.</p>

<sup>45</sup> Focus on money. Time is addressed in Module 8.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 2 Modules
<p><b>Module 8:</b>  <b>Time, Shapes, and Fractions as Equal Parts of Shapes</b>            (20 days)</p>	<p><b>Work with time and money.</b><sup>46</sup></p> <p><b>2.MD.7</b> Tell time and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p> <p><b>Reason with shapes and their attributes.</b><sup>47</sup></p> <p><b>2.G.1</b> Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. (Sizes are compared directly or visually, not compared by measuring.) Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.</p> <p><b>2.G.3</b> Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves</i>, <i>thirds</i>, <i>half of</i>, <i>a third of</i>, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.</p>

<sup>46</sup> Focus on time. Money is addressed in Module 7.

<sup>47</sup> 2.G.2 is addressed in Module 6.

## Sequence of Grade 3 Modules Aligned with the Standards

Module 1: Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10

Module 2: Place Value and Problem Solving with Units of Measure

Module 3: Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10

Module 4: Multiplication and Area

Module 5: Fractions as Numbers on the Number Line

Module 6: Collecting and Displaying Data

Module 7: Geometry and Measurement Word Problems

### Summary of Year

Grade 3 mathematics is about (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with a numerator of 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

**Key Areas of Focus for 3–5:** Multiplication and division of whole numbers and fractions—concepts, skills, and problem solving

**Required Fluency:** 3.OA.7 Multiply and divide within 100.  
3.NBT.2 Add and subtract within 1000.

### Major Emphasis Clusters

#### Operations and Algebraic Thinking

- Represent and solve problems involving multiplication and division.
- Understand the properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations and identify and explain patterns in arithmetic.

#### Number and Operations—Fractions

- Develop understanding of fractions as numbers.

#### Measurement and Data

- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

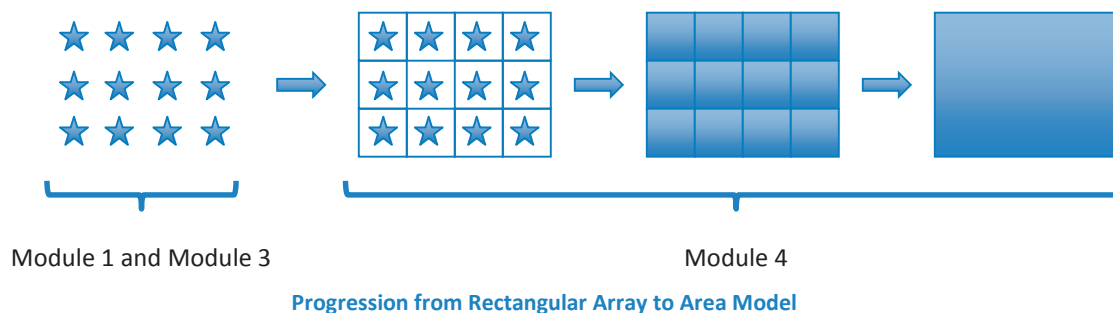
### Rationale for Module Sequence in Grade 3

The first module builds upon the foundation of multiplicative thinking with units started in Grade 2. First, students concentrate on the meaning of multiplication and division and begin developing fluency for learning products involving factors of 2, 3, 4, 5, and 10 (see Key Areas of Focus and

Required Fluency above). The restricted set of facts keeps learning manageable, and also provides enough examples to do one- and two-step word problems and to start measurement problems involving weight, capacity, and time in the second module.

Module 2 focuses on measurement of time and metric weight and capacity. In exploratory lessons, students decompose a kilogram into 100 gram, 10 gram, and 1 gram weights and decompose a liter into analogous amounts of milliliters. Metric measurement thereby develops the concept of mixed units (e.g., 3 kilograms 400 grams is clearly related to 3 thousands, 4 hundreds). Students then apply their new understanding of number to place value, comparison and rounding, composing larger units when adding, decomposing into smaller units when subtracting. Students also draw proportional tape diagrams to solve word problems (e.g., “If this tape represents 62 kg, then a tape representing 35 kg needs to be slightly longer than half the 62 kg bar ...”). Drawing the relative sizes of the lengths involved in the model prepares students to locate fractions on a number line in Module 5 (where they learn to locate points on the number line relative to each other and relative to the whole unit). Module 2 also provides students with internalization time for learning the 2, 3, 4, 5, and 10 facts as part of their fluency activities.

Students learn the remaining multiplication and division facts in Module 3 as they continue to develop their understanding of multiplication and division strategies within 100 and use those strategies to solve two-step word problems. The “2, 3, 4, 5, and 10 facts” module (Module 1) and the “0, 1, 6, 7, 8, 9, and multiples of 10 facts” module (Module 3) both provide important, sustained time for work in understanding the structure of rectangular arrays to prepare students for area in Module 4. This work is necessary because students initially find it difficult to distinguish the different units in a grid (the third array in the picture below), count them, and recognize that the count is related to multiplication. Tiling also supports a correct interpretation of the grid. Modules 1 and 3 slowly build up to the area model (the fourth model in the picture below), using rectangular arrays in the context of learning multiplication and division:



By Module 4, students are ready to investigate area. They measure the area of a shape by finding the total number of same-size units of area (e.g., tiles) required to cover the shape without gaps or overlaps. When that shape is a rectangle with whole number side lengths, it is easy to partition the rectangle into squares with equal areas (as in the third stage of the illustration above).

One goal of Module 5 is for students to transition from thinking of fractions as area or parts of a figure to points on a number line and finally, as numbers. To make that jump, students think of fractions as being constructed out of unit fractions: *1 fourth* is the length of a segment on the number line such that the length of four concatenated fourth segments on the line equals 1 (the whole). Once the unit *1 fourth* has been established, counting them is as easy as counting whole numbers: 1 fourth, 2 fourths, 3 fourths, 4 fourths, 5 fourths, etc. Students also compare fractions, find equivalent fractions in special cases, and solve problems that involve fractions. They realize that equivalent fractions share the same point on the number line.

In Module 6, by applying their knowledge of fractions from Module 5, students round lengths to the nearest halves and fourths of an inch and record that information on line plots. This module also prepares students for the multiplicative comparison problems of Grade 4 by asking students “how many more” and “how many less” questions about scaled bar graphs.

The year rounds out with plenty of time to solve two-step word problems involving the four operations and to improve fluency for concepts and skills initiated earlier in the year. In Module 7, students also describe, analyze, and compare properties of two-dimensional shapes. By now, students have done enough work with both linear and area measurement models to understand that there is no relationship in general between the area of a figure and its perimeter, which is one of the concepts taught in the last module.

### Alignment Chart<sup>48</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
<b>Module 1:</b> <b>Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10</b> (25 days)	<b>Represent and solve problems involving multiplication and division.<sup>49</sup></b>  <b>3.OA.1</b> Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</i>  <b>3.OA.2</b> Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i>

<sup>48</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>49</sup> In this module, work is limited to factors of 2–5 and 10 and the corresponding dividends.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<p><b>3.OA.3</b> Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 2.)</p> <p><b>3.OA.4</b> Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \_ \div 3</math>, <math>6 \times 6 = ?</math></i></p> <p><b>Understand properties of multiplication and the relationship between multiplication and division.<sup>50</sup></b></p> <p><b>3.OA.5</b> Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)<sup>51</sup></i></p> <p><b>3.OA.6</b> Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i></p> <p><b>Multiply and divide within 100.<sup>52</sup></b></p> <p><b>3.OA.7</b> Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that <math>8 \times 5 = 40</math>, one knows <math>40 \div 5 = 8</math>) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p><b>Solve problems involving the four operations, and identify and explain patterns in arithmetic.<sup>53</sup></b></p> <p><b>3.OA.8</b> Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard</p>

<sup>50</sup> In this module, work is limited to factors of 2–5 and 10 and the corresponding dividends.

<sup>51</sup> The associative property is addressed in Module 3.

<sup>52</sup> In this module, work is limited to factors of 2–5 and 10 and the corresponding dividends.

<sup>53</sup> In this module, problem solving is limited to multiplication and division and limited to factors of 2–5 and 10 and the corresponding dividends. 3.OA.9 is addressed in Module 3.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<p>is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)</p>
<p><b>Module 2:</b> <b>Place Value and Problem Solving with Units of Measure</b> (25 days)</p>	<p><b>Use place value understanding and properties of operations to perform multi-digit arithmetic.</b><sup>54</sup></p> <p><b>3.NBT.1</b> Use place value understanding to round whole numbers to the nearest 10 or 100.</p> <p><b>3.NBT.2</b> Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><b>Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</b></p> <p><b>3.MD.1</b> Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.</p> <p><b>3.MD.2</b> Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as <math>\text{cm}^3</math> and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems, i.e., problems involving notions of “times as much”; see Standards Glossary, Table 2.)</p>

<sup>54</sup> From this point forward, fluency practice with addition and subtraction is part of students’ on-going experience. 3.NBT.3 is addressed in Module 3.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
<p><b>Module 3:</b>  <b>Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10</b>            (25 days)</p>	<p><b>Represent and solve problems involving multiplication and division.</b><sup>55</sup></p> <p><b>3.OA.3</b> Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Standards Glossary, Table 2.)</p> <p><b>3.OA.4</b> Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \underline{\quad} \div 3</math>, <math>6 \times 6 = ?</math></i></p> <p><b>Understand properties of multiplication and the relationship between multiplication and division.</b><sup>56</sup></p> <p><b>3.OA.5</b> Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)</i></p> <p><b>Multiply and divide within 100.</b><sup>57</sup></p> <p><b>3.OA.7</b> Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that <math>8 \times 5 = 40</math>, one knows <math>40 \div 5 = 8</math>) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p><b>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</b><sup>58</sup></p> <p><b>3.OA.8</b> Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students</p>

<sup>55</sup> The balance of this cluster is addressed in Module 1.

<sup>56</sup> The balance of this cluster is addressed in Module 1.

<sup>57</sup> From this point forward, fluency practice with multiplication and division facts is part of students' on-going experience.

<sup>58</sup> After being fully taught in Module 3, this standard (as well as 3.OA.3) continues being practiced throughout the remainder of the school year.



Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<p>should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)</p> <p><b>3.OA.9</b> Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i></p> <p><b>Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)</b><sup>59</sup></p> <p><b>3.NBT.3</b> Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., <math>9 \times 80</math>, <math>5 \times 60</math>) using strategies based on place value and properties of operations.</p>
<p><b>Module 4:</b> <b>Multiplication and Area</b> (20 days)</p>	<p><b>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</b></p> <p><b>3.MD.5</b> Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <ol style="list-style-type: none"> <li>A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</li> <li>A plane figure which can be covered without gaps or overlaps by <math>n</math> unit squares is said to have an area of <math>n</math> square units.</li> </ol> <p><b>3.MD.6</b> Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).</p> <p><b>3.MD.7</b> Relate area to the operations of multiplication and addition.</p> <ol style="list-style-type: none"> <li>Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.</li> <li>Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</li> </ol>

<sup>59</sup> The balance of this cluster is addressed in Module 2.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<ul style="list-style-type: none"> <li>c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths <math>a</math> and <math>b + c</math> is the sum of <math>a \times b</math> and <math>a \times c</math>. Use area models to represent the distributive property in mathematical reasoning.</li> <li>d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.</li> </ul>
<p><b>Module 5:</b>  <b>Fractions as Numbers on the Number Line</b>            (35 days)</p>	<p><b>Develop understanding of fractions as numbers. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)</b></p> <ul style="list-style-type: none"> <li><b>3.NF.1</b> Understand a fraction <math>1/b</math> as the quantity formed by 1 part when a whole is partitioned into <math>b</math> equal parts; understand a fraction <math>a/b</math> as the quantity formed by <math>a</math> parts of size <math>1/b</math>.</li> <li><b>3.NF.2</b> Understand a fraction as a number on the number line; represent fractions on a number line diagram.               <ul style="list-style-type: none"> <li>a. Represent a fraction <math>1/b</math> on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into <math>b</math> equal parts. Recognize that each part has size <math>1/b</math> and that the endpoint of the part based at 0 locates the number <math>1/b</math> on the number line.</li> <li>b. Represent a fraction <math>a/b</math> on a number line diagram by marking off <math>a</math> lengths <math>1/b</math> from 0. Recognize that the resulting interval has size <math>a/b</math> and that its endpoint locates the number <math>a/b</math> on the number line.</li> </ul> </li> <li><b>3.NF.3</b> Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.               <ul style="list-style-type: none"> <li>a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.</li> <li>b. Recognize and generate simple equivalent fractions, e.g., <math>1/2 = 2/4</math>, <math>4/6 = 2/3</math>. Explain why the fractions are equivalent, e.g., by using a visual fraction model.</li> </ul> </li> </ul>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<p>c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. <i>Examples: Express 3 in the form <math>3 = 3/1</math>; recognize that <math>6/1 = 6</math>; locate <math>4/4</math> and 1 at the same point of a number line diagram.</i></p> <p>d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><b>Reason with shapes and their attributes.</b><sup>60</sup></p> <p><b>3.G.2</b> Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area and describe the area of each part as <math>\frac{1}{4}</math> of the area of the shape.</p>
<p><b>Module 6:</b> <b>Collecting and Displaying Data</b> (10 days)</p>	<p><b>Represent and interpret data.</b></p> <p><b>3.MD.3</b> Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two- step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p> <p><b>3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.</p>
<p><b>Module 7:</b> <b>Geometry and Measurement Word Problems</b><sup>61</sup> (40 days)</p>	<p><b>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</b><sup>62</sup></p> <p><b>3.OA.8</b> Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard</p>

<sup>60</sup> 3.G.1 is addressed in Module 7.

<sup>61</sup> The seemingly eclectic set of standards in Module 7 allows for a new level of word problems, including perimeter and measurement word problems.

<sup>62</sup> 3.OA.9 is addressed in Module 3.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 3 Modules
	<p>is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)</p> <p><b>Represent and interpret data.</b><sup>63</sup></p> <p><b>3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.</p> <p><b>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</b></p> <p><b>3.MD.8</b> Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.</p> <p><b>Reason with shapes and their attributes.</b><sup>64</sup></p> <p><b>3.G.1</b> Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p>

<sup>63</sup> 3.MD.3 is addressed in Module 6.

<sup>64</sup> 3.G.2 is addressed in Module 5.

## Sequence of Grade 4 Modules Aligned with the Standards

Module 1: Place Value, Rounding, and Algorithms for Addition and Subtraction

Module 2: Unit Conversions and Problem Solving with Metric Measurement

Module 3: Multi-Digit Multiplication and Division

Module 4: Angle Measure and Plane Figures

Module 5: Fraction Equivalence, Ordering, and Operations

Module 6: Decimal Fractions

Module 7: Exploring Measurement with Multiplication

### Summary of Year

Grade 4 mathematics is about (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

**Key Areas of Focus for 3–5:** Multiplication and division of whole numbers and fractions—concepts, skills, and problem solving

**Required Fluency:** 4.NBT.4 Add and subtract within 1,000,000.

Major Emphasis Clusters
<p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> <li>Use the four operations with whole numbers to solve problems.</li> </ul>
<p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> <li>Generalize place value understanding for multi-digit whole numbers.</li> <li>Use place value understanding and properties of operations to perform multi-digit arithmetic.</li> </ul>
<p>Number and Operations—Fractions</p> <ul style="list-style-type: none"> <li>Extend understanding of fraction equivalence and ordering.</li> <li>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</li> <li>Understand decimal notation for fractions, and compare decimal fractions.</li> </ul>

### Rationale for Module Sequence in Grade 4

In Grade 4, students extend their work with whole numbers. They begin with large numbers using familiar units (tens and hundreds) and develop their understanding of thousands by building knowledge of the pattern of *times ten* in the base-ten system on the place value chart (**4.NBT.1**). In

Grades 2 and 3, students focused on developing the concept of composing and decomposing place value units within the addition and subtraction algorithms. Now, in Grade 4, those (de)compositions are seen through the lens of multiplicative comparison (e.g., 1 thousand is 10 times as much as 1 hundred). They next apply their broadened understanding of patterns on the place value chart to compare, round, add, and subtract. The addition and subtraction algorithms are then efficient and useful applications of students' knowledge of and skill with composing and decomposing higher value units. The module culminates with solving multi-step word problems involving addition and subtraction modeled with tape diagrams that focus on numerical relationships.

The algorithms continue to play a part in Module 2 as students relate place value units to metric units. This module helps students draw similarities between:

1 ten	= 10 ones
1 hundred	= 10 tens
1 hundred	= 100 ones
1 meter	= 100 centimeters
1 thousand	= 1,000 ones
1 kilometer	= 1,000 meters
1 kilogram	= 1,000 grams
1 liter	= 1,000 milliliters

Students work with metric measurement in the context of the addition and subtraction algorithms, mental math, place value, and word problems. Customary units are used as a context for fractions in Modules 5 and 7.

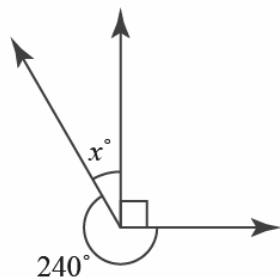
In Module 3, measurement of perimeter and area provide the concrete foundation behind the distributive property in the multiplication algorithm:  $4 \times (1 \text{ m } 2 \text{ cm})$  can be modeled concretely using ribbon, since it is easy to see the 4 copies of 1 meter and the 4 copies of 2 centimeters. Likewise,  $4 \times (1 \text{ ten } 2 \text{ ones}) = 4 \text{ tens } 8 \text{ ones}$ . Students next use place value disks to develop efficient procedures and the algorithms for multiplying and dividing one-digit whole numbers. They understand and explain why the procedures work, and connections are made between the area model and work on the place value chart. Two-digit by two-digit multiplication is then modeled using the area model, extending students' earlier experiences with measurement and the distributive property. Students also solve word problems throughout the module where they select and accurately apply appropriate methods to estimate, mentally calculate, or use written strategies to compute products and quotients.

Module 4 focuses as much on solving unknown angle problems using letters and equations as it does on building, drawing, and analyzing two-dimensional shapes in geometry. Students have already used letters and equations to solve word problems in earlier grades. They continue to do so in Grade 4, and now they also learn to solve unknown angle problems: work that challenges students to build and solve equations to find unknown angle measures. First, students learn the definition of degree and learn how to measure angles in degrees using a circular protractor. From the definition of degree and the fact that angle measures are additive, the following rudimentary facts about angles naturally follow:

1. The sum of angle measurements around a point is 360 degrees.
2. The sum of angle measurements on a line is 180 degrees.

Hence, from 1 and 2, students see that vertical angles are equal. Armed only with these facts, students are able to generate and solve equations as in the following problem:

Find the unknown angle  $x$ .



$$x + 240 + 90 = 360$$

$$x + 330 = 360$$

$$x = 30$$

The unknown angle is 30 degrees.

Unknown angle problems help to unlock algebraic concepts for students because such problems are visual. The  $x$  clearly stands for a specific number. If a student wished, he could place a protractor down on that angle and measure it to find  $x$ . But doing so destroys the joy of deducing the answer and solving the puzzle on his own.

Module 5 centers on equivalent fractions and operations with fractions. We use fractions when there is a given unit, the *whole unit*, but we want to measure using a smaller unit, called the *fractional unit*. To prepare students to explore the relationship between a fractional unit and its whole unit, examples of such relationships in different contexts were already carefully established earlier in the year:

360 degrees in	1 complete turn
100 centimeters in	1 meter
1000 grams in	1 kilogram
1000 milliliters in	1 liter

The beauty of fractional units, once defined and understood, is that they behave just as all other units do:

- “3 fourths + 5 fourths = 8 fourths” just as “3 meters + 5 meters = 8 meters”
- “ $4 \times 3$  fourths = 12 fourths” just as “ $4 \times 3$  meters = 12 meters”

Students add and subtract fractions with like units using the area model and the number line. They multiply a fraction by a whole number where the interpretation is as repeated addition (e.g., 3 fourths + 3 fourths =  $2 \times 3$  fourths). Through this introduction to fraction arithmetic they gradually come to understand fractions as units they can manipulate, just like whole numbers. Throughout the module, customary units of measurement provide a relevant context for the arithmetic.

Module 6, on decimal fractions, starts with the realization that decimal place value units are simply special fractional units: 1 tenth =  $1/10$ , 1 hundredth =  $1/100$ , etc. Fluency plays an important role in this topic as students learn to relate  $3/10 = 0.3 = 3$  tenths. They also recognize that 3 tenths is equal to 30 hundredths and subsequently have their first experience adding and subtracting fractions with unlike units (e.g., 3 tenths + 4 hundredths = 30 hundredths + 4 hundredths).

The year ends with a module focused on multiplication and measurement, as they solve multi-step word problems. Exploratory lessons support conceptual understanding of the relative sizes of measurement units. Students explore conversion in hands-on settings and subsequently apply those conversions to solve multi-step word problems involving all operations and multiplicative comparison.

### Alignment Chart<sup>65</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
<b>Module 1:</b> <b>Place Value, Rounding, and Algorithms for Addition and Subtraction</b> (25 days)	<b>Use the four operations with whole numbers to solve problems.</b> <sup>66</sup>  <b>4.OA.3</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

<sup>65</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>66</sup> The balance of this cluster is addressed in Modules 3 and 7.



Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p><b>Generalize place value understanding for multi-digit whole numbers. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)</b></p> <p><b>4.NBT.1</b> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</i></p> <p><b>4.NBT.2</b> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>4.NBT.3</b> Use place value understanding to round multi-digit whole numbers to any place.</p> <p><b>Use place value understanding and properties of operations to perform multi-digit arithmetic.<sup>67</sup></b></p> <p><b>4.NBT.4</b> Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>
<p><b>Module 2:</b> <b>Unit Conversions and Problem Solving with Metric Measurement</b> (7 days)</p>	<p><b>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.<sup>68</sup></b></p> <p><b>4.MD.1</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>

<sup>67</sup> From this point forward, fluency practice is part of students' on-going experience. The balance of this cluster is addressed in Module 3.

<sup>68</sup> The focus of this module is on the metric system to reinforce place value, mixed units, and word problems with unit conversions. Decimal and fraction word problems wait until Modules 6 and 7. 4.MD.3 is addressed in Module 3.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
<p><b>Module 3:</b> <b>Multi-Digit Multiplication and Division</b> (43 days)</p>	<p><b>Use the four operations with whole numbers to solve problems.</b></p> <p><b>4.OA.1</b> Interpret a multiplication equation as a comparison, e.g., interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p><b>4.OA.2</b> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. (See Standards Glossary, Table 2.)</p> <p><b>4.OA.3</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>Gain familiarity with factors and multiples.</b></p> <p><b>4.OA.4</b> Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p><b>Use place value understanding and properties of operations to perform multi-digit arithmetic. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)<sup>69</sup></b></p> <p><b>4.NBT.5</b> Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p><b>4.NBT.6</b> Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the</p>

<sup>69</sup> 4.NBT.4 is addressed in Module 1 and is then reinforced throughout the year.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p>relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p> <p><b>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</b><sup>70</sup></p> <p><b>4.MD.3</b> Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p>
<p><b>Module 4:</b> <b>Angle Measure and Plane Figures</b> (20 days)</p>	<p><b>Geometric measurement: understand concepts of angle and measure angles.</b></p> <p><b>4.MD.5</b> Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</p> <ol style="list-style-type: none"> <li>An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through <math>\frac{1}{360}</math> of a circle is called a “one-degree angle,” and can be used to measure angles.</li> <li>An angle that turns through <math>n</math> one-degree angles is said to have an angle measure of <math>n</math> degrees.</li> </ol> <p><b>4.MD.6</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p> <p><b>4.MD.7</b> Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.</p>

<sup>70</sup> 4.MD.1 is addressed in Modules 2 and 7; 4.MD.2 is addressed in Modules 2, 6, and 7.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p><b>Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</b></p> <p><b>4.G.1</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p><b>4.G.2</b> Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p><b>4.G.3</b> Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>
<p><b>Module 5:</b> <b>Fraction Equivalence, Ordering, and Operations</b><sup>71</sup> (45 days)</p>	<p><b>Generate and analyze patterns.</b></p> <p><b>4.OA.5</b> Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p> <p><b>Extend understanding of fraction equivalence and ordering. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)</b></p> <p><b>4.NF.1</b> Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p><b>4.NF.2</b> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole.</p>

<sup>71</sup> Tenths and hundredths are important fractions in this module, represented in decimal form in Module 6.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p>Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</p> <p><b>Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.</b></p> <p><b>4.NF.3</b> Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</p> <ol style="list-style-type: none"> <li>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</li> <li>Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. <i>Examples:</i> <math>3/8 = 1/8 + 1/8 + 1/8</math>; <math>3/8 = 1/8 + 2/8</math>; <math>2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>.</li> <li>Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</li> <li>Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</li> </ol> <p><b>4.NF.4</b> Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <ol style="list-style-type: none"> <li>Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>. <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></li> <li>Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></li> </ol>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat <math>\frac{3}{8}</math> of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p> <p><b>Represent and interpret data.</b></p> <p><b>4.MD.4</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i></p>
<p><b>Module 6:</b> <b>Decimal Fractions</b> (20 days)</p>	<p><b>Understand decimal notation for fractions, and compare decimal fractions. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.)<sup>72</sup></b></p> <p><b>4.NF.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.) <i>For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</i></p> <p><b>4.NF.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as <math>\frac{62}{100}</math>; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p><b>4.NF.7</b> Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</p>

<sup>72</sup> In this module, we continue to work with fractions, now including decimal form.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p><b>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.<sup>73</sup></b></p> <p><b>4.MD.2</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>
<p><b>Module 7:</b> <b>Exploring Measurement with Multiplication</b> (20 days)</p>	<p><b>Use the four operations with whole numbers to solve problems.</b></p> <p><b>4.OA.1</b> Interpret a multiplication equation as a comparison, e.g., interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p><b>4.OA.2</b> Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. (See Standards Glossary, Table 2.)</p> <p><b>4.OA.3</b> Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><b>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.<sup>74</sup></b></p> <p><b>4.MD.1</b> Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a</p>

<sup>73</sup> 4.MD.1 is addressed in Modules 2 and 7; 4.MD.3 is addressed in Module 3.

<sup>74</sup> The focus now is on customary units in word problems for application of fraction concepts. 4.MD.3 is addressed in Module 3.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 4 Modules
	<p>larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p><b>4.MD.2</b> Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>



## Sequence of Grade 5 Modules Aligned with the Standards

Module 1: Place Value and Decimal Fractions

Module 2: Multi-Digit Whole Number and Decimal Fraction Operations

Module 3: Addition and Subtraction of Fractions

Module 4: Multiplication and Division of Fractions and Decimal Fractions

Module 5: Addition and Multiplication with Volume and Area

Module 6: Problem Solving with the Coordinate Plane

### Summary of Year

Grade 5 mathematics is about (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to two-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

**Key Areas of Focus for 3–5:** Multiplication and division of whole numbers and fractions—concepts, skills, and problem solving

**Required Fluency:** 5.NBT.5 Multi-digit multiplication.

### Major Emphasis Clusters

#### Number and Operations in Base Ten

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

#### Number and Operations—Fractions

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

#### Measurement and Data

- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

### Rationale for Module Sequence in Grade 5

Students' experiences with the algorithms as ways to manipulate place value units in Grades 2–4 really begin to pay dividends in Grade 5. In Module 1, whole number patterns with number disks on the place value chart are easily generalized to decimal numbers. As students work word problems with measurements in the metric system, where the same patterns occur, they begin to appreciate the value and the meaning of decimals. Students apply their work with place value to adding, subtracting, multiplying, and dividing decimal numbers with tenths and hundredths.

Module 2 begins by using place value patterns and the distributive and associative properties to multiply multi-digit numbers by multiples of 10 and leads to fluency with multi-digit whole number multiplication.<sup>75</sup> For multiplication, students must grapple with and fully understand the distributive property (one of the key reasons for teaching the multi-digit algorithm). While the multi-digit multiplication algorithm is a straightforward generalization of the one-digit multiplication algorithm, the division algorithm with two-digit divisors requires far more care to teach because students have to also learn estimation strategies, error correction strategies, and the idea of successive approximation (all of which are central concepts in math, science, and engineering).

Work with place value units paves the path toward fraction arithmetic in Module 3 as elementary math's place value emphasis shifts to the larger set of fractional units for algebra. Like units are added to and subtracted from like units:

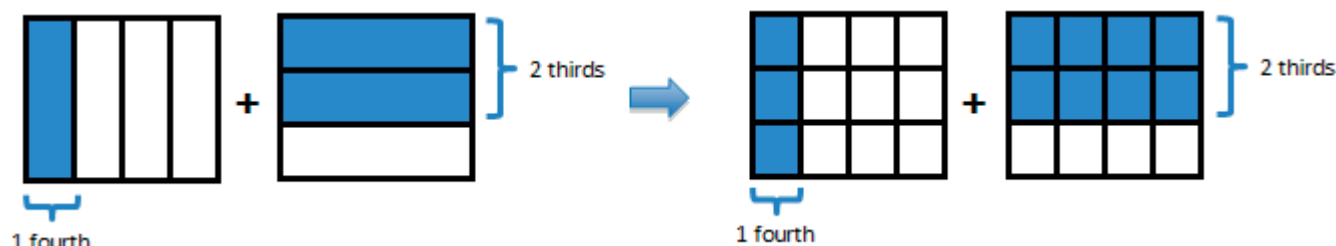
$$1.5 + 0.8 = 1\frac{5}{10} + \frac{8}{10} = 15 \text{ tenths} + 8 \text{ tenths} = 23 \text{ tenths} = 2 \text{ and } 3 \text{ tenths} = 2\frac{3}{10} = 2.3$$

$$1\frac{5}{9} + \frac{8}{9} = 14 \text{ ninths} + 8 \text{ ninths} = 22 \text{ ninths} = 2 \text{ and } 4 \text{ ninths} = 2\frac{4}{9}$$

The new complexity is that when units are not equivalent, they must be changed for smaller equal units so that they can be added or subtracted. Probably the best model for showing this is the rectangular fraction model pictured below. The equivalence is then represented symbolically as students engage in active meaning-making rather than obeying the perhaps mysterious command to “multiply the top and bottom by the same number.”

1 boy + 2 girls = 1 child + 2 children = 3 children

1 fourth + 2 thirds = 3 twelfths + 8 twelfths = 11 twelfths

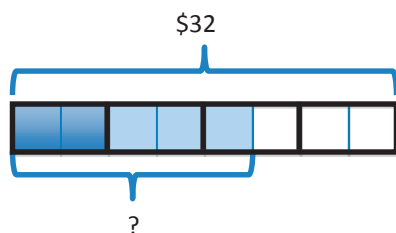


$$\frac{1}{4} + \frac{2}{3} = \left(\frac{1 \times 3}{4 \times 3}\right) + \left(\frac{2 \times 4}{3 \times 4}\right) = \frac{3}{12} + \frac{8}{12} = \frac{11}{12}$$

<sup>75</sup> Multi-digit decimal multiplication such as  $4.1 \times 3.4$  and division such as  $4.5 \div 1.5$  are studied in Module 4.

Relating different fractional units to one another requires extensive work with area and number line diagrams whereas tape diagrams are used often in word problems. Tape diagrams, which students began using in the early grades and which become increasingly useful as students applied them to a greater variety of word problems, hit their full strength as a model when applied to fraction word problems. At the heart of a tape diagram is the now-familiar idea of forming units. In fact, forming units to solve word problems is one of the most powerful examples of the unit theme and is particularly helpful for understanding fraction arithmetic, as in the following example:

Jill had \$32. She gave  $\frac{1}{4}$  of her money to charity and  $\frac{3}{8}$  of her money to her brother. How much did she give altogether?



Solution with units:

$$\begin{aligned} 8 \text{ units} &= \$32 \\ 1 \text{ unit} &= \$4 \\ 5 \text{ units} &= \$20 \end{aligned}$$

Solution with arithmetic:

$$\begin{aligned} \frac{1}{4} + \frac{3}{8} &= \frac{2}{8} + \frac{3}{8} = \frac{5}{8} \\ \frac{5}{8} \times 32 &= 20 \end{aligned}$$

Jill gave \$20 altogether.

Near the end of Module 4, students know enough about fractions and whole number operations to begin to explore multi-digit decimal multiplication and division. In multiplying  $2.1 \times 3.8$ , for example, students now have multiple skills and strategies that they can use to locate the decimal point in the final answer, including:

- Unit awareness:  $2.1 \times 3.8 = 21 \text{ tenths} \times 38 \text{ tenths} = 798 \text{ hundredths}$
- Estimation (through rounding):  $2.1 \times 3.8 \approx 2 \times 4 = 8$ , so  $2.1 \times 3.8 = 7.98$
- Fraction multiplication:  $\frac{21}{10} \times \frac{38}{10} = 21 \times \frac{1}{10} \times 38 \times \frac{1}{10} = 21 \times 38 \times \frac{1}{100} = \frac{798}{100}$

Similar strategies enrich students' understanding of division and help them to see multi-digit decimal division as whole number division in a different unit. For example, we divide to find, "How many groups of 3 apples are there in 45 apples?" and write  $45 \text{ apples} \div 3 \text{ apples} = 15$ . Similarly,  $4.5 \div 0.3$  can be written as  $45 \text{ tenths} \div 3 \text{ tenths}$  with the same answer: *There are 15 groups of 0.3 in 4.5*. This idea was used to introduce fraction division earlier in the module, thus gluing division to whole numbers, fractions, and decimals together through an understanding of units.

Frequent use of the area model in Modules 3 and 4 prepares students for an in-depth discussion of area and volume in Module 5. But the module on area and volume also reinforces work done in the fraction module. Now, questions about how the area changes when a rectangle is scaled by a whole or fractional scale factor may be asked, and missing fractional sides may be found. Measuring volume once again highlights the unit theme, as a unit cube is chosen to represent a volume unit and used to measure the volume of simple shapes composed of rectangular prisms.

In this final module of *A Story of Units*, students connect plane geometry with numerical work to investigate relationships. They construct the coordinate plane, plot points and draw lines. For points on a given line, students discover a common relationship between the  $x$  and  $y$  coordinates, foreshadowing the proportional reasoning of Grade 6, and later, the slope of a line.

### Alignment Chart<sup>76</sup>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
<p><b>Module 1:</b>  <b>Place Value and Decimal Fractions</b>            (20 days)</p>	<p><b>Understand the place value system.</b></p> <p><b>5.NBT.1</b> Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and <math>1/10</math> of what it represents in the place to its left.</p> <p><b>5.NBT.2</b> Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.</p> <p><b>5.NBT.3</b> Read, write, and compare decimals to thousandths.</p> <p>a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., <math>347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)</math>.</p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><b>5.NBT.4</b> Use place value understanding to round decimals to any place.</p> <p><b>Perform operations with multi-digit whole numbers and with decimals to hundredths.<sup>77</sup></b></p> <p><b>5.NBT.7</b> Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p>

<sup>76</sup> When a cluster is referred to in this chart without a footnote, the cluster is addressed in its entirety.

<sup>77</sup> This standard is addressed again in Modules 2 and 4; the balance of this cluster is addressed in Module 2.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>Convert like measurement units within a given measurement system.<sup>78</sup></b></p> <p><b>5.MD.1</b> Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p>
<p><b>Module 2:</b> <b>Multi-Digit Whole Number and Decimal Fraction Operations</b> (35 days)</p>	<p><b>Write and interpret numerical expressions.<sup>79</sup></b></p> <p><b>5.OA.1</b> Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</p> <p><b>5.OA.2</b> Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as <math>2 \times (8 + 7)</math>. Recognize that <math>3 \times (18932 + 921)</math> is three times as large as <math>18932 + 921</math>, without having to calculate the indicated sum or product.</i></p> <p><b>Understand the place value system.<sup>80</sup></b></p> <p><b>5.NBT.1</b> Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.</p> <p><b>5.NBT.2</b> Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.</p> <p><b>Perform operations with multi-digit whole numbers and with decimals to hundredths.</b></p> <p><b>5.NBT.5</b> Fluently multiply multi-digit whole numbers using the standard algorithm.<sup>81</sup></p> <p><b>5.NBT.6</b> Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using</p>

<sup>78</sup> The focus of this module is on the metric system to reinforce place value and writing measurements using mixed units.

<sup>79</sup> These skills are also applied to fractions in this module.

<sup>80</sup> The balance of this cluster is addressed in Module 1.

<sup>81</sup> From this point forward, fluency practice is part of students’ on-going experience.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p>equations, rectangular arrays, and/or area models.</p> <p><b>5.NBT.7</b> Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.<sup>82</sup></p> <p><b>Convert like measurement units within a given measurement system.</b></p> <p><b>5.MD.1</b> Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p>
<p><b>Module 3:</b> <b>Addition and Subtraction of Fractions</b> (22 days)</p>	<p><b>Use equivalent fractions as a strategy to add and subtract fractions.</b><sup>83</sup></p> <p><b>5.NF.1</b> Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. <i>For example, <math>2/3 + 5/4 = 8/12 + 15/12 = 23/12</math>. (In general, <math>a/b + c/d = (ad + bc)/bd</math>.)</i></p> <p><b>5.NF.2</b> Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. <i>For example, recognize an incorrect result <math>2/5 + 1/2 = 3/7</math>, by observing that <math>3/7 &lt; 1/2</math>.</i></p>
<p><b>Module 4:</b> <b>Multiplication and Division of Fractions and Decimal Fractions</b> (38 days)</p>	<p><b>Write and interpret numerical expressions.</b></p> <p><b>5.OA.1</b> Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</p>

<sup>82</sup> Focus on decimal multiplication of a single-digit, whole number factor times a multi-digit number with up to 2 decimal places (e.g.,  $3 \times 64.98$ ). Restrict decimal division to a single-digit whole number divisor with a multi-digit dividend with up to 2 decimal places (e.g.,  $64.98 \div 3$ ). The balance of the standard is addressed in Module 4.

<sup>83</sup> Examples in this module also include tenths and hundredths in fraction and decimal form.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>5.OA.2</b> Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as <math>2 \times (8 + 7)</math>. Recognize that <math>3 \times (18932 + 921)</math> is three times as large as <math>18932 + 921</math>, without having to calculate the indicated sum or product.</i></p> <p><b>Perform operations with multi-digit whole numbers and with decimals to hundredths.</b><sup>84</sup></p> <p><b>5.NBT.7</b> Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p> <p><b>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</b><sup>85</sup></p> <p><b>5.NF.3</b> Interpret a fraction as division of the numerator by the denominator (<math>a/b = a \div b</math>). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. <i>For example, interpret <math>3/4</math> as the result of dividing 3 by 4, noting that <math>3/4</math> multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size <math>3/4</math>. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</i></p> <p><b>5.NF.4</b> Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.</p> <p>a. Interpret the product <math>(a/b) \times q</math> as a parts of a partition of <math>q</math> into <math>b</math> equal parts; equivalently, as the result of a sequence of operations <math>a \times q \div b</math>. <i>For example, use a visual fraction model to show <math>(2/3) \times 4 = 8/3</math>, and create a story context for this equation. Do the same with <math>(2/3) \times (4/5) = 8/15</math>. (In general, <math>(a/b) \times (c/d) = ac/bd</math>.)</i></p>

<sup>84</sup> The balance of this cluster is addressed in Module 2. Teach problems such as  $2.7 \times 2.1$  and  $4.5 \div 1.5$ . See the Progression Document “K–5, Number and Operations in Base Ten” pp. 17–18 ([http://commoncoretools.files.wordpress.com/2011/04/ccss\\_progression\\_nbt\\_2011\\_04\\_073.pdf](http://commoncoretools.files.wordpress.com/2011/04/ccss_progression_nbt_2011_04_073.pdf)).

<sup>85</sup> 5.NF.4b is addressed in Module 5. Include problems involving decimal fractions throughout the cluster.

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>5.NF.5</b> Interpret multiplication as scaling (resizing), by:</p> <ol style="list-style-type: none"> <li>Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</li> <li>Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence <math>a/b = (n \times a)/(n \times b)</math> to the effect of multiplying <math>a/b</math> by 1.</li> </ol> <p><b>5.NF.6</b> Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.</p> <p><b>5.NF.7</b> Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.)</p> <ol style="list-style-type: none"> <li>Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. <i>For example, create a story context for <math>(1/3) \div 4</math>, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that <math>(1/3) \div 4 = 1/12</math> because <math>(1/12) \times 4 = 1/3</math>.</i></li> <li>Interpret division of a whole number by a unit fraction, and compute such quotients. <i>For example, create a story context for <math>4 \div (1/5)</math>, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that <math>4 \div (1/5) = 20</math> because <math>20 \times (1/5) = 4</math>.</i></li> <li>Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. <i>For example, how much chocolate will each person get if 3 people share <math>1/2</math> lb of chocolate equally? How many <math>1/3</math>-cup servings are in 2 cups of raisins?</i></li> </ol>



Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>Convert like measurement units within a given measurement system.<sup>86</sup></b></p> <p><b>5.MD.1</b> Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p> <p><b>Represent and interpret data.</b></p> <p><b>5.MD.2</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p>
<p><b>Module 5:</b> <b>Addition and Multiplication with Volume and Area</b> (25 days)</p>	<p><b>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.<sup>87</sup></b></p> <p><b>5.NF.4</b> Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.</p> <p>b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.</p> <p><b>5.NF.6</b> Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.</p>

<sup>86</sup> The focus of 5.MD.1 in this module is on the customary system of units as a means of introducing fractions (e.g., 1 inch is  $\frac{1}{12}$  foot, 1 foot is  $\frac{1}{3}$  yard).

<sup>87</sup> The balance of this cluster is addressed in Module 4. In this module, 5.NF.4b is applied to multiplying to find volume and area. 5.NF.4b includes decimal fraction side lengths of sides of a rectangle (in both fraction and decimal form).

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</b></p> <p><b>5.MD.3</b> Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <ol style="list-style-type: none"> <li>A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.</li> <li>A solid figure which can be packed without gaps or overlaps using <math>n</math> unit cubes is said to have a volume of <math>n</math> cubic units.</li> </ol> <p><b>5.MD.4</b> Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p> <p><b>5.MD.5</b> Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <ol style="list-style-type: none"> <li>Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.</li> <li>Apply the formulas <math>V = l \times w \times h</math> and <math>V = b \times h</math> for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.</li> <li>Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</li> </ol> <p><b>Classify two-dimensional figures into categories based on their properties.</b></p> <p><b>5.G.3</b> Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. <i>For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</i></p>

Module and Approximate Number of Instructional Days	Standards Addressed in Grade 5 Modules
	<p><b>5.G.4</b> Classify two-dimensional figures in a hierarchy based on properties.</p>
<p><b>Module 6:</b>  <b>Problem Solving with the Coordinate Plane</b>            (40 days)</p>	<p><b>Write and interpret numerical expressions.</b></p> <p><b>5.OA.2</b> Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as <math>2 \times (8 + 7)</math>. Recognize that <math>3 \times (18932 + 921)</math> is three times as large as <math>18932 + 921</math>, without having to calculate the indicated sum or product.</i></p> <p><b>Analyze patterns and relationships.</b></p> <p><b>5.OA.3</b> Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i></p> <p><b>Graph points on the coordinate plane to solve real-world and mathematical problems.</b></p> <p><b>5.G.1</b> Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p> <p><b>5.G.2</b> Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p>

<b>Module 1</b> Ratios, Rates, and Percents	<b>Module 2</b> Operations with Fractions and Multi-Digit Numbers	<b>Module 3</b> Rational Numbers	<b>Module 4</b> Expressions and One-Step Equations	<b>Module 5</b> Area, Surface Area, and Volume	<b>Module 6</b> Statistics
<p><b>Topic A: Ratios</b></p> <p><b>Lesson 1: Jars of Jelly Beans</b></p> <ul style="list-style-type: none"> <li>Use multiplicative reasoning to estimate the solution to a real-world problem.</li> </ul> <p><b>6.RP.A.3, MP3, 6.Mod1.AD3</b></p> <p><b>Lesson 2: Introduction to Ratios</b></p> <ul style="list-style-type: none"> <li>Write ratios that relate two quantities as an ordered pair of numbers.</li> <li>Use ratio language to compare two quantities.</li> </ul> <p><b>6.RP.A.1, MP2, 6.Mod1.AD1</b></p> <p><b>Lesson 3: Ratios and Tape Diagrams</b></p> <ul style="list-style-type: none"> <li>Write multiple ratios to describe the same situation.</li> <li>Represent ratios with tape diagrams.</li> </ul> <p><b>6.RP.A.1, 6.RP.A.3, MP6, 6.Mod1.AD1, 6.Mod1.AD3</b></p> <p><b>Lesson 4: Exploring Ratios by Making Batches</b></p> <ul style="list-style-type: none"> <li>Create ratios by making batches of different quantities.</li> <li>Use tape diagrams to determine unknown quantities in ratios.</li> </ul>	<p><b>Topic A: Factors, Multiples, and Divisibility</b></p> <p><b>Lesson 1: Factors and Multiples</b></p> <ul style="list-style-type: none"> <li>Use visual models to determine common factors and common multiples of pairs of numbers.</li> </ul> <p><b>6.NS.B.4, MP8, 6.Mod2.AD12, 6.Mod2.AD13</b></p> <p><b>Lesson 2: Divisibility</b></p> <ul style="list-style-type: none"> <li>Determine whether numbers are divisible by other numbers.</li> </ul> <p><b>6.NS.B.4, MP3, 6.Mod2.AD12, 6.Mod2.AD13</b></p> <p><b>Lesson 3: The Greatest Common Factor</b></p> <ul style="list-style-type: none"> <li>Determine the greatest common factor of two whole numbers less than or equal to 100.</li> </ul> <p><b>6.NS.B.4, MP7, 6.Mod2.AD12</b></p> <p><b>Lesson 4: The Least Common Multiple</b></p> <ul style="list-style-type: none"> <li>Find the least common multiple of two whole numbers less than or equal to 12.</li> </ul> <p><b>6.NS.B.4, MP6, 6.Mod2.AD13</b></p>	<p><b>Topic A: Integers and Rational Numbers</b></p> <p><b>Lesson 1: Positive and Negative Numbers</b></p> <ul style="list-style-type: none"> <li>Represent quantities in real-world situations by using positive and negative numbers.</li> <li>Plot positive numbers, negative numbers, and 0 on horizontal and vertical number lines.</li> </ul> <p><b>6.NS.C.5, MP2, 6.Mod3.AD1</b></p> <p><b>Lesson 2: Integers</b></p> <ul style="list-style-type: none"> <li>Plot integers and their opposites on horizontal and vertical number lines and identify 0 as its own opposite.</li> <li>Identify the opposite of the opposite of a number.</li> </ul> <p><b>6.NS.C.6.a, MP7, 6.Mod3.AD2, 6.Mod3.AD3</b></p> <p><b>Lesson 3: Rational Numbers</b></p> <ul style="list-style-type: none"> <li>Plot rational numbers on horizontal and vertical number lines.</li> <li>Identify the locations of rational numbers plotted on horizontal and vertical number lines.</li> </ul>	<p><b>Topic A: Numerical Expressions</b></p> <p><b>Lesson 1: Expressions with Addition and Subtraction</b></p> <ul style="list-style-type: none"> <li>Evaluate expressions with addition and subtraction.</li> </ul> <p><b>6.EE.A.1, MP6, 6.Mod4.AD3</b></p> <p><b>Lesson 2: Expressions with Multiplication and Division</b></p> <ul style="list-style-type: none"> <li>Evaluate expressions with multiplication and division.</li> </ul> <p><b>6.EE.A.1, MP7, 6.Mod4.AD3</b></p> <p><b>Lesson 3: Exploring Exponents</b></p> <ul style="list-style-type: none"> <li>Write numerical expressions by using exponential notation.</li> </ul> <p><b>6.EE.A.1, MP3, 6.Mod4.AD3</b></p> <p><b>Lesson 4: Evaluating Expressions with Exponents</b></p> <ul style="list-style-type: none"> <li>Evaluate numerical expressions written in exponential notation.</li> </ul> <p><b>6.EE.A.1, MP7, 6.Mod4.AD3</b></p>	<p><b>Topic A: Areas of Polygons</b></p> <p><b>Lesson 1: The Area of a Parallelogram</b></p> <ul style="list-style-type: none"> <li>Compose parallelograms into rectangles to derive the formula for the area of a parallelogram.</li> <li>Compute the area of a parallelogram by using the formula <math>A = bh</math>.</li> </ul> <p><b>6.EE.A.2.c, 6.G.A.1, MP8, 6.Mod4.AD6, 6.Mod5.AD1</b></p> <p><b>Lesson 2: The Area of a Right Triangle</b></p> <ul style="list-style-type: none"> <li>Compose two identical right triangles into a rectangle to derive the formula for the area of a right triangle.</li> <li>Compute the area of a right triangle by using the formula <math>A = \frac{1}{2}bh</math>.</li> </ul> <p><b>6.EE.B.7, 6.G.A.1, MP3, 6.Mod4.AD13, 6.Mod5.AD1, 6.Mod5.AD2</b></p> <p><b>Lesson 3: The Area of a Triangle</b></p> <ul style="list-style-type: none"> <li>Compose two identical triangles into a parallelogram to derive the formula for the area of a triangle.</li> <li>Compute the area of any triangle by using the formula <math>A = \frac{1}{2}bh</math>.</li> </ul>	<p><b>Topic A: Understanding Distributions</b></p> <p><b>Lesson 1: Posing Statistical Questions</b></p> <ul style="list-style-type: none"> <li>Identify and write statistical questions.</li> <li>Identify the types of data that can be collected to answer a statistical question.</li> </ul> <p><b>6.SP.A.1, 6.SP.B.5.b, MP6, 6.Mod6.AD1, 6.Mod6.AD6</b></p> <p><b>Lesson 2: Describing a Data Distribution</b></p> <ul style="list-style-type: none"> <li>Given a dot plot, describe the center, spread, and other characteristics of the data distribution.</li> </ul> <p><b>6.SP.A.2, 6.SP.B.5.a, MP2, 6.Mod6.AD2, 6.Mod6.AD5</b></p> <p><b>Lesson 3: Creating a Dot Plot</b></p> <ul style="list-style-type: none"> <li>Create a dot plot and describe a data distribution.</li> </ul> <p><b>6.SP.A.2, 6.SP.B.4, MP1, 6.Mod6.AD2, 6.Mod6.AD4</b></p>

## Module 1

6.RP.A.1, 6.RP.A.3, MP8,  
6.Mod1.AD1, 6.Mod1.AD3

### Lesson 5: Equivalent Ratios

- Find equivalent ratios by multiplying both numbers in a given ratio by the same nonzero number.
- Use equivalent ratios to find unknown quantities.

6.RP.A.1, 6.RP.A.3, MP2,  
6.Mod1.AD1, 6.Mod1.AD3

### Topic B: Collections of Equivalent Ratios

### Lesson 6: Ratio Tables and Double Number Lines

- Represent equivalent ratios by using ratio tables and double number lines.
- Use representations of ratio relationships to solve problems.

6.RP.A.3, 6.RP.A.3.a, MP7,  
6.Mod1.AD3, 6.Mod1.AD4

### Lesson 7: Graphs of Ratio Relationships

- Plot points in the coordinate plane that each represent a ratio.
- Identify characteristics of graphs, tables, and double number lines representing ratio relationships.

6.RP.A.3.a, MP2, 6.Mod1.AD4

### Lesson 8: Addition Patterns in Ratio Relationships

- Use addition patterns in tables and graphs of equivalent ratios to describe ratio relationships and find unknown quantities.

6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a,  
MP7, 6.Mod1.AD1, 6.Mod1.AD3,  
6.Mod1.AD4

## Module 2

### Lesson 5: The Euclidean Algorithm (Optional)

- Find the greatest common factor of large numbers by using the Euclidean algorithm.
- Find the least common multiple of large numbers by using the greatest common factor.

6.NS.B.4, MP7, 6.Mod2.AD12,  
6.Mod2.AD13

### Topic B: Dividing Fractions

### Lesson 6: Dividing a Whole Number by a Fraction

- Divide a whole number by a fraction by using tape diagrams and reasoning about division.

6.NS.A.1, MP2, 6.Mod2.AD4,  
6.Mod2.AD5, 6.Mod2.AD6

### Lesson 7: Dividing a Fraction by a Whole Number

- Divide a fraction by a whole number.
- Divide a mixed number by a whole number.

6.NS.A.1, MP1, 6.Mod2.AD4,  
6.Mod2.AD5, 6.Mod2.AD6

### Lesson 8: Dividing Fractions by Making Common Denominators

- Divide a fraction by a fraction by using a common denominator.
- Divide a mixed number by a fraction by using a common denominator.

6.NS.A.1, MP7, 6.Mod2.AD3,  
6.Mod2.AD4, 6.Mod2.AD6

### Topic C: Dividing Fractions Fluently

### Lesson 9: Dividing Fractions by Using Tape Diagrams

## Module 3

6.NS.C.6.a, 6.NS.C.6.c, MP3,  
6.Mod3.AD3, 6.Mod3.AD6

### Lesson 4: Rational Numbers in Real-World Situations

- Represent opposite quantities in real-world situations by using rational numbers.

6.NS.C.5, 6.NS.C.6.a, MP6,  
6.Mod3.AD1, 6.Mod3.AD2

### Topic B: Ordering and Magnitude

### Lesson 5: Comparing Rational Numbers

- Write and interpret statements of comparison about rational numbers.
- Compare rational numbers in real-world situations.

6.NS.C.7, 6.NS.C.7.a, 6.NS.C.7.b,  
MP3, 6.Mod3.AD8, 6.Mod3.AD9,  
6.Mod3.AD10

### Lesson 6: Ordering Rational Numbers

- Order rational numbers.
- Write, interpret, and explain statements of order for rational numbers in real-world situations.

6.NS.C.7, 6.NS.C.7.a, 6.NS.C.7.b,  
MP1, 6.Mod3.AD8, 6.Mod3.AD9,  
6.Mod3.AD10

### Lesson 7: Absolute Value

- Determine the absolute values of rational numbers.

6.NS.C.7.c, MP8, 6.Mod3.AD11,  
6.Mod3.AD12

### Lesson 8: Absolute Value and Order

## Module 4

### Lesson 5: Exploring Order of Operations

- Identify the relationships between operations and apply those relationships when evaluating expressions.

6.EE.A.1, MP6, 6.Mod4.AD3

### Lesson 6: Order of Operations

- Evaluate numerical expressions with exponents by using the conventional order of operations.

6.EE.A.1, MP1, 6.Mod4.AD3

### Topic B: Expressions and Real-World Problems

### Lesson 7: Algebraic Expressions with Addition and Subtraction

- Write algebraic expressions to represent descriptions involving addition and subtraction.
- Write descriptions of algebraic expressions involving addition and subtraction.

6.EE.A.2.a, 6.EE.A.2.b, MP8,  
6.Mod4.AD4, 6.Mod4.AD5

### Lesson 8: Algebraic Expressions with Addition, Subtraction, Multiplication, and Division

- Write algebraic expressions to represent descriptions involving addition, subtraction, multiplication, and division.
- Write descriptions of algebraic expressions involving addition, subtraction, multiplication, and division.

6.EE.A.2.a, 6.EE.A.2.b, 6.EE.A.2.c,  
MP6, 6.Mod4.AD4, 6.Mod4.AD5,  
6.Mod4.AD6

## Module 5

6.EE.A.2.c, 6.G.A.1, MP7,  
6.Mod4.AD6, 6.Mod5.AD1

### Lesson 4: Areas of Triangles in Real-World Situations

- Use composition or decomposition to write equivalent expressions that represent the area of a triangle.

- Solve real-world and mathematical problems involving the areas of triangles.

6.EE.A.3, 6.G.A.1, MP2,  
6.Mod4.AD7, 6.Mod5.AD1,  
6.Mod5.AD2

### Topic B: Problem Solving with Area

### Lesson 5: Perimeter and Area in the Coordinate Plane

- Determine the perimeters of rectangles and polygons graphed in the coordinate plane.
- Determine the areas of parallelograms, rectangles, and polygons graphed in the coordinate plane.

6.NS.C.8, 6.G.A.1, 6.G.A.3, MP7,  
6.Mod3.AD14, 6.Mod5.AD1,  
6.Mod5.AD5

### Lesson 6: Problem Solving with Area in the Coordinate Plane

- Determine the areas of triangles graphed in the coordinate plane.
- Determine the areas of polygons composed of triangles and parallelograms graphed in the coordinate plane.

6.EE.A.3, 6.G.A.1, 6.G.A.3, MP1,  
6.Mod4.AD7, 6.Mod5.AD1,  
6.Mod5.AD5

## Module 6

### Lesson 4: Creating a Histogram

- Use a frequency table to construct a frequency histogram for a data distribution.

6.SP.A.2, 6.SP.B.4, MP2,  
6.Mod6.AD2, 6.Mod6.AD4

### Lesson 5: Comparing Data Displays

- Identify the differences between bar graphs and histograms.
- Construct relative frequency histograms.

6.SP.B.4, 6.SP.B.5.b, MP5,  
6.Mod6.AD4, 6.Mod6.AD6

### Lesson 6: Selecting a Data Display

- Display data by using a dot plot or a histogram and describe the data distribution.

6.SP.A.1, 6.SP.B.4, MP5,  
6.Mod6.AD1, 6.Mod6.AD4

### Topic B: Mean and Mean Absolute Deviation

### Lesson 7: Using the Mean to Describe the Center

- Describe the center of a data distribution by using an equal share value called the mean.
- Connect the concept of equal shares with the mathematical formula for finding the mean.

6.SP.A.3, 6.SP.B.5.c, MP2,  
6.Mod6.AD3, 6.Mod6.AD7

### Lesson 8: The Mean as a Balance Point

- Describe the center of a distribution by using the mean and interpret the mean as a balance point.

6.SP.A.3, 6.SP.B.5.c, MP2,  
6.Mod6.AD3, 6.Mod6.AD7

## Module 1

### Lesson 9: Multiplication Patterns in Ratio Relationships

- Use graphs and tables to explore multiplication patterns in ratio relationships.
  - Use multiplication to complete ratio tables.
- 6.RP.A.3, 6.RP.A.3.a, MP7, 6.Mod1.AD3, 6.Mod1.AD4**

### Lesson 10: Multiplicative Reasoning in Ratio Relationships

- Write and use equivalent ratios when one of the numbers in the ratio is 1.
- 6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a, MP8, 6.Mod1.AD1, 6.Mod1.AD3, 6.Mod1.AD4**

### Lesson 11: Applications of Ratio Reasoning

- Solve multi-step ratio problems by reasoning about equivalent ratios.
- 6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a, MP1, 6.Mod1.AD1, 6.Mod1.AD3, 6.Mod1.AD4**

### Topic C: Comparing Ratio Relationships

#### Lesson 12: Multiple Ratio Relationships

- Compare ratio relationships by using graphs, tables, and double number lines.
- 6.RP.A.3.a, MP5, 6.Mod1.AD4, 6.Mod1.AD5**

#### Lesson 13: Comparing Ratio Relationships, Part 1

- Compare ratio relationships by using ratio tables.
- 6.RP.A.3.a, MP7, 6.Mod1.AD5**

## Module 2

- Use a tape diagram to divide a fraction by a fraction.
  - Relate division of a fraction by a fraction to an unknown factor problem.
- 6.NS.A.1, MP8, 6.Mod2.AD4, 6.Mod2.AD5, 6.Mod2.AD6**

### Lesson 10: Dividing Fractions by Using the Invert and Multiply Strategy

- Use the invert and multiply strategy to divide a fraction by a fraction.
- 6.NS.A.1, MP7, 6.Mod2.AD4, 6.Mod2.AD6**

### Lesson 11: Applications of Fraction Division

- Solve real-world problems by dividing fractions and mixed numbers.
- 6.NS.A.1, MP1, 6.Mod2.AD5**

### Lesson 12: Fraction Operations in a Real-World Situation

- Add, subtract, multiply, and divide fractions and mixed numbers to solve real-world problems.
- 6.NS.A.1, MP2, 6.Mod2.AD5**

### Topic D: Decimal Addition, Subtraction, and Multiplication

#### Lesson 13: Decimal Addition and Subtraction

- Add and subtract decimals by using the standard algorithms for each operation.
- 6.NS, 6.NS.B.3, MP5, 6.Mod2.AD2, 6.Mod2.AD9**

#### Lesson 14: Patterns in Multiplying Decimals

## Module 3

- Explain the relationship between the order of rational numbers and the order of their absolute values.
  - Order and compare the absolute values of rational numbers and the magnitudes of real-world quantities.
- 6.NS.C.7, 6.NS.C.7.d, MP2, 6.Mod3.AD8, 6.Mod3.AD13**

### Lesson 9: Interpreting Order and Distance in Real-World Situations

- Distinguish between comparisons of absolute value and statements of order in real-world situations.
  - Determine and interpret distance between rational numbers.
- 6.NS.C.7.d, MP1, 6.Mod3.AD13**

### Topic C: The Coordinate Plane

#### Lesson 10: The Four Quadrants of the Coordinate Plane

- Use ordered pairs to identify the locations of points in the coordinate plane.
  - Relate the signs of  $x$ - and  $y$ -coordinates to each of the four quadrants of the coordinate plane.
- 6.NS.C.6.b, MP7, 6.Mod3.AD4**

#### Lesson 11: Plotting Points in the Coordinate Plane

- Use ordered pairs to plot points in the coordinate plane.
- 6.NS.C.6.b, 6.NS.C.6.c, MP6, 6.Mod3.AD4, 6.Mod3.AD7**

#### Lesson 12: Reflections in the Coordinate Plane

- Graph points and their reflections in the coordinate plane.

## Module 4

### Lesson 9: Addition and Subtraction Expressions from Real-World Situations

- Define variables precisely.
  - Write algebraic expressions involving addition and subtraction to represent real-world situations.
- 6.EE.A.2.a, 6.EE.A.2.b, 6.EE.B.6, MP6, 6.Mod4.AD4, 6.Mod4.AD5, 6.Mod4.AD11**

### Lesson 10: Multiplication and Division Expressions from Real-World Situations

- Write and interpret algebraic expressions involving multiplication and division that represent real-world situations.
- 6.EE.B.6, MP2, 6.Mod4.AD11**

### Lesson 11: Modeling Real-World Situations with Expressions

- Write algebraic expressions with two terms to represent real-world situations
  - involving addition and multiplication.
- 6.EE.A.2.b, 6.EE.A.2.c, 6.EE.B.6, MP2, 6.Mod4.AD5, 6.Mod4.AD6, 6.Mod4.AD11**

### Topic C: Equivalent Expressions Using the Properties of Operations

#### Lesson 12: Applying Properties to Multiplication and Division Expressions

- Write and identify equivalent algebraic expressions involving multiplication and division by using the properties of operations.
- Write algebraic expressions that represent real-world situations.

## Module 5

### Lesson 7: Areas of Trapezoids and Other Polygons

- Calculate the areas of trapezoids and other polygons by using composition and decomposition.
  - Use composition or decomposition to write equivalent expressions for the areas of polygons.
- 6.EE.A.3, 6.EE.A.4, 6.G.A.1, MP3, 6.Mod4.AD7, 6.Mod4.AD8, 6.Mod5.AD1**

### Lesson 8: Areas of Composite Figures in Real-World Situations

- Determine the areas of real-world composite figures.
  - Solve problems in real-world situations involving rates and areas.
- 6.RP.A.3.b, 6.G.A.1, MP4, 6.Mod1.AD6, 6.Mod5.AD1, 6.Mod5.AD2**

### Topic C: Nets and Surface Area

#### Lesson 9: Properties of Solids

- Identify the shapes of the faces of right prisms and pyramids.
  - Name parallel and perpendicular edges and faces of solids.
- 6.G.A.4, MP6, 6.Mod5.AD6**

#### Lesson 10: Discovering Nets of Solids

- Represent solids by using nets composed of triangles and rectangles.
- 6.G.A.4, MP6, 6.Mod5.AD6**

#### Lesson 11: Constructing Nets of Solids

- Draw and label nets for three-dimensional objects.
- Determine the surface area of a solid by using its net.

## Module 6

### Lesson 9: Variability in a Data Distribution

- Describe a data distribution by using the mean and variability.
- 6.SP.A.2, 6.SP.A.3, MP2, 6.Mod6.AD2, 6.Mod6.AD3**

### Lesson 10: The Mean Absolute Deviation

- Calculate and interpret the mean absolute deviation for a data distribution.
- 6.SP.A.3, 6.SP.B.5.c, MP8, 6.Mod6.AD3, 6.Mod6.AD7**

### Lesson 11: Using the Mean and Mean Absolute Deviation

- Use the mean and mean absolute deviation to describe a data distribution.
- 6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7**

### Topic C: Median, Interquartile Range, and Box Plots

#### Lesson 12: Using the Median to Describe the Center

- Calculate and interpret the median of a data distribution.
- 6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7**

#### Lesson 13: Using the Interquartile Range to Describe Variability

- Calculate quartiles of a data distribution and describe the variability by using the interquartile range.
- 6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7**

## Module 1

**Lesson 14: Comparing Ratio Relationships, Part 2**

- Compare ratio relationships by creating equivalent ratios.

**6.RP.A.3.a, MP3, 6.Mod1.AD5**

**Lesson 15: The Value of the Ratio**

- Compare ratio relationships by using the value of the ratio.

**6.RP.A.2, 6.RP.A.3.a, MP6, 6.Mod1.AD2, 6.Mod1.AD5**

### Topic D: Rates

**Lesson 16: Speed**

- Find distance and time corresponding to a given speed.
- Identify real-world examples of rates and interpret their meanings in context.

**6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD4, 6.Mod1.AD6**

**Lesson 17: Rates**

- Identify rates and unit rates.
- Calculate one quantity when given another quantity and a constant rate.

**6.RP.A.2, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD6**

**Lesson 18: Comparing Rates**

- Compare rates with like units of measurement by using unit rate.

**6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD5, 6.Mod1.AD6**

**Lesson 19: Using Rates to Convert Units**

- Convert units of measurement by applying rate reasoning.

## Module 2

- Recognize and apply patterns in factors when multiplying whole numbers and decimals.

**6.NS.B.3, MP8, 6.Mod2.AD10**

**Lesson 15: Decimal Multiplication**

- Multiply decimals by using the standard algorithm.

**6.NS, 6.NS.B.3, MP6, 6.Mod2.AD2, 6.Mod2.AD10**

**Lesson 16: Applications of Decimal Operations**

- Create a model of a building and use decimal operations to calculate cost, revenue, and profit or loss.

**6.NS, MP4, 6.Mod2.AD2**

### Topic E: Division of Multi-Digit Numbers

**Lesson 17: Partial Quotients**

- Divide multi-digit whole numbers by using the partial quotients method, and express quotients as mixed numbers.

**6.NS.B, 6.NS.B.2 MP8, 6.Mod2.AD7, 6.Mod2.AD8**

**Lesson 18: The Standard Division Algorithm**

- Divide multi-digit whole numbers by using the standard algorithm.

**6.NS.B.2, MP7, 6.Mod2.AD8**

**Lesson 19: Expressing Quotients as Decimals**

- Divide multi-digit whole numbers by using the standard algorithm, and express quotients as decimals.

**6.NS.B.2, MP6, 6.Mod2.AD8**

**Lesson 20: Real-World Division Problems**

## Module 3

- Recognize that when two ordered pairs differ only by the sign of one or both coordinates, the locations of the points are related by reflections across one or both axes.

**6.NS.C.6.b, 6.NS.C.6.c, MP8, 6.Mod3.AD4, 6.Mod3.AD5, 6.Mod3.AD7**

**Lesson 13: Constructing the Coordinate Plane**

- Draw and label a coordinate plane, choosing a reasonable scale for a given set of points. Plot points and describe how a graph changes when the scale changes.

**6.NS.C.6.b, 6.NS.C.6.c, MP5, 6.Mod3.AD4, 6.Mod3.AD7**

**Lesson 14: Modeling with the Coordinate Plane**

- Create time graphs in the coordinate plane.
- Solve real-world problems by using time graphs.

**6.NS.C.8, MP4, 6.Mod3.AD14**

### Topic D: Solving Problems in the Coordinate Plane

**Lesson 15: Distance in the Coordinate Plane**

- Find the lengths of horizontal and vertical line segments with rational number coordinates as endpoints in the coordinate plane by counting the number of units between endpoints and by using absolute value.

**6.NS.C.6.c, 6.NS.C.8, MP8, 6.Mod3.AD7, 6.Mod3.AD14**

**Lesson 16: Figures in the Coordinate Plane**

## Module 4

**6.EE.A.2.c, 6.EE.A.3, 6.EE.A.4, MP3, 6.Mod4.AD6, 6.Mod4.AD7, 6.Mod4.AD8**

**Lesson 13: The Distributive Property**

- Use the distributive property to write the product of two factors as a sum or difference.

**6.NS.B.4, 6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD2, 6.Mod4.AD7, 6.Mod4.AD8**

**Lesson 14: Using the Distributive Property to Factor Expressions**

- Use the distributive property to write a sum or difference as the product of two factors.

**6.NS.B.4, 6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD2, 6.Mod4.AD7, 6.Mod4.AD8**

**Lesson 15: Combining Like Terms by Using the Distributive Property**

- Add and subtract like terms by using the distributive property.
- Write an algebraic expression that represents a geometric situation.

**6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD7, 6.Mod4.AD8**

**Lesson 16: Equivalent Algebraic Expressions**

- Write equivalent expressions by using the properties of operations and combining like terms.
- Write algebraic expressions that represent real-world situations.

**6.EE.A.3, 6.EE.A.4, 6.EE.B.6, MP2, 6.Mod4.AD7, 6.Mod4.AD8, 6.Mod4.AD11**

## Module 5

**6.G.A.4, MP7, 6.Mod5.AD6, 6.Mod5.AD7**

**Lesson 12: From Nets to Surface Area**

- Determine the surface area of a solid.
- Develop the surface area formula for right rectangular prisms and use it to calculate surface area.

**6.EE.A.2.c, 6.EE.A.4, 6.G.A.4, MP8, 6.Mod4.AD6, 6.Mod4.AD8, 6.Mod5.AD6**

**Lesson 13: Surface Area in Real-World Situations**

- Solve real-world problems involving rates and surface area of right prisms and pyramids.

**6.RP.A.3.b, 6.EE.A.2.c, 6.G.A.4, MP1, 6.Mod1.AD6, 6.Mod4.AD6, 6.Mod5.AD7**

**Lesson 14: Designing a Box**

- Design different boxes for a product and calculate each box's surface area.

**6.EE.A.2.c, 6.G.A.4, MP4, 6.Mod4.AD6, 6.Mod5.AD7**

### Topic D: Volumes of Right Rectangular Prisms

**Lesson 15: Exploring Volume**

- Find the volumes of right rectangular prisms that have fractional edge lengths by packing with cubes that have fractional edge lengths.

**6.G.A.2, MP7, 6.Mod5.AD3**

**Lesson 16: Applying Volume Formulas**

- Solve real-world and mathematical problems by applying the formulas  $V = lwh$  and  $V = Bh$  to find volumes of right rectangular prisms with fractional edge lengths.

## Module 6

**Lesson 14: Using a Box Plot to Summarize a Distribution**

- Describe a data distribution by using the five-number summary and the interquartile range.
- Construct and interpret a box plot from a five-number summary.

**6.SP.A.2, 6.SP.B.4, MP7, 6.Mod6.AD2, 6.Mod6.AD4**

**Lesson 15: More Practice with Box Plots**

- Construct and use box plots to analyze data distributions.

**6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4**

**Lesson 16: Interpreting Box Plots**

- Summarize a data distribution by using a box plot, the median, and the interquartile range.
- Use box plots to compare two data distributions.

**6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4**

### Topic D: Answering Statistical Questions by Analyzing Data

**Lesson 17: Developing a Statistical Project**

- Develop a statistical question to guide data collection.
- Develop a plan to collect a data set to answer a proposed statistical question.

**6.SP.A.1, 6.SP.B.5.b, MP4, 6.Mod6.AD1, 6.Mod6.AD6**

**Lesson 18: Connecting Graphical Representations and Summary Measures**

## Module 1

**6.RP.A.2, 6.RP.A.3.b, 6.RP.A.3.d, MP6, 6.Mod1.AD2, 6.Mod1.AD6, 6.Mod1.AD9**

### Lesson 20: Solving Rate Problems

- Apply rate reasoning to solve real-world ratio problems involving speed, unit pricing, and unit conversions.
- Find an unknown quantity when given a rate and a known quantity.

**6.RP.A.2, 6.RP.A.3.b, 6.RP.A.3.d, MP1, 6.Mod1.AD2, 6.Mod1.AD6, 6.Mod1.AD9**

### Topic E: Percents

#### Lesson 21: Solving Multi-Step Rate Problems

- Solve problems involving multiple constant rates.

**6.RP.A.3.b, 6.RP.A.3.d, MP4, 6.Mod1.AD6, 6.Mod1.AD9**

#### Lesson 22: Introduction to Percents

- Relate percents to a part-to-whole relationship where the whole is 100.
- Model percents and write percents in fraction and decimal forms.

**6.RP.A.3.c, MP8, 6.Mod1.AD7**

#### Lesson 23: Finding the Percent

- Calculate a percent when given a part and the whole.
- Discover that if multiple parts make a whole, then the percent representing each of the parts should total 100%.

**6.RP.A.3.c, MP8, 6.Mod1.AD7, 6.Mod1.AD8**

#### Lesson 24: Finding a Part

- Calculate a part when given the whole and a percent.

**6.RP.A.3.c, MP3, 6.Mod1.AD8**

## Module 2

- Create and solve real-world division problems.
- 6.NS, MP2, 6.Mod2.AD1**

### Topic F: Decimal Division

#### Lesson 21: Dividing a Decimal by a Whole Number

- Divide a decimal by a multi-digit whole number by using the standard division algorithm.

**6.NS.B.3, MP6, 6.Mod2.AD11**

#### Lesson 22: Dividing a Decimal by a Decimal Greater Than 1

- Divide a decimal by a decimal greater than 1 by using the standard algorithm.

**6.NS.B.3, MP3, 6.Mod2.AD11**

#### Lesson 23: Dividing a Decimal by a Decimal Less Than 1

- Divide a decimal by a decimal less than 1 by using the standard algorithm.
- Solve real-world problems by dividing a decimal by a decimal.

**6.NS.B.3, MP1, 6.Mod2.AD11**

#### Lesson 24: Living on Mars

- Solve real-world problems by performing operations with decimals.

**6.NS.B.3, MP1, 6.Mod2.AD2, 6.Mod2.AD11**

## Module 3

- Graph geometric figures in all four quadrants of the coordinate plane.
- Use distance and symmetry to solve geometric problems in the coordinate plane.

**6.NS.C.6.c, 6.NS.C.8, MP7, 6.Mod3.AD7, 6.Mod3.AD14**

#### Lesson 17: Problem Solving with the Coordinate Plane

- Solve geometric and real-world problems by using the coordinate plane.

**6.NS.C.6.c, 6.NS.C.8, MP1, 6.Mod3.AD7, 6.Mod3.AD14**

## Module 4

### Topic D: Equations and Inequalities

#### Lesson 17: Equations and Solutions

- Determine whether a number sentence is true.
- Determine whether a number is a solution to an equation by using substitution.

**6.EE.A.2.c, 6.EE.B.5, 6.EE.B.7, MP2, 6.Mod4.AD6, 6.Mod4.AD9, 6.Mod4.AD13**

#### Lesson 18: Inequalities and Solutions

- Represent solutions to inequalities on number lines.
- Identify whether a number is a solution to an inequality by using substitution.

**6.EE.B.5, 6.EE.B.8, MP2, 6.Mod4.AD10, 6.Mod4.AD14, 6.Mod4.AD15**

#### Lesson 19: Solving Equations with Addition and Subtraction

- Solve addition and subtraction equations by using tape diagrams and algebraic reasoning.

**6.EE.B.5, 6.EE.B.7, MP7, 6.Mod4.AD9, 6.Mod4.AD12**

#### Lesson 20: Solving Equations with Multiplication and Division

- Solve multiplication and division equations by using tape diagrams and algebraic reasoning.

**6.EE.B.5, 6.EE.B.7, MP6, 6.Mod4.AD9, 6.Mod4.AD12**

#### Lesson 21: Solving Problems with Equations

- Solve problems by writing and solving equations.

## Module 5

**6.EE.A.2.c, 6.G.A.2, MP3, 6.Mod4.AD6, 6.Mod5.AD3, 6.Mod5.AD4**

#### Lesson 17: Problem Solving with Volume

- Solve real-world and mathematical problems by applying ratio reasoning to find volumes of right rectangular prisms.

**6.EE.A.4, 6.G.A.2, MP8, 6.Mod4.AD8, 6.Mod5.AD4**

#### Lesson 18: Volumes of Composite Solids

- Determine the volumes of solids composed of right rectangular prisms.

**6.G.A.2, MP5, 6.Mod5.AD4**

#### Lesson 19: Volume and Surface Area in Real-World Situations

- Solve real-world problems that involve surface area and volume.

**6.G.A.2, 6.G.A.4, MP2, 6.Mod5.AD4, 6.Mod5.AD7**

## Module 6

- Find exact and approximate features of data distributions from data displays.
- Compare the effectiveness of data displays at communicating different features of data distributions.

**6.SP.A.2, 6.SP.B.5.c, MP3, 6.Mod6.AD2, 6.Mod6.AD7**

#### Lesson 19: Comparing Data Distributions

- Compare data distributions by using relative frequency histograms and box plots.

**6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4**

#### Lesson 20: Choosing a Measure of Center

- Choose a measure of center for a data distribution.
- Justify the choice of a measure of center based on the shape of the distribution and the context.

**6.SP.B.5.d, MD7, 6.Mod6.AD8**

#### Lesson 21: Comparing Measures of Variability

- Recognize measurement variability and its causes.
- Assess variability visually and by using the range, mean absolute deviation, and interquartile range.

**6.SP.B.5.b, 6.SP.B.5.c, MP6, 6.Mod6.AD6, 6.Mod6.AD7**

#### Lesson 22: Presenting Statistical Projects

- Present statistical projects that use the investigative process and critique the work of others by using the tools learned in this module.

**6.SP.A.3, 6.SP.B.4, MP4, 6.Mod6.AD3, 6.Mod6.AD4**



Module 1

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Module 6

**Lesson 25: Finding the Whole**  
• Calculate the whole when given a part and a percent.

**6.RP.A.3.c, MP1, 6.Mod1.AD8**

**Lesson 26: Solving Percent Problems**

• Solve multi-step percent problems.

**6.RP.A.3.c, MP1, 6.Mod1.AD7, 6.Mod1.AD8**



**6.EE.B.7, MP1, 6.Mod4.AD12, 6.Mod4.AD13**

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**Topic E: Relating Variables by Using Tables, Graphs, and Equations**

**Lesson 22: Relationship Between Two Variables**

- Represent a ratio relationship with a table and two-variable equation.
- Identify the independent and dependent variables in a real-world or mathematical situation.

**6.RP.A.3, 6.EE.C.9, MP3, 6.Mod4.AD1, 6.Mod4.AD16, 6.Mod4.AD17**

**Lesson 23: Graphs of Ratio Relationships**

- Analyze the relationship between the independent and dependent variables in the graph of a ratio relationship.
- Represent a ratio relationship with a table, graph, and two-variable equation.

**6.RP.A.3, 6.EE.C.9, MP5, 6.Mod4.AD1, 6.Mod4.AD16, 6.Mod4.AD17**

**Lesson 24: Graphs of Non-Ratio Relationships**

- Represent a real-world situation with a table, graph, and two-variable equation.
- Analyze the relationship between the variables in a real-world situation.

**6.EE.C.9, MP2, 6.Mod4.AD16, 6.Mod4.AD17**

**Lesson 25: The Statue of Liberty**

- Use tables, graphs, and equations to estimate the solution to a real-world problem.

**6.EE.C.9, MP4, 6.Mod1.AD16**

**Module 1**

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# Eureka Math<sup>2</sup> Year at a Glance

## 7: Ratios and Proportionality

<b>Module 1</b> Ratios and Proportional Relationships	<b>Module 2</b> Operations with Rational Numbers	<b>Module 3</b> Expressions, Equations, and Inequalities	<b>Module 4</b> Geometry	<b>Module 5</b> Percent and Applications of Percent	<b>Module 6</b> Probability and Populations
<p><b>Topic A: Understanding Proportional Relationships</b></p> <p><b>Lesson 1: An Experiment with Ratios and Rates</b></p> <ul style="list-style-type: none"> <li>Compare different relationships in situations by using ratio and rate reasoning.</li> </ul> <p><b>7.RP.A.1, 7.RP.A.2.a, MP8, 7.Mod1.AD1, 7.Mod1.AD2</b></p> <p><b>Lesson 2: Exploring Tables of Proportional Relationships</b></p> <ul style="list-style-type: none"> <li>Identify proportional relationships represented in tables by calculating constant unit rates.</li> </ul> <p><b>7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.c, MP2, 7.Mod1.AD1, 7.Mod1.AD2, 7.Mod1.AD4</b></p> <p><b>Lesson 3: Identifying Proportional Relationships in Tables</b></p> <ul style="list-style-type: none"> <li>Analyze tables to identify proportional relationships.</li> <li>Determine the unit rate associated with a ratio of fractions by evaluating a complex fraction.</li> </ul>	<p><b>Topic A: Adding Rational Numbers</b></p> <p><b>Lesson 1: Combining Opposites</b></p> <ul style="list-style-type: none"> <li>Represent positive and negative numbers on a number line.</li> <li>Recognize that opposite integers sum to zero.</li> </ul> <p><b>7.NS.A.1.a, 7.NS.A.1.b, MP8, 7.Mod2.AD2, 7.Mod2.AD4</b></p> <p><b>Lesson 2: Adding Integers</b></p> <ul style="list-style-type: none"> <li>Write addition expressions involving integers.</li> <li>Add integers by using a model.</li> </ul> <p><b>7.NS.A.1.b, MP8, 7.Mod2.AD3</b></p> <p><b>Lesson 3: Adding Integers Efficiently</b></p> <ul style="list-style-type: none"> <li>Describe a number and its opposite as additive inverses because they sum to zero.</li> <li>Evaluate addition expressions with two or more addends.</li> </ul> <p><b>7.NS.A.1.b, MP8, 7.Mod2.AD3, 7.Mod2.AD4, 7.Mod2.AD5</b></p> <p><b>Lesson 4: KAKOOMA®</b></p>	<p><b>Topic A: Equivalent Expressions</b></p> <p><b>Lesson 1: Equivalent Expressions</b></p> <ul style="list-style-type: none"> <li>Generate equivalent expressions by using properties of operations.</li> </ul> <p><b>7.EE.A.1, MP3, 7.Mod3.AD1</b></p> <p><b>Lesson 2: The Distributive Property and the Tabular Model</b></p> <ul style="list-style-type: none"> <li>Generate equivalent expressions containing rational numbers by using the tabular model to represent the distributive property.</li> </ul> <p><b>7.EE.A.1, 7.EE.A.2, MP3, 7.Mod3.AD1, 7.Mod3.AD2</b></p> <p><b>Lesson 3: The Distributive Property and Combining Like Terms</b></p> <ul style="list-style-type: none"> <li>Generate equivalent expressions by applying the distributive property to combine like terms.</li> </ul> <p><b>7.EE.A.1, MP6, 7.Mod3.AD1</b></p> <p><b>Lesson 4: Adding and Subtracting Expressions</b></p>	<p><b>Topic A: Constructing Geometric Figures</b></p> <p><b>Lesson 1: Sketching, Drawing, and Constructing Geometric Figures</b></p> <ul style="list-style-type: none"> <li>Construct geometric figures with given conditions.</li> <li>Construct geometric figures by using technology.</li> </ul> <p><b>7.G.A.2, MP5, 7.Mod4.AD1</b></p> <p><b>Lesson 2: Constructing Parallelograms and Other Quadrilaterals</b></p> <ul style="list-style-type: none"> <li>Construct parallelograms and other quadrilaterals, given conditions.</li> </ul> <p><b>7.G.A.2, MP6, 7.Mod4.AD1</b></p> <p><b>Lesson 3: Side Lengths of a Triangle</b></p> <ul style="list-style-type: none"> <li>Determine whether a triangle with three given side lengths exists.</li> <li>Determine the relationship between the sum of two side lengths of a triangle and its third side length.</li> </ul> <p><b>7.G.A.2, MP2, 7.Mod4.AD1, 7.Mod4.AD2</b></p>	<p><b>Topic A: Proportion and Percent</b></p> <p><b>Lesson 1: Proportionality and Scale Factor</b></p> <ul style="list-style-type: none"> <li>Identify the scale factor of cross sections.</li> </ul> <p><b>7.G.A.1, 7.RP.A.2.c, MP8, 7.Mod5.AD2, 7.Mod5.AD7</b></p> <p><b>Lesson 2: Racing of Percents</b></p> <ul style="list-style-type: none"> <li>Identify proportional relationships and write the constant of proportionality as a percent.</li> <li>Identify percent as a rate per 100.</li> </ul> <p><b>7.RP, 7.RP.A.3, MP7, 7.Mod5.AD1, 7.Mod5.AD3</b></p> <p><b>Lesson 3: Percent as a Rate per 100</b></p> <ul style="list-style-type: none"> <li>Interpret percent as a rate per 100 when solving percent problems.</li> </ul> <p><b>7.RP.A.3, MP5, 7.Mod5.AD3</b></p> <p><b>Lesson 4: Proportion and Percent</b></p> <ul style="list-style-type: none"> <li>Solve percent problems by using equations in the forms <math>y = kx</math> and <math>\frac{a}{b} = \frac{c}{d}</math>.</li> </ul> <p><b>7.RP.A.2.c, 7.RP.A.3, MP3, 7.Mod5.AD2, 7.Mod5.AD3</b></p>	<p><b>Topic A: Calculating and Interpreting Probabilities</b></p> <p><b>Lesson 1: What Is Probability?</b></p> <ul style="list-style-type: none"> <li>Find a number between 0 and 1 that represents the likelihood that an event will occur.</li> </ul> <p><b>7.SP.C.5, MP2, 7.Mod6.AD5</b></p> <p><b>Lesson 2: Empirical Probability</b></p> <ul style="list-style-type: none"> <li>Calculate empirical probabilities by collecting data from a chance experiment.</li> </ul> <p><b>7.SP.C.6, MP6, 7.Mod6.AD6</b></p> <p><b>Lesson 3: Outcomes of Chance Experiments</b></p> <ul style="list-style-type: none"> <li>Determine the sample space for chance experiments.</li> <li>Given a description of a chance experiment and an event, determine for which outcomes in the sample space the event will occur.</li> </ul> <p><b>7.SP.C.6, MP2, 7.Mod6.AD6</b></p> <p><b>Lesson 4: Theoretical Probability</b></p> <ul style="list-style-type: none"> <li>Calculate theoretical probabilities of events for chance experiments that have equally likely outcomes.</li> </ul> <p><b>7.SP.C.7.a, MP6, 7.Mod6.AD8</b></p>

## Module 1

**7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.c, MP8, 7.Mod1.AD1, 7.Mod1.AD2, 7.Mod1.AD4**

### Lesson 4: Exploring Graphs of Proportional Relationships

- Identify proportional relationships represented as graphs.
  - Interpret and makes sense of the point (0, 0) in context.
- 7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.2.d, MP8, 7.Mod1.AD2, 7.Mod1.AD3, 7.Mod1.AD5**

### Lesson 5: Analyzing Graphs of Proportional Relationships

- Analyze graphs or sets of ratios to determine whether they represent proportional relationships.
  - Identify the point on a graph that best shows the constant of proportionality  $k$  and explain the meaning of the point in context.
- 7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.2.d, MP2, 7.Mod1.AD2, 7.Mod1.AD3, 7.Mod1.AD5**

### Lesson 6: Identifying Proportional Relationships in Written Descriptions

- Determine whether a written description represents a proportional relationship.
- 7.RP.A.2.a, 7.RP.A.2.b, MP2, 7.Mod1.AD2, 7.Mod1.AD3**

## Topic B: Working with Proportional Relationships

### Lesson 7: Handstand Sprint

- Model a situation by using a proportional relationship to solve a problem.
- 7.RP.A.3, MP4, MP5, 7.Mod1.AD6**

## Module 2

- Add integers to solve and create puzzles.
- 7.NS.A.1.d, MP1, 7.Mod2.AD8**

### Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient

- Add rational numbers by decomposing them.
- 7.NS.A.1.b, 7.NS.A.1.d, MP3, 7.Mod2.AD3, 7.Mod2.AD8**

### Lesson 6: Adding Rational Numbers

- Fluently add rational numbers.
- 7.NS.A.1.b, 7.NS.A.1.d, MP5, 7.Mod2.AD3, 7.Mod2.AD8**

## Topic B: Subtracting Rational Numbers

### Lesson 7: What Subtraction Means

- Show that the distance between two integers on the number line is the absolute value of their difference.
  - Evaluate integer subtraction expressions by finding the unknown addends.
- 7.NS.A.1.c, MP7, 7.Mod2.AD7**

### Lesson 8: Subtracting Integers, Part 1

- Use expressions, number lines, and patterns to model contextual problems involving subtraction.
  - Write subtraction expressions as equivalent addition expressions.
- 7.NS.A.1.b, 7.NS.A.1.c, MP2, 7.Mod2.AD5, 7.Mod2.AD6**

### Lesson 9: Subtracting Integers, Part 2

- Express subtraction of a number as addition of its opposite.

## Module 3

- Generate equivalent expressions by using properties of operations to add and subtract expressions.
- 7.EE.A.1, 7.EE.A.2, MP7, 7.Mod3.AD1, 7.Mod3.AD2**

### Lesson 5: Factoring Expressions

- Generate equivalent expressions by using the distributive property to factor.
- 7.EE.A.1, 7.EE.A.2, MP2, 7.Mod3.AD1, 7.Mod3.AD2**

### Lesson 6: Comparing Expressions

- Use properties of operations to determine whether expressions are equivalent.
- 7.EE.A.1, 7.EE.A.2, MP7, 7.Mod3.AD1, 7.Mod3.AD2**

## Topic B: Unknown Angle Measurements

### Lesson 7: Angle Relationships and Unknown Angle Measures

- Identify and describe angle relationships given in diagrams.
  - Write and solve equations that use angle relationships to find unknown angle measures.
- 7.G.B.5, 7.EE.B.4.a, MP5, 7.Mod3.AD8, 7.Mod3.AD12**

### Lesson 8: Strategies to Determine Unknown Angle Measures

- Identify and describe angle relationships given in diagrams.
  - Write and solve two-step equations that use angle relationships to find unknown angle measures.
- 7.G.B.5, 7.EE.B.4.a, MP6, 7.Mod3.AD8, 7.Mod3.AD12**

## Module 4

### Lesson 4: Angles of a Triangle

- Determine whether a triangle can be formed with two given angle measures.
- 7.G.A.2, MP3, 7.Mod4.AD1, 7.Mod4.AD2**

### Lesson 5: Constructing Quadrilaterals and Triangles

- Construct quadrilaterals given four side lengths and determine whether a unique quadrilateral is formed.
  - Construct triangles given three side lengths and determine whether a unique triangle is formed.
- 7.G.A.2, MP8, 7.Mod4.AD1, 7.Mod4.AD2**

## Topic B: Constructing Triangles

### Lesson 6: Unique Triangles

- Determine that at least three conditions are needed to guarantee a unique triangle.
  - Determine that three angle measures alone do not guarantee a unique triangle.
- 7.G.A.2, MP3, 7.Mod4.AD1, 7.Mod4.AD2**

### Lesson 7: Two Angles and One Side

- Determine whether two angle measures and an included side length guarantee a unique triangle.
  - Determine whether two angle measures and a non-included side length guarantee a unique triangle.
- 7.G.A.2, MP3, 7.Mod4.AD1, 7.Mod4.AD2**

### Lesson 8: Two Sides and One Angle

## Module 5

### Lesson 5: Common Denominators or Common Numerators

- Solve percent problems by using strategies that involve finding common denominators or common numerators to solve proportions.
- 7.RP.A.2.c, 7.RP.A.3, MP5, 7.Mod5.AD2, 7.Mod5.AD3**

## Topic B: Part of 100

### Lesson 6: Finding Commission

- Apply percents in the real-world context of commission.
- 7.RP.A.3, MP1, 7.Mod5.AD3, 7.Mod5.AD4**

### Lesson 7: Finding Discounts

- Apply percents in the real-world context of discounts.
- 7.RP, 7.RP.A.3, MP1, 7.Mod5.AD1, 7.Mod5.AD3, 7.Mod5.AD4**

### Lesson 8: Determining Fees

- Apply percents in the real-world context of fees.
- 7.RP.A.3, MP3, 7.Mod5.AD3, 7.Mod5.AD4**

### Lesson 9: Tax as a Fee

- Apply percents in the real-world context of taxes.
- 7.RP.A.3, MP1, 7.Mod5.AD3, 7.Mod5.AD4**

## Topic C: More or Less Than 100%

### Lesson 10: Percent Increase

- Solve percent problems in a real-world context that involves percent increase.

## Module 6

### Lesson 5: Multistage Experiments

- Use tree diagrams to organize and represent the outcomes in the sample space of a multistage experiment.
- 7.SP.C.8.a, 7.SP.C.8.b, MP7, 7.Mod6.AD10**

### Lesson 6: Outcomes That Are Not Equally Likely

- Calculate probabilities of events for chance experiments that do not have equally likely outcomes.
- 7.SP.C.6, MP7, 7.Mod6.AD6**

## Topic B: Estimating Probabilities

### Lesson 7: The Law of Large Numbers

- Use empirical probability to estimate theoretical probability.
  - Compare probabilities from a theoretical model to observed relative frequencies.
- 7.SP.C.7, 7.SP.C.7.a, 7.SP.C.7.b, MP8, 7.Mod6.AD7, 7.Mod6.AD8, 7.Mod6.AD9**

### Lesson 8: Picking Blue

- Use empirical probabilities to create a probability model.
- 7.SP.C.6, 7.SP.C.7.b, MP2, 7.Mod6.AD6, 7.Mod6.AD9**

### Lesson 9: Probability Simulations

- Use a simulation to generate empirical probabilities for events.
- 7.SP.C.8.c, MP1, 7.Mod6.AD11**

### Lesson 10: Simulations with Random Number Tables

- Conduct simulations with a random number table.
- 7.SP.C.8.c, MP5, 7.Mod6.AD11**

## Module 1

### Lesson 8: Relating Representations of Proportional Relationships

- Relate information among tables, graphs, equations, and situations to display a proportional relationship.
- Identify the constant of proportionality in different representations of a proportional relationship.

7.RP.A.2.b, 7.RP.A.2.c, MP7, 7.Mod1.AD3, 7.Mod1.AD4

### Lesson 9: Comparing Proportional Relationships

- Explain how to use the point  $(1, r)$  to find the unit rate of a proportional relationship.
- Relate the unit rate to the steepness of the line representing the proportional relationship by using the unit rate triangle with vertices  $(0, 0)$ ,  $(1, 0)$ , and  $(1, r)$ .

7.RP.A.2.b, 7.RP.A.2.d, MP7, 7.Mod1.AD3, 7.Mod1.AD5

### Lesson 10: Applying Proportional Reasoning

- Represent proportional relationships as equations.
- Solve problems by applying proportional reasoning.

7.RP.A.2.c, 7.RP.A.3, MP2, 7.Mod1.AD4, 7.Mod1.AD6

### Lesson 11: Constant Rates

- Represent rate problems as proportional relationships with equations.
- Solve rate problems.

7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP1, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6

### Lesson 12: Multi-Step Ratio Problems, Part 1

## Module 2

- Subtract integers by using equivalent addition expressions.

7.NS.A.1.c, 7.NS.A.1.d, MP8, 7.Mod2.AD6, 7.Mod2.AD8

### Lesson 10: Subtracting Rational Numbers, Part 1

- Evaluate expressions involving subtraction of rational numbers.
- Use properties of operations to make a simpler expression.

7.NS.A.1.c, 7.NS.A.1.d, MP7, 7.Mod2.AD6, 7.Mod2.AD8

### Lesson 11: Subtracting Rational Numbers, Part 2

- Subtract rational numbers by writing equivalent addition expressions and evaluating them.
- Use properties of operations to make a simpler expression.

7.NS.A.1.c, 7.NS.A.1.d, MP1, 7.Mod2.AD6, 7.Mod2.AD8

### Lesson 12: The Integer Game

- Apply strategies of integer addition and subtraction.
- Recognize when opposites combine to make zero.

7.NS.A.1.a, 7.NS.A.1.d, MP6, 7.Mod2.AD2, 7.Mod2.AD8

## Topic C: Multiplying Rational Numbers

### Lesson 13: Understanding Multiples of Negative Numbers

- Interpret multiplication as repeated addition by using the distributive property.
- Informally verify that multiplying two numbers with opposite signs results in a negative product.

7.NS.A.2.a, 7.NS.A.2.c, MP2,

## Module 3

### Lesson 9: Solving Equations to Determine Unknown Angle Measures

- Identify and describe angle relationships given in diagrams.
- Write and solve two-step equations that use angle relationships to find unknown angle measures.

7.EE.A.2, 7.EE.B.3, MP7, 7.Mod3.AD2, 7.Mod3.AD3

### Lesson 10: Problem Solving with Unknown Angle Measures

- Solve multi-step problems to determine unknown angle measures by using all known angle relationships.

7.EE.B.3, 7.G.B.5, MP1, 7.Mod3.AD3, 7.Mod3.AD12

## Topic C: Solving Equations

### Lesson 11: Dominoes and Dominoes

- Compare different ways of solving a problem.
- Use equations as mathematical models to estimate the number of dominoes in a tower.

7.EE.B.3, 7.EE.B.4, MP1, MP4, 7.Mod3.AD3, 7.Mod3.AD4, 7.Mod3.AD5

### Lesson 12: Solving Problem Algebraically and Arithmetically

- Use if–then moves to solve word problems leading to equations of the forms  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers.

7.EE.B.4, 7.EE.B.4.a, MP2, 7.Mod3.AD5, 7.Mod3.AD7, 7.Mod3.AD8

## Module 4

- Determine whether two side lengths and an included angle measure guarantee a unique triangle.
- Determine whether two side lengths and a non-included angle measure guarantee a unique triangle.

7.G.A.2, MP8, 7.Mod4.AD1, 7.Mod4.AD2

## Topic C: Circumference and Area of Circles

### Lesson 9: Constructing a Circle

- Define and construct circles given a radius or a diameter.

7.G.A.2, MP6, 7.Mod4.AD1

### Lesson 10: The Outside of a Circle

- Describe the relationship between the circumference and diameter of any circle as a proportional relationship.
- Find the approximate circumference of a circle by using the value 3.1 as the constant of proportionality.

7.G.B.4, MP8, 7.Mod4.AD4

### Lesson 11: The Inside of a Circle

- Estimate the area of a circle.

7.G.B.4, MP7, 7.Mod4.AD4

### Lesson 12: Exploring the Area and Circumference of a Circle

- Model and describe the relationship between the circumference and the area of a circle.

7.G.B.4, MP7, 7.Mod4.AD4, 7.Mod4.AD5

### Lesson 13: Finding Areas of Circular Regions

- Solve problems by using the formula for the area of a circle.

## Module 5

7.RP.A.3, 7.EE.A.2, MP2, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6

### Lesson 11: Percent Decrease

- Solve percent problems in a real-world context that involves percent decrease.

7.RP.A.3, 7.EE.A.2, MP2, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6

### Lesson 12: More Discounts

- Use equations to solve percent problems that involve the real-world context of discounts.

7.RP.A.3, 7.EE.A.2, MP6, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6

### Lesson 13: What Is the Best Deal?

- Use equations to calculate multiple discounts and discounted prices.

7.RP.A.3, MP1, MP2, 7.Mod5.AD4

### Lesson 14: Scale Factor—Percent Increase and Decrease

- Apply scale factor expressed as a percent, a percent decrease, or a percent increase.
- Construct a scale drawing by using a scale factor given as a percent, a percent decrease, or a percent increase.

7.RP, 7.EE.A.2, 7.G.A.1, MP1, 7.Mod5.AD1, 7.Mod5.AD6, 7.Mod5.AD7

## Topic D: Applications of Percent

### Lesson 15: Tips and Taxes

- Calculate percent increases such as tax and tip.

## Module 6

## Topic C: Random Sampling

### Lesson 11: Populations and Samples

- Distinguish populations and their characteristics from samples and their statistics.

7.SP.A.1, MP6, 7.Mod6.AD1

### Lesson 12: Selecting a Sample

- Take a random sample from a population.
- Describe the importance of a random sample in drawing conclusions about a population.

7.SP.A.1, MP2, 7.Mod6.AD1

### Lesson 13: Variability Between Samples

- Observe the variability between different random samples taken from the same population.

7.SP.A.1, 7.SP.A.2, MP6, 7.Mod6.AD1, 7.Mod6.AD2

### Lesson 14: Sampling Variability When Estimating a Population Mean

- Describe sampling variability in the context of estimating a population mean.
- Use data from a random sample to estimate a population mean.

7.SP.A.1, 7.SP.A.2, MP2, 7.Mod6.AD1, 7.Mod6.AD2

### Lesson 15: Sampling Variability and the Effect of Sample Size

- Observe that increasing the sample size decreases the sampling variability of the sample mean.

7.SP.A.2, MP1, 7.Mod6.AD2

## Module 1

- Solve multi-step ratio problems by using proportional reasoning.  
**7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP7, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6**

### Lesson 13: Multi-Step Ratio Problems, Part 2

- Solve multi-step ratio problems by using proportional reasoning.  
**7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP5, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6**

## Topic C: Scale Drawings and Proportional Relationships

### Lesson 14: Extreme Bicycles

- Compare objects of different sizes by using proportional reasoning.  
**7.RP.A.2.a, MP1, MP5, 7.Mod1.AD2**

### Lesson 15: Scale Drawings

- Determine one-to-one correspondence of points in related figures.
- Recognize that corresponding lengths in scale drawings are in a proportional relationship with a constant of proportionality called a scale factor.  
**7.GA.1, MP7, 7.Mod1.AD7**

### Lesson 16: Using a Scale Factor

- Determine whether a scale factor produces an enlargement or a reduction.
- Create a scale drawing by using the proportional relationship that exists between corresponding distances.  
**7.G.A.1, 7.RP.A.2.a, 7.RP.A.2.b, MP3, 7.Mod1.AD3, 7.Mod1.AD7, 7.Mod1.AD8**

### Lesson 17: Finding Actual Distances from a Scale Drawing

## Module 2

### 7.Mod2.AD9, 7.Mod2.AD12

### Lesson 14: Understanding the Product of Two Negative Numbers

- Informally verify that multiplying two numbers with the same sign results in a positive product.
- Predict the sign of a product with multiple factors.  
**7.NS.A.2.a, 7.NS.A.2.c, MP3, 7.Mod2.AD9, 7.Mod2.AD11, 7.Mod2.AD12**

### Lesson 15: Multiplying Rational Numbers

- Extend knowledge of multiplying integers to multiply rational numbers.  
**7.NS.A.2.a, 7.NS.A.2.c, MP7, 7.Mod2.AD9, 7.Mod2.AD12**

### Lesson 16: Exponential Expressions with Rational Numbers

- Extend knowledge of multiplying integers to multiply rational numbers in all forms.
- Evaluate exponential expressions containing rational bases.  
**7.NS.A.2.a, 7.NS.A.2.c, MP6, 7.Mod2.AD9, 7.Mod2.AD12**

## Topic D: Dividing Rational Numbers

### Lesson 17: Understanding Negative Dividends

- Model division and recognize limitations of the models when dividing integers.  
**7.NS.A.2.c, MP7, 7.Mod2.AD12**

### Lesson 18: Understanding Negative Divisors

## Module 3

### Lesson 13: Solving Equations—Puzzles

- Use if-then moves to solve equations of the forms  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers.  
**7.EE.B.4, 7.EE.B.4.a, MP7, 7.Mod3.AD5, 7.Mod3.AD7**

### Lesson 14: Solving Equations—Scavenger Hunt

- Solve equations of the forms  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers.  
**7.EE.B.4.a, MP7, 7.Mod3.AD7**

### Lesson 15: Solving Equations Fluently

- Fluently solve equations of the forms  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers.  
**7.EE.B.4.a, MP1, 7.Mod3.AD7**

### Lesson 16: Using Equations to Solve Rate Problems

- Create and solve word problems containing rates by using equations of the forms  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers.  
**7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a, MP2, 7.Mod3.AD3, 7.Mod3.AD5, 7.Mod3.AD8**

### Lesson 17: Using Equations to Solve Problems

- Write and solve equations in the form  $\frac{a}{b} = \frac{c}{d}$ , where either  $a$ ,  $b$ ,  $c$ , or  $d$  is unknown and the other three are specific rational numbers.  
**7.EE.B.3, 7.EE.B.4, MP7, 7.Mod3.AD3, 7.Mod3.AD4, 7.Mod3.AD5**

## Module 4

- Model and describe the relationship between the areas of circles and the areas of semicircular and quarter-circular regions.  
**7.G.B.4, MP7, 7.Mod4.AD4, 7.Mod4.AD5**

### Lesson 14: Composite Figures with Circular Regions

- Solve problems involving area and perimeter of composite figures.  
**7.G.B.4, 7.G.B.6, MP7, 7.Mod4.AD4, 7.Mod4.AD6**

### Lesson 15: Watering a Lawn

- Model a situation by using rectangular, circular, semicircular, and quarter-circular regions and calculate area to solve problems.  
**7.G.B.4, MP1, MP4, 7.Mod4.AD4**

## Topic D: Area and Surface Area

### Lesson 16: Solving Area Problems by Composition and Decomposition

- Calculate the area of composite figures in real-world and mathematical problems by using composition and decomposition.  
**7.G.B.6, MP1, 7.Mod4.AD6**

### Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms

- Calculate the surface area of right rectangular and right triangular prisms.  
**7.G.B.6, MP6, 7.Mod4.AD7**

### Lesson 18: Surface Area of Right Prisms

## Module 5

- Calculate the total from the subtotal, tax, and tip.  
**7.RP.A.3, 7.EE.A.2, MP7, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6**

### Lesson 16: Markups and Discounts

- Determine retail prices by using markups.
- Determine discounted prices by using discounts.  
**7.RP.A.3, 7.EE.A.2, MP7, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6**

### Lesson 17: Simple Interest and Proportionality

- Calculate simple interest given principal, time, and interest rate.  
**7.RP.A.3, MP7, 7.Mod5.AD4**

### Lesson 18: Simple Interest—Solving for Unknown Values

- Calculate simple interest, principal, time, and interest rate.  
**7.RP.A.3, MP8, 7.Mod5.AD4**

### Lesson 19: Applying Percent Error

- Use absolute error to define percent error.
- Apply percent error to real-world contexts.  
**7.RP.A.3, MP2, 7.Mod5.AD4**

## Topic E: Problems Involving Percent

### Lesson 20: Making Money, Day 1

- Model and solve a real-world problem involving percent.  
**7.RP.A.3, MP4, 7.Mod5.AD4**

### Lesson 21: Making Money, Day 2

- Model and solve a real-world problem involving percent.

## Module 6

### Lesson 16: Sampling Variability When Estimating a Population Proportion

- Observe that increasing the sample size decreases the sampling variability of the sample proportion.  
**7.SP.A.2, MP6, 7.Mod6.AD2**

### Lesson 17: Comparing Sample Means

- Determine whether there is convincing evidence to conclude that two population means differ based on sample estimates.  
**7.SP.B.3, 7.SP.B.4, MP3, 7.Mod6.AD3, 7.Mod6.AD4**

### Lesson 18: Comparing Population Means

- Express the difference in sample means as a multiple of a measure of variability.  
**7.SP.B.3, 7.SP.B.4, MP7, 7.Mod6.AD3, 7.Mod6.AD4**

### Lesson 19: Memory Games

- Make conclusions about a difference in population means by using sample means and mean absolute deviations.  
**7.SP.B.3, 7.SP.B.4, MP4, 7.Mod6.AD3, 7.Mod6.AD4**

## Module 1

- Find measurements of a figure when given a scale factor and either the scale drawing or the original figure.

**7.G.A.1, MP6, 7.Mod1.AD8**

### Lesson 18: Relating Areas of Scale Drawings

- Describe the area of a scale drawing with scale factor  $r$  as  $r^2$  times the area of the original figure.

**7.G.A.1, 7.RP.A.2.b, MP8, 7.Mod1.AD3, 7.Mod1.AD8**

### Lesson 19: Scale and Scale Factors

- Describe the difference between a scale and a scale factor.
- Find unknown measurements in scale drawings through the appropriate use of scales and scale factors.

**7.G.A.1, MP4, 7.Mod1.AD7, 7.Mod1.AD8**

### Lesson 20: Creating Multiple Scale Drawings

- Draw a scale drawing of another scale drawing by using a new scale factor.
- Write an equation for the proportional relationship relating scale drawings that have different scale factors and use the equation to find unknown distances.

**7.G.A.1, MP3, 7.Mod1.AD7, 7.Mod1.AD8**



## Module 2

- Write division expressions as unknown factor equations to determine the value of the quotient.
- Write rational numbers as quotients of integers.

**7.NS.A.2.b, 7.NS.A.2.c, MP7, 7.Mod2.AD10, 7.Mod2.AD12**

### Lesson 19: Rational Numbers as Decimals, Part 1

- Calculate quotients of integers where the divisor is a product of 2's and/or 5's and express them as terminating decimals.

**7.NS.A.2.d, MP8, 7.Mod2.AD13**

### Lesson 20: Rational Numbers as Decimals, Part 2

- Calculate quotients where the divisor contains factors other than 2 and 5 and express those quotients as repeating decimals.
- Write rational numbers as either terminating decimals or repeating decimals.

**7.NS.A.2.d, MP8, 7.Mod2.AD13, 7.Mod2.AD14**

### Lesson 21: Comparing and Ordering Rational Numbers

- Compare and order rational numbers, including those written as repeating decimals.

**7.NS.A.2.b, 7.NS.A.2.d, MP5, 7.Mod2.AD11, 7.Mod2.AD13, 7.Mod2.AD14**

### Lesson 22: Multiplication and Division Expressions

- Calculate quotients of rational numbers, including non-integer rational numbers.
- Write expressions with division as equivalent expressions with multiplication by using multiplicative inverses.

**7.NS.A.2.c, MP7, 7.Mod2.AD12**

## Module 3

### Topic D: Inequalities

#### Lesson 18: Understanding Inequalities and Their Solutions

- Find solutions to inequalities by testing numbers and graphing them on a number line.

**7.EE.B.4, 7.EE.B.4.b, MP6, 7.Mod3.AD6, 7.Mod3.AD10, 7.Mod3.AD11**

#### Lesson 19: Using Equations to Solve Inequalities

- Solve inequalities and graph their solution sets on number lines.
- Describe similarities and differences between inequalities and equations.

**7.EE.B.4, 7.EE.B.4.b, MP7, 7.Mod3.AD9, 7.Mod3.AD10, 7.Mod3.AD11**

#### Lesson 20: Preserving and Reversing

- Solve one-step inequalities and graph their solution sets on number lines.
- Identify when to reverse the inequality symbol in an inequality to produce an equivalent inequality.

**7.EE.B.4.b, MP8, 7.Mod3.AD9, 7.Mod3.AD10,**

#### Lesson 21: Solving Two-Step Inequalities

- Write and solve inequalities to represent context problems and identify restrictions to their solution sets.

**7.EE.B.4, 7.EE.B.4.b, MP2, 7.Mod3.AD6, 7.Mod3.AD9, 7.Mod3.AD11**

## Module 4

- Calculate the surface area of right prisms by determining an efficient strategy for finding the sum of the areas of the lateral faces and bases.

**7.G.B.6, MP7, 7.Mod4.AD7**

### Lesson 19: Surface Area of Cylinders (Optional)

- Calculate the surface area of right circular cylinders.

**MP8**

### Lesson 20: Surface Area of Right Pyramids

- Calculate the surface area of right pyramids.

**7.G.B.6, MP6, 7.Mod4.AD7**

### Lesson 21: Surface Area of Other Solids

- Calculate the surface area of solids composed of right prisms and right pyramids.

**7.G.B.6, MP6, 7.Mod4.AD7**

### Topic E: Cross Sections and Volume

#### Lesson 22: Understanding Planes and Cross Sections

- Sketch cross sections of right prisms and right pyramids cut by a plane parallel or perpendicular to the base.

**7.G.A.3, MP7, 7.Mod4.AD3**

#### Lesson 23: Cross Section Scavenger Hunt

- Explore cross sections formed when a right prism or a right pyramid is cut by a plane at an angle other than  $90^\circ$  to the base.

**7.G.A.3 MP7, 7.Mod4.AD3**

#### Lesson 24: Volume of Prisms

## Module 5

**7.RP.A.3, MP1, 7.Mod5.AD4**

### Lesson 22: Making Mixtures

- Develop and compare mixtures made from percents of two or more liquids.

**7.RP.A.3, MP7, 7.Mod5.AD4**

### Lesson 23: Percents of Percents

- Solve context problems involving percents related to a percent of the whole or unknown.

**7.RP.A.3, 7.EE.A.2, MP2, 7.Mod5.AD4, 7.Mod5.AD6**

### Lesson 24: Counting Problems

- Solve counting problems related to computing percent.

**7.RP, MP6, 7.Mod5.AD1**



## Module 6

### Topic E: Numerical Expressions with Rational Numbers

#### Lesson 23: Properties of Operations with Rational Numbers

- Evaluate expressions involving rational numbers by applying properties of operations.

**7.NS.A, MP7, 7.Mod2.AD1**

#### Lesson 24: Order of Operations with Rational Numbers

- Evaluate expressions containing exponents.
- Use the order of operations to evaluate numerical expressions containing rational numbers.

**7.NS.A, 7.NS.A.2.c, MP6, 7.Mod2.AD1, 7.Mod2.AD12**

#### Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1

- Write numerical expressions given mathematical and real-world contexts.
- Evaluate expressions and interpret their value in context.

**7.NS.A.3, 7.EE.B.3, MP2, 7.Mod2.AD15**

#### Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2

- Write and evaluate numerical expressions and interpret their value in context.

**7.NS.A.3, 7.EE.B.3, MP4, 7.Mod2.AD15**



#### Lesson 22: Solving Problems Involving Inequalities

- Write and solve inequalities comparing  $px + q$  and  $r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers, and graph the solution sets.
- Write and solve inequalities to represent context problems and identify restrictions to their solution sets.

**7.EE.B.4, 7.EE.B.4.b, MP6, 7.Mod3.AD6, 7.Mod3.AD9, 7.Mod3.AD11**

#### Lesson 23: Inequalities vs. Equations

- Determine whether a situation should be modeled with an equation or with an inequality.
- Write a context that can be modeled by a given inequality.

**7.EE.B.4, 7.EE.B.4.b, MP2, 7.Mod3.AD5, 7.Mod3.AD6, 7.Mod3.AD11**



- Determine a formula for finding the volume of any right prism.
  - Find the volume of a right prism.
- 7.G.B.6, MP7, 7.Mod4.AD7**

#### Lesson 25: Volume of Composite Solids

- Find the volume of composite solids.
- 7.G.B.6, MP7, 7.Mod4.AD7**

#### Lesson 26: Designing a Fish Tank

- Model real-world problems involving surface area and volume.

**7.G.B.6, MP4, 7.Mod4.AD7**





Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
<p style="text-align: center;">Scientific Notation, Exponents, and Irrational Numbers</p>	<p style="text-align: center;">Rigid Motions and Congruent Figures</p>	<p style="text-align: center;">Dilations and Similar Figures</p>	<p style="text-align: center;">Linear Equations in One and Two Variables</p>	<p style="text-align: center;">Systems of Linear Equations</p>	<p style="text-align: center;">Functions and Bivariate Statistics</p>
<p><b>Topic A: Introduction to Scientific Notation</b></p> <p><b>Lesson 1: Large and Small Positive Numbers</b></p> <ul style="list-style-type: none"> <li>Write very large and very small numbers in a form that uses exponents to prepare students for scientific notation.</li> <li>Approximate very large and very small quantities.</li> </ul> <p><b>8.EE.A.3, MP2, 8.Mod1.AD8</b></p> <p><b>Lesson 2: Comparing Large Numbers</b></p> <ul style="list-style-type: none"> <li>Write numbers as a single digit times a power of 10 in exponential form to approximate quantities.</li> <li>Compare large and small positive numbers by using <i>times as much as</i> language.</li> </ul> <p><b>8.EE.A.3, 8.EE.A.4, MP7, 8.Mod1.AD9, 8.Mod1.AD11, 8.Mod1.AD12</b></p> <p><b>Lesson 3: Time to Be More Precise—Scientific Notation</b></p> <ul style="list-style-type: none"> <li>Write numbers given in standard form in scientific notation.</li> </ul> <p><b>8.EE.A.3, MP3, 8.Mod1.AD8</b></p>	<p><b>Topic A: Rigid Motions and Their Properties</b></p> <p><b>Lesson 1: Motions of the Plane</b></p> <ul style="list-style-type: none"> <li>Informally describe how to map a figure to its image.</li> <li>Demonstrate that the distance between two points stays the same under rigid motions.</li> </ul> <p><b>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP5, 8.Mod2.AD1</b></p> <p><b>Lesson 2: Translations</b></p> <ul style="list-style-type: none"> <li>Apply translations to the plane.</li> <li>Identify the basic properties of translations.</li> </ul> <p><b>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP6, 8.Mod2.AD1</b></p> <p><b>Lesson 3: Reflections</b></p> <ul style="list-style-type: none"> <li>Apply reflections to the plane.</li> <li>Identify the basic properties of reflections.</li> </ul> <p><b>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP8, 8.Mod2.AD1</b></p> <p><b>Lesson 4: Translations and Reflections on the Coordinate Plane</b></p>	<p><b>Topic A: Dilations</b></p> <p><b>Lesson 1: Exploring Dilations</b></p> <ul style="list-style-type: none"> <li>Informally describe the effects of dilations.</li> <li>Classify a dilation as a transformation that is not a rigid motion.</li> </ul> <p><b>8.G.A.3, MP8, 8.Mod3.AD2</b></p> <p><b>Lesson 2: Enlargements</b></p> <ul style="list-style-type: none"> <li>Apply a dilation with a whole-number scale factor greater than 1.</li> <li>Describe the effects of a dilation with a whole-number scale factor greater than 1.</li> </ul> <p><b>8.G.A.3, MP6, 8.Mod3.AD2</b></p> <p><b>Lesson 3: Reductions and More Enlargements</b></p> <ul style="list-style-type: none"> <li>Apply a dilation with a scale factor greater than 0.</li> <li>Describe the effects of a dilation with a scale factor greater than 0.</li> </ul> <p><b>8.G.A.3, MP8, 8.Mod3.AD2</b></p> <hr/> <p><b>Topic B: Properties of Dilations</b></p>	<p><b>Topic A: Linear Equations in One Variable</b></p> <p><b>Lesson 1: Equations</b></p> <ul style="list-style-type: none"> <li>Analyze an equation to make sense of how to solve it.</li> <li>Identify whether an equation is a linear equation.</li> </ul> <p><b>8.EE.C.7.b, MP7, 8.Mod4.AD11</b></p> <p><b>Lesson 2: Solving Linear Equations</b></p> <ul style="list-style-type: none"> <li>Identify the properties of equality.</li> <li>Solve multi-step linear equations in one variable with variables on both sides of the equations.</li> </ul> <p><b>8.EE.C.7, 8.EE.C.7.b, MP6, 8.Mod4.AD9, 8.Mod4.AD11</b></p> <p><b>Lesson 3: Solving Linear Equations with Rational Coefficients</b></p> <ul style="list-style-type: none"> <li>Solve multi-step linear equations in one variable with rational coefficients.</li> </ul> <p><b>8.EE.C.7, 8.EE.C.7.b, MP7, 8.Mod4.AD9, 8.Mod4.AD11</b></p> <p><b>Lesson 4: Using Linear Equations to Solve Problems</b></p> <ul style="list-style-type: none"> <li>Define variables and write equations that represent a given situation.</li> </ul>	<p><b>Topic A: Solving Systems of Linear Equations Graphically</b></p> <p><b>Lesson 1: Solving Problems with Equations and Their Graphs</b></p> <ul style="list-style-type: none"> <li>Formulate a problem from a context.</li> <li>Apply different mathematical tools to model, analyze, and answer a real-world question.</li> </ul> <p><b>8.EE.C.8.a, 8.EE.C.8.b, 8.EE.C.8.c, MP4, 8.Mod5.AD1, 8.Mod5.AD3, 8.Mod5.AD5</b></p> <p><b>Lesson 2: Introduction to Systems of Linear Equations</b></p> <ul style="list-style-type: none"> <li>Graph a system of linear equations to identify the solution.</li> <li>Recognize that the ordered pair representing the intersection point of the lines is the solution to the system of linear equations.</li> </ul> <p><b>8.EE.C.8.a, MP6, 8.Mod5.AD1</b></p> <p><b>Lesson 3: Identifying Solutions</b></p> <ul style="list-style-type: none"> <li>Recognize that a system of linear equations that represents parallel lines has no solution.</li> <li>Analyze a system of linear equations to determine whether a solution exists.</li> </ul>	<p><b>Topic A: Functions</b></p> <p><b>Lesson 1: Motion and Speed</b></p> <ul style="list-style-type: none"> <li>Calculate the average speed of linear and nonlinear motion.</li> <li>Understand that a function is a special type of rule.</li> </ul> <p><b>8.F.A.1, MP8, 8.Mod6.AD1</b></p> <p><b>Lesson 2: Definition of a Function</b></p> <ul style="list-style-type: none"> <li>Determine that a function is a rule that assigns to each input one and only one output.</li> <li>Identify functions that can be represented by an equation and those that cannot.</li> </ul> <p><b>8.F.A.1, MP2, 8.Mod6.AD1</b></p> <p><b>Lesson 3: Linear Functions and Proportionality</b></p> <ul style="list-style-type: none"> <li>Write equations that represent linear functions.</li> <li>Determine what inputs make sense in the context of a linear function.</li> </ul> <p><b>8.F.A.3, MP2, 8.Mod6.AD3</b></p> <p><b>Lesson 4: More Examples of Functions</b></p> <ul style="list-style-type: none"> <li>Determine that not all functions have numerical inputs and outputs.</li> </ul>

## Module 1

### Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation

- Add and subtract numbers written in scientific notation.
- Rewrite sums and differences in scientific notation.

**8.EE.A.4, MP6, 8.Mod1.AD10, 8.Mod1.AD12**

### Topic B: Properties and Definitions of Exponents

### Lesson 5: Products of Exponential Expressions with Whole-Number Exponents

- Apply understanding of exponential notation to write equivalent expressions for  $x^m \cdot x^n$ .

**8.EE.A.1, MP8, 8.Mod1.AD5**

### Lesson 6: More Properties of Exponents

- Encounter and apply properties of exponents, including raising powers to powers, raising products to powers, and raising quotients to powers.

**8.EE.A.1, 8.Mod1.AD5**

### Lesson 7: Making Sense of the Exponent of 0

- Define  $x^0$  by confirming that the definition upholds the properties of exponents.
- Evaluate powers with an exponent of 0.

**8.EE.A.1, 8.EE.A.3, MP3, 8.Mod1.AD5, 8.Mod1.AD8**

### Lesson 8: Making Sense of Integer Exponents

- Explore and develop an understanding of negative exponents.

## Module 2

- Apply translations and reflections on the coordinate plane.

- Use coordinates to describe the location of an image under a translation or a reflection.

**8.G.A.3, MP6, 8.Mod2.AD4**

### Lesson 5: Rotations

- Apply rotations to the plane.
- Identify the basic properties of rotations.

**8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP6, 8.Mod2.AD1**

### Lesson 6: Rotations on the Coordinate Plane

- Apply rotations around the origin on the coordinate plane.
- Use coordinates to describe the location of an image under a rotation around the origin.

**8.G.A.3, MP8, 8.Mod2.AD4**

### Topic B: Rigid Motions and Congruent Figures

### Lesson 7: Working Backward

- Precisely describe the rigid motion required to map an image back onto its original figure.

**8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, 8.G.A.2, MP8, 8.Mod2.AD1, 8.Mod2.AD3**

### Lesson 8: Sequencing the Rigid Motions

- Describe a sequence of rigid motions that maps one figure onto another.
- Determine that the properties of individual rigid motions also apply for a sequence of rigid motions.

**8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, 8.G.A.2, MP1, 8.Mod2.AD1, 8.Mod2.AD3**

## Module 3

### Lesson 4: Using Lined Paper to Explore Dilations

- Draw the image of a segment under a dilation.
- Learn the properties of dilations.

**8.G.A.3, MP8, 8.Mod3.AD2**

### Lesson 5: Figures and Dilations

- Draw images of figures under dilations with various scale factors.

**8.G.A.3, MP5, 8.Mod3.AD2**

### Lesson 6: The Shadowy Hand

- Use a mathematical model to explain a real-world situation.
- Apply properties of dilations to make and test predictions.

**8.G.A.3, MP4, 8.Mod3.AD2**

### Lesson 7: Dilations on a Grid

- Apply dilations on a grid.

**8.G.A.3, MP7, 8.Mod3.AD2**

### Lesson 8: Dilations on the Coordinate Plane

- Apply dilations centered at the origin on the coordinate plane.
- Determine the scale factor of a dilation centered at the origin.

**8.G.A.3, MP8, 8.Mod3.AD2, 8.Mod3.AD3**

### Topic C: Similar Figures

### Lesson 9: Describing Dilations

- Precisely describe a dilation given a figure and its image.

**8.G.A.3, MP8, 8.Mod3.AD2**

### Lesson 10: Sequencing Transformations

- Apply sequences of transformations.

## Module 4

**8.EE.C.7, MP1, 8.Mod4.AD9**

### Lesson 5: An Interesting Application of Linear Equations, Part 1

- Informally show that every rational number has a decimal form that repeats or terminates.
- Use linear equations to write the fraction form of a decimal with one repeating digit.

**8.NS.A.1, 8.EE.C.7.b, MP8, 8.Mod4.AD1, 8.Mod4.AD11**

### Lesson 6: An Interesting Application of Linear Equations, Part 2

- Use linear equations to write the fraction form of any repeating decimal.

**8.NS.A.1, 8.EE.C.7.b, MP8, 8.Mod4.AD1, 8.Mod4.AD11**

### Topic B: The Structure of Linear Equations in One Variable

### Lesson 7: Linear Equations with More Than One Solution

- Identify that linear equations in one variable with infinitely many solutions are equivalent to the equation  $a = a$ .
- Solve linear equations in one variable that have only one solution or infinitely many solutions.

**8.EE.C.7.a, 8.EE.C.7.b, MP7, 8.Mod4.AD10, 8.Mod4.AD11**

### Lesson 8: Another Possible Number of Solutions

- Identify that linear equations in one variable with no solution are

## Module 5

**8.EE.C.8.a, 8.EE.C.8.b, MP7, 8.Mod5.AD1, 8.Mod5.AD4**

### Lesson 4: More Than One Solution

- Recognize that a system of linear equations that represents the same line has infinitely many solutions.
- Analyze whether a system of linear equations has only one solution, no solution, or infinitely many solutions.

**8.EE.C.8.a, 8.EE.C.8.b, MP7, 8.Mod5.AD1, 8.Mod5.AD3, 8.Mod5.AD4**

### Lesson 5: Estimating Solutions

- Recognize and describe the limitations of solving a system of linear equations by graphing.

**8.EE.C.8.a, 8.EE.C.8.b, MP1, 8.Mod5.AD1, 8.Mod5.AD3**

### Topic B: Solving Systems of Linear Equations Algebraically

### Lesson 6: Solving Systems of Linear Equations without Graphing

- Solve systems of linear equations by using the substitution method to write the systems as linear equations in one variable.

**8.EE.C.8.b, MP6, MP8, 8.Mod5.AD2**

### Lesson 7: The Substitution Method

- Solve a system of linear equations by using the substitution method.
- Apply the multiplication property of equality as part of the substitution method.

**8.EE.C.8.a, 8.EE.C.8.b, MP1, 8.Mod5.AD1, 8.Mod5.AD2**

## Module 6

- Determine what inputs make sense for a variety of functions.

**8.F.A.1, MP7, 8.Mod6.AD1**

### Lesson 5: Graphs of Functions and Equations

- Determine that if a function can be represented by an equation, then the graph of the function is the same as or some part of the graph of the equation.
- Determine whether a given graph represents a function.

**8.F.A.1, MP6, 8.Mod6.AD1**

### Topic B: Linear and Nonlinear Functions

### Lesson 6: Linear Functions and Rate of Change

- Calculate rates on a given interval to determine whether a function is a linear function.
- Determine the rate of change for a linear function and interpret the rate of change in context.

**8.F.A.3, 8.F.A.4, 8.SP.A.3, MP2, 8.Mod6.AD3, 8.Mod6.AD4, 8.Mod6.AD5**

### Lesson 7: Interpreting Rate of Change and Initial Value

- Interpret the rate of change and initial value of a linear function in context.
- Use rate of change to compare two linear functions.

**8.F.A.2, 8.F.A.4, 8.SP.A.3, MP2, 8.Mod6.AD2, 8.Mod6.AD4, 8.Mod6.AD5**

### Lesson 8: Comparing Functions

- Compare two functions represented in different ways.

**8.F.A.2, MP5, 8.Mod6.AD2**

## Module 1

- Write equivalent expressions given an expression of the form  $\frac{x^m}{x^n}$ .

**8.EE.A.1, MP6, 8.Mod1.AD5**

### Lesson 9: Writing Equivalent Expressions

- Write equivalent expressions by using all the properties and definitions of exponents.

**8.EE.A.1, MP7, 8.Mod1.AD5**

### Lesson 10: Evaluating Numerical Expressions by Using Properties of Exponents (Optional)

- Simplify and evaluate exponential expressions by using the properties and definitions of exponents.

**8.EE.A.1, MP3, 8.Mod1.AD5**

## Topic C: Applications of the Properties and Definitions of Exponents

### Lesson 11: Small Positive Numbers in Scientific Notation

- Write small positive numbers in scientific notation.
- Order numbers written in scientific notation.

**8.EE.A.3, MP3, 8.Mod1.AD8**

### Lesson 12: Operations with Numbers in Scientific Notation

- Interpret numbers in scientific notation displayed on digital devices.
- Operate with numbers written in scientific notation.

**8.EE.A.4, MP5, 8.Mod1.AD10, 8.Mod1.AD11, 8.Mod1.AD14**

### Lesson 13: Applications with Numbers in Scientific Notation

## Module 2

### Lesson 9: Ordering Sequences of Rigid Motions

- Determine whether the order in which a sequence of rigid motions is applied matters.

**8.G.A.2, 8.G.A.3, MP8, 8.Mod2.AD2, 8.Mod2.AD4**

### Lesson 10: Congruent Figures

- Describe a sequence of rigid motions that maps one figure onto a congruent figure.

**8.G.A.2, MP6, 8.Mod2.AD3**

### Lesson 11: Showing Figures Are Congruent

- Show figures are congruent by describing a sequence of rigid motions that maps one figure onto the other.

**8.G.A.2, MP1, 8.Mod2.AD2**

## Topic C: Angle Relationships

### Lesson 12: Lines Cut by a Transversal

- Use informal arguments to establish facts about the angles created when pairs of lines are cut by a transversal.

**8.G.A.2, 8.G.A.5, MP6, 8.Mod2.AD2, 8.Mod2.AD3, 8.Mod2.AD6**

### Lesson 13: Angle Sum of a Triangle

- Use informal arguments to verify that the sum of the interior angle measures of a triangle is  $180^\circ$ .

**8.G.A.5, MP3, 8.Mod2.AD5**

### Lesson 14: Showing Lines Are Parallel

- Use informal arguments to conclude that lines cut by a transversal are parallel when angle pairs are congruent.

## Module 3

- Recognize a sequence that involves a dilation and a translation as a single dilation.

**8.G.A.3, MP1, 8.Mod3.AD2**

### Lesson 11: Similar Figures

- Describe a sequence of rigid motions or dilations, or both, to show that two figures are similar.
- Identify properties of similar figures.

**8.G.A.4, MP6, 8.Mod3.AD4, 8.Mod3.AD5**

### Lesson 12: Exploring Angles in Similar Triangles

- Recognize that triangles with two pairs of congruent angles are similar.

**8.G.A.4, 8.G.A.5, MP7, 8.Mod3.AD4, 8.Mod3.AD5, 8.Mod3.AD6**

### Lesson 13: Similar Triangles

- Determine whether two triangles are similar by the angle-angle criterion.

**8.G.A.4, 8.G.A.5, MP3, 8.Mod3.AD4, 8.Mod3.AD6**

## Topic D: Applications of Similar Figures

### Lesson 14: Using Similar Figures to Find Unknown Side Lengths

- Use properties of similar figures to find unknown side lengths.

**8.G.A.5, MP1, 8.Mod3.AD6**

### Lesson 15: Applications of Similar Figures

- Use properties of similar figures to solve problems.

**8.G.A.5, MP2, 8.Mod3.AD6**

## Module 4

equivalent to the equation  $a = b$ , where  $a$  and  $b$  are different numbers.

- Solve linear equations in one variable that have only one solution, infinitely many solutions, or no solution.

**8.EE.C.7.a, 8.EE.C.7.b, MP7, 8.Mod4.AD10, 8.Mod4.AD11**

### Lesson 9: Writing Linear Equations

- Write equations with only one solution, infinitely many solutions, or no solution.
- Classify equations based on their number of solutions.

**8.EE.C.7.a, MP7, 8.Mod4.AD10**

### Lesson 10: Using Linear Equations to Solve Real-World Problems

- Solve real-world problems by using linear equations in one variable.

**8.EE.C.7, 8.EE.C.7.a, 8.EE.C.7.b, MP2, 8.Mod4.AD9, 8.Mod4.AD10, 8.Mod4.AD11**

### Lesson 11: Planning a Trip

- Solve a real-world problem by using linear equations in one variable.

**8.EE.C.7, 8.EE.C.7.b, MP4, 8.Mod4.AD9, 8.Mod4.AD11**

## Topic C: Linear Equations in Two Variables

### Lesson 12: Solutions to Linear Equations in Two Variables

- Find solutions to linear equations in two variables.
- Graph the solutions in the coordinate plane.

**8.EE.B, MP8, 8.Mod4.AD3**

### Lesson 13: The Graph of a Linear Equation in Two Variables

## Module 5

### Lesson 8: Using Tape Diagrams to Solve Systems of Equations (Optional)

- Find the solution to a system of linear equations by using tape diagrams.
  - Create tape diagrams to represent a system of linear equations.
- 8.EE.C.8.b, MP7, 8.Mod5.AD2, 8.EE.C.8.b, MP7, 8.Mod5.AD2,**

### Lesson 9: Rewriting Equations to Solve a System of Equations

- Solve a system of linear equations by using the substitution method.

**8.EE.C.8.b, MP7, 8.Mod5.AD2, 8.Mod5.AD4**

### Lesson 10: Choosing a Solution Method

- Analyze graphs and systems of equations to determine the number of solutions.
- Construct and critique arguments about the most efficient solution method.

**8.EE.C.8.a, 8.EE.C.8.b, MP3, MP5, 8.Mod5.AD1, 8.Mod5.AD2, 8.Mod5.AD4**

## Topic C: Writing and Solving Systems of Linear Equations

### Lesson 11: Writing and Solving Systems of Equations for Mathematical Problems

- Write and solve systems of linear equations for mathematical problems.

**8.EE.C.8.b, 8.EE.C.8.c, MP2, 8.Mod5.AD2, 8.Mod5.AD5**

### Lesson 12: Solving Historical Problems with Systems of Equations

- Write and solve a system of linear equations given a historical situation.

## Module 6

### Lesson 9: Increasing and Decreasing Functions

- Describe qualitative features of a function by analyzing a graph.
- Sketch the graph of a function given a description.

**8.F.B.5, MP6, 8.Mod6.AD6, 8.Mod6.AD7**

### Lesson 10: Graphs of Nonlinear Functions

- Sketch the graph of a function with certain qualitative features based on a description.
- Classify linear and nonlinear functions given a context, an equation, or a graph.

**8.F.A.3, 8.F.B.5, MP3, 8.Mod6.AD3, 8.Mod6.AD6, 8.Mod6.AD7**

## Topic C: Bivariate Numerical Data

### Lesson 11: Scatter Plots

- Construct scatter plots and identify those that show an association between two variables.
- Describe the difference between an association and a cause and effect relationship for numerical variables.

**8.SP.A.1, MP2, 8.Mod6.AD8**

### Lesson 12: Patterns in Scatter Plots

- Identify and describe patterns of association between two variables represented in scatter plots.
- Identify and describe outliers and clusters in context.

**8.SP.A.1, MP2, 8.Mod6.AD8**

### Lesson 13: Informally Fitting a Line to Data

## Module 1

- Operate with numbers written in standard form and scientific notation.

**8.EE.A.4, MP1, 8.Mod1.AD10, 8.Mod1.AD11**

**Lesson 14:** Choosing Units of Measurement

- Choose appropriate units of measurement and convert units of measurement.

**8.EE.A.4, MP2, 8.Mod1.AD13**

**Lesson 15:** Get to the Point

- Model a situation by operating with numbers in scientific notation.

**8.EE.A.4, MP4, 8.Mod1.AD12**

### Topic D: Perfect Squares, Perfect Cubes, and the Pythagorean Theorem

**Lesson 16:** Perfect Squares and Perfect Cubes

- Recognize perfect squares from 1 to 225 and perfect cubes from 1 to 125.
- Determine all numbers that square or cube to a given number.

**8.EE.A.2, MP8, 8.Mod1.AD7**

**Lesson 17:** Solving Equations with Squares and Cubes

- Solve equations of the forms  $x^2 = p$  and  $x^3 = p$ , where  $p$  is a rational number and the solutions are rational numbers.

**8.EE.A.2, MP3, 8.Mod1.AD6, 8.Mod1.AD7**

**Lesson 18:** The Pythagorean Theorem

- Describe the Pythagorean theorem and the conditions required to use it.

**8.G.B.7, 8.Mod1.AD15**

## Module 2

**8.G.A.5, MP3, 8.Mod2.AD6**

**Lesson 15:** Exterior Angles of Triangles

- Use informal arguments to establish facts about the exterior angles of triangles.
- Determine the unknown measure of an interior or exterior angle of a triangle.

**8.G.A.5, MP7, 8.Mod2.AD5, 8.Mod2.AD6**

**Lesson 16:** Find Unknown Angle Measures

- Use facts about angle relationships to write and solve equations.

**8.G.A.5, MP1, 8.Mod2.AD5, 8.Mod2.AD6**

### Topic D: Congruent Figures and the Pythagorean Theorem

**Lesson 17:** Proving the Pythagorean Theorem

- Explain a proof of the Pythagorean theorem.

**8.G.B.6, MP3, 8.Mod2.AD7**

**Lesson 18:** Proving the Converse of the Pythagorean Theorem

- Explain a proof of the converse of the Pythagorean theorem.

**8.G.B.6, MP3, 8.Mod2.AD7**

**Lesson 19:** Using the Pythagorean Theorem and Its Converse

- Use the converse of the Pythagorean theorem to determine whether a triangle is a right triangle.
- Use the Pythagorean theorem to find unknown side lengths of right triangles.

## Module 3

**Lesson 16:** Similar Right Triangles

- Apply dilations to create similar right triangles.
- Find unknown side lengths in similar right triangles.

**8.G.A.3, 8.G.A.5, 8.G.B.7, MP7, 8.Mod3.AD2, 8.Mod3.AD6, 8.Mod3.AD7**

**Lesson 17:** Similar Triangles on a Line

- Determine that right triangles with horizontal and vertical legs and with hypotenuses that lie on the same line are similar triangles.

**8.EE.B.6, 8.G.A.4, MP8, 8.Mod3.AD1, 8.Mod3.AD3**



## Module 4

- Identify that the graph of a linear equation of the form  $Ax + By = C$  is a line.

**8.EE.B, MP6, 8.Mod4.AD2, 8.Mod4.AD3**

**Lesson 14:** Lines with Special Characteristics

- Graph linear equations of the form  $Ax = C$  and  $By = C$  where  $A$  and  $B$  are nonzero.

**8.EE.B, MP8, 8.Mod4.AD2, 8.Mod4.AD3**

### Topic D: Slope of a Line

**Lesson 15:** Comparing Proportional Relationships

- Graph two proportional relationships and use unit rate to compare the steepness of each line.
- Compare proportional relationships represented in different ways.

**8.EE.B.5, MP2, 8.Mod4.AD6**

**Lesson 16:** Proportional Relationships and Slope

- Relate the unit rate of a proportional relationship to the slope of the associated line.
- Find the slope of a line through the origin.

**8.EE.5, 8.EE.6, MP6, 8.Mod4.AD5, 8.Mod4.AD7**

**Lesson 17:** Slopes of Rising Lines

- Find slopes of rising lines by using slope triangles.
- Graph a rising line given the slope and a point on the line.

**8.EE.B.6, MP1, 8.Mod4.AD7**

**Lesson 18:** Slopes of Falling Lines

## Module 5

**8.EE.C.8.b, 8.EE.C.8.c, MP2, 8.Mod5.AD2, 8.Mod5.AD5**

**Lesson 13:** Writing and Solving Systems of Equations for Real-World Problems

- Write and solve a system of linear equations given a real-world situation.

**8.EE.C.8.b, 8.EE.C.8.c, MP2, 8.Mod5.AD2, 8.Mod5.AD5**

**Lesson 14:** Back to the Coordinate Plane

- Write and solve systems of linear equations when given information about two lines to identify intersection points.

**8.EE.C.8.a, 8.EE.C.8.b, 8.EE.C.8.c, MP1, 8.Mod5.AD1, 8.Mod5.AD2, 8.Mod5.AD3**



## Module 6

- Informally fit a line to data displayed in a scatter plot.
- Make predictions based on the graph of a line fit to data.

**8.SP.A.2, MP3, 8.Mod6.AD9**

**Lesson 14:** Determining an Equation of a Line Fit to Data

- Determine an equation of a line informally fit to data displayed in a scatter plot and interpret the slope and  $y$ -intercept in context.

**8.SP.A.3, MP6, 8.Mod6.AD10**

**Lesson 15:** Linear Models

- Use a linear function to model the association between two numerical variables.
- Informally assess the fit of a line to data in a scatter plot by judging the closeness of the data points to the line.

**8.SP.A.2, 8.SP.A.3, MP7, 8.Mod6.AD9, 8.Mod6.AD10**

**Lesson 16:** Using the Investigative Process

- Use the investigative process to explore claims about proportional relationships in the human body.

**8.SP.A.2, 8.SP.A.3, MP4, 8.Mod6.AD9, 8.Mod6.AD10**

**Lesson 17:** Analyzing the Model

- Present the results of a statistical investigation.
- Critique the statistical investigations presented by others.

**8.SP.A.2, 8.SP.A.3, MP2, 8.Mod6.AD9, 8.Mod6.AD10**

### Topic D: Bivariate Categorical Data

## Module 1

### Lesson 19: Using the Pythagorean Theorem

- Apply the Pythagorean theorem to find the unknown length of the hypotenuse of a right triangle.
- Find two consecutive whole numbers which the length of the hypotenuse is between when the length is not rational.
- Use square root notation to express lengths that are not rational.

**8.G.B.7, MP2, 8.Mod1.AD15**

### Lesson 20: Square Roots

- Place square roots on a number line.
- 8.EE.A.2, 8.G.B.7, MP8, 8.Mod1.AD6, 8.Mod1.AD15**

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## Topic E: Irrational Numbers

### Lesson 21: Approximating Values of Roots and $\pi^2$

- Approximate values of square roots, cube roots, and  $\pi^2$ .
- 8.NS.A.2, 8.Mod1.AD3, 8.Mod1.AD4**

### Lesson 22: Familiar and Not So Familiar Numbers

- Identify numbers as rational, irrational, and real by their decimal form.
  - Compare the characteristics of rational and irrational numbers.
- 8.NS.A.1, 8.EE.A.2, MP3, 8.Mod1.AD1**

### Lesson 23: Ordering Irrational Numbers

- Order irrational numbers.
  - Approximate the value of expressions with irrational numbers.
- 8.NS.A.2, MP7, 8.Mod1.AD2, 8.Mod1.AD3, 8.Mod1.AD4**

## Module 2

**8.G.B.6, 8.G.B.7, MP7, 8.Mod2.AD7, 8.Mod2.AD8**

### Lesson 20: Distance in the Coordinate Plane

- Find the distance between two points in the coordinate plane by using the Pythagorean theorem.

**8.G.B.8, MP7, 8.Mod2.AD9**

### Lesson 21: Applying the Pythagorean Theorem

- Apply the Pythagorean theorem to solve real-world and mathematical problems.
- Evaluate square roots.

**8.G.B.7, MP2, 8.Mod2.AD8**

### Lesson 22: On the Right Path

- Model a situation by using the Pythagorean theorem and the distance on a grid to solve a problem.

**8.G.B.7, 8.G.B.8, MP4, 8.Mod2.AD8, 8.Mod2.AD9**



## Module 3

## Module 4

- Find slopes of falling lines by using slope triangles.
- Graph a falling line given the slope and a point on the line.

**8.EE.B.6, MP3, 8.Mod4.AD7**

### Lesson 19: Using Coordinates to Find Slope

- Develop a formula for the slope of a line.
- Find the slope of a line given the coordinates of at least two points on the line.

**8.EE.B.6, MP8, 8.Mod4.AD7**

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## Topic E: Different Forms of Linear Equations

### Lesson 20: Slope-Intercept Form of the Equation of a Line

- Use similar triangles to develop the slope-intercept form of the equation of a line.
- Write equations in slope-intercept form from graphs and graph equations given in slope-intercept form.

**8.EE.B, 8.EE.B.6, MP7, 8.Mod4.AD2, 8.Mod4.AD8**

### Lesson 21: Slope and Parallel Lines

- Determine the relationship between slope and parallel lines.
- Determine whether lines are parallel.

**8.EE.B, MP3, 8.Mod4.AD2**

### Lesson 22: Point-Slope Form of the Equation of a Line

- Use similar triangles to develop the point-slope form of the equation of a line.
- Graph equations given in point-slope form and write equations in point-slope form given graphs.

**8.EE.B, MP7, 8.Mod4.AD2**

## Module 5

## Module 6

### Lesson 18: Bivariate Categorical Data

- Construct and interpret a two-way table summarizing a bivariate categorical data set.

**8.SP.A.4, MP7, 8.Mod6.AD11**

### Lesson 19: Association in Bivariate Categorical Data

- Determine whether there is evidence of an association between categorical variables that have two possible values.
- Compare and contrast evidence of an association represented in two-way tables and segmented bar graphs.

**8.SP.A.4, MP6, 8.Mod6.AD11, 8.Mod6.AD12**

### Lesson 20: Analyzing Bivariate Categorical Data

- Determine whether there is evidence of an association between categorical variables that have two or more possible values.
- Describe the difference between an association and a cause and effect relationship for categorical variables.

**8.SP.A.4, MP5, 8.Mod6.AD11, 8.Mod6.AD12**

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## Topic E: Volume

### Lesson 21: Volumes of Prisms and Pyramids

- Find the volume of prisms.
- Develop and use the formula for the volume of a pyramid.

**8.G.C.9, MP6, 8.Mod6.AD13**

### Lesson 22: Volume of Cylinders

- Develop and use the formula for the volume of a cylinder.
- Find volumes of oblique cylinders and prisms.

**8.G.C.9, MP8, 8.Mod6.AD13**

## Module 1

### Lesson 24: Revisiting Equations with Squares and Cubes

- Solve equations of the forms  $x^2 = p$  and  $x^3 = p$ , where  $p$  is a rational number and the solutions are real numbers.

**8.EE.A.2, MP6, 8.Mod1.AD6**



## Module 2

## Module 3

## Module 4

### Lesson 23: Comparing Equations in Different Forms

- Determine whether linear equations in different forms represent the same line.
- Write linear equations from tables.

**8.EE.B, MP7, 8.Mod4.AD2**

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### Topic F: Graphing and Writing Linear Equations

#### Lesson 24: The Patterns, the Pops, and the Pastries

- Write an equation of a line given a graph.
- Write an equation of a line given information about the line.

**8.EE.B, MP1, 8.Mod4.AD2**

#### Lesson 25: Lines, Lines, and More Lines

- Graph linear equations given in various forms.

**8.EE.B, MP5, 8.Mod4.AD2**

#### Lesson 26: Linear Equations from Word Problems

- Use linear equations to solve problems with real-world contexts.

**8.EE.B, MP2, 8.Mod4.AD4**

#### Lesson 27: Get to Work

- Model a real-world situation with linear equations and use the equations to answer questions about the situation.
- Interpret the meaning of different components of the linear equations in context.

**8.EE.B, MP1, 8.Mod4.AD4**



## Module 5

## Module 6

### Lesson 23: Volume of Cones

- Develop and use the formula for the volume of a cone.
- Solve problems involving volumes of cylinders, cones, prisms, and pyramids.

**8.G.C.9, MP7, 8.Mod6.AD13**

### Lesson 24: Volume of Spheres

- Develop and use the formula for the volume of a sphere.
- Solve problems involving volumes of cylinders, cones, and spheres.

**8.G.C.9, MP6, 8.Mod6.AD13**

### Lesson 25: Applications of Volume

- Use functions to solve problems involving volumes of cylinders, cones, and spheres.

**8.F.B.4, 8.G.C.9, MP1, 8.Mod6.AD4, 8.Mod6.AD13**





## Table of Contents

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## Grade 3 • Module 1

# Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10

## OVERVIEW

This 25-day module begins the year by building on students' fluency with addition and their knowledge of arrays. In Topic A, students initially use repeated addition to find the total from a number of equal groups (**2.OA.4**). As students notice patterns, they let go of longer addition sentences in favor of more efficient multiplication facts (**3.OA.1**). Lessons in Topic A move students' Grade 2 work with arrays and repeated addition a step further by developing skip-counting rows as a strategy for multiplication. Arrays become a cornerstone of the module. Students use the language of multiplication as they understand what factors are and differentiate between the size of groups and the number of groups within a given context. In this module, the factors 2, 3, 4, 5, and 10 provide an entry point for moving into more difficult factors in later modules.

The study of factors links Topics A and B; Topic B extends the study to division. Students understand division as an unknown factor problem and relate the meaning of unknown factors to either the number or the size of groups (**3.OA.2**, **3.OA.6**). By the end of Topic B, students are aware of a fundamental connection between multiplication and division that lays the foundation for the rest of the module.

In Topic C, students use the array model and familiar skip-counting strategies to solidify their understanding of multiplication and practice related facts of 2 and 3. They become fluent enough with arithmetic patterns to *add* or *subtract* groups from known products to solve more complex multiplication problems (**3.OA.1**). They apply their skills to word problems using drawings and equations with a symbol to find the unknown factor (**3.OA.3**). This culminates in students using arrays to model the distributive property as they decompose units to multiply (**3.OA.5**).

In Topic D, students model, write, and solve partitive and measurement division problems with 2 and 3 (**3.OA.2**). Consistent skip-counting strategies and the continued use of array models are pathways for students to naturally relate multiplication and division. Modeling advances as students use tape diagrams to represent multiplication and division. A final lesson in this topic solidifies a growing understanding of the relationship between operations (**3.OA.7**).

**The Distributive Property**

$6 \times 4 = \underline{\quad}$

$(5 \times 4) = 20$


$(1 \times 4) = 4$

$(6 \times 4) = (5 \times 4) + (1 \times 4)$   
 $= 20 + 4$




Topic E shifts students from simple understanding to analyzing the relationship between multiplication and division. Practice of both operations is combined—this time using units of 4—and a lesson is explicitly dedicated to modeling the connection between them (3.OA.7). Skip-counting, the distributive property, arrays, number bonds, and tape diagrams are tools for both operations (3.OA.1, 3.OA.2). A final lesson invites students to explore their work with arrays and related facts through the lens of the commutative property as it relates to multiplication (3.OA.5).

**The Commutative Property**



3 rows of 5



5 rows of 3

$3 \times 5 = 5 \times 3$

Topic F introduces the factors 5 and 10, familiar from skip-counting in Grade 2. Students apply the multiplication and division strategies they have used to mixed practice with all of the factors included in Module 1 (3.OA.1, 3.OA.2, 3.OA.3). Students model relationships between factors, analyzing the arithmetic patterns that emerge to compose and decompose numbers, as they further explore the relationship between multiplication and division (3.OA.3, 3.OA.5, 3.OA.7).

In the final lesson of the module, students apply the tools, representations, and concepts they have learned to problem solving with multi-step word problems using all four operations (3.OA.3, 3.OA.8). They demonstrate the flexibility of their thinking as they assess the reasonableness of their answers for a variety of problem types.

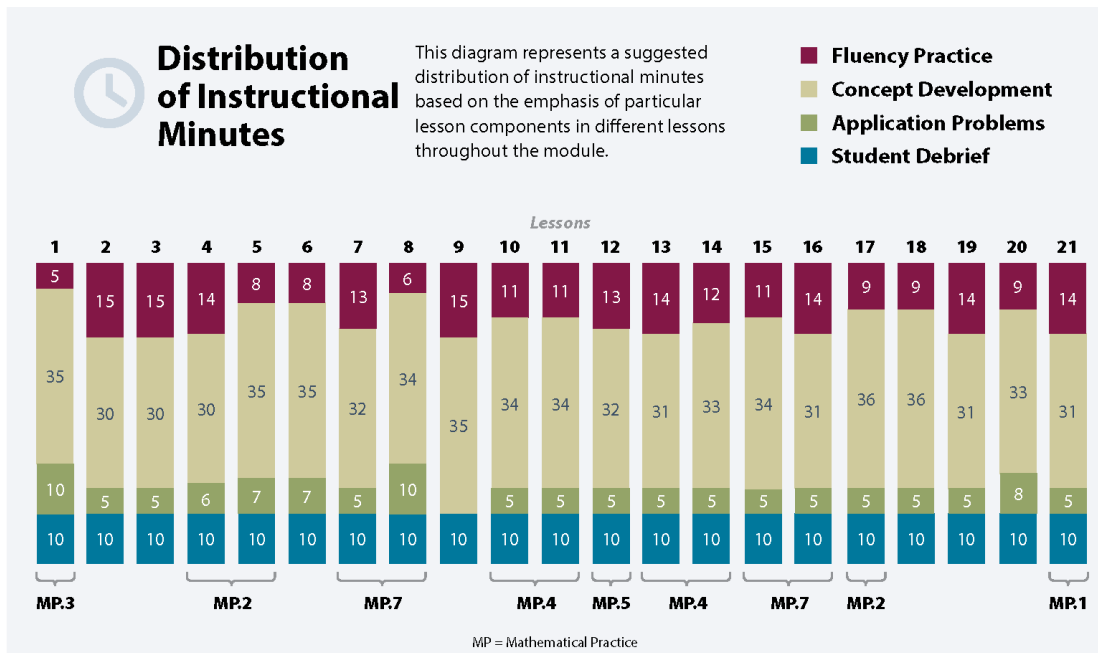
The Mid-Module Assessment follows Topic C. The End-of-Module Assessment follows Topic F.

### Notes on Pacing for Differentiation

If pacing is a challenge, consider the following modifications and omissions.

Consolidate Lessons 12 and 13, both of which are division lessons sharing the same objective. Include units of 2 and units of 3 in the consolidated lesson.

Omit Lessons 15 and 19. Lesson 15 uses the tape diagram to provide a new perspective on the commutative property, a concept students have studied since Lesson 7. Lesson 19 introduces the significant complexity of the distributive property with division. The concepts from both lessons are reinforced within Module 3.



## Focus Grade Level Standards

### Represent and solve problems involving multiplication and division.<sup>1</sup>

- 3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*
- 3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 2.)
- 3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$*

### Understand properties of multiplication and the relationship between multiplication and division.<sup>2</sup>

- 3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)<sup>3</sup>*
- 3.OA.6** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

### Multiply and divide within 100.<sup>4</sup>

- 3.OA.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

<sup>1</sup>Limited to factors of 2–5 and 10 and the corresponding dividends in this module.

<sup>2</sup>Limited to factors of 2–5 and 10 and the corresponding dividends in this module.

<sup>3</sup>The associative property is addressed in Module 3.

<sup>4</sup>Limited to factors of 2–5 and 10 and the corresponding dividends in this module.

## Solve problems involving the four operations, and identify and explain patterns in arithmetic.<sup>5</sup>

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)

## Foundational Standards

- 2.OA.3** Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
- 2.OA.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
- 2.NBT.2** Count within 1000; skip-count by 5s, 10s, and 100s.

## Focus Standards for Mathematical Practice

- MP.1** **Make sense of problems and persevere in solving them.** Students model multiplication and division using the array model. They solve two-step mixed word problems and assess the reasonableness of their solutions.
- MP.2** **Reason abstractly and quantitatively.** Students make sense of quantities and their relationships as they explore the properties of multiplication and division and the relationship between them. Students decontextualize when representing equal group situations as multiplication and when they represent division as partitioning objects into equal shares or as unknown factor problems. Students contextualize when they consider the value of units and understand the meaning of the quantities as they compute.
- MP.3** **Construct viable arguments and critique the reasoning of others.** Students represent and solve multiplication and division problems using arrays and equations. As they compare methods, they construct arguments and critique the reasoning of others. This practice is particularly exemplified in daily Application Problems and in specific lessons dedicated to problem solving in which students solve and reason with others about their work.
- MP.4** **Model with mathematics.** Students represent equal groups using arrays and equations to multiply, divide, add, and subtract.
- MP.7** **Look for and make use of structure.** Students notice structure when they represent quantities by using drawings and equations to represent the commutative and distributive properties. The relationship between multiplication and division also highlights structure for students as they determine the unknown whole number in a multiplication or division equation.

<sup>5</sup>In this module, problem solving is limited to factors of 2–5 and 10 and the corresponding dividends. 3.OA.9 is addressed in Module 3.

## Overview of Module Topics and Lesson Objectives

Standards	Topics and Objectives	Days
<b>3.OA.1</b> 3.OA.3	<b>A Multiplication and the Meaning of the Factors</b> Lesson 1: Understand <i>equal groups of</i> as multiplication. Lesson 2: Relate multiplication to the array model. Lesson 3: Interpret the meaning of factors—the size of the group or the number of groups.	3
<b>3.OA.2</b> <b>3.OA.6</b> 3.OA.3 3.OA.4	<b>B Division as an Unknown Factor Problem</b> Lesson 4: Understand the meaning of the unknown as the size of the group in division. Lesson 5: Understand the meaning of the unknown as the number of groups in division. Lesson 6: Interpret the unknown in division using the array model.	3
<b>3.OA.1</b> <b>3.OA.5</b> 3.OA.3 3.OA.4	<b>C Multiplication Using Units of 2 and 3</b> Lessons 7–8: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models. Lesson 9: Find related multiplication facts by adding and subtracting equal groups in array models. Lesson 10: Model the distributive property with arrays to decompose units as a strategy to multiply.	4
	Mid-Module Assessment: Topics A–C (assessment ½ day, return ½ day, remediation or further applications 1 day)	2
<b>3.OA.2</b> <b>3.OA.4</b> <b>3.OA.6</b> <b>3.OA.7</b> 3.OA.3 3.OA.8	<b>D Division Using Units of 2 and 3</b> Lesson 11: Model division as the unknown factor in multiplication using arrays and tape diagrams. Lesson 12: Interpret the quotient as the number of groups or the number of objects in each group using units of 2. Lesson 13: Interpret the quotient as the number of groups or the number of objects in each group using units of 3.	3



Standards	Topics and Objectives	Days
<b>3.OA.5</b> <b>3.OA.7</b> 3.OA.1 3.OA.2 3.OA.3 3.OA.4 3.OA.6	<b>E Multiplication and Division Using Units of 4</b> Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4. Lesson 15: Relate arrays to tape diagrams to model the commutative property of multiplication. Lesson 16: Use the distributive property as a strategy to find related multiplication facts. Lesson 17: Model the relationship between multiplication and division.	4
<b>3.OA.3</b> <b>3.OA.5</b> <b>3.OA.7</b> <b>3.OA.8</b> 3.OA.1 3.OA.2 3.OA.4 3.OA.6	<b>F Distributive Property and Problem Solving Using Units of 2–5 and 10</b> Lessons 18–19: Apply the distributive property to decompose units. Lesson 20: Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers. Lesson 21: Solve two-step word problems involving all four operations, and assess the reasonableness of answers.	4
	End-of-Module Assessment: Topics A–F (assessment ½ day, return ½ day, remediation or further application 1 day)	2
<b>Total Number of Instructional Days</b>		<b>25</b>

## Terminology

### New or Recently Introduced Terms

- Array<sup>6</sup> (arrangement of objects in rows and columns)
- Commutative property/commutative (e.g., rotate a rectangular array 90 degrees to demonstrate that factors in a multiplication sentence can switch places)
- Equal groups (with reference to multiplication and division; one factor is the number of objects in a group and the other is a multiplier that indicates the number of groups)
- Distribute (with reference to the distributive property, e.g., in  $12 \times 3 = (10 \times 3) + (2 \times 3)$  the 3 is the multiplier for each part of the decomposition)
- Divide/division (partitioning a total into equal groups to show how many equal groups add up to a specific number, e.g.,  $15 \div 5 = 3$ )

<sup>6</sup>Originally introduced in Grade 2, Module 6 but treated as new vocabulary in this module.

- Factors (numbers that are multiplied to obtain a product)
- Multiplication/multiply (an operation showing how many times a number is added to itself, e.g.,  $5 \times 3 = 15$ )
- Number of groups (factor in a multiplication problem that refers to the total equal groups)
- Parentheses (symbols ( ) used around an expression or numbers within an equation)
- Product (the answer when one number is multiplied by another)
- Quotient (the answer when one number is divided by another)
- Rotate (turn, used with reference to turning arrays 90 degrees)
- Row/column<sup>7</sup> (in reference to rectangular arrays)
- Size of groups (factor in a multiplication problem that refers to how many in a group)
- Unit (one segment of a partitioned tape diagram)
- Unknown (the missing factor or quantity in multiplication or division)

### Familiar Terms and Symbols<sup>8</sup>

- Add 1 unit, subtract 1 unit (add or subtract a single unit of two, ten, etc.)
- Expression (see expanded description in box above)
- Number bond (illustrates part–part–whole relationship, shown at right)
- Ones, twos, threes, etc. (units of one, two, or three)
- Repeated addition (adding equal groups together, e.g.,  $2 + 2 + 2 + 2$ )
- Tape diagram (a method for modeling problems)
- Value (how much)

### Suggested Tools and Representations

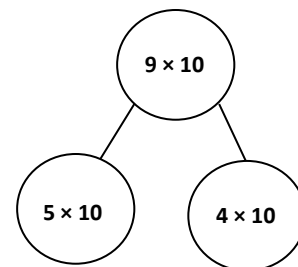
- 18 counters per student
- Tape diagram (a method for modeling problems)
- Number bond (shown at right)
- Array (arrangement of objects in rows and columns)



#### NOTES ON EXPRESSION, EQUATION, AND NUMBER SENTENCE:

Please note the descriptions for the following terms, which are frequently misused.

- **Expression:** A number, or any combination of sums, differences, products, or divisions of numbers that evaluates to a number (e.g.,  $3 + 4$ ,  $8 \times 3$ ,  $15 \div 3$  as distinct from an equation or number sentence).
- **Equation:** A statement that two expressions are equal (e.g.,  $3 \times \underline{\quad} = 12$ ,  $5 \times b = 20$ ,  $3 + 2 = 5$ ).
- **Number sentence** (also addition, subtraction, multiplication, or division sentence): An equation or inequality for which both expressions are numerical and can be evaluated to a single number (e.g.,  $4 + 3 = 6 + 1$ ,  $2 = 2$ ,  $21 > 7 \times 2$ ,  $5 \div 5 = 1$ ). Number sentences are either true or false (e.g.,  $4 + 4 < 6 \times 2$  and  $21 \div 7 = 4$ ) and contain no unknowns.



<sup>7</sup>Originally introduced in Grade 2, Module 6 but treated as new vocabulary in this module.

<sup>8</sup>These are terms and symbols students have used or seen previously.

## Suggested Methods of Instructional Delivery

### Directions for Administration of Sprints

Sprints are designed to develop fluency. They should be fun, adrenaline-rich activities that intentionally build energy and excitement. A fast pace is essential. During Sprint administration, teachers assume the role of athletic coaches. A rousing routine fuels students' motivation to do their personal best. Student recognition of increasing success is critical, and so every improvement is celebrated.

One Sprint has two parts with closely related problems on each. Students complete the two parts of the Sprint in quick succession with the goal of improving on the second part, even if only by one more.

With practice, the following routine takes about 9 minutes.

#### Sprint A

Pass Sprint A out quickly, face down on student desks with instructions to not look at the problems until the signal is given. (Some Sprints include words. If necessary, prior to starting the Sprint, quickly review the words so that reading difficulty does not slow students down.)

T: You will have 60 seconds to do as many problems as you can. I do not expect you to finish all of them. Just do as many as you can, your personal best. (If some students are likely to finish before time is up, assign a number to count by on the back.)

T: Take your mark! Get set! THINK!

Students immediately turn papers over and work furiously to finish as many problems as they can in 60 seconds. Time precisely.

T: Stop! Circle the last problem you did. I will read just the answers. If you got it right, call out "Yes!" If you made a mistake, circle it. Ready?

T: (Energetically, rapid-fire call the first answer.)

S: Yes!

T: (Energetically, rapid-fire call the second answer.)

S: Yes!

Repeat to the end of Sprint A or until no student has a correct answer. If needed, read the count-by answers in the same way the Sprint answers were read. Each number counted-by on the back is considered a correct answer.

T: Fantastic! Now, write the number you got correct at the top of your page. This is your personal goal for Sprint B.

T: How many of you got one right? (All hands should go up.)

T: Keep your hand up until I say the number that is one more than the number you got correct. So, if you got 14 correct, when I say 15, your hand goes down. Ready?

T: (Continue quickly.) How many got two correct? Three? Four? Five? (Continue until all hands are down.)

If the class needs more practice with Sprint A, continue with the optional routine presented below.

T: I'll give you one minute to do more problems on this half of the Sprint. If you finish, stand behind your chair.

As students work, the student who scored highest on Sprint A might pass out Sprint B.

T: Stop! I will read just the answers. If you got it right, call out "Yes!" If you made a mistake, circle it. Ready? (Read the answers to the first half again as students stand.)

### Movement

To keep the energy and fun going, always do a stretch or a movement game in between Sprints A and B. For example, the class might do jumping jacks while skip-counting by 5 for about 1 minute. Feeling invigorated, students take their seats for Sprint B, ready to make every effort to complete more problems this time.

### Sprint B

Pass Sprint B out quickly, face down on student desks with instructions not to look at the problems until the signal is given. (Repeat the procedure for Sprint A up through the show of hands for how many right.)

T: Stand up if you got more correct on the second Sprint than on the first.

S: (Stand.)

T: Keep standing until I say the number that tells how many more you got right on Sprint B. If you got three more right on Sprint B than you did on Sprint A, when I say *three*, you sit down. Ready? (Call out numbers starting with one. Students sit as the number by which they improved is called. Celebrate the students who improved most with a cheer.)

T: Well done! Now, take a moment to go back and correct your mistakes. Think about what patterns you noticed in today's Sprint.

T: How did the patterns help you get better at solving the problems?

T: Rally Robin your thinking with your partner for 1 minute. Go!

Rally Robin is a style of sharing in which partners trade information back and forth, one statement at a time per person, for about 1 minute. This is an especially valuable part of the routine for students who benefit from their friends' support to identify patterns and try new strategies.

Students may take Sprints home.



### RDW or Read, Draw, Write (an Equation and a Statement)

Mathematicians and teachers suggest a simple process applicable to all grades:

1. Read.
2. Draw and label.
3. Write an equation.
4. Write a word sentence (statement).

The more students participate in reasoning through problems with a systematic approach, the more they internalize those behaviors and thought processes.

- What do I see?
- Can I draw something?
- What conclusions can I make from my drawing?

Modeling with Interactive Questioning	Guided Practice	Independent Practice
<p>The teacher models the whole process with interactive questioning, some choral response, and talk such as “What did Monique say, everyone?” After completing the problem, students might reflect with a partner on the steps they used to solve the problem. “Students, think back on what we did to solve this problem. What did we do first?” Students might then be given the same or a similar problem to solve for homework.</p>	<p>Each student has a copy of the question. Though guided by the teacher, they work independently at times and then come together again. Timing is important. Students might hear, “You have 2 minutes to do your drawing.” Or, “Put your pencils down. Time to work together again.” The Debrief might include selecting different student work to share.</p>	<p>Students are given a problem to solve and possibly a designated amount of time to solve it. The teacher circulates, supports, and thinks about which student work to show to support the mathematical objectives of the lesson. When sharing student work, students are encouraged to think about the work with questions such as, “What do you see that Jeremy did?” “What is the same about Jeremy’s work and Sara’s work?” “How did Jeremy show <math>\frac{3}{7}</math> of the students?” “How did Sara show <math>\frac{3}{7}</math> of the students?”</p>

## Personal White Boards

### Materials Needed for Personal White Boards

- 1 heavy duty clear sheet protector
- 1 piece of stiff red tag board 11" × 8 ¼"
- 1 piece of stiff white tag board 11" × 8 ¼"
- 1 3" × 3" piece of dark synthetic cloth for an eraser (e.g., felt)
- 1 low odor blue dry erase marker, fine point

### Directions for Creating Personal White Boards

Cut the white and red tag to specifications. Slide into the sheet protector. Store the eraser on the red side. Store markers in a separate container to avoid stretching the sheet protector.

### Frequently Asked Questions About Personal White Boards

*Why is one side red and one white?*

- The white side of the board is the “paper.” Students generally write on it, and if working individually, turn the board over to signal to the teacher they have completed their work. The teacher then says, “Show me your boards,” when most of the class is ready.

*What are some of the benefits of a personal white board?*

- The teacher can respond quickly to gaps in student understandings and skills. “Let’s do some of these on our personal white boards until we have more mastery.”
- Students can erase quickly so that they do not have to suffer the evidence of their mistake.
- They are motivating. Students love both the drill and thrill capability and the chance to do story problems with an engaging medium.
- Checking work gives the teacher instant feedback about student understanding.

*What is the benefit of this personal white board over a commercially purchased dry erase board?*

- It is much less expensive.
- Templates such as place value charts, number bond mats, hundreds boards, and number lines can be stored between the two pieces of tag board for easy access and reuse.
- Worksheets, story problems, and other Problem Sets can be done without marking the paper so that students can work on the problems independently at another time.
- Strips with story problems, number lines, and arrays can be inserted and still have a full piece of paper on which to write.
- The red versus white side distinction clarifies expectations. When working collaboratively, there is no need to use the red side. When working independently, students know how to keep their work private.
- The tag board can be removed if necessary to project the work.

## Scaffolds<sup>9</sup>

The scaffolds integrated into *A Story of Units* give alternatives for how students access information as well as express and demonstrate their learning. Strategically placed margin notes are provided within each lesson elaborating on the use of specific scaffolds at applicable times. They address many needs presented by English language learners, students with disabilities, students performing above grade level, and students performing below grade level. Many of the suggestions are organized by Universal Design for Learning (UDL) principles and are applicable to more than one population. To read more about the approach to differentiated instruction in *A Story of Units*, please refer to “How to Implement *A Story of Units*.”

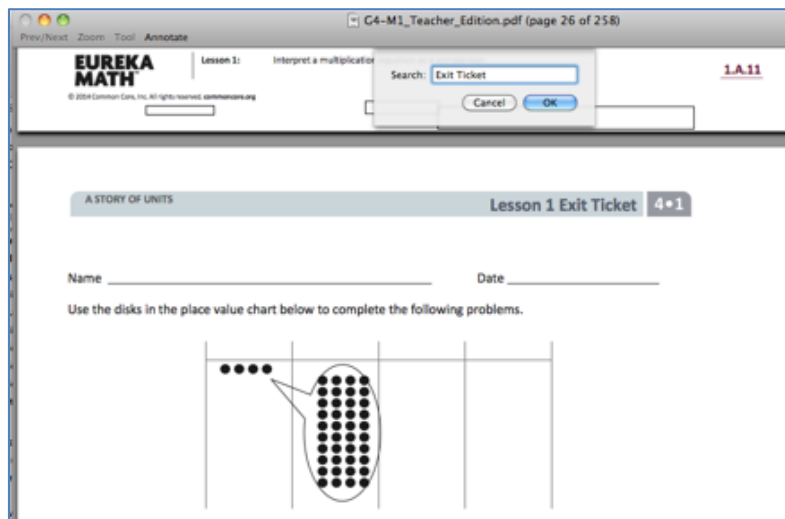
## Preparing to Teach a Module

Preparation of lessons will be more effective and efficient if there has been an adequate analysis of the module first. Each module in *A Story of Units* can be compared to a chapter in a book. How is the module moving the plot, the mathematics, forward? What new learning is taking place? How are the topics and objectives building on one another? The following is a suggested process for preparing to teach a module.

Step 1: Get a preview of the plot.

- A: Read the Table of Contents. At a high level, what is the plot of the module? How does the story develop across the topics?
- B: Preview the module’s Exit Tickets<sup>10</sup> to see the trajectory of the module’s mathematics and the nature of the work students are expected to be able to do.

Note: When studying a PDF file, enter “Exit Ticket” into the search feature to navigate from one Exit Ticket to the next.



<sup>9</sup>Students with disabilities may require Braille, large print, audio, or special digital files. Please visit the website, [www.p12.nysed.gov/specialed/aim](http://www.p12.nysed.gov/specialed/aim), for specific information on how to obtain student materials that satisfy the National Instructional Materials Accessibility Standard (NIMAS) format.

<sup>10</sup> A more in-depth preview can be done by searching the Problem Sets rather than the Exit Tickets. Furthermore, this same process can be used to preview the coherence or flow of any component of the curriculum, such as Fluency Practice or Application Problems.

Step 2: Dig into the details.

- A: Dig into a careful reading of the Module Overview. While reading the narrative, *liberally* reference the lessons and Topic Overviews to clarify the meaning of the text—the lessons demonstrate the strategies, show how to use the models, clarify vocabulary, and build understanding of concepts. Consider searching the video gallery on *Eureka Math's* website to watch demonstrations of the use of models and other teaching techniques.
- B: Having thoroughly investigated the Module Overview, read through the chart entitled Overview of Module Topics and Lesson Objectives to further discern the plot of the module. How do the topics flow and tell a coherent story? How do the objectives move from simple to complex?

Step 3: Summarize the story.

Complete the Mid- and End-of-Module Assessments. Use the strategies and models presented in the module to explain the thinking involved. Again, liberally reference the work done in the lessons to see how students who are learning with the curriculum might respond.

## Preparing to Teach a Lesson

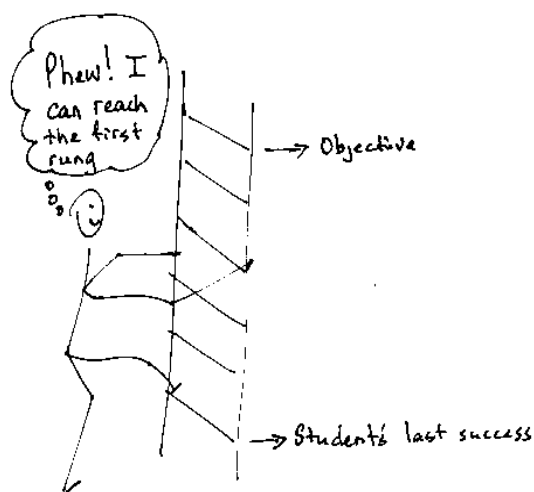
A three-step process is suggested to prepare a lesson. It is understood that at times teachers may need to make adjustments (customizations) to lessons to fit the time constraints and unique needs of their students. The recommended planning process is outlined below. Note: The ladder of Step 2 is a metaphor for the teaching sequence. The sequence can be seen not only at the macro level in the role that this lesson plays in the overall story, but also at the lesson level, where each rung in the ladder represents the next step in understanding or the next skill needed to reach the objective. To reach the objective, or the top of the ladder, all students must be able to access the first rung and each successive rung.

Step 1: Discern the plot.

- A: Briefly review the module's Table of Contents, recalling the overall story of the module and analyzing the role of this lesson in the module.
- B: Read the Topic Overview related to the lesson, and then review the Problem Set and Exit Ticket of each lesson in the topic.
- C: Review the assessment following the topic, keeping in mind that assessments can be found midway through the module and at the end of the module.

Step 2: Find the ladder.

- A: Complete the lesson's Problem Set.
- B: Analyze and write notes on the new complexities of each problem as well as the sequences and progressions throughout problems (e.g., pictorial to abstract, smaller to larger numbers, single- to multi-step problems). The new complexities are the rungs of the ladder.
- C: Anticipate where students might struggle, and write a note about the potential cause of the struggle.
- D: Answer the Student Debrief questions, always anticipating how students will respond.



Step 3: Hone the lesson.

At times, the lesson and Problem Set are appropriate for all students and the day’s schedule. At others, they may need customizing. If the decision is to customize based on either the needs of students or scheduling constraints, a suggestion is to decide upon and designate “Must Do” and “Could Do” problems.

- A: Select “Must Do” problems from the Problem Set that meet the objective and provide a coherent experience for students; reference the ladder. The expectation is that the majority of the class will complete the “Must Do” problems within the allocated time. While choosing the “Must Do” problems, keep in mind the need for a balance of calculations, various word problem types<sup>11</sup>, and work at both the pictorial and abstract levels.
- B: “Must Do” problems might also include remedial work as necessary for the whole class, a small group, or individual students. Depending on anticipated difficulties, those problems might take different forms as shown in the chart below.

Anticipated Difficulty	“Must Do” Remedial Problem Suggestion
The first problem of the Problem Set is too challenging.	Write a short sequence of problems on the board that provides a ladder to Problem 1. Direct the class or small group to complete those first problems to empower them to begin the Problem Set. Consider labeling these problems “Zero Problems” since they are done prior to Problem 1.
There is too big of a jump in complexity between two problems.	Provide a problem or set of problems that creates a bridge between the two problems. Label them with the number of the problem they follow. For example, if the challenging jump is between Problems 2 and 3, consider labeling the bridging problems “Extra 2s.”
Students lack fluency or foundational skills necessary for the lesson.	Before beginning the Problem Set, do a quick, engaging fluency exercise, such as a Rapid White Board Exchange, “Thrilling Drill,” or Sprint. Before beginning any fluency activity for the first time, assess that students are poised for success with the easiest problem in the set.
More work is needed at the concrete or pictorial level.	Provide manipulatives or the opportunity to draw solution strategies. Especially in Kindergarten, at times the Problem Set or pencil and paper aspect might be completely excluded, allowing students to simply work with materials.
More work is needed at the abstract level.	Hone the Problem Set to reduce the amount of drawing as appropriate for certain students or the whole class.

<sup>11</sup> See the Progression Documents “K, Counting and Cardinality” and “K–5, Operations and Algebraic Thinking” pp. 9 and 23, respectively.

- C: “Could Do” problems are for students who work with greater fluency and understanding and can, therefore, complete more work within a given time frame. Adjust the Exit Ticket and Homework to reflect the “Must Do” problems or to address scheduling constraints.
- D: At times, a particularly tricky problem might be designated as a “Challenge!” problem. This can be motivating, especially for advanced students. Consider creating the opportunity for students to share their “Challenge!” solutions with the class at a weekly session or on video.
- E: Consider how to best use the vignettes of the Concept Development section of the lesson. Read through the vignettes, and highlight selected parts to be included in the delivery of instruction so that students can be independently successful on the assigned task.
- F: Pay close attention to the questions chosen for the Student Debrief. Regularly ask students, “What was the lesson’s learning goal today?” Help them articulate the goal.

## Assessment Summary

Type	Administered	Format	Standards Addressed
Mid-Module Assessment Task	After Topic C	Constructed response with rubric	3.OA.1 3.OA.2 3.OA.5 3.OA.6
End-of-Module Assessment Task	After Topic F	Constructed response with rubric	3.OA.1 3.OA.2 3.OA.3 3.OA.4 3.OA.5 3.OA.6 3.OA.7 3.OA.8



## Topic A

# Multiplication and the Meaning of the Factors

## 3.OA.1, 3.OA.3

<b>Focus Standard:</b>	3.OA.1	Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</i>
<b>Instructional Days:</b>	3	
<b>Coherence -Links from:</b>	G2–M6	Foundations of Multiplication and Division
<b>-Links to:</b>	G4–M3	Multi-Digit Multiplication and Division

Lesson 1 introduces students to multiplication, starting with the concept of repeated addition, which is familiar from Grade 2. Students use repeated addition to find totals; for example, they use counters to make 6 equal groups of 2. They learn to recognize equal groups of counters as units and count units using the language of groups and unit form: “6 equal groups of 2 counters make 12 counters,” or “6 twos make 12.” By the end of Lesson 1, students use the multiplication symbol to represent these descriptions as more efficient multiplication equations.

In Lesson 2, students relate the equal groups of objects in scattered configurations from Lesson 1 to the array model, exploring the correspondence between 1 equal group and 1 row. They begin to distinguish between the number of groups and the size of groups as they count rows and *how many in 1 row* to write multiplication facts. Students recognize the efficiency of arrays as they skip-count to find totals. In Lesson 2, students use the following vocabulary: *row*, *array*, *number of groups*, and *size of groups*.

Lesson 3 solidifies students’ ability to differentiate the meaning of factors. Students model dividing a whole into equal groups as well as analyze equal groups in scattered configurations and arrays to determine whether factors represent the number of groups or the size of groups. They create pictures, number bonds, and multiplication equations to model their understanding.

In this topic, students use a variety of factors since these lessons emphasize understanding the concept of multiplying rather than finding totals. Later topics limit facts to those involving one or two specific factors, allowing students to build fluency with simpler facts before moving on to more difficult ones.

**A Teaching Sequence Toward Mastery of Multiplication and the Meaning of the Factors**

**Objective 1:** Understand *equal groups of* as multiplication.  
(Lesson 1)

**Objective 2:** Relate multiplication to the array model.  
(Lesson 2)

**Objective 3:** Interpret the meaning of factors—the size of the group or the number of groups.  
(Lesson 3)

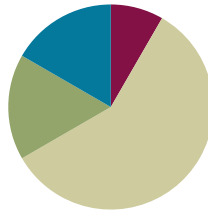


# Lesson 1

Objective: Understand *equal groups of* as multiplication.

## Suggested Lesson Structure

■ Fluency Practice	(5 minutes)
■ Application Problem	(10 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (5 minutes)

- Group Counting **3.OA.1** (5 minutes)

### Group Counting (5 minutes)

Note: Basic skip-counting skills from Grade 2 shift focus in this Grade 3 activity. Group counting lays a foundation for interpreting multiplication as repeated addition. When students count groups in this activity, they add and subtract groups of 2 when counting up and down.

- T: Let’s count to 20 forward and backward. Watch my fingers to know whether to count up or down. A closed hand means stop. (Show signals during the explanation.)
- T: (Rhythmically point up until a change is desired. Show a closed hand; then point down.)
- S: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0.
- T: Let’s count to 20 forward and backward again. This time whisper every other number. Say the other numbers in a regular voice.
- S: (Whisper) 1, (speak) 2, (whisper) 3, (speak) 4, (whisper) 5, (speak) 6, etc.
- T: Let’s count to 20 forward and backward again. This time, hum every other number instead of whispering. As you hum, think of the number.
- S: (Hum), 2, (hum), 4, (hum), 6, etc.
- T: Let’s count to 20 forward and backward again. This time, think every other number instead of humming.
- S: (Think), 2, (think), 4, (think), 6, etc.



### NOTES ON FLUENCY PRACTICE:

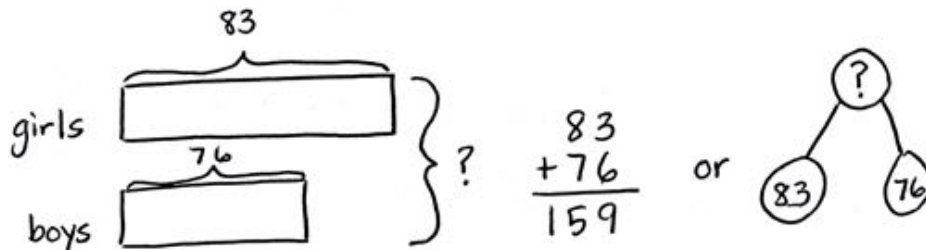
Think of fluency as having three goals:

1. Maintenance (staying sharp on previously learned skills).
2. Preparation (targeted practice for the current lesson).
3. Anticipation (skills that ensure that students will be ready for the in-depth work of upcoming lessons).

- T: What did we just count by? Turn and talk to your partner.  
 S: Twos.  
 T: Let's count by twos. (Direct students to count forward to and backward from 20, changing directions at times.)

**Application Problem (10 minutes)**

There are 83 girls and 76 boys in the third grade. How many total students are in the third grade?



There are 159 students in third grade.

Note: Students may choose to use a tape diagram or a number bond to model the problem. They are also likely to solve today's Application Problem in less than 10 minutes. Ten minutes have been allotted to allow for review of the RDW (Read, Draw, Write) process for problem solving.

Directions on the Read, Draw, Write (RDW) process: Read the problem, draw and label, write an equation, and write a word sentence. The more students participate in reasoning through problems with a systematic approach, the more they internalize those behaviors and thought processes.

(Excerpted from "How to Implement *A Story of Units*." A more complete explanation can also be found in the Grade 3 Module 1 Overview.)

**Concept Development (35 minutes)**

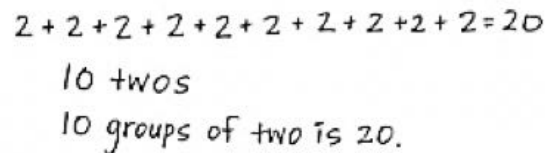
Materials: (S) 12 counters, personal white board

**Problem 1: Skip-count to find the total number of objects.**

- T: (Select 10 students to come to the front.) At the signal, say how many arms you each have. (Signal.)  
 S: 2 arms!  
 T: Since we each represent a group of 2 arms, let's skip-count our volunteers by twos to find how many arms they have altogether. To keep track of our count, students will raise up their arms when we count them.  
 S: (Count 2, 4, 6, ... 20.)

- T: How many raised arms do we have in all?  
 S: 20.  
 T: Arms down. How many twos did we count to find the total? Turn and whisper to your partner.  
 S: 10 twos.  
 T: What did you count to find the number of twos?  
 S: I counted the number of volunteers because each person has a group of two arms.  
 T: Skip-count to find the total number of arms.  
 S: (Say 2, 4, 6, ...)  
 T: (As they count, write  $2 + 2 + 2 + \dots$ )  
 T: Look at our addition sentence. Show thumbs up if you see the correct number of twos.  
 S: (Show thumbs up.)  
 T: (Under the addition sentence, write *10 twos*.) Clap 3 times if you agree that 10 groups of two is 20.  
 S: (Clap 3 times.)  
 T: (Write *10 groups of two is 20* under the other number sentences.)

Sample Teacher Board



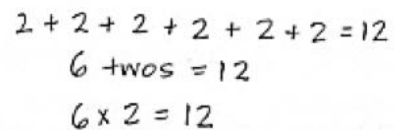
$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$   
*10 twos*  
*10 groups of two is 20.*

**Problem 2: Understand the relationship between repeated addition, counting groups in unit form, and multiplication sentences.**

Seat students at tables with personal white boards and 12 counters each.

- T: You have 12 counters. Use your counters to make **equal groups** of two. How many counters will you put in each group? Show with your fingers.  
 S: (Hold up 2 fingers and make groups of two.)  
 T: How many equal groups of two did you make? Tell at the signal. (Signal.)  
 S: 6 groups.  
 T: 6 equal groups of how many counters?  
 S: 6 equal groups of 2 counters.  
 T: 6 equal groups of 2 counters equal how many counters altogether?  
 S: 12 counters.  
 T: Write an addition sentence to show your groups on your personal white board.  
 S: (Write  $2 + 2 + 2 + 2 + 2 + 2 = 12$ .)  
 T: (Record the addition sentence on the board.) In unit form, how many twos did we add to make 12?  
 S: 6 twos.  
 T: (Record  $6 \text{ twos} = 12$  under the addition sentence.)  $6 \times 2$  is another way to write  $2 + 2 + 2 + 2 + 2 + 2$  or 6 twos. (Record  $6 \times 2 = 12$  under  $6 \text{ twos} = 12$  on the board.) These number sentences are all saying the same thing.

Sample Teacher Board



$2 + 2 + 2 + 2 + 2 + 2 = 12$   
*6 twos = 12*  
 *$6 \times 2 = 12$*

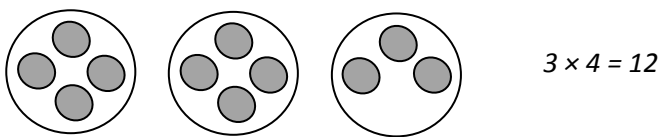
- T: Turn and talk to your partner. How do you think  $6 \times 2 = 12$  relates to the other number sentences?
- S: They all have twos in them, and the answer is 12. → I think the 6 shows how many twos there are. → You have to count two 6 times because there are 6 groups of them. That’s how you get 6 times 2. →  $6 \times 2$  might be an easier way to write a long addition sentence.
- T: Ways that are easier and faster are efficient. When we have equal groups, **multiplication** is a more efficient way to find the total than repeated addition.

Repeat the process with 4 threes, 3 fours, and 2 sixes to get students comfortable with the relationship between repeated addition, counting groups in unit form, and multiplication sentences.

**Problem 3: Write multiplication sentences from equal groups.**

Draw or project the picture to the right.

- T: These are equal groups. Turn and tell your partner why they are equal.
- S: There is the same number of grey circles in each group. → All of the grey circles are the same size and shape, and there are 4 in each group.
- T: Work with your partner to write a repeated addition and a multiplication sentence for this picture.
- S: (Write  $4 + 4 = 8$  and either  $2 \times 4 = 8$  or  $4 \times 2 = 8$ .)
- T: (Project or draw the following.) Look at my new drawing and the multiplication sentence I wrote to represent it. Check my work by writing an addition sentence and counting to find the total number of objects.



MP.3

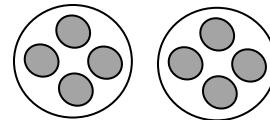
- S: (Write  $4 + 4 + 3 = 11$ .)
- T: Use your addition sentence as you talk to your partner about why you agree or disagree with my work.
- S: I disagree because my addition sentence equals 11, not 12. → It’s because that last group doesn’t have 4 circles. → You can do multiplication when the groups are equal. → Here, the groups aren’t equal, so the drawing doesn’t show  $3 \times 4$ .
- T: I hear most students disagreeing because my groups are not equal. True, to **multiply** you must have equal groups.



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

It may be necessary to explicitly connect *times* and the symbol  $\times$ . Have students analyze the model. “How many times do you see a group of two?” Have them count the groups, write the number sentence, and say the words together.

- 6 groups of two equal 12.
- 6 times 2 equals 12.



**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

Some students may need more scaffolding to realize that multiplication cannot be used to find totals with groups that are not equal. Use the following questions to scaffold.

- Does the drawing show 3 fours?
- Does 3 times 4 represent this drawing?
- How might we redraw the picture to make it show  $3 \times 4$ ?

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. Some problems do not specify a method for solving. This is an intentional reduction of scaffolding that invokes MP.5, Use Appropriate Tools Strategically. Students should solve these problems using the RDW approach used for Application Problems.

For some classes, it may be appropriate to modify the assignment by specifying which problems students should work on first. With this option, let the purposeful sequencing of the Problem Set guide the selections so that problems continue to be scaffolded. Balance word problems with other problem types to ensure a range of practice. Consider assigning incomplete problems for homework or at another time during the day.

### Student Debrief (10 minutes)

**Lesson Objective:** Understand *equal groups* of as multiplication.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.


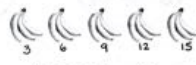
Any combination of the questions below may be used to lead the discussion.

- On the first page, what did you notice about the answers to your problems?
- Discuss the relationship between repeated addition and the unit form *2 groups of three* or *3 groups of two*, depending on the drawing.
- Discuss the relationship between repeated addition, unit form, and the multiplication sentence  $3 \times 2 = 6$ .
- Review the new vocabulary presented in the lesson: **equal groups**, **multiplication**, and **multiply**.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 1 Problem Set 3•1


Name Gina Date \_\_\_\_\_

1. Fill in the blanks to make true statements.


 

a. 3 groups of five = 15  
 3 fives = 15  
 $3 \times 5 = 15$

b.  $3 + 3 + 3 + 3 + 3 = 15$   
 5 groups of three = 15  
 $5 \times 3 = 15$



c.  $6 + 6 + 6 + 6 = 24$   
4 groups of six = 24  
 $4 \times 6 = 24$




d.  $4 + 4 + 4 + 4 + 4 + 4 = 24$   
 6 groups of 4 = 24  
 $6 \times 4 = 24$

COMMON CORE Lesson 1: Understand equal groups of as multiplication. Date: 4/28/14 engage<sup>ny</sup> 1.A.9


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 1 Problem Set 3•1

2. The picture below shows 2 groups of apples. Does the picture show  $2 \times 3$ ? Explain why or why not.




No, the picture doesn't show  $2 \times 3$ . There are 2 groups of apples, but they are not equal groups. It shows 1 group of 3 and 1 group of 2. You can also tell because there are 5 apples, not 6.

3. Draw a picture to show  $2 \times 3 = 6$ .



4. Caroline, Brian, and Marta share a box of chocolates. They each get the same amount. Circle the chocolates below to show 3 groups of 4. Then, write a repeated addition sentence and a multiplication sentence to represent the picture.



$4 + 4 + 4 = 12$   
 $3 \times 4 = 12$

COMMON CORE Lesson 1: Understand equal groups of as multiplication. Date: 2/10/15 engage<sup>ny</sup> 1.A.9

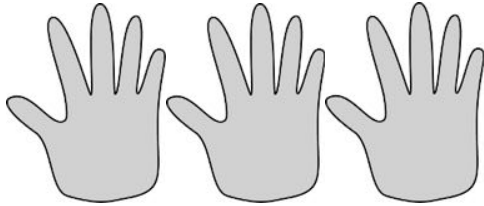
**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Fill in the blanks to make true statements.



a. 3 groups of five = \_\_\_\_\_

3 fives = \_\_\_\_\_

$3 \times 5 =$  \_\_\_\_\_



b.  $3 + 3 + 3 + 3 + 3 =$  \_\_\_\_\_

5 groups of three = \_\_\_\_\_

$5 \times 3 =$  \_\_\_\_\_



c.  $6 + 6 + 6 + 6 =$  \_\_\_\_\_

\_\_\_\_\_ groups of six = \_\_\_\_\_

$4 \times$  \_\_\_\_\_ = \_\_\_\_\_

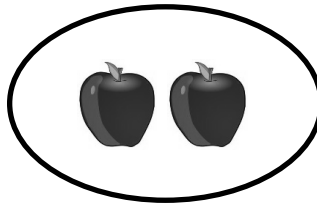
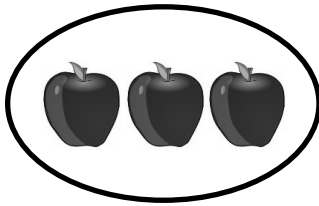


d.  $4 +$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $=$  \_\_\_\_\_

6 groups of \_\_\_\_\_ = \_\_\_\_\_

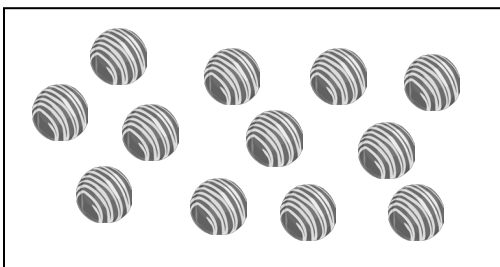
$6 \times$  \_\_\_\_\_ = \_\_\_\_\_

2. The picture below shows 2 groups of apples. Does the picture show  $2 \times 3$ ? Explain why or why not.



3. Draw a picture to show  $2 \times 3 = 6$ .

4. Caroline, Brian, and Marta share a box of chocolates. They each get the same amount. Circle the chocolates below to show 3 groups of 4. Then, write a repeated addition sentence and a multiplication sentence to represent the picture.

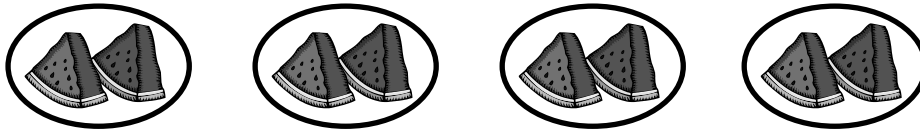




Name \_\_\_\_\_

Date \_\_\_\_\_

1. The picture below shows 4 groups of 2 slices of watermelon. Fill in the blanks to make true repeated addition and multiplication sentences that represent the picture.



$$2 + \underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$4 \times \underline{\quad} = \underline{\quad}$$

2. Draw a picture to show  $3 + 3 + 3 = 9$ . Then, write a multiplication sentence to represent the picture.

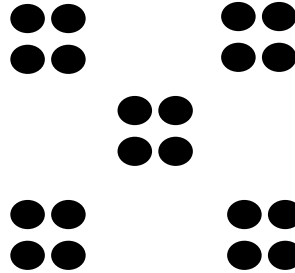
Name \_\_\_\_\_

Date \_\_\_\_\_

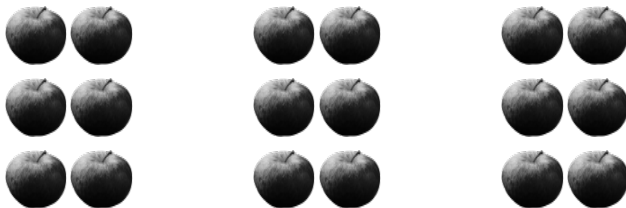
1. Fill in the blanks to make true statements.



- a. 4 groups of five = \_\_\_\_\_  
 4 fives = \_\_\_\_\_  
 $4 \times 5 =$  \_\_\_\_\_



- b. 5 groups of four = \_\_\_\_\_  
 5 fours = \_\_\_\_\_  
 $5 \times 4 =$  \_\_\_\_\_

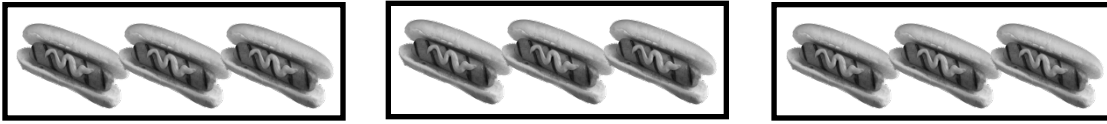


- c.  $6 + 6 + 6 =$  \_\_\_\_\_  
 \_\_\_\_\_ groups of six = \_\_\_\_\_  
 $3 \times$  \_\_\_\_\_ = \_\_\_\_\_



- d.  $3 +$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $+$  \_\_\_\_\_  $=$  \_\_\_\_\_  
 6 groups of \_\_\_\_\_  $=$  \_\_\_\_\_  
 $6 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_

2. The picture below shows 3 groups of hot dogs. Does the picture show  $3 \times 3$ ? Explain why or why not.



3. Draw a picture to show  $4 \times 2 = 8$ .

4. Circle the pencils below to show 3 groups of 6. Write a repeated addition and a multiplication sentence to represent the picture.

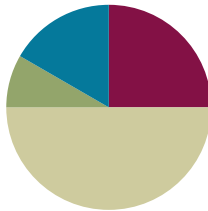


## Lesson 2

Objective: Relate multiplication to the array model.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Sprint: Add or Subtract Using 2 **3.OA.1** (9 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Add Equal Groups **3.OA.1** (3 minutes)

### Sprint: Add or Subtract Using 2 (9 minutes)

Materials: (S) Add or Subtract Using 2 Sprint

Note: This Sprint supports group counting skills that are foundational to interpreting multiplication as repeated addition.

#### Directions for Administration of Sprints

A Sprint has two parts, A and B, with closely related problems on each. Each part is organized into four quadrants that move from simple to complex. This builds a challenge into each Sprint for every learner. Before the lesson, print Sprint A and Sprint B on two separate sheets of paper. Students complete the two parts of the Sprint in quick succession with the goal of improving for the second part, even if only by one more. With practice, the following routine takes about 9 minutes.

#### Sprint A

Place Sprint A face down on student desks, and instruct students not to look at the problems until a signal is given.

- T: You will have 60 seconds to do as many problems as you can. I do not expect you to finish all of them, just as many as you can, trying for your personal best.
- T: Take your mark! Get set! THINK!

Students turn papers over and work furiously to finish as many problems as they can in 60 seconds. Time precisely.

T: Stop! Circle the last problem you completed. I will read just the answers. If you got the answer right, call out “Yes!” If you made a mistake, circle it. Ready?

Repeat to the end of Sprint A or until no student has a correct answer.

T: Now, at the top of the page, write the number of problems you got correct. This is your personal goal for Sprint B.

T: How many of you got one right? (All hands should go up.)

T: Keep your hand up until I say a number that is one more than the number you got right. So, if you got 14 right, when I say 15, your hand goes down. Ready?

T: (Continue quickly.) How many got two right? Three? Four? Five? (Continue until all hands are down.)

If the class needs more practice with Sprint A, continue with the optional routine presented below.

T: Take one minute to do more problems on this half of the Sprint.

As students work, the student who scored highest on Sprint A might pass out Sprint B.

T: Stop! I will read just the answers. If you got it right, call out “Yes!” If you made a mistake, circle it. Ready?

Read the answers to the first half again as students stand.

Movement: To keep the energy and fun going, do a stretch or a movement game in between Sprints.

### Sprint B

Place Sprint B face down on student desks, and instruct students not to look at the problems until a signal is given. Repeat the procedure for Sprint A up through the show of hands for how many correct answers.

T: Stand up if you got more correct on the second Sprint than on the first.

S: (Stand.)

T: Keep standing until I say the number that tells how many more you got right on Sprint B. If you got three more right on Sprint B than on Sprint A, when I say *three*, you sit down. Ready?

Call out numbers, starting with one. Students sit as the number by which they improved is called. Students may take Sprints home.

### Group Counting (3 minutes)

Note: Basic skip-counting skills from Grade 2 shift focus in this Grade 3 activity. Group counting lays a foundation for interpreting multiplication as repeated addition. When students count groups in this activity, they add and subtract groups of three when counting up and down.

T: Let’s count to 18 forward and backward. I want you to whisper, whisper, and then speak numbers.

T: Watch my fingers to know whether to count up or down. A closed hand means stop. (Show signals while explaining.)

- T: (Rhythmically point up until a change is desired. Show a closed hand then point down.)
- S: (Whisper) 1, (whisper) 2, (speak) 3, etc.
- T: Let's count to 18 forward and backward again. This time, think every number instead of whispering.
- S: (Think), (think), 3, (think), (think), 6, (think), (think), 9, etc.
- T: What did we just count by? Turn and talk to your partner.
- S: Threes.
- T: Let's count by threes. (Direct students to count forward and backward to 18, periodically changing directions. Emphasize the 9 to 12 transition.)

### Add Equal Groups (3 minutes)

Materials: (S) Personal white board

Note: This activity reviews Lesson 1. Students directly relate repeated addition to multiplication. They interpret products as the number of equal groups times the number of objects in each group.

- T: (Project a picture array with 3 groups of 2 circled.) How many groups are circled?
- S: 3.
- T: How many are in each group?
- S: 2.
- T: Write this as an addition sentence.
- S: (Write  $2 + 2 + 2 = 6$ .)
- T: Write a multiplication sentence for 3 twos equals 6.
- S: (Write  $3 \times 2 = 6$ .)

Continue with this possible sequence: 3 groups of 5, 5 groups of 10, and 3 groups of 4.

### Application Problem (5 minutes)

Jordan uses 3 lemons to make 1 pitcher of lemonade. He makes 4 pitchers. How many lemons does he use altogether? Use the RDW process to show your solution.



$$4 \times 3 = 12$$

Jordan uses 12 lemons altogether.

Note: Present the image of 4 groups of 3 lemons with the word problem as a scaffold. This problem reviews multiplying equal groups from Lesson 1. It also leads into today's Concept Development in which students relate multiplication to the array model.

**Concept Development (30 minutes)**

Materials: (S) Personal white board with threes array (Template) inserted (pictured below), lemons image from Application Problem, 1 sheet of blank paper

**Problem 1: Relate equal groups to arrays.**

Note: Students’ templates should be vertical rather than horizontal, as shown below.

- T: Look back at Jordan’s lemons. Compare the way his lemons are organized with the groups of 3 circles on your template.
- S: The lemons are touching each other, but the circles have space between them. → Each line on the template shows three, like each group of lemons. → The template is organized with everything in straight lines.
- T: Many students are noticing straight lines on the template. Let’s call a straight line going across a **row**. Use your blank paper to cover all but the top row.
- S: (Cover all but the top row.)
- T: Uncover 1 row at a time in the picture. As you uncover each row, write the new total number of circles to the right of it.
- S: (Skip-count by three using the threes array template.)
- T: At the signal, say the total number of circles you counted. (Signal.)
- S: 30 circles!
- T: Take 10 seconds to find how many rows of 3 you counted. At the signal say how many. (Signal.)
- S: 10 rows!
- T: True or false: 10 rows of 3 circles equals 30 circles?
- S: True!
- T: (Write  $10 \times 3 = 30$  on the board.) Use the picture on your template to talk with your partner about why this equation is true.
- S: Yesterday, we learned that we can multiply equal groups. → We skip-counted 10 rows of 3 circles each and the total is 30. → It means 10 groups of 3. When you add 10 threes, you get 30. → Yeah, but writing  $10 \times 3$  is a lot easier than writing out  $3 + 3 + 3 + 3 + \dots$
- T: We call this type of organized picture an **array**.

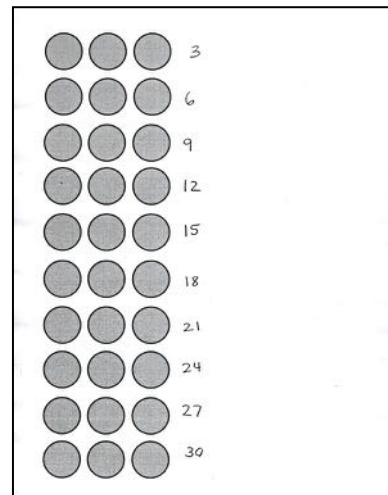


**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

The words *array* and *row* were introduced in Grade 2, Module 6 but are treated as new vocabulary in this lesson.

When reviewing the concept, have students trace a row on the array with a finger while saying the word *row*. Provide a real-world example by having students count the rows on various cupcake pans (miniature and regular size) before using the template.

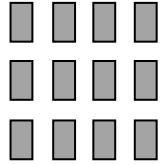
*Threes array template (with student work)*



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

When presenting the concept of *array*, it may be beneficial to ask students to turn and talk, describing or defining an array for their partner.

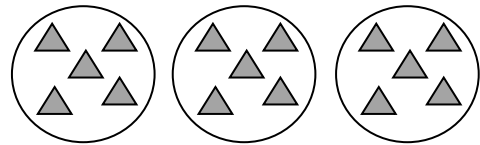
- T: (Project or draw the image on the right.) Take a look at this array. At the signal, tell how many rectangles are in the top row. (Signal.)
- S: 4 rectangles.
- T: The size of 1 row is 4 rectangles. Each row of 4 can also be called a group of 4. At the signal, tell how many groups of four are in the array. (Signal.)
- S: 3 groups of four.
- T: To write this as an equation, we first write the **number of groups**. How many groups?
- S: 3 groups!
- T: (Write  $3 \times \underline{\quad} = \underline{\quad}$ .) Next, we write the **size of the group**. How many rectangles are in each group?
- S: 4 rectangles!
- T: (Fill in the equation to read  $3 \times 4 = \underline{\quad}$ .) Skip-count to find the total number of rectangles in the array.
- S: 4, 8, 12.
- T: (Fill in the equation to read  $3 \times 4 = 12$ .) We just found the answer to the multiplication equation that represents the array. In multiplication, the answer, or total, is called the **product**.



Show an array of 2 rows of 6 and repeat the process.

**Problem 2: Redraw equal groups as arrays.**

- T: (Project or draw the image on the right.) The drawing shows 3 equal groups of 5. On your personal white board, re-draw the picture as an array with 3 rows of 5.
- S: (Draw 3 rows of 5.)
- T: Write a multiplication expression to describe your array. Remember, an expression is different from an equation because it doesn't have an equal sign.
- S: (Write  $3 \times 5$ .)
- T: Skip-count to find the product.
- S: 5, 10, 15.
- T: With your partner, compare my drawing with your array. Which is easier to count? Why?
- S: (Discuss.)



**NOTES ON  
MULTIPLE MEANS  
OF ENGAGEMENT:**

Provide a challenge in this part of the lesson by giving an equation (e.g.,  $5 \times 4 = \underline{\quad}$ ) and no picture. Have students draw both the equal groups and the array to represent the equation. Then, they skip-count to find the total.

Show 6 groups of 2 and repeat the process.



### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Directions on this Problem Set include the words *expression* and *equation*. Remind students that while an answer is not required with an expression, it should be included with an equation.

### Student Debrief (10 minutes)

**Lesson Objective:** Relate multiplication to the array model.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- In Problems 5 and 6, how do the arrays represent equal groups?
- Compare Problems 6 and 7. (Arrays have the same number in each group but a different number of groups.)
- Compare equal groups in scattered configurations and arrays.
- Review new vocabulary: **row**, **array**, **number of groups**, **size of groups**, and **product**.
- Prompt students to notice arrays around the room and possibly think of arrays in real-world situations.

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Number Correct: \_\_\_\_\_

# A

Add or Subtract Using 2

1.	$0 + 2 =$	
2.	$2 + 2 =$	
3.	$4 + 2 =$	
4.	$6 + 2 =$	
5.	$8 + 2 =$	
6.	$10 + 2 =$	
7.	$12 + 2 =$	
8.	$14 + 2 =$	
9.	$16 + 2 =$	
10.	$18 + 2 =$	
11.	$20 - 2 =$	
12.	$18 - 2 =$	
13.	$16 - 2 =$	
14.	$14 - 2 =$	
15.	$12 - 2 =$	
16.	$10 - 2 =$	
17.	$8 - 2 =$	
18.	$6 - 2 =$	
19.	$4 - 2 =$	
20.	$2 - 2 =$	
21.	$2 + 0 =$	
22.	$2 + 2 =$	

23.	$2 + 4 =$	
24.	$2 + 6 =$	
25.	$2 + 8 =$	
26.	$2 + 10 =$	
27.	$2 + 12 =$	
28.	$2 + 14 =$	
29.	$2 + 16 =$	
30.	$2 + 18 =$	
31.	$0 + 22 =$	
32.	$22 + 22 =$	
33.	$44 + 22 =$	
34.	$66 + 22 =$	
35.	$88 - 22 =$	
36.	$66 - 22 =$	
37.	$44 - 22 =$	
38.	$22 - 22 =$	
39.	$22 + 0 =$	
40.	$22 + 22 =$	
41.	$22 + 44 =$	
42.	$66 + 22 =$	
43.	$888 - 222 =$	
44.	$666 - 222 =$	

**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Add or Subtract Using 2

1.	$2 + 0 =$	
2.	$2 + 2 =$	
3.	$2 + 4 =$	
4.	$2 + 6 =$	
5.	$2 + 8 =$	
6.	$2 + 10 =$	
7.	$2 + 12 =$	
8.	$2 + 14 =$	
9.	$2 + 16 =$	
10.	$2 + 18 =$	
11.	$20 - 2 =$	
12.	$18 - 2 =$	
13.	$16 - 2 =$	
14.	$14 - 2 =$	
15.	$12 - 2 =$	
16.	$10 - 2 =$	
17.	$8 - 2 =$	
18.	$6 - 2 =$	
19.	$4 - 2 =$	
20.	$2 - 2 =$	
21.	$0 + 2 =$	
22.	$2 + 2 =$	

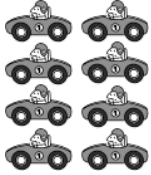
23.	$4 + 2 =$	
24.	$6 + 2 =$	
25.	$8 + 2 =$	
26.	$10 + 2 =$	
27.	$12 + 2 =$	
28.	$14 + 2 =$	
29.	$16 + 2 =$	
30.	$18 + 2 =$	
31.	$0 + 22 =$	
32.	$22 + 22 =$	
33.	$22 + 44 =$	
34.	$66 + 22 =$	
35.	$88 - 22 =$	
36.	$66 - 22 =$	
37.	$44 - 22 =$	
38.	$22 - 22 =$	
39.	$22 + 0 =$	
40.	$22 + 22 =$	
41.	$22 + 44 =$	
42.	$66 + 22 =$	
43.	$666 - 222 =$	
44.	$888 - 222 =$	

Name \_\_\_\_\_

Date \_\_\_\_\_

Use the arrays below to answer each set of questions.

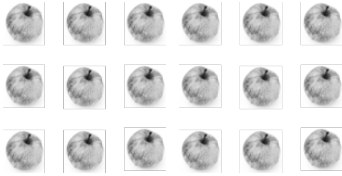
1.



a. How many rows of cars are there? \_\_\_\_\_

b. How many cars are there in each row? \_\_\_\_\_

2.



a. What is the number of rows? \_\_\_\_\_

b. What is the number of objects in each row? \_\_\_\_\_

3.



a. There are 4 spoons in each row. How many spoons are in 2 rows? \_\_\_\_\_

b. Write a multiplication expression to describe the array. \_\_\_\_\_

4.



a. There are 5 rows of triangles. How many triangles are in each row? \_\_\_\_\_

b. Write a multiplication expression to describe the total number of triangles.

\_\_\_\_\_

5. The dots below show 2 groups of 5.



a. Redraw the dots as an array that shows 2 rows of 5.


b. Compare the drawing to your array. Write at least 1 reason why they are the same and 1 reason why they are different.

6. Emma collects rocks. She arranges them in 4 rows of 3. Draw Emma's array to show how many rocks she has altogether. Then, write a multiplication equation to describe the array.

7. Joshua organizes cans of food into an array. He thinks, "My cans show  $5 \times 3$ !" Draw Joshua's array to find the total number of cans he organizes.

Name \_\_\_\_\_

Date \_\_\_\_\_

1.  a. There are 4 rows of stars. How many stars are in each row? \_\_\_\_\_
- b. Write a multiplication equation to describe the array. \_\_\_\_\_

2. Judy collects seashells. She arranges them in 3 rows of 6. Draw Judy's array to show how many seashells she has altogether. Then, write a multiplication equation to describe the array.

Name \_\_\_\_\_

Date \_\_\_\_\_

Use the arrays below to answer each set of questions.

1. a. How many rows of erasers are there? \_\_\_\_\_



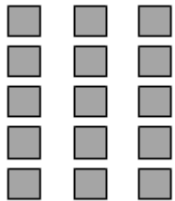
b. How many erasers are there in each row? \_\_\_\_\_

2. a. What is the number of rows? \_\_\_\_\_



b. What is the number of objects in each row? \_\_\_\_\_

3. a. There are 3 squares in each row. How many squares are in 5 rows? \_\_\_\_\_



b. Write a multiplication expression to describe the array. \_\_\_\_\_

4. a. There are 6 rows of stars. How many stars are in each row? \_\_\_\_\_



b. Write a multiplication expression to describe the array. \_\_\_\_\_



5. The triangles below show 3 groups of four.

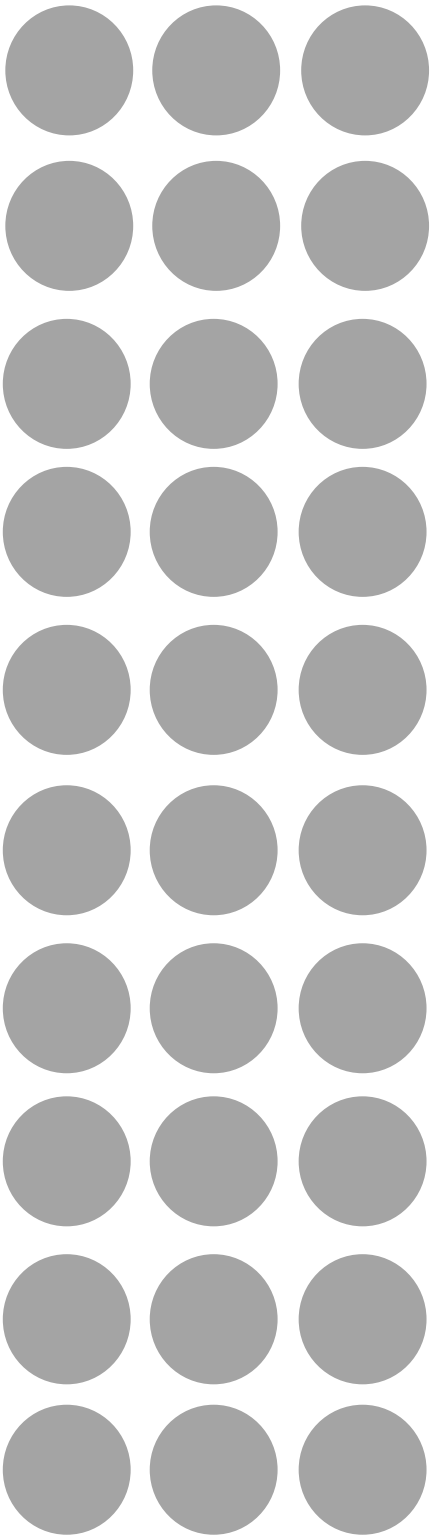


a. Redraw the triangles as an array that shows 3 rows of four.

b. Compare the drawing to your array. How are they the same? How are they different?

6. Roger has a collection of stamps. He arranges the stamps into 5 rows of four. Draw an array to represent Roger’s stamps. Then, write a multiplication equation to describe the array.

7. Kimberly arranges her 18 markers as an array. Draw an array that Kimberly might make. Then, write a multiplication equation to describe your array.




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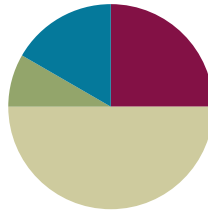
threes array

## Lesson 3

**Objective:** Interpret the meaning of factors—the size of the group or the number of groups.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Sprint: Add Equal Groups **3.OA.1** (9 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Add to Multiply **3.OA.1** (3 minutes)

### Sprint: Add Equal Groups (9 minutes)

Materials: (S) Add Equal Groups Sprint

Note: This Sprint reviews Lesson 1. See Lesson 2 for the directions for administering a Sprint.

### Group Counting (3 minutes)

Note: Basic skip-counting skills from Grade 2 shift focus in this Grade 3 activity. Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity anticipates work with those factors in Topic B.

- T: Let's count by twos. (Direct students to count forward and backward to 20, periodically changing directions.)
- T: Let's count by threes. (Direct students to count forward and backward to 21, periodically changing directions. Emphasize the 9 to 12 and 18 to 21 transitions.)

**Add to Multiply (3 minutes)**

Materials: (S) Personal white board

Note: This activity reviews Lesson 2. Students directly relate repeated addition to multiplication. They interpret products using the array.

T: (Project a picture with 3 groups of 5 circled.) How many groups are circled?

S: 3.

T: How many are in each group?

S: 5.

T: Write it as an addition sentence.

S: (Write  $5 + 5 + 5 = 15$ .)

T: Write a multiplication sentence representing *3 fives equals 15*.

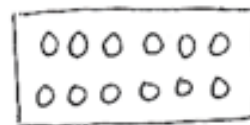
S:  $3 \times 5 = 15$ .

Continue with this possible sequence: 3 groups of 10, 3 groups of 4, and 7 groups of 2.

**Application Problem (5 minutes)**

Robbie sees that a carton of eggs shows an array with 2 rows of 6 eggs. What is the total number of eggs in the carton? Use the RDW process to show your solution.

Note: This problem reviews writing multiplication sentences from arrays learned in Lesson 2. The egg carton provides a natural array for students to see 2 rows of 6.



$$2 \times 6 = 12$$

There are 12 eggs in Robbie's carton.

**Concept Development (30 minutes)**

Materials: (S) Personal white board

The following opening activity should take about 5 minutes.

T: Here are the rules for our opening activity.

1. **Divide** yourselves into 4 equal groups.
2. Each group will stand in a corner of the room.
3. Divide silently. You can use body movements to gesture, but no words.

T: Show thumbs up when your group is ready. Be sure to look around the room to double check that all 4 groups are equal before showing you're ready.

S: (Move around the room silently until there are 4 equal groups, 1 in each corner.)

**NOTES ON  
OPENING ACTIVITY:**

Adjust the directions for the opening activity depending on the total number of students in the class. Avoid having students make 4 groups of four. Do this either by having students form groups near objects in the classroom rather than in corners to adjust the number of groups or by having an adult, teddy bear, etc., stand in to adjust the size of the groups.

- T: At the signal, tell how many equal groups we've made. (Signal.)  
 S: 4 equal groups.  
 T: (Write  $4 \times \underline{\quad} = \underline{\quad}$ .) At the signal, tell the size of each group. (Signal.)  
 S: (Respond depending on class numbers.)  
 T: (Fill in the equation on the board.)  
 These numbers—the number of groups and the number in each group—are called **factors**.

Students transition back to their seats.

- T: Use the multiplication equation on the board to draw an array. Make sure that your board is vertical.  
 S: (Draw a  $4 \times \underline{\quad}$  array.)  
 T: Let's draw a number bond for our equation. Draw a circle with our class total.  
 S: (Draw.)  
 T: Draw parts coming from the total. Make 1 part to represent each row in our array.  
 S: (Draw 4 circles coming from the total.)  
 T: Show the size of 1 row with your fingers.  
 S: (Show fingers.)  
 T: Write the factor representing the size of the group inside the circles.  
 S: (Write 6 inside each circle.)  
 T: Look back at the equation. How is the factor 4 represented in the number bond?  
 S: It's in the number of parts. → Groups are like parts. → In the number bond, the part circles actually represent equal groups, so there are 4. The number inside is the size of the group.  
 T: Here is an analysis of our equation.

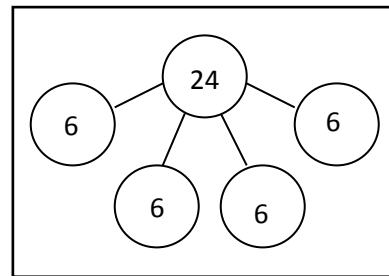
$$\begin{array}{ccccccc}
 4 & \times & 6 & = & 24 \\
 \downarrow & & \downarrow & & \downarrow \\
 \text{number} & & \text{size} & & \text{total} \\
 \text{of} & & \text{of} & & \\
 \text{groups} & & \text{groups} & & 
 \end{array}$$



**NOTES ON NUMBER BONDS:**

The number bond is a pictorial representation of part-part-whole relationships and shows that within a part-whole relationship, smaller numbers (the parts) make up larger numbers (the whole). (Excerpted from "How to Implement *A Story of Units*.")

Sample Number Bond (Class of 24)



**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

The number bond is another way for students to explore the relationship between factors in multiplication. Suggested explorations and questions:

- Let's count the groups to make sure the number bond matches our number sentence. (1 six, 2 sixes, etc.)
- What is the number of groups?
- What is the size of each group?
- What multiplication sentence represents the number bond?

Another option is to have students compare how the number bond can represent multiplication and addition to distinguish the importance of equal groups in multiplication.

As time allows, continue with the following possible suggestions:

- 2 groups of 8
- 3 rows of 5
- Number bond showing 6 groups of 3
- The equation  $5 \times 4 = 20$

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Interpret the meaning of factors—the size of the group or the number of groups.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience. Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

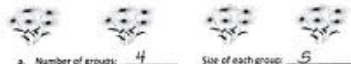
- Why do you think I started the lesson by asking you to **divide** yourselves into equal groups in the corners of the room?
- Identify the **factors** and their meanings from each image in Problems 1–5.
- In Problem 6, discuss the two ways to draw the array and number bond with factors 2 and 3.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Problem Set 3•1

Name: Gina Date: \_\_\_\_\_

Solve numbers 1–4 using the pictures provided for each problem.

1. There are 5 flowers in each bunch. How many flowers are in 4 bunches?




a. Number of groups: 4 Size of each group: 5

b.  $4 \times 5 = \underline{20}$

c. There are 20 flowers all together.

---

2. There are 3 candies in each box. How many candies are in 6 boxes?




a. Number of groups: 6 Size of each group: 3

b.  $6 \times 3 = \underline{18}$

c. There are 18 candies all together.

---

3. There are 4 oranges in each row. How many oranges are there in 3 rows?




a. Number of rows: 3 Size of each row: 4

b.  $3 \times 4 = \underline{12}$

c. There are 12 oranges all together.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 3 Problem Set 3•1

4. There are 2 loaves of bread in each row. How many loaves of bread are there in 5 rows?




a. Number of rows: 5 Size of each row: 2

b.  $5 \times 2 = \underline{10}$

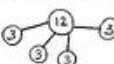
c. There are 10 loaves of bread all together.

5. a. Write a multiplication equation for the array shown below.




$4 \times 3 = 12$


b. Draw a number bond for the array where each part represents the amount in one row.



6. Draw an array using factors 2 and 3. Then show a number bond where each part represents the amount in one row.



or



COMMON CORE Lesson 3: Interpret the meaning of factors—the size of the group or the number of groups. Date: 5/3/14 engage<sup>ny</sup> 1.A.37

- Module 1 introduces many new vocabulary words: *row*, *array*, *multiply*, *multiplication*, *number of groups*, *size of groups*, *divide*, *factor*, etc. Consider having students make a vocabulary page in their math journals.
- Relate factors to their meaning: the size of the group or the number of groups. Have students share the definition in pairs. Then, ask students to write the word and a definition or example next to it in their journals.

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

# A

Number Correct: \_\_\_\_\_

## Add Equal Groups

1.	$2 + 2 =$	
2.	2 twos =	
3.	$5 + 5 =$	
4.	2 fives =	
5.	$2 + 2 + 2 =$	
6.	3 twos =	
7.	$2 + 2 + 2 + 2 =$	
8.	4 twos =	
9.	$5 + 5 + 5 =$	
10.	3 fives =	
11.	$5 + 5 + 5 + 5 =$	
12.	4 fives =	
13.	2 fours =	
14.	$4 + 4 =$	
15.	2 threes =	
16.	$3 + 3 =$	
17.	2 sixes =	
18.	$6 + 6 =$	
19.	5 twos =	
20.	$2 + 2 + 2 + 2 + 2 =$	
21.	5 fives =	
22.	$5 + 5 + 5 + 5 + 5 =$	

23.	$7 + 7 =$	
24.	2 sevens =	
25.	$9 + 9 =$	
26.	2 nines =	
27.	$8 + 8 =$	
28.	2 eights =	
29.	$3 + 3 + 3 =$	
30.	3 threes =	
31.	$4 + 4 + 4 =$	
32.	3 fours =	
33.	$3 + 3 + 3 + 3 =$	
34.	4 threes =	
35.	4 fives =	
36.	$5 + 5 + 5 + 5 =$	
37.	3 sixes =	
38.	$6 + 6 + 6 =$	
39.	3 eights =	
40.	$8 + 8 + 8 =$	
41.	3 sevens =	
42.	$7 + 7 + 7 =$	
43.	3 nines =	
44.	$9 + 9 + 9 =$	



**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Add Equal Groups

1.	$5 + 5 =$	
2.	2 fives =	
3.	$2 + 2 =$	
4.	2 twos =	
5.	$5 + 5 + 5 =$	
6.	3 fives =	
7.	$5 + 5 + 5 + 5 =$	
8.	4 fives =	
9.	$2 + 2 + 2 =$	
10.	3 twos =	
11.	$2 + 2 + 2 + 2 =$	
12.	4 twos =	
13.	2 threes =	
14.	$3 + 3 =$	
15.	2 sixes =	
16.	$6 + 6 =$	
17.	2 fours =	
18.	$4 + 4 =$	
19.	5 fives =	
20.	$5 + 5 + 5 + 5 + 5 =$	
21.	5 twos =	
22.	$2 + 2 + 2 + 2 + 2 =$	

23.	$8 + 8 =$	
24.	2 eights =	
25.	$7 + 7 =$	
26.	2 sevens =	
27.	$9 + 9 =$	
28.	2 nines =	
29.	$3 + 3 + 3 + 3 =$	
30.	4 threes =	
31.	$4 + 4 + 4 =$	
32.	3 fours =	
33.	$3 + 3 + 3 =$	
34.	3 threes =	
35.	4 fives =	
36.	$5 + 5 + 5 + 5 =$	
37.	3 sevens =	
38.	$7 + 7 + 7 =$	
39.	3 nines =	
40.	$9 + 9 + 9 =$	
41.	3 sixes =	
42.	$6 + 6 + 6 =$	
43.	3 eights =	
44.	$8 + 8 + 8 =$	

Name \_\_\_\_\_

Date \_\_\_\_\_

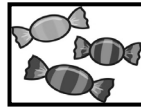
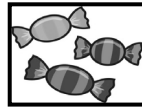
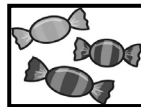
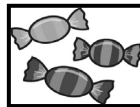
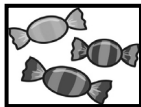
Solve Problems 1–4 using the pictures provided for each problem.

1. There are 5 flowers in each bunch. How many flowers are in 4 bunches?



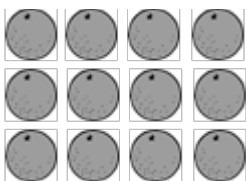
- a. Number of groups: \_\_\_\_\_ Size of each group: \_\_\_\_\_
- b.  $4 \times 5 =$  \_\_\_\_\_
- c. There are \_\_\_\_\_ flowers altogether.

2. There are \_\_\_\_\_ candies in each box. How many candies are in 6 boxes?



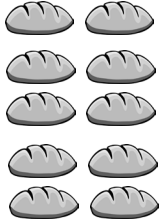
- a. Number of groups: \_\_\_\_\_ Size of each group: \_\_\_\_\_
- b.  $6 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_
- c. There are \_\_\_\_\_ candies altogether.

3. There are 4 oranges in each row. How many oranges are there in \_\_\_\_\_ rows?



- a. Number of rows: \_\_\_\_\_ Size of each row: \_\_\_\_\_
- b. \_\_\_\_\_  $\times 4 =$  \_\_\_\_\_
- c. There are \_\_\_\_\_ oranges altogether.

4. There are \_\_\_\_\_ loaves of bread in each row. How many loaves of bread are there in 5 rows?

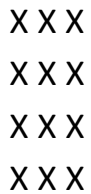


a. Number of rows: \_\_\_\_\_ Size of each row: \_\_\_\_\_

b. \_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

c. There are \_\_\_\_\_ loaves of bread altogether.

5. a. Write a multiplication equation for the array shown below.



b. Draw a number bond for the array where each part represents the amount in one row.

6. Draw an array using factors 2 and 3. Then, show a number bond where each part represents the amount in one row.

Name \_\_\_\_\_

Date \_\_\_\_\_

Draw an array that shows 5 rows of 3 squares. Then, show a number bond where each part represents the amount in one row.

Name \_\_\_\_\_

Date \_\_\_\_\_

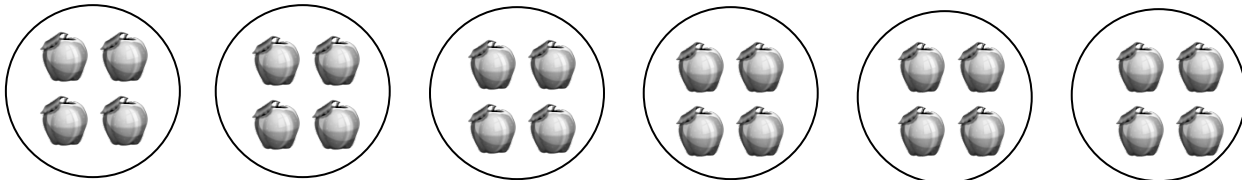
Solve Problems 1–4 using the pictures provided for each problem.

1. There are 5 pineapples in each group. How many pineapples are there in 5 groups?



- a. Number of groups: \_\_\_\_\_ Size of each group: \_\_\_\_\_
- b.  $5 \times 5 =$  \_\_\_\_\_
- c. There are \_\_\_\_\_ pineapples altogether.

2. There are \_\_\_\_\_ apples in each basket. How many apples are there in 6 baskets?



- a. Number of groups: \_\_\_\_\_ Size of each group: \_\_\_\_\_
- b.  $6 \times$  \_\_\_\_\_  $=$  \_\_\_\_\_
- c. There are \_\_\_\_\_ apples altogether.

3. There are 4 bananas in each row. How many bananas are there in \_\_\_\_\_ rows?



a. Number of rows: \_\_\_\_\_ Size of each row: \_\_\_\_\_

b. \_\_\_\_\_  $\times$  4 = \_\_\_\_\_

c. There are \_\_\_\_\_ bananas altogether.

4. There are \_\_\_\_\_ peppers in each row. How many peppers are there in 6 rows?



a. Number of rows: \_\_\_\_\_ Size of each row: \_\_\_\_\_

b. \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

c. There are \_\_\_\_\_ peppers altogether.

5. Draw an array using factors 4 and 2. Then, show a number bond where each part represents the amount in one row.



## Topic B

# Division as an Unknown Factor Problem

**3.OA.2, 3.OA.6, 3.OA.3, 3.OA.4**

<b>Focus Standard:</b>	3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i>
	3.OA.6	Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i>
<b>Instructional Days:</b>	3	
<b>Coherence</b>	<b>-Links from:</b>	G2–M6 Foundations of Multiplication and Division
	<b>-Links to:</b>	G4–M3 Multi-Digit Multiplication and Division

The study of factors links Topics A and B. Topic B extends the study to division. Students continue to use a variety of factors in this topic as the emphasis in these lessons rests on conceptually understanding division and learning to interpret problems by writing division equations. Students understand division as an unknown factor problem, and in Lessons 4 and 5, they relate the meaning of the unknown in division to the size of groups and the number of groups, respectively. They work through word problems that help give meaning through context and then analyze more abstract drawings.

In Lesson 6, students explore division in the context of the array model, interpreting arrays by writing division equations. Through the array, students relate the unknown factor in multiplication to the quotient in division. They use arrays to write multiplication equations and find unknown factors, then write division equations where the quotient represents the same as the unknown factor. By the end of this topic, students use the vocabulary terms *quotient* and *unknown factor*, and discussion moves toward solidifying understanding of the relationship between multiplication and division.

**A Teaching Sequence Toward Mastery of Division as an Unknown Factor Problem**

**Objective 1:** Understand the meaning of the unknown as the size of the group in division.  
(Lesson 4)

**Objective 2:** Understand the meaning of the unknown as the number of groups in division.  
(Lesson 5)

**Objective 3:** Interpret the unknown in division using the array model.  
(Lesson 6)

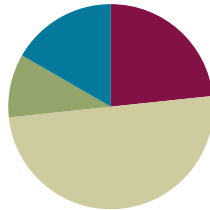


## Lesson 4

**Objective:** Understand the meaning of the unknown as the size of the group in division.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(6 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Sprint: Repeated Addition as Multiplication **3.OA.1** (9 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Array Multiplication **3.OA.1** (2 minutes)

### Sprint: Repeated Addition as Multiplication (9 minutes)

Materials: (S) Repeated Addition as Multiplication Sprint

Note: Students relate repeated addition to multiplication. This reviews Topic A's objectives. See Lesson 2 for the directions for administering a Sprint.

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity anticipates work with those factors in this lesson.

- T: Let's count by twos. (Direct students to count forward and backward to 20, periodically changing directions, e.g., 2, 4, 6, 8, 10, 8, 10, 12, 10, 12, 14, 16, 18, 20, 18, 20, 18, 16, 14, 12, 10, 12, 10, 8, 10, 8, 6, 4, 2, 0.)
- T: Let's count by threes. (Direct students to count forward and backward to 24, periodically changing directions. Emphasize the 9 to 12 and 18 to 21 transitions, e.g., 3, 6, 9, 12, 9, 12, 9, 12, 15, 18, 21, 18, 21, 18, 21, 24, 21, 18, 21, 18, 15, 12, 15, 12, 9, 12, 9, 6, 3, 0.)

### Array Multiplication (2 minutes)

Materials: (S) Personal white board

Note: This activity reviews Topic A’s objectives. Students directly relate repeated addition to multiplication, interpreting products using the array.

T: (Project a picture with 3 groups of 2 circled.) Say the repeated addition equation.

S:  $2 + 2 + 2 = 6$ .

T: (Write  $3 \times \underline{\quad} = \underline{\quad}$ .) On your personal white board, complete the multiplication equation.

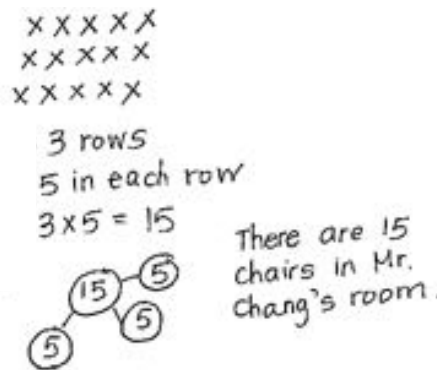
S: (Write  $3 \times 2 = 6$ .)

Continue with the following possible sequence: 4 groups of 10, 3 groups of 4, 7 groups of 3, and 8 groups of 2.

### Application Problem (6 minutes)

The student council holds a meeting in Mr. Chang’s classroom. They arrange the chairs in 3 rows of 5. How many chairs are used in all? Use the RDW process.

Note: This problem reviews relating multiplication to the array model from Lesson 2. Students might choose to solve by drawing an array (Lesson 2) or a number bond (Lesson 3) where each part represents the amount of chairs in each row.



### Concept Development (30 minutes)

Materials: (S) Personal white board, 18 counters

**Concrete to abstract: Division as fair-share, relate the answer to the unknown factor.**

T: Yesterday, Mr. Ziegler bought a new pack of 18 markers. He shared them with me by dividing them into 2 equal groups. Now, I have a bunch of new markers for making our charts! Do you want to know how many he gave me?

S: Yes.

T: What are we trying to find, the number of groups or the size of the group?

S: The size of the group.

T: Your 18 counters represent the markers. Divide your 18 counters into 2 equal groups by giving one to Mr. Z, one to me, one to Mr. Z, one to me. (Model partitioning.)

MP.2



#### NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

This may be students’ first time independently dividing in a formal context. Life experience has likely taught them the fair-share strategy of going back and forth to give 1 and 1, 2 and 2, 3 and 3, etc., until there are no more to distribute. Encourage those who are unsure what to do, or who are using a less efficient strategy, toward fair-share.

- S: (Divide using the fair-share strategy.)
- T: Using a complete sentence, tell how many counters are in each group.
- S: There are 9 counters in each group.
- T: Then, how many markers did Mr. Ziegler give me?
- S: 9 markers!
- T: Let's write a number sentence to show our work, starting from the beginning. What is our total number of counters?
- S: 18 counters.
- T: (Write 18 on the board.) We divided our 18 counters into how many equal groups?
- S: We divided into 2 equal groups.
- T: (Write  $\div 2 = \underline{\quad}$  on the board next to the 18.)
- T: If 18 is our total and 2 represents our equal groups, then remind me, what does our **unknown** factor represent? (Point to where the answer will go.)
- S: The size of the groups.
- T: That is?
- S: 9.
- T: 18 divided by 2 equals 9. (Finish writing as you read  $18 \div 2 = 9$ .)
- T: How many markers did Mr. Ziegler give me...?
- S: 9 markers!

MP.2

Repeat the process with  $15 \div 3 = \underline{\quad}$ : Suppose Mr. Ziegler had 15 markers and shared fairly with 3 teachers. This time, also review that  $\div$  means to divide.

- T: In what ways does dividing remind you of our work with multiplication?
- S: It's also about the size of groups and the number of groups, but we used a different symbol.  $\rightarrow$  It still uses factors and a total.  $\rightarrow$  This time the total is not the answer. It's the beginning!  $\rightarrow$  So, the answer has to do with groups, not the total.
- T: Right. We multiply when we want to find the total. Here, we divided when we knew the total and wanted to find the size of the groups.

**Pictorial to abstract:** Analyze a picture to write a division sentence in which the solution tells the size of the group.

- T: (Project or draw the following image.) This is how Diana arranges her star stickers.



- T: What does 12 represent in the picture?
- S: The total number of Diana's star stickers.
- T: What does 3 represent?
- S: The number of equal groups.

- T: What does 4 represent?
- S: The size of each group.
- T: Write a number sentence to represent Diana’s stickers where the answer represents the size of the group.
- S: (Write  $12 \div 3 = 4$ .)
- T: (Write  $12 \div 3 = 4$  and  $12 \div 4 = 3$  on the board, even if students have written the correct number sentence.) What is the difference between these **division** sentences?
- S: In the first one, the answer represents the size of each group. In the second one, the answer represents the number of groups.
- T: If we’re writing a division sentence where the answer represents the size of the group, then which number sentence should we use?
- S:  $12 \div 3 = 4$ .

**Abstract to pictorial: Analyze equations for the meaning of the solution and represent the equation with a drawing.**

Write  $8 \div 4 = \underline{\quad}$ .

- T: If 8 is the total and 4 is the number of groups, then what does the unknown factor represent?
- S: The size of the groups!
- T: Draw a picture on your personal white board to go with my division equation. Use your picture to help you find the unknown factor, then write the complete equation.
- S: (Draw various pictures that show  $8 \div 4$ , then write  $8 \div 4 = 2$ .)

Repeat the process with  $10 \div 2$ . While designing examples, keep in mind that Lesson 5 introduces students to division where the unknown factor represents the number of groups.

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Understand the meaning of the unknown as the size of the group in division.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience. Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.


- Ask students to share their division sentences for Problem 9. Because of the way the question is worded, answers will likely include  $15 \div 5 = 3$  (answer is the size of the group) and  $15 \div 3 = 5$  (answer is the number of groups). This presents an opportunity to begin a discussion in which students compare the division sentences by analyzing the meaning of the factors.
- Guide students to articulate the similarities and differences between multiplication and **division** so that they are clear that division is used to find the total number of groups or objects in a group. Students can think of division problems as having a known factor and an **unknown** factor.
- Review phrases that include new vocabulary such as *unknown factor* and *divided by*.


**Exit Ticket (3 minutes)**


After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 Problem Set 3•1


Name Gina Date \_\_\_\_\_


1.  14 flowers are divided into 2 equal groups. There are 7 flowers in each group.

2.  28 books are divided into 4 equal groups. There are 7 books in each group.

3.  30 apples are divided into 3 equal groups. There are 10 apples in each group.

4.  12 cups are divided into 2 equal groups. There are 6 cups in each group.  $12 \div 2 = \underline{6}$


5.  There are 5 toys in each group.  $15 \div 3 = \underline{5}$

6.   $9 \div 3 = \underline{3}$

COMMON CORE Lesson 4: Understand the meaning of the unknown as the size of the group in division. Date: 5/16/14 engage ny 1.B.10


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 4 Problem Set 3•1

7. Audrina has 24 colored pencils. She puts them in 4 equal groups. How many colored pencils are in each group?




There are 6 colored pencils in each group.  $24 \div 4 = \underline{6}$

8. Charlie picks 20 apples. He divides them equally between 5 baskets. Draw the apples in each basket.



There are 4 apples in each basket.  $20 \div \underline{5} = \underline{4}$

9. Chelsea collects butterfly stickers. The picture shows how she placed them in her book. Write a division sentence to show how she equally grouped her stickers.



There are 3 butterflies in each row.  $15 \div \underline{5} = \underline{3}$

COMMON CORE Lesson 4: Understand the meaning of the unknown as the size of the group in division. Date: 5/16/14 engage ny 1.B.11

Number Correct: \_\_\_\_\_

# A

## Repeated Addition as Multiplication

1.	$5 + 5 + 5 =$	
2.	$3 \times 5 =$	
3.	$5 \times 3 =$	
4.	$2 + 2 + 2 =$	
5.	$3 \times 2 =$	
6.	$2 \times 3 =$	
7.	$5 + 5 =$	
8.	$2 \times 5 =$	
9.	$5 \times 2 =$	
10.	$2 + 2 + 2 + 2 =$	
11.	$4 \times 2 =$	
12.	$2 \times 4 =$	
13.	$2 + 2 + 2 + 2 + 2 =$	
14.	$5 \times 2 =$	
15.	$2 \times 5 =$	
16.	$3 + 3 =$	
17.	$2 \times 3 =$	
18.	$3 \times 2 =$	
19.	$5 + 5 + 5 + 5 =$	
20.	$4 \times 5 =$	
21.	$5 \times 4 =$	
22.	$2 \times 2 =$	

23.	$3 + 3 + 3 + 3 =$	
24.	$4 \times 3 =$	
25.	$3 \times 4 =$	
26.	$3 + 3 + 3 =$	
27.	$3 \times 3 =$	
28.	$3 + 3 + 3 + 3 + 3 =$	
29.	$5 \times 3 =$	
30.	$3 \times 5 =$	
31.	$7 + 7 =$	
32.	$2 \times 7 =$	
33.	$7 \times 2 =$	
34.	$9 + 9 =$	
35.	$2 \times 9 =$	
36.	$9 \times 2 =$	
37.	$6 + 6 =$	
38.	$6 \times 2 =$	
39.	$2 \times 6 =$	
40.	$8 + 8 =$	
41.	$2 \times 8 =$	
42.	$8 \times 2 =$	
43.	$7 + 7 + 7 + 7 =$	
44.	$4 \times 7 =$	

**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

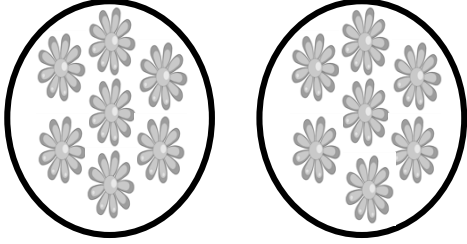
Repeated Addition as Multiplication

1.	$2 + 2 + 2 =$	
2.	$3 \times 2 =$	
3.	$2 \times 3 =$	
4.	$5 + 5 + 5 =$	
5.	$3 \times 5 =$	
6.	$5 \times 3 =$	
7.	$2 + 2 + 2 + 2 =$	
8.	$4 \times 2 =$	
9.	$2 \times 4 =$	
10.	$5 + 5 =$	
11.	$2 \times 5 =$	
12.	$5 \times 2 =$	
13.	$3 + 3 =$	
14.	$2 \times 3 =$	
15.	$3 \times 2 =$	
16.	$2 + 2 + 2 + 2 + 2 =$	
17.	$5 \times 2 =$	
18.	$2 \times 5 =$	
19.	$5 + 5 + 5 + 5 =$	
20.	$4 \times 5 =$	
21.	$5 \times 4 =$	
22.	$2 \times 2 =$	

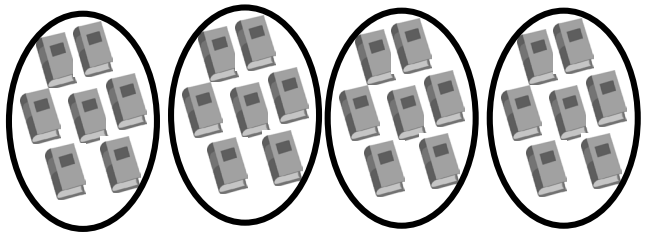
23.	$4 + 4 + 4 =$	
24.	$3 \times 4 =$	
25.	$4 \times 3 =$	
26.	$4 + 4 + 4 + 4 =$	
27.	$4 \times 4 =$	
28.	$4 + 4 + 4 + 4 + 4 =$	
29.	$4 \times 5 =$	
30.	$5 \times 4 =$	
31.	$6 + 6 =$	
32.	$6 \times 2 =$	
33.	$2 \times 6 =$	
34.	$8 + 8 =$	
35.	$2 \times 8 =$	
36.	$8 \times 2 =$	
37.	$7 + 7 =$	
38.	$2 \times 7 =$	
39.	$7 \times 2 =$	
40.	$9 + 9 =$	
41.	$2 \times 9 =$	
42.	$9 \times 2 =$	
43.	$6 + 6 + 6 + 6 =$	
44.	$4 \times 6 =$	

Name \_\_\_\_\_

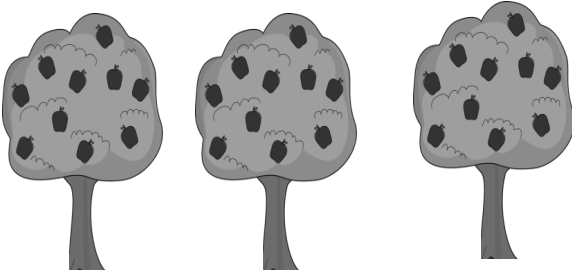
Date \_\_\_\_\_

1. 

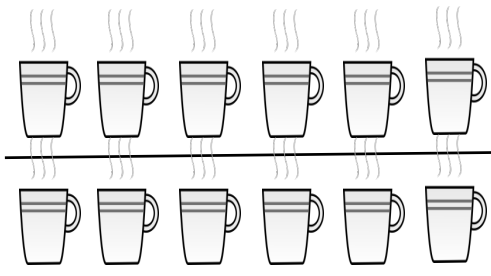
14 flowers are divided into 2 equal groups.  
There are \_\_\_\_\_ flowers in each group.

2. 

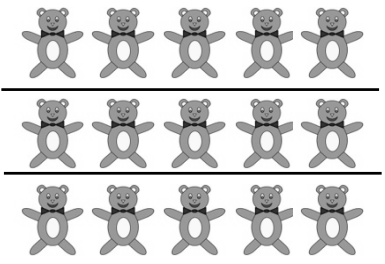
28 books are divided into 4 equal groups.  
There are \_\_\_\_\_ books in each group.

3. 

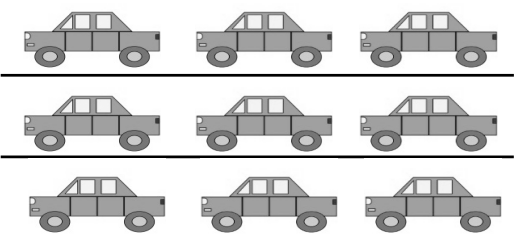
30 apples are divided into \_\_\_\_\_ equal groups.  
There are \_\_\_\_\_ apples in each group.

4. 

\_\_\_\_\_ cups are divided into \_\_\_\_\_ equal groups.  
There are \_\_\_\_\_ cups in each group.  
 $12 \div 2 = \underline{\hspace{2cm}}$

5. 

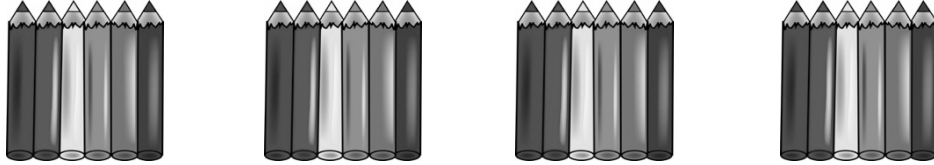
There are \_\_\_\_\_ toys in each group.  
 $15 \div 3 = \underline{\hspace{2cm}}$

6. 

$9 \div 3 = \underline{\hspace{2cm}}$



7. Audrina has 24 colored pencils. She puts them in 4 equal groups. How many colored pencils are in each group?



There are \_\_\_\_\_ colored pencils in each group.

$$24 \div 4 = \underline{\hspace{2cm}}$$

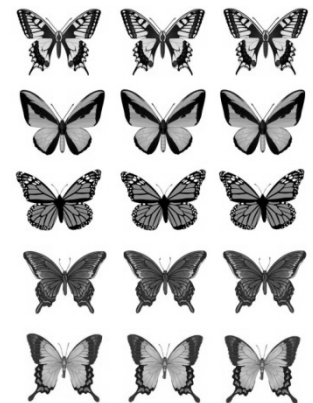
8. Charlie picks 20 apples. He divides them equally between 5 baskets. Draw the apples in each basket.



There are \_\_\_\_\_ apples in each basket.

$$20 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

9. Chelsea collects butterfly stickers. The picture shows how she placed them in her book. Write a division sentence to show how she equally grouped her stickers.



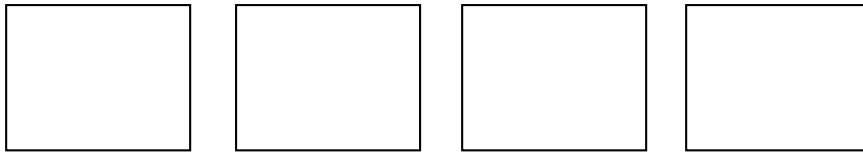
There are \_\_\_\_\_ butterflies in each row.

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. There are 16 glue sticks for the class. The teacher divides them into 4 equal groups. Draw the number of glue sticks in each group.



There are \_\_\_\_\_ glue sticks in each group.

$$16 \div \underline{\quad} = \underline{\quad}$$

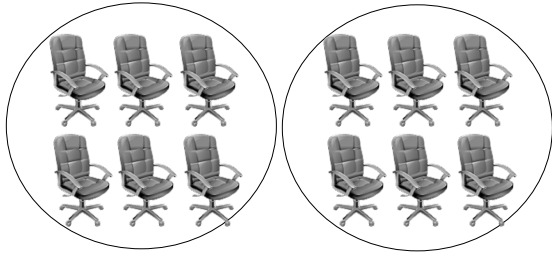
2. Draw a picture to show  $15 \div 3$ . Then, fill in the blank to make a true division sentence.

$$15 \div 3 = \underline{\quad}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

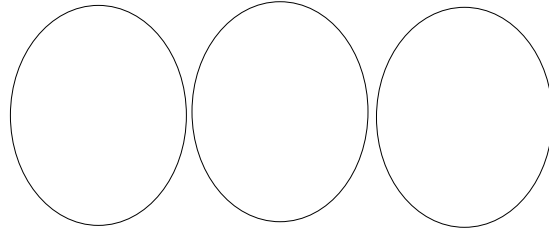
1.



12 chairs are divided into 2 equal groups.

There are \_\_\_\_\_ chairs in each group.

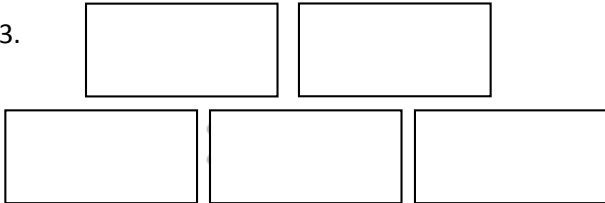
2.



21 triangles are divided into 3 equal groups.

There are \_\_\_\_\_ triangles in each group.

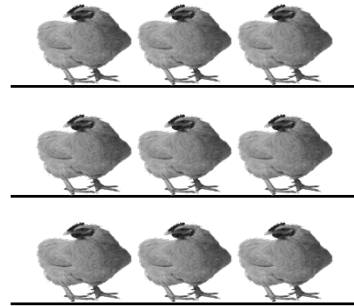
3.



25 erasers are divided into \_\_\_\_\_ equal groups.

There are \_\_\_\_\_ erasers in each group.

4.



\_\_\_\_\_ chickens are divided into \_\_\_\_\_ equal groups.

There are \_\_\_\_\_ chickens in each group.

$9 \div 3 = \underline{\hspace{2cm}}$

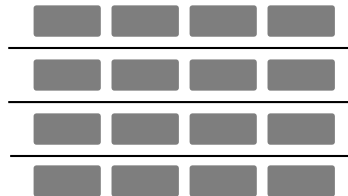
5.



There are \_\_\_\_\_ buckets in each group.

$12 \div 4 = \underline{\hspace{2cm}}$

6.



$16 \div 4 = \underline{\hspace{2cm}}$

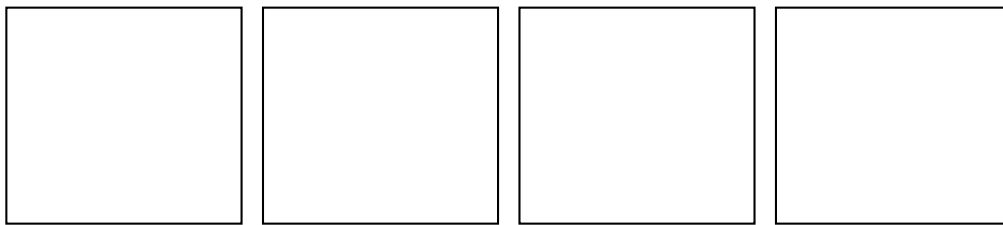
7. Andrew has 21 keys. He puts them in 3 equal groups. How many keys are in each group?



There are \_\_\_\_\_ keys in each group.

$21 \div 3 = \underline{\hspace{2cm}}$

8. Mr. Doyle has 20 pencils. He divides them equally between 4 tables. Draw the pencils on each table.



There are \_\_\_\_\_ pencils on each table.

$20 \div \underline{\hspace{1cm}} = \underline{\hspace{2cm}}$

9. Jenna has markers. The picture shows how she placed them on her desk. Write a division sentence to represent how she equally grouped her markers.

There are \_\_\_\_\_ markers in each row.

$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

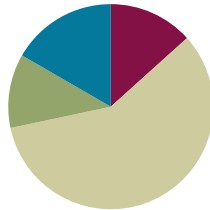


## Lesson 5

**Objective:** Understand the meaning of the unknown as the number of groups in division.

### Suggested Lesson Structure

■ Fluency Practice	(8 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (8 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Divide Equal Groups **3.OA.2** (5 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity supports work with those factors in Topic B.

- T: Let's count by twos. (Direct students to count forward and backward to 20, emphasizing the 8 to 10, 10 to 12, and 18 to 20 transitions.)
- T: Let's count by threes. (Direct students to count forward and backward to 27, changing directions. Emphasize the 9 to 12 and 18 to 21 transitions.)

Record the count-by threes to use later in the lesson.

### Divide Equal Groups (5 minutes)

Materials: (S) Personal white board

Note: Students directly relate repeated addition to division. They interpret the number of groups as the unknown in division. This activity anticipates the lesson objective.

- T: (Project an array with 2 groups of 5.) How many groups are there?
- S: 2.
- T: How many are in each group?
- S: 5.

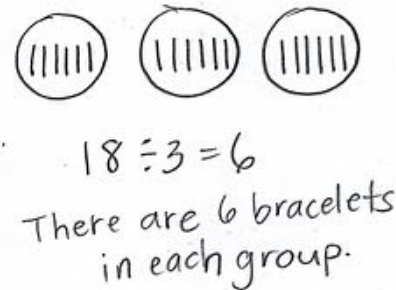
- T: Say the total as a repeated addition sentence.  
 S:  $5 + 5 = 10$ .  
 T: Write a division sentence for 10 divided into 2 equal groups.  
 S: (Write  $10 \div 2 = 5$ .)

Continue with the following possible sequence: 4 groups of 2, 3 groups of 4, and 2 groups of 6.

### Application Problem (7 minutes)

Stacey has 18 bracelets. After she organizes the bracelets by color, she has 3 equal groups. How many bracelets are in each group?

Note: This problem reviews the meaning of the unknown as the size of the group in division from Lesson 4. It also provides a comparison to Problem 1 of the Concept Development where the unknown represents the number of groups in division.



### Concept Development (35 minutes)

Materials: (S) Personal white board, 18 counters, student work from Application Problem

#### Problem 1: Division as fair share with the unknown as the number of groups.

- T: Next weekend, my friend Cynthia is having a party. Eighteen people are coming. I told her I'd help her set up tables. We know that 6 people can sit at each table, but we're not sure how many tables we'll need. Turn and talk with your partner. What information do Cynthia and I already have?
- S: You know the total number of people. It's 18. → Yeah, and you know how many people are sitting together, 6. That's the size of the group.
- T: What information don't we know?
- S: You don't know how many tables. → Tables are like groups. You don't know the number of groups.
- T: Let's use counters to show the problem and check our thinking. Each of you has 18 counters, 1 for each person coming to the party. Put them into groups of 6.
- S: (Make groups of 6.)
- T: Do you still agree we know the total and the size of each group?
- S: Yes!
- T: Looking at our models, what else do we now know?
- S: We know there are 3 groups. → So, that means Cynthia needs 3 tables to fit everyone.
- T: (Write  $18 \div 6 = 3$  on the board.) How does this number sentence relate to the problem we just solved?
- S: It shows that we divided. → We knew the total, 18 people. We divided them into groups with 6 people. Then, we figured out that meant 3 groups of people. → We divided the total by the size of the group and found the number of groups.

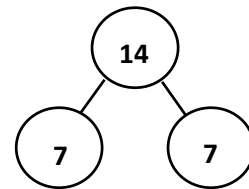
MP.2

- T: Look back at your work from today’s Application Problem. With your partner, compare the steps you took to solve both the bracelet problem and the party problem. Notice the number sentences too.
- S: For the bracelets, I drew circles to show 3 groups first. Then, I shared the bracelets between the groups. → In the party problem, we put the people in groups of 6 first. Then, we found how many groups. → The 6 and 3 switched places. → That’s because in the bracelet problem we had to find the size of the groups, but in the party problem we had to find the number of groups.
- T: I’m hearing you notice that the unknown was different in each problem. We divide when we want to find the size of the groups *or* the number of groups.

Repeat the process using  $14 \div 7 = \underline{\quad}$  without a story context.

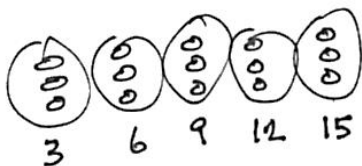
Focus on 7 being the size of the groups. Match the problem to a number bond like the one shown to the right.

Sample Number Bond



**Problem 2: Relate finding the number of groups to counting by the divisor.**

- T: Cynthia plans to buy 15 burgers. Three burgers come in each pack. How many packs should she buy? Whisper to your partner what the numbers 15 and 3 represent in this problem.
- S: Fifteen is the total number of burgers. Three is the number of burgers in a pack.
- T: Is the unknown the number of groups or the size of the group?
- S: The number of groups.
- T: On your personal white board, write the equation you would use to find how many packs to buy.
- S: (Write  $15 \div 3 = \underline{\quad}$ .)
- T: Let’s draw to find out how many packs Cynthia needs.
- S: (Draw.)
- T: How many packs does Cynthia need?
- S: 5 packs.
- T:  $15 \div 3$  is?
- S: 5.
- T: Let’s write the total number of burgers under each pack. How many total burgers does Cynthia have in 1 pack?



- S: 3 burgers.
- T: In 2 packs?
- S: 6 burgers (repeat the process up to 15).



**NOTES ON  
MULTIPLE MEANS  
OF ACTION AND  
EXPRESSION:**

It may be tempting to skip the visual in this segment of the lesson, but for many students who are visual learners, it is an easy way to talk about what may be a common confusion. There are not 6 burgers in the second pack, rather there are 6 burgers in 2 packs. Even for advanced students, the visual helps make clear why the count-by works and also makes the connection to addition very evident.

- T: Let's read our numbers.  
 S: 3, 6, 9, 12, 15.  
 T: Why did we stop at 15?  
 S: Because Cynthia only needs 15 burgers.  
 T: What connection can you make between this problem and our fluency (indicate the count-by threes series from earlier)?  
 S: It's like counting by threes.  
 T: Yes. Each time we add a group, we add a three.  
 T: Count by threes with me, and track the number of threes on your fingers.  
 S: 3, 6, 9, 12, 15. (Track count using fingers.)  
 T: How many threes did we count?  
 S: 5 threes.  
 T: Skip-counting also shows us that Cynthia needs 5 packs.



**NOTES ON TRACKING A COUNT-BY THE MATH WAY:**

Since Kindergarten, students have tracked counts on their fingers the Math Way, that is, by starting with the left pinky and moving across their fingers to the right. This mimics the number line and also facilitates easily recognizing groups of 5. Depending on the class, students may need to be reminded to utilize this familiar strategy as they track the count.

Repeat the process with  $21 \div 3 = \underline{\quad}$  and  $14 \div 2 = \underline{\quad}$  without a story context.

- T: A count-by can be a quick way to solve division problems when we need to find the number of equal groups, especially if we have a big total like 21.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

**Student Debrief (10 minutes)**

**Lesson Objective:** Understand the meaning of the unknown as the number of groups in division.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class.

Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.



Any combination of the questions below may be used to lead the discussion.


- Review the relationship between multiplication and division. Guide students to observe that division is used to find either factor—the unknown can be the size of groups (learned yesterday) or the number of groups (learned today).
- Practice using the count-by strategy to solve Problem 5 on the Problem Set. How is a number bond different from a drawing representing a count-by?
- In Problem 5, what would the division sentence be if we wanted to know the number of crackers in each bag? Why is it the same division sentence as when we found the number of bags?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 5 Problem Set 3•1

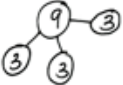
5. Rachel has 9 crackers. She puts 3 crackers in each bag. Circle the crackers to show Rachel's bags.



a. Write a division sentence where the answer represents the number of Rachel's bags.

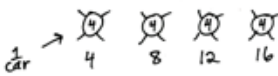
$$9 \div 3 = 3$$

b. Draw a number bond to represent the problem.



6. Jameisha has 16 wheels to make toy cars. She uses 4 wheels for each car.

a. Use a count-by to find the number of cars Jameisha can build. Make a drawing to match your counting.



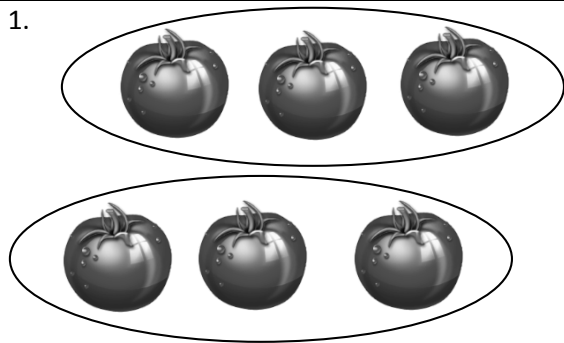
b. Write a division sentence to represent the problem.

$$16 \div 4 = 4$$

COMMON CORE Lesson 5: Understand the meaning of the unknown as the number of groups in division. Date: 5/16/14 engageNY 1.8.21

Name \_\_\_\_\_

Date \_\_\_\_\_



Divide 6 tomatoes into groups of 3.

There are \_\_\_\_\_ groups of 3 tomatoes.

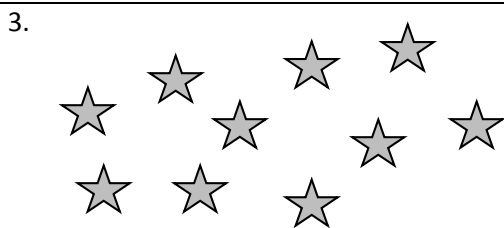
$$6 \div 3 = 2$$



Divide 8 lollipops into groups of 2.

There are \_\_\_\_\_ groups.

$$8 \div 2 = \underline{\hspace{2cm}}$$



Divide 10 stars into groups of 5.

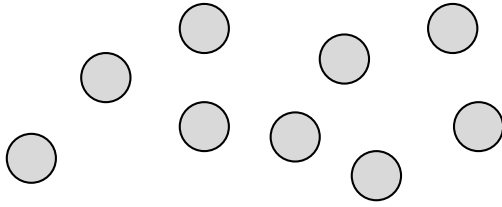
$$10 \div 5 = \underline{\hspace{2cm}}$$



Divide the shells to show  $12 \div 3 = \underline{\hspace{2cm}}$ , where the unknown represents the number of groups.

How many groups are there? \_\_\_\_\_

5. Rachel has 9 crackers. She puts 3 crackers in each bag. Circle the crackers to show Rachel's bags.

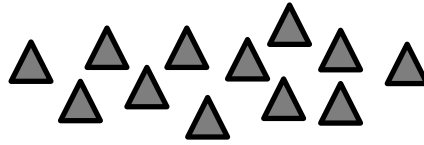


- a. Write a division sentence where the answer represents the number of Rachel's bags.
- b. Draw a number bond to represent the problem.
6. Jameisha has 16 wheels to make toy cars. She uses 4 wheels for each car.
- a. Use a count-by to find the number of cars Jameisha can build. Make a drawing to match your counting.
- b. Write a division sentence to represent the problem.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Divide 12 triangles into groups of 6.



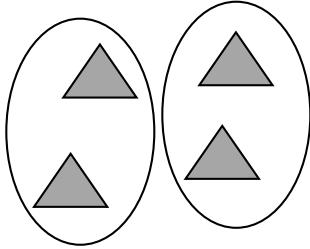
$$12 \div 6 = \underline{\quad}$$

2. Spencer buys 20 strawberries to make smoothies. Each smoothie needs 5 strawberries. Use a count-by to find the number of smoothies Spencer can make. Make a drawing to match your counting.

Name \_\_\_\_\_

Date \_\_\_\_\_

1.

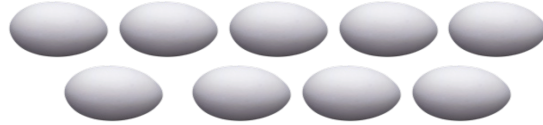


Divide 4 triangles into groups of 2.

There are \_\_\_\_\_ groups of 2 triangles.

$$4 \div 2 = 2$$

2.



Divide 9 eggs into groups of 3.

There are \_\_\_\_\_ groups.

$$9 \div 3 = \underline{\hspace{2cm}}$$

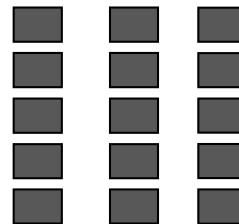
3.



Divide 12 buckets of paint into groups of 3.

$$12 \div 3 = \underline{\hspace{2cm}}$$

4.



Group the squares to show  $15 \div 5 = \underline{\hspace{2cm}}$ , where the unknown represents the number of groups.

How many groups are there? \_\_\_\_\_

5. Daniel has 12 apples. He puts 6 apples in each bag. Circle the apples to find the number of bags Daniel makes.



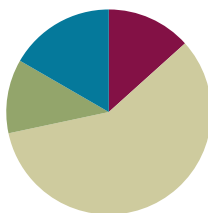
- a. Write a division sentence where the answer represents the number of Daniel's bags.
- b. Draw a number bond to represent the problem.
6. Jacob draws cats. He draws 4 legs on each cat for a total of 24 legs.
- a. Use a count-by to find the number of cats Jacob draws. Make a drawing to match your counting.
- b. Write a division sentence to represent the problem.

## Lesson 6

**Objective:** Interpret the unknown in division using the array model.

### Suggested Lesson Structure

■ Fluency Practice	(8 minutes)
■ Application Problem	(7 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (8 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Divide Equal Groups **3.OA.2** (5 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity supports work with those factors in Topic B.

- T: Let's count by twos. (Direct students to count forward and backward to 20, emphasizing the 8 to 10, 10 to 12, and 18 to 20 transitions.)
- T: Let's count by threes. (Direct students to count forward and backward to 30, periodically changing directions. Emphasize the 9 to 12, 18 to 21, and 27 to 30 transitions.)

### Divide Equal Groups (5 minutes)

Materials: (S) Personal white board

Note: Students directly relate repeated addition to division. They interpret the unknown in division. This activity bridges Lessons 5 and 6.

- T: (Project an array with 3 groups of 5.) Say the total as a repeated addition sentence.
- S:  $5 + 5 + 5 = 15$ .
- T: Write a division sentence for 15 divided into 3 equal groups.
- S: (Write  $15 \div 3 = 5$ .)

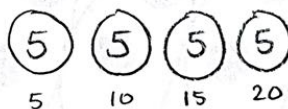
Continue with the following possible sequence: 5 groups of 3, 4 groups of 3, 3 groups of 4, 9 groups of 2, and 2 groups of 9.

Alternate between division sentences where the quotient represents either the number of objects in a group or the number of groups.

**Application Problem (7 minutes)**

Twenty children play a game. There are 5 children on each team. How many teams play the game? Write a division sentence to represent the problem.

Note: This problem reviews division from Lesson 5 where the unknown represents the number of groups. It also leads into Problem 1 of the Concept Development, which relates division to the array model.



$$20 \div 5 = 4$$

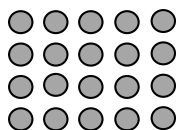
4 teams play the game.

**Concept Development (35 minutes)**

Materials: (S) Personal white board, Application Problem

**Problem 1: Relate division to an array model.**

Draw an array representing the Application Problem on the board.



Have students analyze the array and describe the following relationships:

- Total number of children and total number of dots
- Number of children on each team and number of dots in each row
- Number of teams and number of rows

Repeat the process with the following suggested examples. This time, guide students to draw the array from the division equations below. Alternate between having the quotient represent the size of the groups and the number of groups.

- $8 \div 2 = 4$
- $18 \div 6 = 3$



**NOTES ON ARRAYS:**

Problem 1 in this lesson introduces students to relating division to an array model. In Lesson 2, students related the rows in an array to the number of equal groups and the number of dots in each row to the size of the group. The same concept applies for division arrays, but now the problems begin with the total number.



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

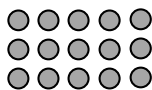
Some students may benefit from working with a partner. They may underline each row to literally show division and circle each row to show the size of each group. They should explain each step they take. This may be particularly helpful for students who prefer visual or kinesthetic practice along with auditory.



**Problem 2: Use an array to relate the unknown factor in multiplication to the quotient in division.**

T: Draw an array that shows the equation  $15 \div 3 = 5$  where the **quotient**—that means the answer—represents the size of the groups.

S: (Draw array below.)



T: Now, write both a division and a multiplication equation for the array.

S: (Write  $15 \div 3 = 5$ ,  $3 \times 5 = 15$ .)

T: Where do you find the quotient in our multiplication equation?

S: It's the second number.  $\rightarrow$  It's the size of the groups.  $\rightarrow$  It's a factor.

T: Circle the size of the groups in both problems.

S: (Circle the 5 in both problems.)

Repeat the process with the following suggested examples. Alternate between having the quotient represent the size of the groups and the number of groups.

- 4 rows of 2
- 7 rows of 3

T: Use our equations to explain to your partner how the factors in a multiplication problem can help you find the quotient in division.

**Problem 3: Relate multiplication and division.**

T: (Write  $\_\_\_ \times 3 = 24$  on the board.) Skip-count and track the number of threes to solve.

S: 3, 6, 9, 12, 15, 18, 21, 24. (Write 8 to complete the equation.)

T: How many threes make 24? Answer in a complete sentence.

S: Eight threes make 24.

T: Write a related division equation where the quotient represents the unknown factor.

S: (Write  $24 \div 3 = 8$ .)

T: Twenty-four divided in threes makes how many groups? Answer in a complete sentence.

S: Twenty-four divided in threes makes 8 groups.

T: How are the unknown factor and the quotient related in these equations?

S: The unknown factor is the same number as the quotient.



### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Some students may still benefit from the visual of an array in this problem. If necessary, encourage students to draw an array.

Repeat the process with the following suggested examples:

- $2 \times \underline{\quad} = 18$  and  $18 \div 2 = \underline{\quad}$
- $\underline{\quad} \times 9 = 27$  and  $27 \div 9 = \underline{\quad}$

T: (Write  $\underline{\quad} \times 3 = 24$  and  $24 \div 3 = \underline{\quad}$ .) True or false: Both equations ask how many threes are in 24?

S: They look different, but they mean the same thing. In both, we're talking about 8 groups of 3 and a total of 24. So, it's true. → The quotient in a division equation is like finding the unknown factor in a multiplication equation.

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Interpret the unknown in division using the array model.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Analyze the four equations in Problem 3. Compare the multiplication and division equations, noticing differences in how the problem is represented by each one.
- How do arrays represent both multiplication and division?

- Based on your observation of arrays, what do multiplication and division have in common?
- What is the relationship between the **quotient** in division and the unknown factor in a related multiplication equation?

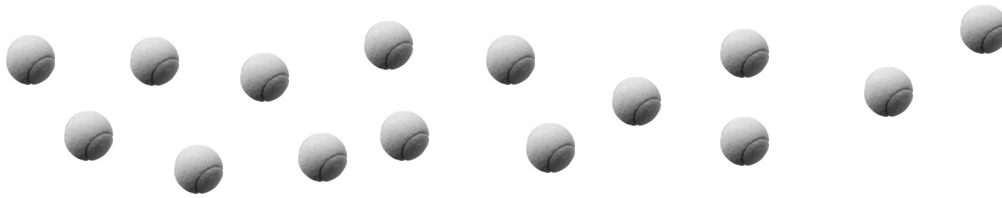
### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Rick puts 15 tennis balls into cans. Each can holds 3 balls. Circle groups of 3 to show the balls in each can.



Rick needs \_\_\_\_\_ cans.

\_\_\_\_\_  $\times$  3 = 15

15  $\div$  3 = \_\_\_\_\_

2. Rick uses 15 tennis balls to make 5 equal groups. Draw to show how many tennis balls are in each group.

There are \_\_\_\_\_ tennis balls in each group.

5  $\times$  \_\_\_\_\_ = 15

15  $\div$  5 = \_\_\_\_\_

3. Use an array to model Problem 1.

a. \_\_\_\_\_  $\times$  3 = 15

15  $\div$  3 = \_\_\_\_\_

The number in the blanks represents

\_\_\_\_\_.

b. 5  $\times$  \_\_\_\_\_ = 15

15  $\div$  5 = \_\_\_\_\_

The number in the blanks represents

\_\_\_\_\_.

4. Deena makes 21 jars of tomato sauce. She puts 7 jars in each box to sell at the market. How many boxes does Deena need?

$$21 \div 7 = \underline{\quad}$$

$$\underline{\quad} \times 7 = 21$$

What is the meaning of the unknown factor and quotient? \_\_\_\_\_

---

5. The teacher gives the equation  $4 \times \underline{\quad} = 12$ . Charlie finds the answer by writing and solving  $12 \div 4 = \underline{\quad}$ . Explain why Charlie's method works.

6. The blanks in Problem 5 represent the size of the groups. Draw an array to represent the equations.

Name \_\_\_\_\_

Date \_\_\_\_\_

Cesar arranges 12 notecards into rows of 6 for his presentation. Draw an array to represent the problem.

$$12 \div 6 = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \times 6 = 12$$

What do the unknown factor and quotient represent? \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Mr. Hannigan puts 12 pencils into boxes. Each box holds 4 pencils. Circle groups of 4 to show the pencils in each box.



Mr. Hannigan needs \_\_\_\_\_ boxes.

\_\_\_\_\_  $\times$  4 = 12

12  $\div$  4 = \_\_\_\_\_

2. Mr. Hannigan places 12 pencils into 3 equal groups. Draw to show how many pencils are in each group.

There are \_\_\_\_\_ pencils in each group.

3  $\times$  \_\_\_\_\_ = 12

12  $\div$  3 = \_\_\_\_\_

3. Use an array to model Problem 1.

a. \_\_\_\_\_  $\times$  4 = 12

12  $\div$  4 = \_\_\_\_\_

The number in the blanks represents

\_\_\_\_\_.

b. 3  $\times$  \_\_\_\_\_ = 12

12  $\div$  3 = \_\_\_\_\_

The number in the blanks represents

\_\_\_\_\_.

4. Judy washes 24 dishes. She then dries and stacks the dishes equally into 4 piles. How many dishes are in each pile?

$$24 \div 4 = \underline{\hspace{2cm}}$$

$$4 \times \underline{\hspace{2cm}} = 24$$

What is the meaning of the unknown factor and quotient? \_\_\_\_\_

---

5. Nate solves the equation  $\underline{\hspace{2cm}} \times 5 = 15$  by writing and solving  $15 \div 5 = \underline{\hspace{2cm}}$ . Explain why Nate's method works.

6. The blanks in Problem 5 represent the number of groups. Draw an array to represent the equations.





## Topic C

# Multiplication Using Units of 2 and 3

**3.OA.1, 3.OA.5, 3.OA.3, 3.OA.4**

<b>Focus Standards:</b>	3.OA.1	Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</i>
	3.OA.5	Apply properties of operations as strategies to multiply and divide. <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)</i>
<b>Instructional Days:</b>	4	
<b>Coherence</b>	<b>-Links from:</b>	G2–M6 Foundations of Multiplication and Division
	<b>-Links to:</b>	G4–M3 Multi-Digit Multiplication and Division

In Topic C, students begin building fluency with facts of 2 and 3 using the array model and familiar skip-counting strategies.

Lessons 7 and 8 introduce the new complexity of manipulating arrays to study the commutative property. Students learn to distinguish rows from columns as they rotate arrays 90 degrees, noticing that the meaning of the factors changes depending on the orientation of the array. Students write two different multiplication sentences to interpret the same array. These lessons emphasize the equivalence of facts by demonstrating, for example, that 2 groups of 8 and 8 groups of 2 have the same product. Students observe the pattern and begin to recognize commutativity as a strategy for solving twice as many facts.

Lessons 9 and 10 introduce the distributive property as a strategy for multiplication. In Lesson 9, students use arrays to decompose unknown facts as the sum or difference of two known facts. For example, they analyze an array to see that  $7 \times 3$  can be decomposed as 2 rows of 3 + 5 rows of 3. In Lesson 10, students learn to write the decomposition as  $(5 \times 3) + (2 \times 3) = 21$ . They explain each step of the solving process in anticipation of the work they are expected to complete independently on the Mid-Module Assessment.

**A Teaching Sequence Toward Mastery of Multiplication Using Units of 2 and 3**

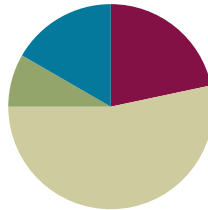
- Objective 1:** Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.  
(Lessons 7–8)
- Objective 2:** Find related multiplication facts by adding and subtracting equal groups in array models.  
(Lesson 9)
- Objective 3:** Model the distributive property with arrays to decompose units as a strategy to multiply.  
(Lesson 10)

## Lesson 7

**Objective:** Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Divide Equal Groups **3.OA.2** (5 minutes)
- Multiply with Twos **3.OA.7** (5 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity anticipates work with those factors in Topic C.

- T: Let's count by twos. (Direct students to count forward and backward to 20, emphasizing the 8 to 10, 10 to 12, and 18 to 20 transitions.)
- T: Let's count by threes. (Direct students to count forward and backward to 30, periodically changing directions. Emphasize the 9 to 12, 18 to 21, and 27 to 30 transitions.)

### Divide Equal Groups (5 minutes)

Materials: (S) Personal white board

Note: Students directly relate repeated addition to division. They interpret the unknown in division. This activity reviews Lesson 6.

- T: (Project an array with 2 groups of 4.) Say the total as a repeated addition sentence.
- S:  $4 + 4 = 8$ .
- T: Write a division sentence for 8 divided into 2 equal groups.
- S: (Write  $8 \div 2 = 4$ .)

- T: Below that division sentence write a division sentence dividing 8 into 4 equal groups.
- S: (Write  $8 \div 4 = 2$ .)

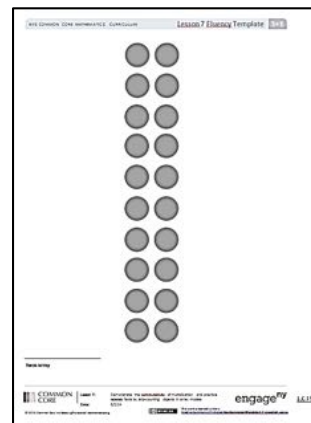
Continue with this possible sequence: 5 groups of 3, 3 groups of 4, and 6 groups of 2.

### Multiply with Twos (5 minutes)

Materials: (S) Personal white board, twos array (Fluency Template), blank paper

Note: Students unit count objects in an array and write multiplication sentences that match the count-by in anticipation of this lesson’s objective.

Twos Array Fluency Template



- T: Slip your template into your personal white board.
- T: Turn your board so that it’s vertical. Use your blank paper to cover all but the first row of dots.
- T: How many twos show?
- S: 1 two.
- T: Say the multiplication sentence to represent the array that’s shown and solve.
- S:  $1 \times 2 = 2$ .
- T: Uncover another row.

Continue this sequence having students uncover twos for  $2 \times 2$ ,  $3 \times 2$ ,  $10 \times 2$ ,  $4 \times 2$ ,  $5 \times 2$ ,  $6 \times 2$ ,  $7 \times 2$ ,  $9 \times 2$ , and  $8 \times 2$ .

### Application Problem (5 minutes)

Anna picks 24 flowers. She makes equal bundles of flowers and gives 1 bundle to each of her 7 friends. She keeps a bundle for herself too. How many flowers does Anna put in each bundle?

$24 \div 8 = 3$   
Anna puts 3 flowers in each bundle.

Note: This problem reviews division from Lesson 5 where the unknown represents the size of the group. The problem’s complexity is in understanding that the flowers are divided equally into 8 bundles, not 7, in order to include a bundle for Anna. Students might choose to solve by drawing a division array learned in Lesson 6 or a number bond learned in Lesson 3.

**Concept Development (32 minutes)**

Materials: (S) Personal white board

**Problem 1: Rotate arrays 90 degrees.**

T: Position your board so that the long side is horizontal. Draw an array that shows 4 rows of 2.

S: (Draw the array, as shown to the right.)

T: Write a skip-count by twos to find the total. Then write a multiplication sentence where the first factor represents the number of rows.

S: (Write 2, 4, 6, 8 and  $4 \times 2 = 8$  as shown to the right.)

T: **Rotate** your board 90 degrees so that the long side is vertical.

S: (Rotate, as shown to the right.)

T: What happened to the array?

S: It has 2 rows of 4. → It has 4 groups of 2, but they're up and down instead of in rows.

T: Now the twos are **columns**, vertical groups in an array.

T: I'll rotate my board. You tell me if the twos are columns or rows.

T: (Show the twos as rows.)

S: Rows!

T: (Rotate your board and show the twos as columns.)

S: Columns!

T: Skip-count the rows by four!

S: (Point to the rows as students count.) 4, 8.

T: Add that skip-count to your board. (Allow time.) What multiplication sentence can represent this array?

S:  $2 \times 4 = 8$ .

T: (Write  $4 \times 2 = 8$  and  $2 \times 4 = 8$  on the board with their corresponding arrays drawn as shown.) What do you notice about the multiplication sentences?

S: The 4 and the 2 switched places.

T: What do the 4 and 2 represent in each? Talk to your partner.

S: In A, the 4 represents the number of rows, but in B, it represents the size of the row. → The twos are rows in A but columns in B.

T: Did the meaning of the 8 change?

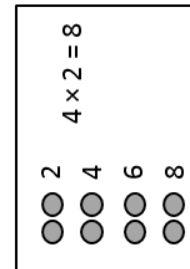
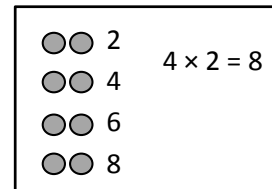
S: No.

T: So factors can switch places and trade meanings, but the total stays the same. We call that the **commutative property**. Talk to your partner about why the total stays the same.

S: (Discuss.)

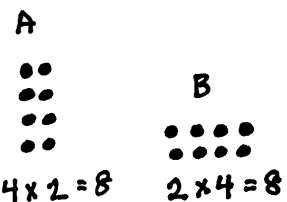
Continue with  $2 \times 5$  and  $3 \times 4$  arrays.

Personal White Board



**NOTES ON VOCABULARY:**

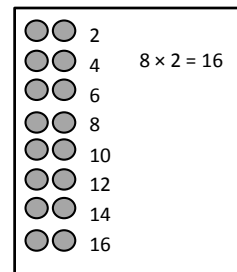
The word *column* was originally introduced in Grade 2, Module 6 but is treated as new vocabulary in this lesson.



**MP.7**

**Problem 2: Interpreting rows and columns in rotated arrays.**

Ask students to draw an array that shows 8 rows of 2. They should write a skip-count to find the total and a number sentence to represent the array. (See the example to the right.)

*Personal White Board*

- T: What does the first factor—the 8—in your equation represent?
- S: The number of equal groups in the array. → The number of rows.
- T: Can the 8 also represent the size of the group? Talk to your partner.
- S: It can be the vertical group. → It can mean the size of the column!
- T: If we think of 8 as the size of the groups, then how many groups does the array show?
- S: 2 groups.
- T: Are those 2 groups shown by columns or by rows?
- S: By columns.
- T: Does the total change if we think of 8 as the size of the groups and 2 as the number of groups?
- S: No, the total is still 16 because you still have to multiply 8 and 2.
- T: Talk with a partner. Does  $8 \times 2 = 16$  represent this array even if we think of 8 as the size of the groups and 2 columns as the number of groups?
- S: No, it should be written as  $2 \times 8 = 16$ . → We just learned that factors can trade meanings. → They can trade meanings, but they also switch places. → The total stays the same, so I think it works.
- T: Factors can trade meanings without always having to switch places in the equation. It's okay to write  $8 \times 2 = 16$  and think of 8 as the size of the groups and 2 columns as the number of groups. In third grade we'll usually write multiplication sentences so that the first factor represents the number of groups. That makes them a little easier to read. But either factor can mean the size of the groups or the number of groups.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience. Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- How did **rotating** our boards help us see rows as **columns** and columns as rows?
- What did you learn today about changing the order of the factors?
- Can you think of different number sentences Ms. Nenadal could have written to get at the same idea in Problem 6?
- Factors can change their order without changing the total. We call that the **commutative property**. Let's test addition, subtraction, and division and see if the commutative property applies to them too.

**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

Students need not master the term *commutative property* (3.OA.5). However, they will need to be familiar with the vocabulary moving forward in this module.

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.



Name \_\_\_\_\_

Date \_\_\_\_\_

1. a. Draw an array that shows 6 rows of 2.

2. a. Draw an array that shows 2 rows of 6.

b. Write a multiplication sentence where the first factor represents the number of rows.

\_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

b. Write a multiplication sentence where the first factor represents the number of rows.

\_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

3. a. Turn your paper to look at the arrays in Problems 1 and 2 in different ways. What is the same and what is different about them?

b. Why are the factors in your multiplication sentences in a different order?

4. Write a multiplication sentence for each expression. You might skip-count to find the totals.

a. 6 twos:  $6 \times 2 = 12$  \_\_\_\_\_

d. 2 sevens: \_\_\_\_\_

**Extension:**

b. 2 sixes: \_\_\_\_\_

e. 9 twos: \_\_\_\_\_

g. 11 twos: \_\_\_\_\_

c. 7 twos: \_\_\_\_\_

f. 2 nines: \_\_\_\_\_

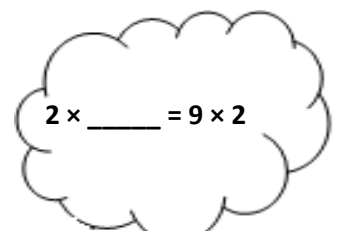
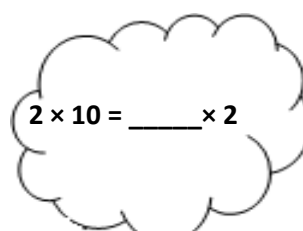
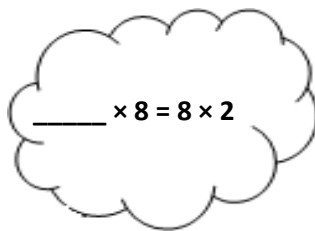
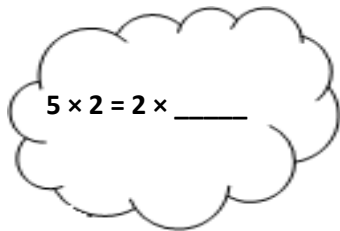
h. 2 twelves: \_\_\_\_\_

5. Write and solve multiplication sentences where the second factor represents the size of the row.



6. Ms. Nenadal writes  $2 \times 7 = 7 \times 2$  on the board. Do you agree or disagree? Draw arrays to help explain your thinking.

7. Find the missing factor to make each equation true.



8. Jada gets 2 new packs of erasers. Each pack has 6 erasers in it.
- Draw an array to show how many erasers Jada has altogether.
  - Write and solve a multiplication sentence to describe the array.
  - Use the commutative property to write and solve a different multiplication sentence for the array.

Name \_\_\_\_\_

Date \_\_\_\_\_

$$2 \times 5 = 5 \times 2$$

Do you agree or disagree with the statement in the box? Draw arrays and use skip-counting to explain your thinking.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. a. Draw an array that shows 7 rows of 2.

2. a. Draw an array that shows 2 rows of 7.

b. Write a multiplication sentence where the first factor represents the number of rows.

\_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

b. Write a multiplication sentence where the first factor represents the number of rows.

\_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

3. a. Turn your paper to look at the arrays in Problems 1 and 2 in different ways. What is the same and what is different about them?

b. Why are the factors in your multiplication sentences in a different order?

4. Write a multiplication sentence to match the number of groups. Skip-count to find the totals. The first one is done for you.

a. 2 twos:  $2 \times 2 = 4$

d. 2 fours: \_\_\_\_\_

g. 2 fives: \_\_\_\_\_

b. 3 twos: \_\_\_\_\_

e. 4 twos: \_\_\_\_\_

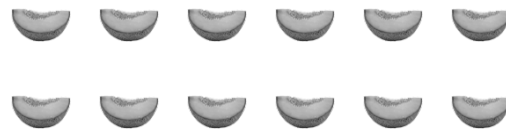
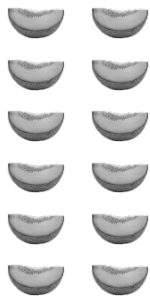
h. 6 twos: \_\_\_\_\_

c. 2 threes: \_\_\_\_\_

f. 5 twos: \_\_\_\_\_

i. 2 sixes: \_\_\_\_\_

5. Write and solve multiplication sentences where the second factor represents the size of the row.



\_\_\_\_\_

\_\_\_\_\_

6. Angel writes  $2 \times 8 = 8 \times 2$  in his notebook. Do you agree or disagree? Draw arrays to help explain your thinking.

7. Find the missing factor to make each equation true.

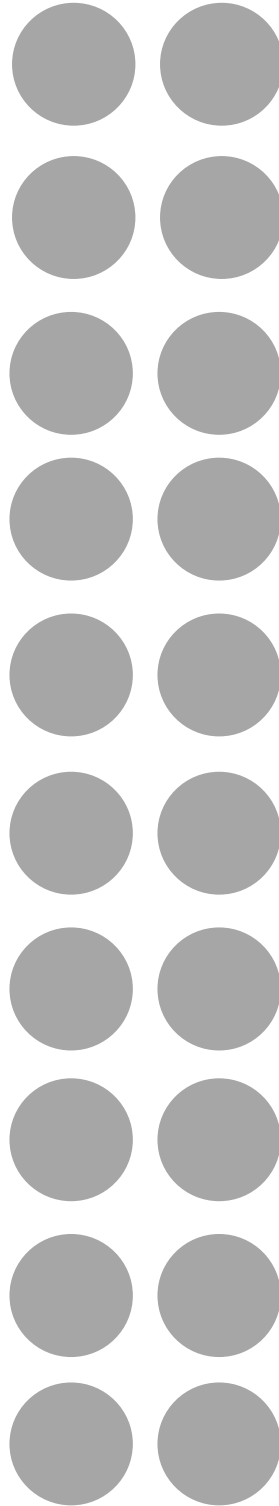
$$2 \times 6 = 6 \times \underline{\quad}$$

$$\underline{\quad} \times 2 = 2 \times 7$$

$$9 \times 2 = \underline{\quad} \times 9$$

$$2 \times \underline{\quad} = 10 \times 2$$

8. Tamia buys 2 bags of candy. Each bag has 7 pieces of candy in it.
- Draw an array to show how many pieces of candy Tamia has altogether.
  - Write and solve a multiplication sentence to describe the array.
  - Use the commutative property to write and solve a different multiplication sentence for the array.




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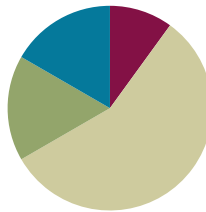
twos array

## Lesson 8

**Objective:** Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

### Suggested Lesson Structure

■ Fluency Practice	(6 minutes)
■ Application Problem	(10 minutes)
■ Concept Development	(34 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (6 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Commutative Multiplying **3.OA.5** (3 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos, threes, and fours in this activity supports work with units of 2 and 3 in this topic and anticipates work using units of 4 in Topic E.

- T: Let's count by twos to 20. Whisper the numbers, and then speak them.
- T: Let's count by twos to 20 again. This time, hum the first number, and then speak it. As you hum, think of the number.
- T: Let's count by twos to 20. This time, instead of humming, think every other number.
- T: What did we just count by?
- S: Twos.
- T: Let's count by fours. (Direct students to count forward and backward to 20, periodically changing directions.)
- T: Let's count by threes. (Direct students to count forward and backward to 30, periodically changing directions. Emphasize the 9 to 12, 18 to 21, and 27 to 30 transitions.)

### Commutative Multiplying (3 minutes)

Materials: (S) Personal white board

Note: Practicing this concept, which was taught in Lesson 7, helps students build confidence and automaticity.

T: (Project a  $3 \times 2$  array.) How many groups of 2 do you see?

S: 3 groups of 2.

T: Write two different multiplication sentences for the array.

S: (Write  $3 \times 2 = 6$  and  $2 \times 3 = 6$ .)

Continue with the following possible sequence: 3 by 5 and 4 by 3.

T: (Write  $4 \times 2 = 2 \times \underline{\quad}$ .) On your board, fill in the blank.

S: (Write  $4 \times 2 = 2 \times 4$ .)

Repeat the process for  $9 \times 5 = 5 \times \underline{\quad}$  and  $3 \times 6 = 6 \times \underline{\quad}$ .

### Application Problem (10 minutes)

Children sit in 2 rows of 9 on the carpet for math time. Erin says, “We make 2 equal groups.” Vittesh says, “We make 9 equal groups.” Who is correct? Explain how you know using models, numbers, and words.

Note: This problem reviews the commutativity of multiplication introduced in Lesson 7 and prepares students for Day 2 of the same concept in today’s lesson.

### Concept Development (34 minutes)

Materials: (S) Personal white board

#### Problem 1: Rotate arrays 90 degrees.

T: Turn your personal white board so that the long side is vertical. Skip-count by threes 4 times and write each number.

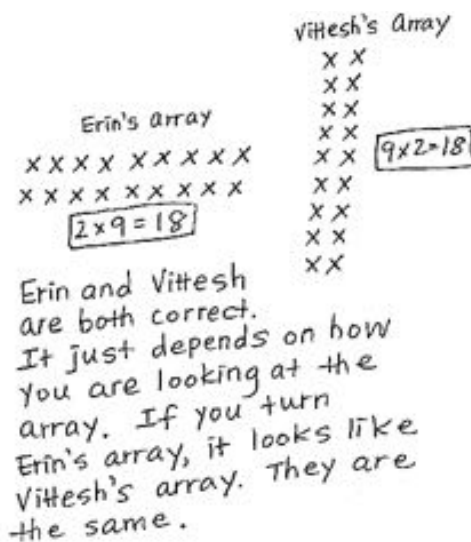
S: 3, 6, 9, 12.

T: Draw an array to match your count where the number of rows represents the number of groups.

T: Discuss how many rows and columns you see.

S: (Students discuss that there are 4 rows and 3 columns.)

T: Turn your board so that the long side is horizontal. How many rows and columns does it show now?



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

If students are very comfortable with the way an array changes depending on how it is turned, add a bit of complexity by having them imagine turning it horizontal rather than actually doing it.



- S: (Turn boards 90 degrees.) 3 rows and 4 columns.  
 T: Tell your partner a different skip-count that also represents the array.  
 S: 4, 8, 12.  
 T: What is the difference between the vertical and horizontal arrays?  
 S: In the vertical array the 4 threes were rows, and in the horizontal array they were columns. → It's the same with the 3 fours. They were columns, then rows.  
**MP.7** T: Did the total number of dots change?  
 S: No.  
 T: So, the total and the factors stay the same, but the factors switch places. Yesterday, we learned a special name for that. It's called...  
 S: Commutative! → The commutative property!  
 T: Use the commutative property to write two multiplication sentences for the array.  
 S: (Write  $4 \times 3 = 12$  and  $3 \times 4 = 12$ .)

Students practice with partners using the following examples. Partner A gives skip-counting directions. Partner B writes the count, draws an array, and writes multiplication sentences. Then, partners switch roles.

- Skip-count by twos 3 times
- Skip-count by threes 6 times

### Problem 2: Interpreting rows and columns in rotated arrays.

- T: Work with your partner to draw an array that shows 5 rows and 3 columns.  
 S: (Demonstrate one possible process.) Let's draw 5 circles going down to show the start of each row. → Then we can draw 3 circles to show the columns across the top. → Wait, we already drew 1 column when we made the rows, so we can just draw 2 more columns.  
 T: Write an equation to match your array where the first factor represents the number of rows. Don't solve it yet.  
 S: (Write  $5 \times 3 = \underline{\quad}$ .)  
 T: I'm going to change the problem slightly. Listen carefully and rotate your array to match: 3 rows and 5 columns.  
 S: (Turn boards 90 degrees.)  
 T: Write the equation for the new array. Let the first factor represent the number of rows. Don't solve it yet.  
 S: (Write  $3 \times 5 = \underline{\quad}$ .)  
 T: Explain the difference between these problems to your partner.  
 S: The array turned and the factors switched places.



#### NOTES ON DRAWING ROWS AND COLUMNS:

Students may not immediately recognize that they do not need to redraw the corner circle to make 3 columns. After drawing rows, they already have 1 column and, for this problem, only need to add 2 more columns. If they make a mistake, help them recognize it by encouraging them to recount their total columns.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

If appropriate, provide a challenge for students by having them cover the array as they skip-count to solve.

T: When we rotated the array, we agreed the first factor would tell us the number of rows. What did that do to the order of the factors?

S: They switched!

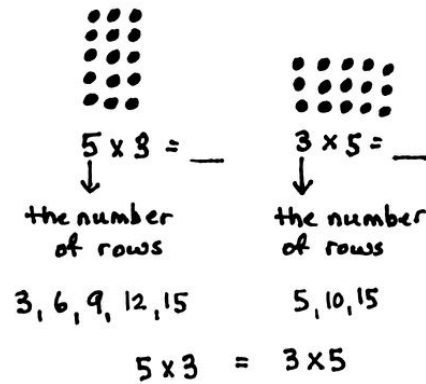
T: Did the total change?

S: No.

T: When we change the order of the factors, we are using the commutative property.

T: Solve each of your equations by skip-counting. Write each number as you say it.

S: (Write 3, 6, 9, 12, 15 and 5, 10, 15.)



Continue with the following possible examples:

- 7 rows and 2 columns
- 3 rows and 9 columns

T: (Once students have worked through the problem, write the final example in groups language: 3 groups of 9 and 9 groups of 3.) Are these statements equal? Use your array to discuss with your partner how you know.

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Share your answers to Problem 7 with a partner. Do your multiplication sentences look the same, or are they different? Why?
- Discuss the meaning of the commutative property and how it relates to equal groups, columns, rows, and arrays.
- Discuss the usefulness of skip-counting to solve multiplication problems.
- Build fluency by having students skip-count to find answers to the following expressions without the help of an array. They can keep track of their count using fingers.
  - 3 sixes, 6 threes
  - 3 eights, 8 threes
  - 5 threes, 3 fives

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 8 Problem Set 3•1

6. Isaac picks 3 tangerines from his tree every day for 7 days.

a. Use circles to draw an array that represents the tangerines Isaac picks.

b. How many tangerines does Isaac pick in 7 days? Write and solve a multiplication sentence to find the total.

$7 \times 3 = 21$   
Isaac picks 21 tangerines in 7 days.

c. Isaac decides to pick 3 tangerines every day for 3 more days. Draw x's to show the new tangerines on the array in Part (a).

d. Write and solve a multiplication sentence to find the total number of tangerines Isaac picks.

$10 \times 3 = 30$   
Isaac picks 30 tangerines in total.

7. Sarah buys bottles of soap. Each bottle costs \$2.

a. How much money does Sarah spend if she buys 3 bottles of soap?

$3 = 3 \times \$2 = \$6$

b. How much money does Sarah spend if she buys 6 bottles of soap?

$6 = 6 \times \$2 = \$12$

**COMMON CORE**

Lesson 8: Demonstrate the commutativity of multiplication, and practice related facts by skip-counting objects in array models.  
Date: \_\_\_\_\_

**engage<sup>ny</sup>** 1.C.21

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Draw an array that shows 5 rows of 3.

2. Draw an array that shows 3 rows of 5.



3. Write multiplication expressions for the arrays in Problems 1 and 2. Let the first factor in each expression represent the number of rows. Use the commutative property to make sure the equation below is true.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

**Problem 1**                      **Problem 2**

4. Write a multiplication sentence for each expression. You might skip-count to find the totals. The first one is done for you.

- |                               |                    |                     |
|-------------------------------|--------------------|---------------------|
| a. 2 threes: $2 \times 3 = 6$ | d. 4 threes: _____ | g. 3 nines: _____   |
| b. 3 twos: _____              | e. 3 sevens: _____ | h. 9 threes: _____  |
| c. 3 fours: _____             | f. 7 threes: _____ | i. 10 threes: _____ |

5. Find the unknowns that make the equations true. Then, draw a line to match related facts.

- |                                |                          |
|--------------------------------|--------------------------|
| a. $3 + 3 + 3 + 3 + 3 =$ _____ | d. $3 \times 8 =$ _____  |
| b. $3 \times 9 =$ _____        | e. _____ $= 5 \times 3$  |
| c. 7 threes + 1 three = _____  | f. $27 = 9 \times$ _____ |

6. Isaac picks 3 tangerines from his tree every day for 7 days.
- Use circles to draw an array that represents the tangerines Isaac picks.
  - How many tangerines does Isaac pick in 7 days? Write and solve a multiplication sentence to find the total.
  - Isaac decides to pick 3 tangerines every day for 3 more days. Draw x's to show the new tangerines on the array in Part (a).
  - Write and solve a multiplication sentence to find the total number of tangerines Isaac picks.

7. Sarah buys bottles of soap. Each bottle costs \$2.
- How much money does Sarah spend if she buys 3 bottles of soap?

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

- How much money does Sarah spend if she buys 6 bottles of soap?

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

Mary Beth organizes stickers on a page in her sticker book. She arranges them in 3 rows and 4 columns.

- a. Draw an array to show Mary Beth's stickers.
  
  
  
  
  
  
  
  
  
  
- b. Use your array to write a multiplication sentence to find Mary Beth's total number of stickers.
  
  
  
  
  
  
  
  
  
  
- c. Label your array to show how you skip-count to solve your multiplication sentence.
  
  
  
  
  
  
  
  
  
  
- d. Use what you know about the commutative property to write a different multiplication sentence for your array.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Draw an array that shows 6 rows of 3.

2. Draw an array that shows 3 rows of 6.



3. Write multiplication expressions for the arrays in Problems 1 and 2. Let the first factor in each expression represent the number of rows. Use the commutative property to make sure the equation below is true.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$$

**Problem 1**                      **Problem 2**

4. Write a multiplication sentence for each expression. You might skip-count to find the totals. The first one is done for you.

- |                                |                    |                     |
|--------------------------------|--------------------|---------------------|
| a. 5 threes: <u>5 × 3 = 15</u> | d. 3 sixes: _____  | g. 8 threes: _____  |
| b. 3 fives: _____              | e. 7 threes: _____ | h. 3 nines: _____   |
| c. 6 threes: _____             | f. 3 sevens: _____ | i. 10 threes: _____ |

5. Find the unknowns that make the equations true. Then, draw a line to match related facts.

- |                                  |                   |
|----------------------------------|-------------------|
| a. 3 + 3 + 3 + 3 + 3 + 3 = _____ | d. 3 × 9 = _____  |
| b. 3 × 5 = _____                 | e. _____ = 6 × 3  |
| c. 8 threes + 1 three = _____    | f. 15 = 5 × _____ |

6. Fernando puts 3 pictures on each page of his photo album. He puts pictures on 8 pages.
- Use circles to draw an array that represents the total number of pictures in Fernando's photo album.
  - Use your array to write and solve a multiplication sentence to find Fernando's total number of pictures.
  - Fernando adds 2 more pages to his book. He puts 3 pictures on each new page. Draw x's to show the new pictures on the array in Part (a).
  - Write and solve a multiplication sentence to find the new total number of pictures in Fernando's album.
7. Ivania recycles. She gets 3 cents for every can she recycles.
- How much money does Ivania make if she recycles 4 cans?  
 $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$  cents
  - How much money does Ivania make if she recycles 7 cans?  
 $\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$  cents

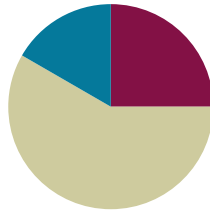


## Lesson 9

**Objective:** Find related multiplication facts by adding and subtracting equal groups in array models.

### Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Concept Development	(35 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (15 minutes)

- Multiply by 2 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Forms of Multiplication **3.OA.1** (4 minutes)

### Multiply by 2 Pattern Sheet (8 minutes)

Materials: (S) Multiply by 2 (1–5) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 2. It works toward students knowing from memory all products of two one-digit numbers.

T: (Write  $5 \times 2 = \underline{\quad}$ .) Let's skip-count by twos to find the answer. (Count with fingers to 5 as students count. Record skip-count on the board.)

S: 2, 4, 6, 8, 10.

T: (Circle 10 and write  $5 \times 2 = 10$  above it. Write  $3 \times 2 = \underline{\quad}$ .) Let's skip-count up by twos again. (Count with fingers to 3 as students count.)

S: 2, 4, 6.

T: Let's see how we can skip-count down to find the answer, too. Start at 10 with 5 fingers, 1 for each two. (Count down with your fingers as students say numbers.)

S: 10 (5 fingers), 8 (4 fingers), 6 (3 fingers).

Repeat the process for  $4 \times 2$ .

T: Let's practice multiplying by 2.

**Directions for Administration of Multiply-By Pattern Sheet**

- Distribute Multiply-By Pattern Sheet.
- Allow a maximum of 2 minutes for students to complete as many problems as possible.
- Direct students to work left to right across the page.
- Encourage skip-counting strategies to solve unknown facts.

**Group Counting (3 minutes)**

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by threes and fours in this activity supports work with units of 3 in this topic and anticipates work using units of 4 in Topic E.

- T: Let's count by threes. (Direct students to count forward and backward to 30, emphasizing the transition from 18 to 21.)
- T: Let's count by fours. (Direct students to count forward and backward to 24, emphasizing the 16 to 20 transition.)

**Forms of Multiplication (4 minutes)**

Materials: (S) Personal white board

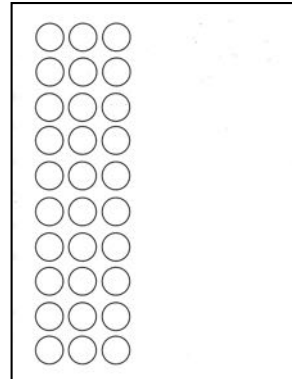
Note: Students directly relate repeated addition to multiplication in preparation for using the distributive property in this lesson.

- T: (Project a  $3 \times 5$  array.) Represent this array as a repeated addition sentence using 5 as the size of the groups.
- S: (Write  $5 + 5 + 5 = 15$ .)
- T: (Project a  $3 \times 4$  array. Write \_\_\_\_ fours = \_\_\_\_.) Complete the equation on your personal white board.
- S: (Write 3 fours = 12.)
- T: (Project a  $7 \times 2$  array.) Write two multiplication sentences for 7 groups of 2.
- S: (Write  $7 \times 2 = 14$  and  $2 \times 7 = 14$ .)
- T: (Project a  $6 \times 3$  array. Write  $18 = 6 \times$  \_\_\_\_.) Complete the equation on your personal white board.
- S: (Write  $18 = 6 \times 3$ .)
- T: (Project a  $5 \times 3$  array. Write 5 threes = \_\_\_\_.) Complete the equation on your personal white board.
- S: (Write 5 threes = 15.)
- T: (Add one more group of 3 to the array. Write 5 threes + 1 three = \_\_\_\_ threes = \_\_\_\_ ones.) Complete the equation on your personal white board.
- S: (Write 5 threes + 1 three = 6 threes = 18 ones.)

**Concept Development (35 minutes)**

Materials: (S) Personal white board, threes array no fill (Template) (pictured on the right), blank paper

*Threes Array No Fill Template*



**Problem 1: Add two known smaller facts to solve an unknown larger fact.**

T: Slip the template into your board. Cover part of the array with blank paper to show 5 rows of 3. Draw a box around the uncovered array. Write and solve a multiplication sentence to describe it.

S: (Cover, then box array, and write  $5 \times 3 = 15$ .)

T: Move the paper so the array shows  $7 \times 3$ . Shade the rows you added.

S: (Shade 2 rows.)

T: Write and solve a multiplication sentence to describe the shaded part of your array.

S: (Write  $2 \times 3 = 6$ .)

T: How many threes are in  $5 \times 3$ ?

S: 5 threes.

T: How many threes did you add to  $5 \times 3$  to make the array show  $7 \times 3$ ?

S: 2 threes.

T: (Write 7 threes = 5 threes + 2 threes.) So, 7 threes equals 5 threes plus 2 threes.

T: (Write  $7 \times 3 = 5 \times 3 + 2 \times 3$  as shown to the right.) Do you agree or disagree?

S: I agree. That’s just adding the two parts of the array together.  $\rightarrow$  7 rows of three is the same as 5 rows of three plus 2 rows of three.

T: We already wrote totals for the two parts of our array. Let’s add those to find the total for the whole array. What is the total of  $5 \times 3$ ?

S: 15.

T: (Write  $15 +$  on the board.) What is the total of  $2 \times 3$ ?

S: 6.

T: (Add to the board so the equation reads  $\underline{\hspace{1cm}} = 15 + 6$ .) Say the total at the signal. (Signal.)

S: 21.



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

Decomposing this way naturally relates to the part–whole relationship that students studied in Grades K–2. The vignette implies the relationship, but a more formal connection to prior knowledge may be appropriate for some classes.

*Sample Teacher Board*

$7 \text{ threes} = 5 \text{ threes} + 2 \text{ threes}$			
$7 \times 3 =$	$5 \times 3$	$+$	$2 \times 3$
$21 =$	$15$	$+$	$6$

Provide students with another example. Have them use the template to add the totals of  $4 \times 3$  and  $4 \times 3$  to find the answer to  $8 \times 3$ . Teach them to double the total for  $4 \times 3$ .

- T: Explain how we added to find  $7 \times 3 = 21$  and  $8 \times 3 = 24$ .  
 S: We added the totals of smaller facts together to find the whole.  $\rightarrow$  We used two facts we already knew to find one we didn't know.

**Problem 2: Subtract two known smaller facts to solve an unknown larger fact.**

- T: Draw a box around an array that shows  $9 \times 3$ . Notice that  $9 \times 3$  is very close to  $10 \times 3$ .  $10 \times 3$  is easier to solve because we can count by tens to get the total. Let's do that now.  
 S: 10, 20, 30.  
 T: Let's use  $10 \times 3 = 30$  to help us solve  $9 \times 3$ .  
 T: Use your finger to trace 10 threes.  
 T: What should we subtract to show 9 threes instead?  
 S: 1 three!  
 T: (Write  $10 \text{ threes} - 1 \text{ three} = \underline{\quad}$  on the board.) 10 threes equals?  
 S: 30.  
 T:  $30 - 3$  equals?  
 S: 27.

Provide another example. Have students subtract to find the answer to  $8 \times 3$ .  $10 \times 3$  is the basic fact, so the subtraction to find  $8 \times 3$  is  $30 - 6$ .

- T: Tell your partner how we used  $10 \times 3$  to help us find the answer to  $9 \times 3$  and  $8 \times 3$ .  
 S: (Discuss.)

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.



**NOTES ON  
MULTIPLE MEANS  
OF ENGAGEMENT:**

The second example for subtraction ( $8 \times 3$ ) is intentionally the same as the second example for addition. Solving the same problem in two ways provides an opportunity for students to compare the strategies. Ask students who benefit from a challenge to analyze the strategies independently or in pairs, and then present their thinking to others during the Debrief.



**NOTES ON  
VOCABULARY:**

Introduce the word *distribute* into everyday classroom language. This will help with students' understanding of the distributive property, which is formally introduced in Lesson 16.

For example, "Paper monitors, please distribute the papers to the class."

**Student Debrief (10 minutes)**

**Lesson Objective:** Find related multiplication facts by adding and subtracting equal groups in array models.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Review the strategy of adding and subtracting the totals of known “easy” facts for solving unknown facts.
- Differentiate between when to apply addition or subtraction through analysis of the example  $8 \times 3$  from the Concept Development. (Students solved  $8 \times 3$  using both addition and subtraction.) Ask students to apply the strategy to solve  $8 \times 4$ .

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

This screenshot shows the first page of the Lesson 9 Problem Set. It includes the title 'Lesson 9 Problem Set 3•1', a name field filled with 'Gina', and a date field. Problem 1 asks to complete equations for soccer balls. The student's work shows:
   
a.  $(5+5) + (5+5+5) = 25$ 
  
b.  $2 \text{ fives} = 3 \text{ fives} = 5 \text{ fives}$ 
  
c.  $5 \times 5 = 25$ 
  
Problem 2 shows an array of 14 dots with equations  $7 \times 2 = 14$ ,  $5 \times 2 = 10$ , and  $2 \times 2 = 4$ . The student's work shows  $10 + 4 = 14$  and  $7 \times 2 = 14$ .
   
Problem 3 shows an array of 18 triangles with equations  $9 \times 2 = 18$ ,  $10 \times 2 = 20$ , and  $1 \times 2 = 2$ . The student's work shows  $20 - 2 = 18$  and  $9 \times 2 = 18$ .
   
The page footer includes 'COMMON CORE', 'engage<sup>ny</sup>', and '1.C.31'.

This screenshot shows the second page of the Lesson 9 Problem Set. It includes the title 'Lesson 9 Problem Set 3•1'. Problem 4 asks to draw an array for 12 baseball cards. The student's work shows an array of 12 'X's and the equation  $4 \times 3 = 12$ .
   
Problem 5 asks to add 2 more rows to the array. The student's work shows  $2 \times 3 = 6$ .
   
Problem 6 asks to add the totals from Problems 4 and 5. The student's work shows  $12 + 6 = 18$ .
   
Problem 7 asks to write the multiplication equation for the total number of cards. The student's work shows  $6 \times 3 = 18$ .
   
The page footer includes 'COMMON CORE', 'engage<sup>ny</sup>', and '1.C.32'.

Multiply.

$2 \times 1 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$

$2 \times 3 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$

$2 \times 1 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 1 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$

$2 \times 3 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$

multiply by 2 (1–5)

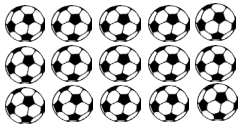
Name \_\_\_\_\_

Date \_\_\_\_\_

1. The team organizes soccer balls into 2 rows of 5. The coach adds 3 rows of 5 soccer balls. Complete the equations to describe the total array.



a.  $(5 + 5) + (5 + 5 + 5) =$  \_\_\_\_\_

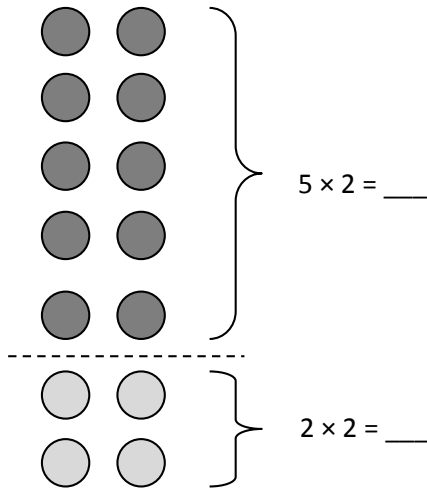


b. 2 fives + \_\_\_\_\_ fives = \_\_\_\_\_ fives

c. \_\_\_\_\_  $\times$  5 = \_\_\_\_\_

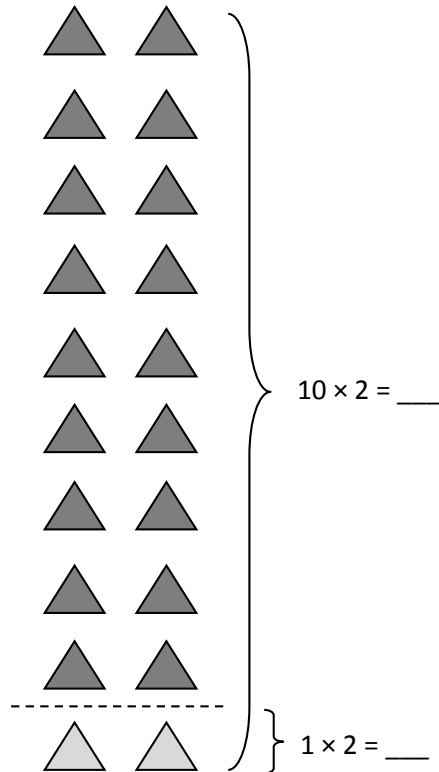
2.  $7 \times 2 =$  \_\_\_\_\_

3.  $9 \times 2 =$  \_\_\_\_\_



$10 + 4 =$  \_\_\_\_\_

\_\_\_\_\_  $\times$  2 = 14



$20 -$  \_\_\_\_\_  $= 18$

$9 \times 2 =$  \_\_\_\_\_

4. Matthew organizes his baseball cards in 4 rows of 3.
- a. Draw an array that represents Matthew's cards using an x to show each card.

b. Solve the equation to find Matthew's total number of cards.  $4 \times 3 = \underline{\hspace{2cm}}$

5. Matthew adds 2 more rows. Use circles to show his new cards on the array in Problem 4(a).
- a. Write and solve a multiplication equation to represent the circles you added to the array.

$$\underline{\hspace{2cm}} \times 3 = \underline{\hspace{2cm}}$$

- b. Add the totals from the equations in Problems 4(b) and 5(a) to find Matthew's total cards.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 18$$

- c. Write the multiplication equation that shows Matthew's total number of cards.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 18$$



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Mrs. Stern roasts cloves of garlic. She places 10 rows of two cloves on a baking sheet.

Write an equation to describe the number of cloves Mrs. Stern bakes.

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

2. When the garlic is roasted, Mrs. Stern uses some for a recipe. There are 2 rows of two garlic cloves left on the pan.

- a. Complete the equation below to show how many garlic cloves Mrs. Stern uses.

$$\underline{\hspace{2cm}} \text{ twos} - \underline{\hspace{2cm}} \text{ twos} = \underline{\hspace{2cm}} \text{ twos}$$

- b.
- $20 - \underline{\hspace{2cm}} = 16$

- c. Write an equation to describe the number of garlic cloves Mrs. Stern uses.

$$\underline{\hspace{2cm}} \times 2 = \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Dan organizes his stickers into 3 rows of four. Irene adds 2 more rows of stickers. Complete the equations to describe the total number of stickers in the array.

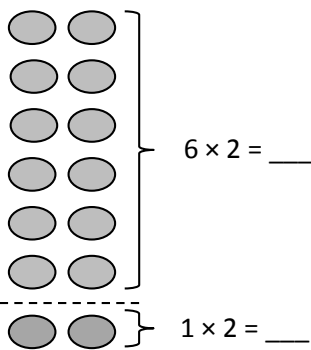


a.  $(4 + 4 + 4) + (4 + 4) =$  \_\_\_\_\_

b. 3 fours + \_\_\_\_\_ fours = \_\_\_\_\_ fours

c. \_\_\_\_\_  $\times 4 =$  \_\_\_\_\_

2.  $7 \times 2 =$  \_\_\_\_\_



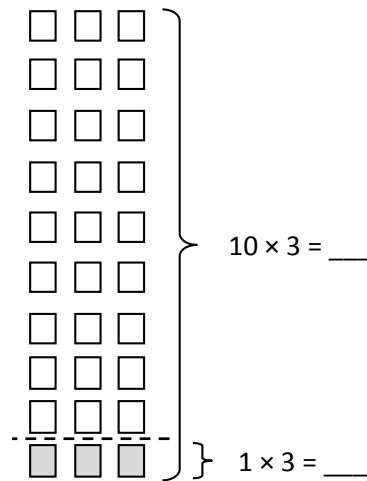
$6 \times 2 =$  \_\_\_\_\_

$1 \times 2 =$  \_\_\_\_\_

$12 + 2 =$  \_\_\_\_\_

\_\_\_\_\_  $\times 2 = 14$

3.  $9 \times 3 =$  \_\_\_\_\_



$10 \times 3 =$  \_\_\_\_\_

$1 \times 3 =$  \_\_\_\_\_

$30 -$  \_\_\_\_\_  $= 27$

\_\_\_\_\_  $\times 3 = 27$

4. Franklin collects stickers. He organizes his stickers in 5 rows of four.
- a. Draw an array to represent Franklin's stickers. Use an x to show each sticker.

b. Solve the equation to find Franklin's total number of stickers.  $5 \times 4 = \underline{\hspace{2cm}}$

5. Franklin adds 2 more rows. Use circles to show his new stickers on the array in Problem 4(a).

a. Write and solve an equation to represent the circles you added to the array.

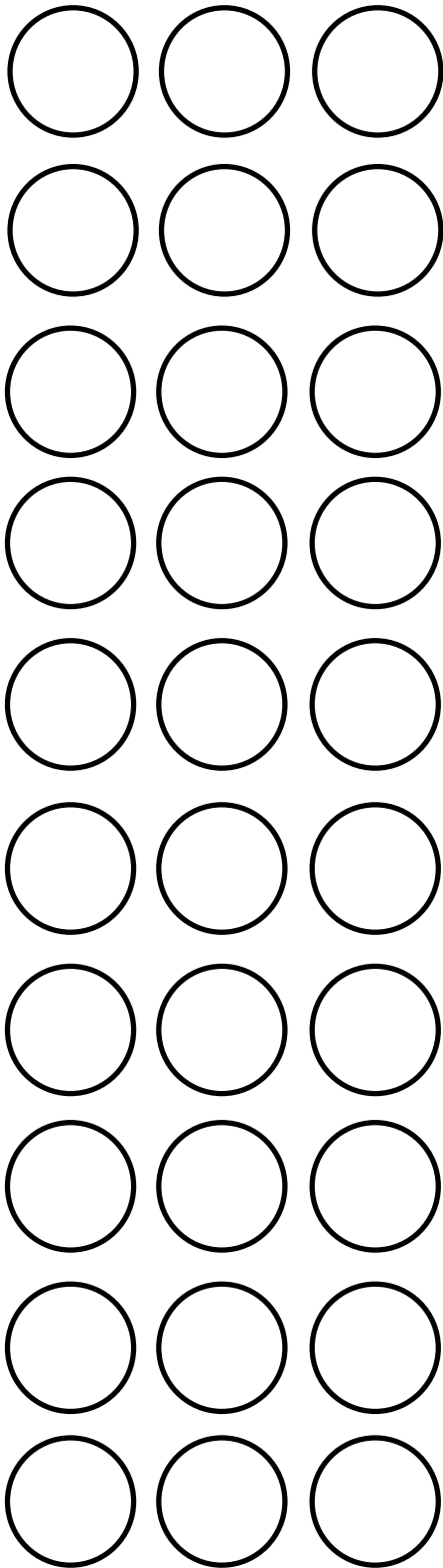
$$\underline{\hspace{2cm}} \times 4 = \underline{\hspace{2cm}}$$

- b. Complete the equation to show how you add the totals of 2 multiplication facts to find Franklin's total number of stickers.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 28$$

- c. Complete the unknown to show Franklin's total number of stickers.

$$\underline{\hspace{2cm}} \times 4 = 28$$



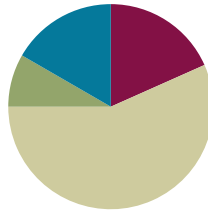
threes array no fill

## Lesson 10

**Objective:** Model the distributive property with arrays to decompose units as a strategy to multiply.

### Suggested Lesson Structure

■ Fluency Practice	(11 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(34 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (11 minutes)

- Multiply by 2 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)

### Multiply by 2 Pattern Sheet (8 minutes)

Materials: (S) Multiply by 2 (6–10) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 2. It works toward students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

T: (Write  $7 \times 2 = \underline{\quad}$ .) Let's skip-count up by twos. (Count with fingers to 7 as students count.)

S: 2, 4, 6, 8, 10, 12, 14.

T: This time, let's start from 10 to find our answer more quickly. Show 5 fingers all at once to show 10.

S: (Show 5 fingers.)

T: Now, count by twos from 10. Raise another finger for each two you count. (Model as students count.)

S: 10, 12, 14. (Raise a sixth finger at 12, and a seventh finger at 14.)

T: Let's see how we can skip-count down to find the answer, too. Start at 20. (Show 10 fingers to represent 20. Hide one finger at a time as students say numbers.)

S: 20, 18, 16, 14.

Repeat the process for  $9 \times 2$  and  $8 \times 2$ .

T: (Distribute Multiply by 2 Pattern Sheet.) Let's get some practice multiplying by 2. Be sure to work left to right across the page.

**Group Counting (3 minutes)**

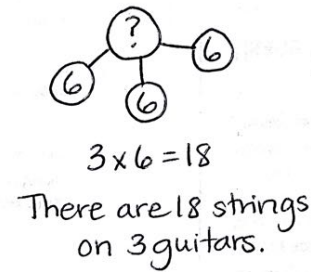
Note: Group counting reviews interpreting multiplication as repeated addition. Counting by threes and fours in this activity supports work with units of 3 in this topic and anticipates work using units of 4 in Topic E.

- T: Let’s count by threes. (Direct students to count forward and backward to 30, emphasizing the transition from 18 to 21.)
- T: Let’s count by fours. (Direct students to count forward and backward to 24, emphasizing the 16 to 20 transition.)

**Application Problem (5 minutes)**

A guitar has 6 strings. How many strings are there on 3 guitars? Write a multiplication equation to solve.

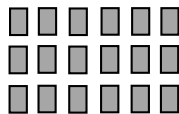
Note: This problem leads into today’s Concept Development. Students will compare their multiplication equation with the new equations presented in the lesson.



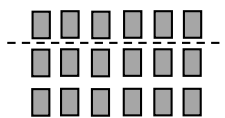
**Concept Development (34 minutes)**

Materials: (S) Personal white board, 1 sheet of blank paper

- T: On your personal white board, draw an array to represent the total number of guitar strings. Let the number of strings on one guitar be 1 row.
- S: (Draw a  $3 \times 6$  array, as shown below.)



- T: Make a dotted line below the first row to show just one guitar.
- S: (Draw line, as shown below.)



- T: Write and solve a multiplication sentence to describe each part of your array.
- S: (Write  $1 \times 6 = 6$  and  $2 \times 6 = 12$ , as shown below.)



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

This lesson begins at the pictorial level and quickly advances to the more abstract numerical form. Some students may need to begin with concrete materials. If so, have students use linking cubes to show how to distribute the rows of 6.



**NOTES ON VOCABULARY:**

In this lesson, students are not responsible for the vocabulary *distributive property* (3.OA.5). They revisit the distributive property as a strategy for multiplication and division in Topics E and F. In those lessons, they begin referring to it as the *break apart and distribute* strategy.

T: (Write  $6 + 12 = 3$  sixes.) Why is this true?  
 S: 1 six is 6, 2 sixes are 12. → When I add 6 and 12, I get 18, which is 3 sixes.

T: (Write  $(1 \times 6) + (2 \times 6) = 3$  sixes on the board as shown to the right.) How do you know this equation is true?

S:  $1 \times 6$  is the same as 1 six.  $2 \times 6$  is the same as 2 sixes. 1 six plus 2 sixes is the same as 3 sixes. →  $1 \times 6 = 6$  and  $2 \times 6 = 12$ .  $12 + 6 = 18$ . 3 sixes = 18, so the equation is true.

T: (Write  $(1 \times 6) + (2 \times 6) = 6 + \underline{\quad}$ .) With your partner, discuss what number completes the equation.

S:  $1 \times 6$  equals 6. That’s how the teacher got 6. → To get the other number, we do  $2 \times 6$ . That’s 12. → I know it’s 12 because you need the same amount on each side of the equal sign. On the left, the value is  $6 + 12$  if you solve the multiplication. That’s what it should be on the right too.

T: (Write 12 to fill in the equation.)

T: Notice the symbols around my multiplication expressions. They are called **parentheses**. Let’s say that word together.

S: Parentheses.

T: (Write  $(1 \times 6) + (2 \times 6) = \underline{\quad}$  and  $(1 + 2) \times 6 = \underline{\quad}$  below it, as shown to the right.) My parentheses show how I make groups. How did I rearrange the groups?

S: You added the number of rows. Then, you multiplied by 6.

T: Look back at the array you drew. Do the 1 and 2 represent the number of groups or the size of groups?

S: The number of groups.

T: What does the 6 represent?

S: The size of the groups.

T: Use that language—the number of groups and the size of groups—to tell your partner about my second equation.

S: The teacher added the number of groups first. That’s  $1 + 2$ . Then, she multiplied the number of groups times the size of the groups, which is 6.

T:  $1 + 2$  equals ...?

S: 3.

T: (Write  $3 \times 6 = \underline{\quad}$  under the second equation.) Look back at the work you did on today’s Application Problem. How does this equation compare with what you did?

S: It’s the same! → It’s the number of groups times the size of groups, just like we did.

*Sample Teacher Board*

$$6 + 12 = 3 \text{ sixes}$$

$$(1 \times 6) + (2 \times 6) = 3 \text{ sixes}$$

$$(1 \times 6) + (2 \times 6) = 6 + \underline{12}$$

*Sample Teacher Board*

$$(1 \times 6) + (2 \times 6) = \underline{18}$$

$$(1 + 2) \times 6 = \underline{18}$$

$$3 \times 6 = \underline{18}$$

$$(1 \times 6) + (2 \times 6) = 3 \times 6$$

MP.4



**NOTES ON  
MULTIPLE MEANS  
OF ENGAGEMENT:**

Support students to work at their individual levels of comfort by inviting them to choose to work independently or with a partner to solve the equations.

MP.4

- T: Rewrite each equation on your personal white board, and solve. What is the answer to all three equations?
- S: 18.
- T: (Fill in the equations on the board.) Think back to the problem we’re solving. 18 what?
- S: 18 strings.
- T: (Write  $(1 \times 6) + (2 \times 6) = 3 \times 6$  on the board.) True or false?
- S: True.
- T: In your own words, tell your partner how we got  $3 \times 6$  and why it’s equal to  $(1 \times 6) + (2 \times 6)$ . Use the three equations you just solved to help you explain.
- S: (Retell the steps using the three equations and solutions to guide them.)

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Model the distributive property with arrays to decompose units as a strategy to multiply.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- In Problems 1 and 2, why might breaking an array into two parts to multiply, add, and then solve be easier than just multiplying the total number of groups times their size?
- Check Problem 3(a) by drawing and writing on the board as students give you verbal directions for how to create the page in Ruby’s photo album.

Handwritten student work for Lesson 10 Problem Set. The page shows two problems. Problem 1:  $7 \times 3 = (5 \times 3) + (2 \times 3) = 21$ . The student uses a grid of 15 squares (5 rows of 3) and a separate group of 6 squares (2 rows of 3) to represent the decomposition. Problem 2:  $8 \times 3 = (4 \times 3) + (4 \times 3) = 24$ . The student uses two groups of 12 triangles (4 rows of 3) to represent the decomposition. Both problems show the final sum and the decomposition steps.



- Invite several students to share their work on Problem 3(b), and guide the class to understand the following points.
  - $5 \times 3$  is the result of the number of groups added together and then multiplied by the size of groups in  $(2 \times 3) + (3 \times 3)$ .
  - 6 and 9 are the products of each multiplication expression.
  - The factors in  $5 \times 3$  relate to the number of groups and size of groups in the array.
  - Both sides of the equation  $5 \times 3 = 6 + 9$  have a value of 15.
- Review the vocabulary term **parentheses**.

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 10 Problem Set 3•1

3. Ruby makes a photo album. One page is shown below. Ruby puts 3 photos in each row.

a. Fill in the equations on the right. Use them to help you draw arrays that show the photos on the top and bottom parts of the page.

b. Ruby calculates the total number of photos as shown below. Use the array you drew to help explain Ruby's calculation.

$5 \times 3 = 6 + 9 = 15$

The whole array shows 5 rows times 3 columns. That's  $5 \times 3$ . Maybe Ruby didn't know  $5 \times 3$ , so she broke it into 2 smaller equations:  $2 \times 3 = 6$  and  $3 \times 3 = 9$ . Then she did  $6 + 9$  because  $5 \times 3$  is like  $(2 \times 3) + (3 \times 3)$  and  $2 \times 3 = 6$  and  $3 \times 3 = 9$ , so it's  $6 + 9$ .  $6 + 9 = 15$  and  $5 \times 3 = 15$ , so  $5 \times 3 = 6 + 9 = 15$ .

COMMON CORE Lesson 10: Model the distributive property with arrays to decompose units as a strategy to multiply. 5/16/14 engage<sup>ny</sup> 3.C.4b

Multiply.

$2 \times 1 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $2 \times 3 = \underline{\quad}$      $2 \times 4 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$      $2 \times 10 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 10 = \underline{\quad}$

$2 \times 6 = \underline{\quad}$      $2 \times 5 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$

$2 \times 6 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$

$2 \times 6 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$

$2 \times 8 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$

$2 \times 8 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$

$2 \times 8 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$

$2 \times 7 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$

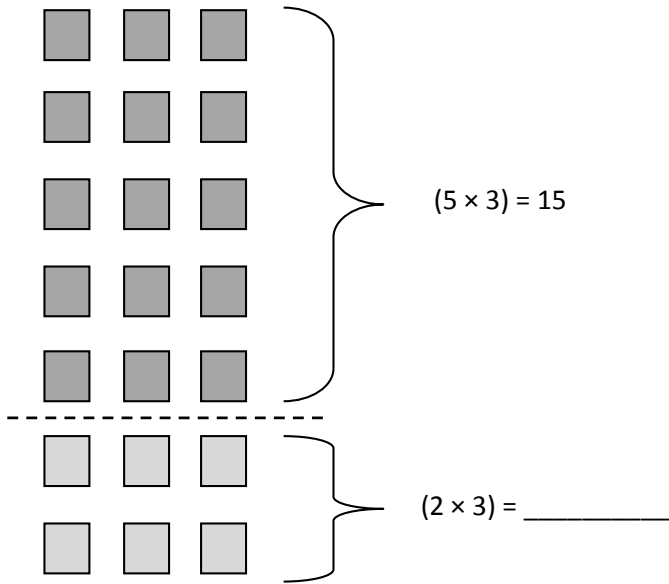
$2 \times 9 = \underline{\quad}$      $2 \times 7 = \underline{\quad}$      $2 \times 6 = \underline{\quad}$      $2 \times 8 = \underline{\quad}$

multiply by 2 (6–10)

Name \_\_\_\_\_

Date \_\_\_\_\_

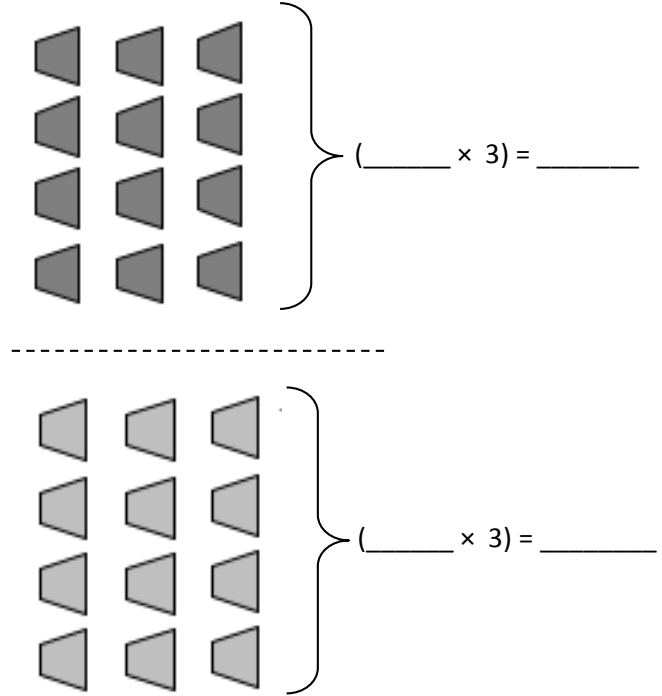
1.  $7 \times 3 = (5 \times 3) + (2 \times 3) =$  \_\_\_\_\_



$(5 \times 3) + (2 \times 3) = 15 +$  \_\_\_\_\_

$15 +$  \_\_\_\_\_  $=$  \_\_\_\_\_

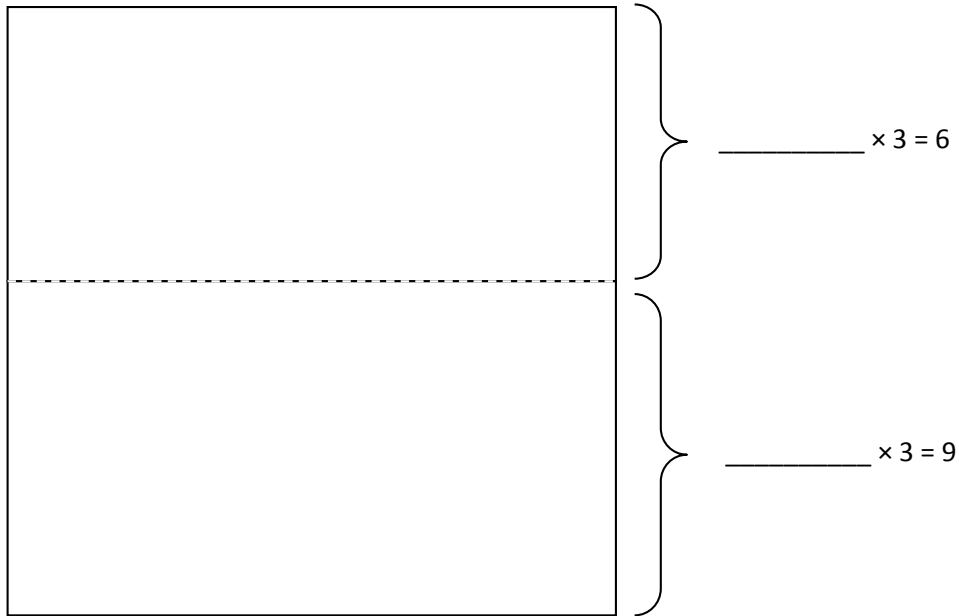
2.  $8 \times 3 = (4 \times 3) + (4 \times 3) =$  \_\_\_\_\_



$(4 \times 3) + (4 \times 3) =$  \_\_\_\_\_  $+$  \_\_\_\_\_

\_\_\_\_\_  $\times 3 =$  \_\_\_\_\_

3. Ruby makes a photo album. One page is shown below. Ruby puts 3 photos in each row.
- a. Fill in the equations on the right. Use them to help you draw arrays that show the photos on the top and bottom parts of the page.



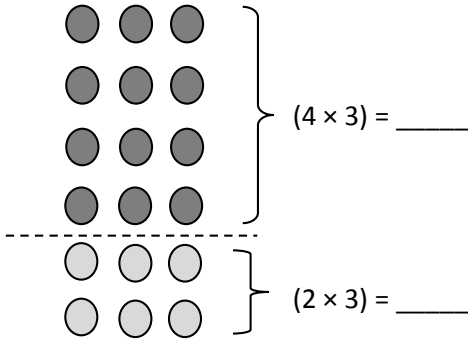
- b. Ruby calculates the total number of photos as shown below. Use the array you drew to help explain Ruby’s calculation.

$5 \times 3 = 6 + 9 = 15$
---------------------------

Name \_\_\_\_\_

Date \_\_\_\_\_

1.  $6 \times 3 =$  \_\_\_\_\_

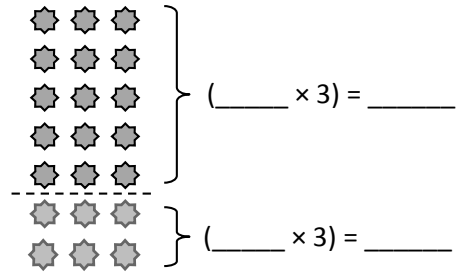


$(4 \times 3) + (2 \times 3) =$  \_\_\_\_\_  $+$  \_\_\_\_\_

$6 \times 3 =$  \_\_\_\_\_  $+$  \_\_\_\_\_

\_\_\_\_\_  $\times 3 =$  \_\_\_\_\_

2.  $7 \times 3 =$  \_\_\_\_\_



$(5 \times 3) + (2 \times 3) =$  \_\_\_\_\_  $+$  \_\_\_\_\_

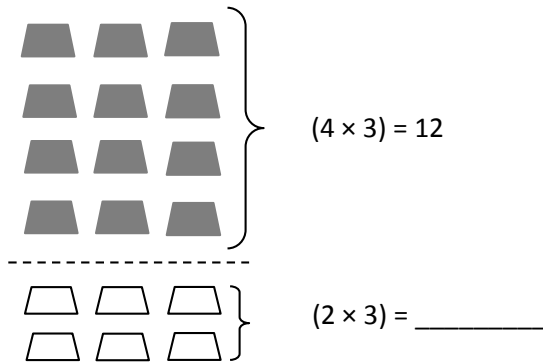
$7 \times 3 =$  \_\_\_\_\_  $+$  \_\_\_\_\_

\_\_\_\_\_  $\times 3 =$  \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

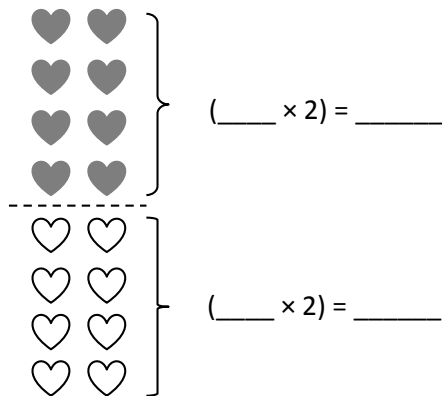
1.  $6 \times 3 =$  \_\_\_\_\_



$12 +$  \_\_\_\_\_  $=$  \_\_\_\_\_

$6 \times 3 =$  \_\_\_\_\_

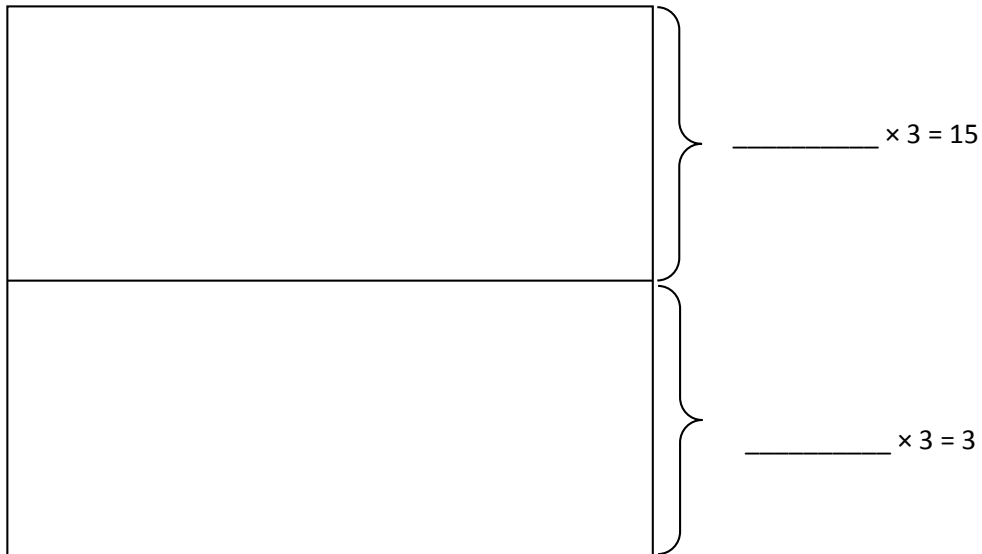
2.  $8 \times 2 =$  \_\_\_\_\_



$(4 \times 2) + (4 \times 2) =$  \_\_\_\_\_  $+$  \_\_\_\_\_

\_\_\_\_\_  $\times 2 =$  \_\_\_\_\_

3. Adriana organizes her books on shelves. She puts 3 books in each row.
- a. Fill in the equations on the right. Use them to draw arrays that show the books on Adriana’s top and bottom shelves.



- b. Adriana calculates the total number of books as shown below. Use the array you drew to help explain Adriana’s calculation.

$6 \times 3 = 15 + 3 = 18$
----------------------------

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Mrs. Tran plants 2 rows of 5 carrots in her garden.

a. Draw an array that represents Mrs. Tran’s carrots. Use an X to show each carrot.

b. Mrs. Tran adds 3 more rows of 5 carrots to her garden.

- Use circles to show her new carrots on the array in Part (a).
- Fill in the blanks below to show how she added the five rows.

\_\_\_\_\_ fives + \_\_\_\_\_ fives = \_\_\_\_\_ fives

- Write a sentence to explain your thinking.

c. Find the total number of carrots Mrs. Tran planted.

d. Write a multiplication sentence to describe the array representing the total number of carrots Mrs. Tran planted.



2. Mrs. Tran picks 15 tomatoes from her garden. She puts 5 tomatoes in each bag.
- a. Draw Mrs. Tran's bags of tomatoes.

b. Write a multiplication sentence that describes your drawing in Part (a).

3. Mrs. Tran plants 12 sunflowers in her garden. She plants them in 3 rows.

a. Fill in the blanks below to make a true division sentence. What does the answer represent?

$$\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

b. Mrs. Tran adds 2 more identical rows of sunflowers to her 3 original rows. Draw an array to show how many flowers she has now.

c. Mrs. Tran figured out how many flowers she planted. Her work is shown in the box below. Would Mrs. Tran get the same result if she multiplied  $5 \times 4$ ? Explain why or why not.

$$\begin{aligned} (3 \times 4) + (2 \times 4) &= 12 + 8 \\ &= 20 \end{aligned}$$

**Mid-Module Assessment Task  
Standards Addressed**
**Topics A–C**
**Represent and solve problems involving multiplication and division.**

- 3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*

**Understand properties of multiplication and the relationship between multiplication and division.**

- 3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)*
- 3.OA.6** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

**Evaluating Student Learning Outcomes**

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the students CAN do now and what they need to work on next.

A Progression Toward Mastery

<p><b>Assessment Task Item and Standards Addressed</b></p>	<p><b>STEP 1</b>                      Little evidence of reasoning without a correct answer.</p> <p><b>(1 Point)</b></p>	<p><b>STEP 2</b>                      Evidence of some reasoning without a correct answer.</p> <p><b>(2 Points)</b></p>	<p><b>STEP 3</b>                      Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.</p> <p><b>(3 Points)</b></p>	<p><b>STEP 4</b>                      Evidence of solid reasoning with a correct answer.</p> <p><b>(4 Points)</b></p>
<p><b>1</b></p> <p><b>3.OA.1</b>  <b>3.OA.2</b>  <b>3.OA.6</b></p>	<p>Student answers at least one question correctly.</p>	<p>Student answers at least two questions correctly.</p>	<p>Student answers at least three questions correctly. Mistakes may include the following:</p> <ul style="list-style-type: none"> <li>▪ Completes the equation in Part (b) incorrectly.</li> <li>▪ Provides inaccurate explanation in Part (b).</li> <li>▪ Writes a number sentence for Part (d) that describes the original array in Part (a) (<math>2 \times 5 = 10</math> or <math>5 \times 2 = 10</math>).</li> </ul>	<p>Student answers every question:</p> <ul style="list-style-type: none"> <li>▪ Draws accurate arrays.</li> <li>▪ Accurately completes the equation in Part (b).</li> <li>▪ Provides accurate explanation of the equation in Part (b).</li> <li>▪ Accurately finds the total number of carrots.</li> <li>▪ Writes <math>5 \times 5 = 25</math> in Part (d).</li> </ul>
<p><b>2</b></p> <p><b>3.OA.1</b></p>	<p>Student is unable to answer either question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student may or may not answer one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Draws unequal groups.</li> <li>▪ Writes an equation using 5, 3, and 15 but a symbol or operation other than multiplication.</li> </ul>	<p>Student answers at least one question correctly. Mistakes may include one of the following:</p> <ul style="list-style-type: none"> <li>▪ Draws 5 equal groups.</li> <li>▪ Writes 15 as a factor.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Represents 3 groups, each with a value of 5.</li> <li>▪ Writes <math>5 \times 3 = 15</math> or <math>3 \times 5 = 15</math>.</li> </ul>



A Progression Toward Mastery

<p><b>3</b></p> <p><b>3.OA.1</b></p> <p><b>3.OA.5</b></p>	<p>Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student answers at least one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Mixes up the order of numbers in the division sentence (e.g., <math>3 \div 12 = 4</math>).</li> <li>▪ Incorrectly identifies what the answer represents in Part (a).</li> <li>▪ Inaccurately draws the array.</li> </ul>	<p>Student answers at least two questions correctly. Mistakes may include:</p> <ul style="list-style-type: none"> <li>▪ Not identifying the distributive property in Part (c).</li> <li>▪ Explanation may only recognize that <math>5 \times 4</math> also equals 20.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Writes <math>12 \div 3 = 4</math>.</li> <li>▪ Identifies that the answer represents the number of flowers in each row.</li> <li>▪ Draws an array.</li> <li>▪ Writes an explanation that includes the distributive property (may or may not use the words <i>distributive property</i>).</li> </ul>
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Name Gina

Date \_\_\_\_\_

1. Mrs. Tran plants 2 rows of 5 carrots in her garden.

a. Draw an array that represents Mrs. Tran’s carrots. Use an X to show each carrot.

```

X X X X X
X X X X X
O O O O O
O O O O O
O O O O O
    
```

b. Mrs. Tran adds 3 more rows of 5 carrots to her garden.

- Use circles to show her new carrots on the array in Part (a).
- Fill in the blanks below to show how she added the five rows.

2 fives + 3 fives = 5 fives

- Write a sentence to explain your thinking.

Mrs. Tran planted 2 rows of five first. Then she planted 3 more rows of five. Now she has 5 rows of five.

c. Find the total number of carrots Mrs. Tran planted.

R1 R2 R3 R4 R5  
5, 10, 15, 20, 25

d. Write a multiplication sentence to describe the array representing the total number of carrots Mrs. Tran planted.

$5 \times 5 = 25$

Mrs. Tran planted 25 carrots.

2. Mrs. Tran picks 15 tomatoes from her garden. She puts 5 tomatoes in each bag.

a. Draw Mrs. Tran's bags of tomatoes.



b. Write a multiplication sentence that describes your drawing in Part (a).

$$3 \times 5 = 15$$

3. Mrs. Tran plants 12 sunflowers in her garden. She plants them in 3 rows.

a. Fill in the blanks below to make a true division sentence. What does the answer represent?

12  $\div$  3 = 4      The answer, 4, is how many flowers are in each row.

b. Mrs. Tran adds 2 more identical rows of sunflowers to her 3 original rows. Draw an array to show how many flowers she has now.

X X X X 4	She has 20 flowers now.
X X X X 8	
X X X X 12	
O O O O 16	
O O O O 20	

c. Mrs. Tran figured out how many flowers she planted. Her work is shown in the box below. Would Mrs. Tran get the same result if she multiplied  $5 \times 4$ ? Explain why or why not.

$$(3 \times 4) + (2 \times 4) = 12 + 8 = 20$$

Yes, she would get the same answer!  $5 \times 4 = 20$   
 If you look at her work,  $(3 \times 4) + (2 \times 4)$  is the same as  $(3 + 2) \times 4$ , which is  $5 \times 4$ . Her work shows the new rows of flowers and the old rows of flowers added together.



## Topic D

# Division Using Units of 2 and 3

3.OA.2, 3.OA.4, 3.OA.6, 3.OA.7, 3.OA.3, 3.OA.8

<b>Focus Standard:</b>	3.OA.2	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i>
	3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \_ \div 3</math>, <math>6 \times 6 = ?</math></i>
	3.OA.6	Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i>
	3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$ , one knows $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
<b>Instructional Days:</b>	3	
<b>Coherence</b>	<b>-Links from:</b>	G2–M6 Foundations of Multiplication and Division
	<b>-Links to:</b>	G4–M3 Multi-Digit Multiplication and Division

In Topic D, students solve two types of division situations—partitive (group size unknown) and measurement (number of groups unknown)—using factors of 2 and 3. Students build on their background knowledge of tape diagrams and apply it to represent division. In Lesson 11, the tape diagram is used as a tool to help students recognize and distinguish between types of division. By the end of Lessons 11 and 12, students independently draw and label tape diagrams that help them to compare and analyze problems that may use the same division sentence but have quotients representing different things.

Lesson 13 solidifies growing understanding that the unknown can also be found from the related multiplication sentence. Students initially work through word problems using arrays and tape diagrams to practice solving the two types of division and then transition to problem solving using abstract division and multiplication equations.

**A Teaching Sequence Toward Mastery of Division Using Units of 2 and 3**

- Objective 1:** Model division as the unknown factor in multiplication using arrays and tape diagrams.  
(Lesson 11)
- Objective 2:** Interpret the quotient as the number of groups or the number of objects in each group using units of 2.  
(Lesson 12)
- Objective 3:** Interpret the quotient as the number of groups or the number of objects in each group using units of 3.  
(Lesson 13)

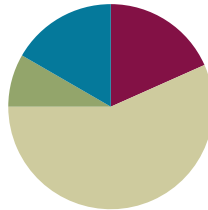


## Lesson 11

**Objective:** Model division as the unknown factor in multiplication using arrays and tape diagrams.

### Suggested Lesson Structure

■ Fluency Practice	(11 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(34 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (11 minutes)

- Multiply by 3 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)

### Multiply by 3 (8 minutes)

Materials: (S) Multiply by 3 (1–5) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 3. It works toward students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

- T: (Write  $5 \times 3 = \underline{\quad}$ .) Let's skip-count up by threes to solve. (Raise a finger for each number to track the count. Record the skip-count answers on the board.)
- S: 3, 6, 9, 12, 15.
- T: (Circle 15 and write  $5 \times 3 = 15$  above it. Write  $4 \times 3 = \underline{\quad}$ .) Skip-count up by threes to find the answer. (Track with fingers as students count.)
- S: 3, 6, 9, 12.
- T: Let's count down to find the answer to  $4 \times 3$ , too. Start at 15. (Count down with fingers as students say numbers.)
- S: 15, 12.
- T: Let's practice multiplying by 3. Be sure to work left to right across the page. (Distribute Multiply by 3 Pattern Sheet.)



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Use this activity to teach skip-counting as a strategy for building automaticity with multiplication facts. Once students know that  $3 \times 5 = 15$ , they can flash 5 fingers to show 15 and then count on the other hand. How solving  $3 \times 8$  looks and sounds is illustrated below.



**Group Counting (3 minutes)**

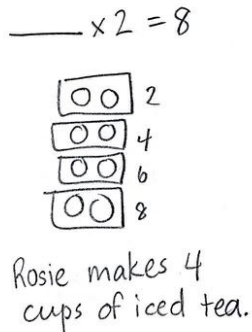
Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and fours in this activity reviews multiplication with units of 2 from Topic C and anticipates using units of 4 in Topic E.

- T: Let's count by twos. (Direct students to count forward and backward to 20.)
- T: Let's count by fours. (Direct students to count forward and backward to 36, emphasizing the 20 to 24 and 28 to 32 transitions.)

**Application Problem (5 minutes)**

Rosie puts 2 lemon slices in each cup of iced tea. She uses a total of 8 slices. How many cups of iced tea does Rosie make?

Note: Students may have solved the problem as shown or by using division ( $8 \div 2 = 4$ ). This problem leads into modeling with tape diagrams, which is introduced in the Concept Development.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

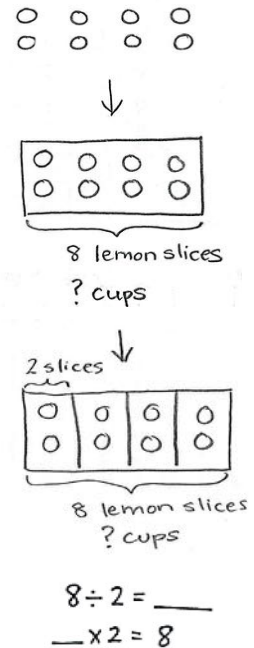
The numbers in the Application Problem may be too simple. They were chosen to compliment the introduction of the tape diagram in the Concept Development. If needed, change the numbers in the Application Problem to meet the needs of the class, and adjust the opening language of the Concept Development accordingly.

**Concept Development (34 minutes)**

Materials: (S) Personal white board, Application Problem

**Problem 1: Relate arrays to tape diagrams, modeling division where the quotient represents the number of groups.**

- T: (Draw or project a  $2 \times 4$  array.) The columns in this array show the number of lemon slices in 1 cup of Rosie's iced tea. Reread the Application Problem, and tell your partner what the unknown represents.
- S: The unknown is the number of cups, or groups.
- T: How might this array help us solve  $8 \div 2 = \underline{\quad}$ ?
- S: We can count the number of columns to find how many cups.  
 $\rightarrow$  2 times 4 equals 8, so  $8 \div 2 = 4$ .



MP.4

MP.4

- T: (Draw a rectangle around the array.) What is the total number of lemon slices?
- S: 8 lemon slices.
- T: (Bracket the rectangle and label the whole *8 lemon slices*.) The question asks how many cups of iced tea Rosie makes. Do the cups represent the number of groups or the number of lemon slices in each group?
- S: The number of groups.
- T: (Under *8 lemon slices*, label the unknown as *? cups*.)
- T: Watch how I show the number of slices in one cup. (Draw lines to divide columns and label 1 unit as *2 slices*.) Where do we see the cups in our diagram?
- S: You made 4 cups with the dividing lines.
- T: By adding lines and labels to our array, we made a tape diagram. Each boxed column shows 1 **unit**. One unit represents 1 cup and has a value of 2 slices. Notice that I labeled the diagram with all of the known and unknown information from the problem as we solved. That made it a helpful tool for understanding the problem.
- T: (Write  $8 \div 2 = \underline{\quad}$  and  $\underline{\quad} \times 2 = 8$ .) Talk to your partner about how the tape diagram helps you see the unknown in both equations.
- S: (Discuss.)



**NOTES ON TAPE DIAGRAMS:**

Students are familiar with tape diagrams from Grade 2. They use tape diagrams to represent the information given in a problem, and then analyze the model to help determine the unknown and solve. As tape diagrams are reviewed, ask why the diagram might have that name. Guide students to make connections that help them remember the name.

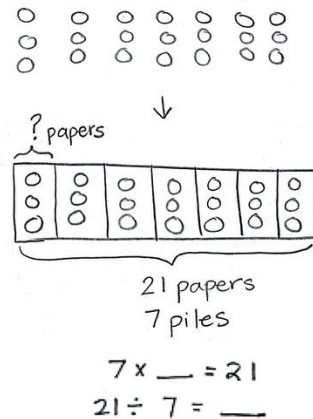
In Problem 1, the quotient represents the number of groups. Repeat the process using the following examples, reminding students to label known and unknown information from the problem on every tape diagram.

- $10 \div 2 = 5$
- $18 \div 3 = 6$

**Problem 2: Use arrays to draw tape diagrams, modeling division where the quotient represents the number of objects in each group.**

Write or project the following problem: Ms. Alves puts 21 papers in 7 piles. How many papers are in each pile?

- T: Read the problem. What is unknown?
- S: The number of objects in each group.
- T: Model the problem on your personal white board as an array where each column represents 1 pile.
- S: (Draw array, shown at right.)
- T: Count to find how many papers are in each of Ms. Alves’s piles.
- S: (Count to find 3 papers.)



- T: Work with a partner to model the problem as a tape diagram. Be sure to label the diagram with known and unknown information. Use your array to help.
- S: (Draw tape diagram shown on previous page.)
- T: Use the tape diagram to write multiplication and division equations that show the unknown.
- S: (Write  $7 \times \underline{\quad} = 21$  and  $21 \div 7 = \underline{\quad}$ .)

In Problem 2, the quotient represents the number of objects in each group. Repeat the process using the following examples:

- $16 \div 2 = 8$
- $24 \div 3 = 8$

- T: Compare models. What are the similarities and differences between arrays and tape diagrams?
- S: The tape diagram is like a labeled and boxed array. → They both show the 7 piles, 3 papers in each pile, and 21 papers total. → The labels make the tape diagram a little easier to use.

### Problem Set (10 minutes)


Students should do their personal best to complete the Problem Set within the allotted 10 minutes. Depending on your class, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Model division as the unknown factor in multiplication using arrays and tape diagrams.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**


Support students to work at individualized levels by inviting them to choose to work independently or with a partner to solve additional examples.

Lesson 11 Problem Set 3•1

Name Gina Date \_\_\_\_\_

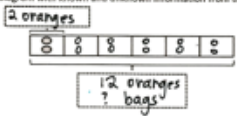
1. Mrs. Prescott has 12 oranges. She puts 2 oranges in each bag. How many bags does she have?

a. Draw an array where each column shows a bag of oranges.

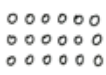


$12 \div 2 = 6$

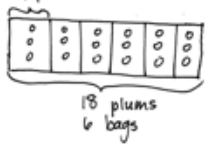
b. Redraw the oranges in each bag as a unit in the tape diagram. The first unit is done for you. As you draw, label the diagram with known and unknown information from the problem.



2. Mrs. Prescott arranges 18 plums into 6 bags. How many plums are in each bag? Model the problem with both an array and a labeled tape diagram. Show each column as the number of plums in each bag.



? plums



$18 \div 6 = 3$

There are 3 plums in each bag.

COMMON CORE

Lesson 11: Model division as the unknown factor in multiplication using arrays and tape diagrams.

Date: 5/1/18

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Any combination of the questions below may be used to lead the discussion.

- Compare Problems 1 and 2. What does the unknown represent in each problem?
- Compare how **units** are represented in tape diagrams and in arrays.
- How can each model represent both types of unknowns?
- Compare the way you solved the Application Problem with the tape diagram model we learned today.

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 11 Problem Set 3•1

3. Fourteen shopping baskets are stacked equally in 7 piles. How many baskets are in each pile? Model the problem with both an array and a labeled tape diagram. Show each column as the number of baskets in each pile.

4. In the back of the store, Mr. Prescott packs 24 bell peppers equally into 8 bags. How many bell peppers are in each bag? Model the problem with both an array and a labeled tape diagram. Show each column as the number of bell peppers in each bag.

5. Olga saves \$2 a week to buy a toy car. The car costs \$16. How many weeks will it take her to save enough to buy the toy?

COMMON CORE Lesson 11: Model division as the unknown factor in multiplication using arrays and tape diagrams. Date: 12/1/16 engageNY 1.0.10

Multiply.

$3 \times 1 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$

$3 \times 5 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$

$3 \times 5 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$

$3 \times 2 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$

$3 \times 2 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$

$3 \times 1 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$      $3 \times 1 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$

$3 \times 2 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$

$3 \times 4 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$

$3 \times 5 = \underline{\quad}$      $3 \times 3 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$      $3 \times 5 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $3 \times 4 = \underline{\quad}$

multiply by 3 (1–5)

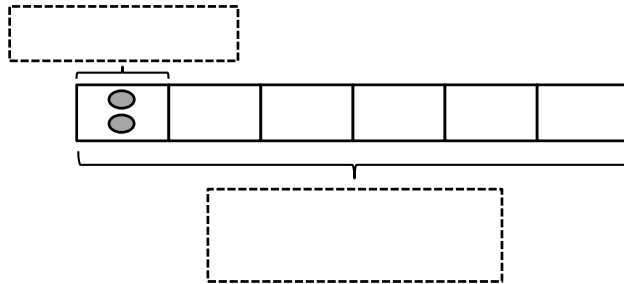
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Mrs. Prescott has 12 oranges. She puts 2 oranges in each bag. How many bags does she have?
  - a. Draw an array where each column shows a bag of oranges.

$$\underline{\hspace{2cm}} \div 2 = \underline{\hspace{2cm}}$$

- b. Redraw the oranges in each bag as a unit in the tape diagram. The first unit is done for you. As you draw, label the diagram with known and unknown information from the problem.



2. Mrs. Prescott arranges 18 plums into 6 bags. How many plums are in each bag? Model the problem with both an array and a labeled tape diagram. Show each column as the number of plums in each bag.

There are \_\_\_\_\_ plums in each bag.

3. Fourteen shopping baskets are stacked equally in 7 piles. How many baskets are in each pile? Model the problem with both an array and a labeled tape diagram. Show each column as the number of baskets in each pile.
4. In the back of the store, Mr. Prescott packs 24 bell peppers equally into 8 bags. How many bell peppers are in each bag? Model the problem with both an array and a labeled tape diagram. Show each column as the number of bell peppers in each bag.
5. Olga saves \$2 a week to buy a toy car. The car costs \$16. How many weeks will it take her to save enough to buy the toy?



Name \_\_\_\_\_

Date \_\_\_\_\_

Ms. McCarty has 18 stickers. She puts 2 stickers on each homework paper and has no more left. How many homework papers does she have? Model the problem with both an array and a labeled tape diagram.

Name \_\_\_\_\_

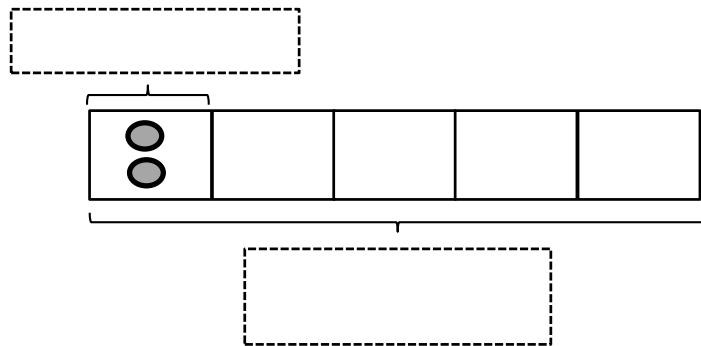
Date \_\_\_\_\_

1. Fred has 10 pears. He puts 2 pears in each basket. How many baskets does he have?

a. Draw an array where each column represents the number of pears in each basket.

\_\_\_\_\_ ÷ 2 = \_\_\_\_\_

b. Redraw the pears in each basket as a unit in the tape diagram. Label the diagram with known and unknown information from the problem.



2. Ms. Meyer organizes 15 clipboards equally into 3 boxes. How many clipboards are in each box? Model the problem with both an array and a labeled tape diagram. Show each column as the number of clipboards in each box.

There are \_\_\_\_\_ clipboards in each box.

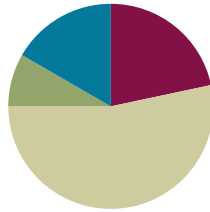
3. Sixteen action figures are arranged equally on 2 shelves. How many action figures are on each shelf? Model the problem with both an array and a labeled tape diagram. Show each column as the number of action figures on each shelf.
4. Jasmine puts 18 hats away. She puts an equal number of hats on 3 shelves. How many hats are on each shelf? Model the problem with both an array and a labeled tape diagram. Show each column as the number of hats on each shelf.
5. Corey checks out 2 books a week from the library. How many weeks will it take him to check out a total of 14 books?

## Lesson 12

**Objective:** Interpret the quotient as the number of groups or the number of objects in each group using units of 2.

### Suggested Lesson Structure

■ Fluency Practice	(13 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(32 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (13 minutes)

- Multiply by 3 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Divide **3.OA.7** (2 minutes)

### Multiply by 3 Pattern Sheet (8 minutes)

Materials: (S) Multiply by 3 (6–10) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 3. It works toward students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

T: (Write  $6 \times 3 = \underline{\quad}$ .) Let's skip-count up by threes to solve. (Count with fingers to 6 as students count.)

S: 3, 6, 9, 12, 15, 18.

T: Let's skip-count down to find the answer, too. Start at 30. (Count down with fingers as students count.)

S: 30, 27, 24, 21, 18.

Repeat the process for  $8 \times 3$  and  $7 \times 3$ .

T: Let's practice multiplying by 3. Be sure to work left to right across the page. (Distribute Multiply by 3 Pattern Sheet.)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and fours in this activity reviews multiplication with units of 2 from Topic C and anticipates using units of 4 in Topic E.

- T: Let's count by twos. (Direct students to count forward and backward to 20.)
- T: Let's count by fours. (Direct students to count forward and backward to 36, emphasizing the 20 to 24 and 28 to 32 transitions.)

### Divide (2 minutes)

Materials: (S) Personal white board

Note: This activity builds fluency with multiplication and division. It works toward the goal of students knowing from memory all products of two one-digit numbers and reviews the objective of Lesson 11.

- T: (Project a 2 by 4 array of objects.) Draw an array to match my picture.
- S: (Draw 2 by 4 array.)
- T: Skip-count by twos to find how many total objects there are. (Point as students count.)
- S: 2, 4, 6, 8.
- T: How many groups of 2 are there?
- S: 4.
- T: Say the total as a multiplication sentence starting with the number of groups.
- S:  $4 \times 2 = 8$ .
- T: (Write  $4 \times 2 = 8$ . Below it, write  $8 \div 4 = \underline{\quad}$ .) Fill in the blank to make a true division sentence. Then, divide your array into 4 equal groups to find the answer.
- S: (Draw lines separating the array into 4 groups of 2, and write  $8 \div 4 = 2$ .)
- T: Erase the lines that divided the array.
- S: (Erase lines.)
- T: Show  $8 \div 4$  by making groups of 4.
- S: (Circle 2 groups of 4.)

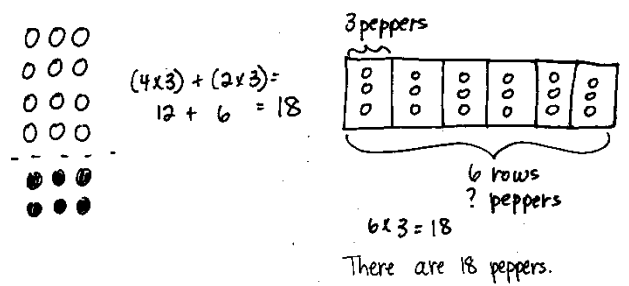
Repeat process for the following possible sequence:  $9 \div 3$ ,  $12 \div 2$ , and  $12 \div 3$ .

### Application Problem (5 minutes)

A chef arranges 4 rows of 3 red peppers on a tray. He adds 2 more rows of 3 yellow peppers. How many peppers are there altogether?

Note: Students might solve using an array to model the distributive property (Lesson 10) or a tape diagram (Lesson 11). If they use the latter strategy, it is likely their first use of a tape diagram to solve multiplication. The problem is a review that provides an exploratory opportunity for students to select and use appropriate tools.

MP.5



**Concept Development (32 minutes)**

Materials: (S) Personal white board

**Problem 1: Model division where the unknown represents the number of objects in each group.**

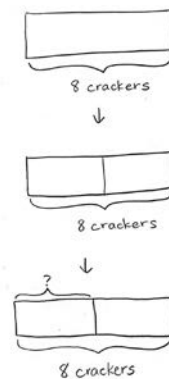
- T: Two students equally share 8 crackers. How many crackers does each student get? Draw to model and solve the problem. Then, explain your thinking to your partner.
- S: (Draw and solve.) I gave 1 cracker to each student until I drew 8.  $\rightarrow 4 + 4 = 8$ , so I drew 4 crackers for each student.  $\rightarrow$  It's a multiplication problem with an unknown factor.
- T: Write a division sentence to represent your model.
- S: (Write  $8 \div 2 = 4$ .)
- T: (Draw a rectangle.) This diagram represents the total, 8 crackers. In your mind, visualize where we would divide it to make 2 equal parts.
- S: (Visualize.)
- T: Say "Stop!" when I get to the spot you have in mind. (Move finger from left edge toward middle.)
- S: Stop!
- T: How does the diagram represent the students?
- S: 2 students, 2 parts!
- T: What is our unknown?
- S: The number of crackers each student gets.
- T: Watch how I label the unknown on the diagram. (Bracket and label as shown.) Tell your partner a strategy for finding the unknown using the diagram.
- S: I would draw 1 cracker in each part until I drew 8.  $\rightarrow$  Each part has to be equal.  $4 + 4 = 8$ , so 1 part is 4.  $\rightarrow$  I would think  $2 \times \underline{\quad} = 8$ . The question mark is 4.
- T: Look at the division sentence you wrote for your first model. Does it represent this diagram too? Explain to your partner.
- S: (Discuss.)



**NOTES ON DRAWING TAPE DIAGRAMS:**

Students draw to model before or as they solve problems so that the diagram assists them with analysis. The model provides a place aside from the words to think about the problem. It should guide their understanding of the problem and how to find the unknown. They might ask themselves the following questions as they draw.

- Am I looking for a part?
- Am I looking for a number of parts?
- Am I looking for the whole amount?
- What is my model showing me?



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

If a natural opportunity presents itself, teach students the word *bracket* so they have specific language with which to refer to the diagram. This may be especially useful for English language learners.

Repeat the process with the following suggested expressions to model division where the quotient represents the number of objects in each group.

- $12 \div 2$
- $18 \div 2$

**Problem 2: Model division where the unknown represents the number of groups.**

- T: Let’s go back to our original problem, this time changing it a bit. There are 8 crackers, but this time each student gets 2. How many students get crackers?
- T: Do we know the size of the groups or the number of groups?
- S: The size of the groups.
- T: We can draw 1 unit of the diagram to represent a group of 2 crackers. (Draw 1 unit of two.) What other information does the problem tell us?
- S: The total.
- T: (Estimate the whole and label it *8 crackers*.) Notice that I drew a dotted line to show the whole diagram. What is our unknown?
- S: The number of groups.
- T: (Bracket the top part of the diagram and label with a question mark.) Let’s find the number of groups by drawing more units of 2. How will we know when we’ve drawn enough units?
- S: We’ll get to the total, 8.
- T: Draw along with me on your personal white board. (Skip-count by two, drawing to add 3 more units.)
- S: (Draw.)
- T: Whisper to your partner the number of students that get crackers.
- S: 4 students.
- T: Write a division sentence to match the diagram.
- S: (Write  $8 \div 2 = 4$ .)

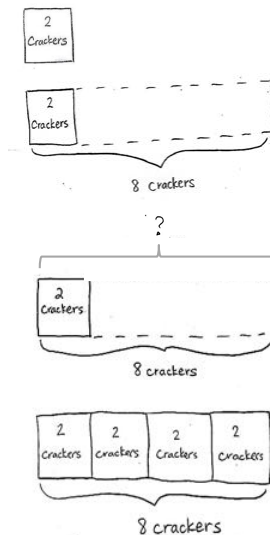
Repeat the process with the following suggested expressions to model division where the unknown represents the number of groups.

- $12 \div 2$
- $18 \div 2$



**NOTES ON DRAWING TAPE DIAGRAMS:**

Erasers are important for drawing tape diagrams to model division where the unknown represents the number of groups. Students may find they have very incorrectly determined the length of the whole. Encourage them to erase and redraw.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

Gradually release responsibility to students as the process is repeated with additional examples. By the third example, students should be working nearly independently.

In this lesson, three division sentences are each modeled with two types of division. Use one pair of division sentences for the following reflective dialogue. (The dialogue is modeled with  $8 \div 2 = 4$ .)

- T: The two division sentences for these diagrams are the same, but the tape diagrams are different. Turn and talk to your partner about why.
- S: The 2 and the 4 represent different things in each problem. → In the first diagram, we knew how many groups, and in the second, we knew how many in each group.
- T: When we divide, we always know the total number of objects. We divide either to find the size of the groups, like in the first problem, or the number of groups, like in the second problem.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

**Student Debrief (10 minutes)**

**Lesson Objective:** Interpret the quotient as the number of groups or the number of objects in each group using units of 2.


The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 12 Problem Set 1•1

Name: Gina Date: \_\_\_\_\_


1. There are 8 birds at the pet store. 2 birds are in each cage. Circle to show how many cages there are.



$8 \div 2 = 4$   
There are 4 cages of birds.

---

2. The pet store sells 10 fish. They equally divide the fish into 5 bowls. Draw fish to find the number in each bowl.




10 fish, 5 bowls

$5 \times 2 = 10$   
 $10 \div 5 = 2$   
There are 2 fish in each bowl.

---

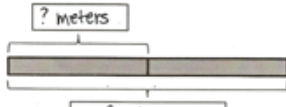
3. Match.



COMMON CORE Lesson 12: Interpret the quotient as the number of groups or the number of objects in each group using units of 2. engageNY 1.D.2.1  
Date: 5/1/14

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 12 Problem Set 2•1

4. Laina buys 14 meters of ribbon. She cuts her ribbon into 2 equal pieces. How many meters long is each piece? Label the tape diagram to represent the problem, including the unknown.



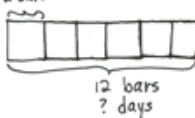
$14 \div 2 = 7$

2 pieces  
14 meters of ribbon

Each piece is 7 meters long.

---

5. Roy eats 2 cereal bars every morning. Each box has a total of 12 bars. How many days will it take Roy to finish 1 box?




12 bars  
? days

$12 \div 2 = 6$   
It will take 6 days to finish 1 box.

---

6. Sarah and Esther equally share the cost of a present. The present costs \$18. How much does Sarah pay?



$18 \div 2 = 9$   
Sarah pays \$9.

COMMON CORE Lesson 12: Interpret the quotient as the number of groups or the number of objects in each group using units of 2. engageNY 1.D.2.2  
Date: 5/1/14



Any combination of the questions below may be used to lead the discussion.

- Describe how you labeled the tape diagram in Problem 4. The number 2 appears in the problem; where do you see it in the diagram?
- Analyze Problems 1 and 2 on the Problem Set to compare different unknowns. (There are 2 birds in each cage in Problem 1, and 2 fish in each bowl in Problem 2.)
- How does what the quotient represents affect the way a tape diagram is drawn?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Multiply.

$3 \times 1 = \underline{\quad\quad}$      $3 \times 2 = \underline{\quad\quad}$      $3 \times 3 = \underline{\quad\quad}$      $3 \times 4 = \underline{\quad\quad}$

$3 \times 5 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$

$3 \times 9 = \underline{\quad\quad}$      $3 \times 10 = \underline{\quad\quad}$      $3 \times 5 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$

$3 \times 5 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 5 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$

$3 \times 5 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 5 = \underline{\quad\quad}$      $3 \times 10 = \underline{\quad\quad}$

$3 \times 6 = \underline{\quad\quad}$      $3 \times 5 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$

$3 \times 6 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$

$3 \times 6 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$

$3 \times 8 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$

$3 \times 8 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$

$3 \times 8 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$

$3 \times 9 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$

$3 \times 9 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$

$3 \times 7 = \underline{\quad\quad}$      $3 \times 9 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$

$3 \times 9 = \underline{\quad\quad}$      $3 \times 7 = \underline{\quad\quad}$      $3 \times 6 = \underline{\quad\quad}$      $3 \times 8 = \underline{\quad\quad}$

multiply by 3 (6–10)

Name \_\_\_\_\_

Date \_\_\_\_\_

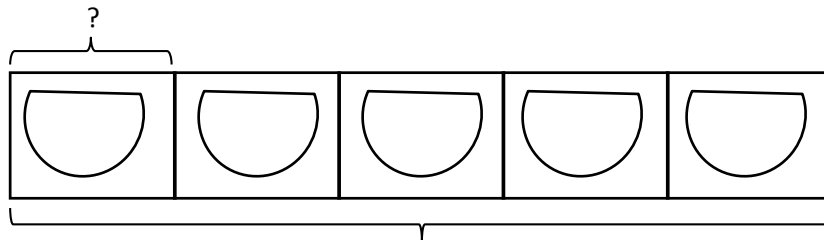
1. There are 8 birds at the pet store. Two birds are in each cage. Circle to show how many cages there are.



$8 \div 2 = \underline{\hspace{2cm}}$

There are \_\_\_\_\_ cages of birds.

2. The pet store sells 10 fish. They equally divide the fish into 5 bowls. Draw fish to find the number in each bowl.



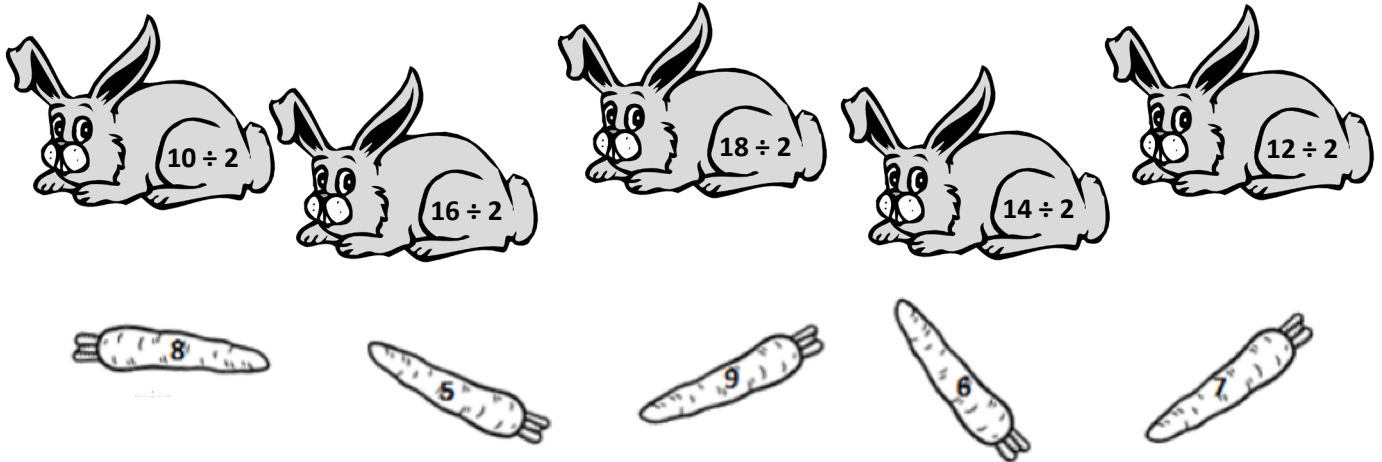
10 fish, 5 bowls

$5 \times \underline{\hspace{2cm}} = 10$

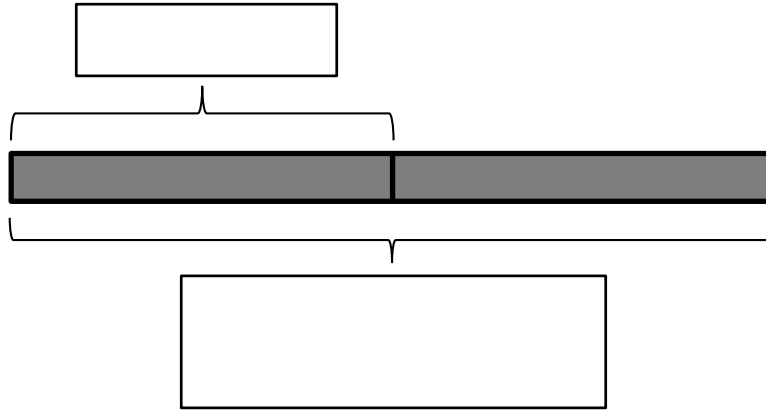
$10 \div 5 = \underline{\hspace{2cm}}$

There are \_\_\_\_\_ fish in each bowl.

3. Match.



4. Laina buys 14 meters of ribbon. She cuts her ribbon into 2 equal pieces. How many meters long is each piece? Label the tape diagram to represent the problem, including the unknown.



Each piece is \_\_\_\_\_ meters long.

5. Roy eats 2 cereal bars every morning. Each box has a total of 12 bars. How many days will it take Roy to finish 1 box?

6. Sarah and Esther equally share the cost of a present. The present costs \$18. How much does Sarah pay?

Name \_\_\_\_\_

Date \_\_\_\_\_

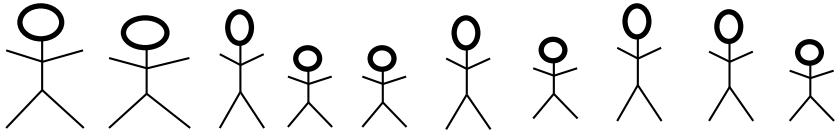
There are 14 mints in 1 box. Cecilia eats 2 mints each day. How many days does it take Cecilia to eat 1 box of mints? Draw and label a tape diagram to solve.

It takes Cecilia \_\_\_\_\_ days to eat 1 box of mints.

Name \_\_\_\_\_

Date \_\_\_\_\_

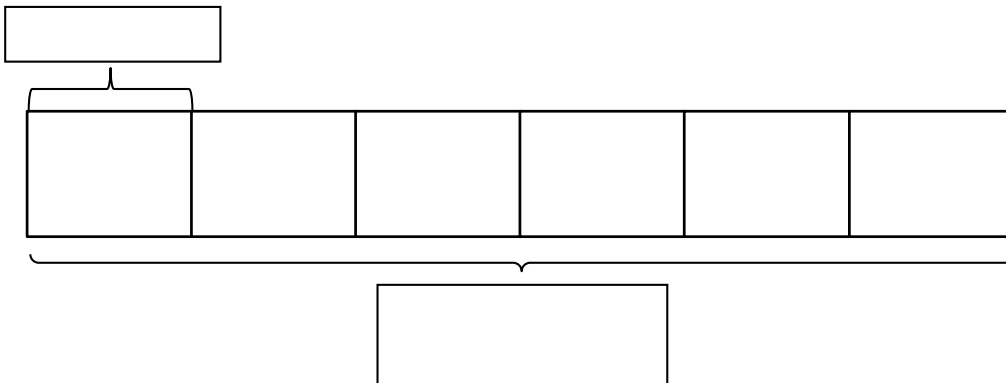
1. Ten people wait in line for the roller coaster. Two people sit in each car. Circle to find the total number of cars needed.



$10 \div 2 = \underline{\hspace{2cm}}$

There are \_\_\_\_\_ cars needed.

2. Mr. Ramirez divides 12 frogs equally into 6 groups for students to study. Draw frogs to find the number in each group. Label known and unknown information on the tape diagram to help you solve.

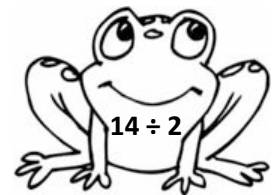
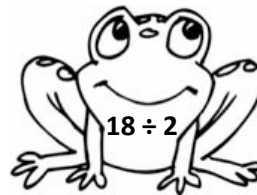
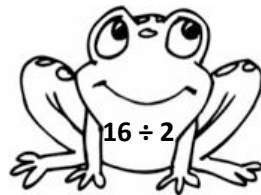
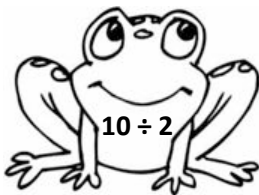


$6 \times \underline{\hspace{2cm}} = 12$

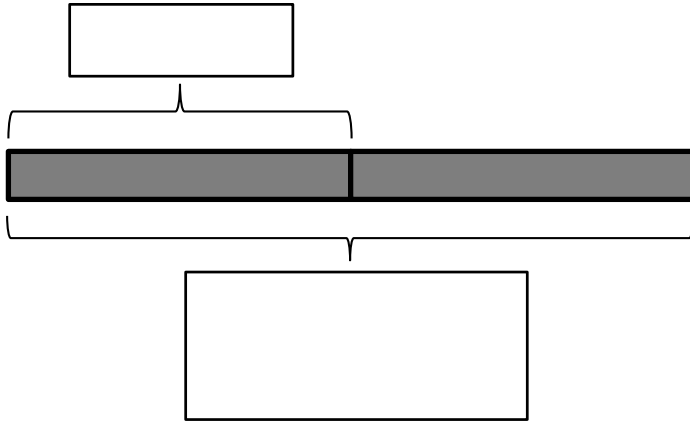
$12 \div 6 = \underline{\hspace{2cm}}$

There are \_\_\_\_\_ frogs in each group.

3. Match.



4. Betsy pours 16 cups of water to equally fill 2 bottles. How many cups of water are in each bottle? Label the tape diagram to represent the problem, including the unknown.



There are \_\_\_\_\_ cups of water in each bottle.

5. An earthworm tunnels 2 centimeters into the ground each day. The earthworm tunnels at about the same pace every day. How many days will it take the earthworm to tunnel 14 centimeters?

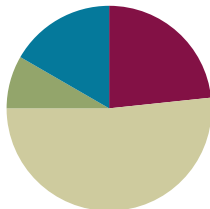
6. Sebastian and Teshawn go to the movies. The tickets cost \$16 in total. The boys share the cost equally. How much does Teshawn pay?

## Lesson 13

**Objective:** Interpret the quotient as the number of groups or the number of objects in each group using units of 3.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(31 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Sprint: Multiply or Divide by 2 **3.OA.7** (9 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Divide **3.OA.7** (2 minutes)

### Sprint: Multiply or Divide by 2 (9 minutes)

Materials: (S) Multiply or Divide by 2 Sprint

Note: This activity builds fluency with multiplication and division using units of 2. It works toward students' ability to multiply and divide fluently within 100. See Lesson 2 for the directions for administering a Sprint.

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by threes and fours in this activity reviews multiplication with units of 3 from Topic C and anticipates using units of 4 in Topic E.

- T: Let's count by threes. (Direct students to count forward and backward to 30.)
- T: Let's count by fours. (Direct students to count forward and backward to 40, emphasizing the 20 to 24, 28 to 32, and 36 to 40 transitions.)



**Divide (2 minutes)**

Materials: (S) Personal white board

Note: This activity builds fluency with multiplication and division. It works toward students knowing from memory all products of two one-digit numbers.

T: (Write  $2 \times 3 = \underline{\quad}$ .) Say the multiplication sentence.

S:  $2 \times 3 = 6$ .

T: (Write  $2 \times 3 = 6$ . Directly below it, write  $\underline{\quad} \div 3 = 2$ .) On your personal white board, write the equation and fill in the blank.

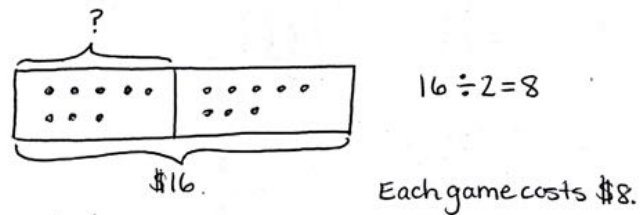
S: (Write  $6 \div 3 = 2$ .)

Repeat the process for the following possible sequence:  $3 \times 3$ ,  $5 \times 3$ , and  $9 \times 3$ .

**Application Problem (5 minutes)**

Mark spends \$16 on 2 video games. Each game costs the same amount. Find the cost of each game.

Note: This problem reviews equal groups division from Lesson 12 where the unknown is the number of objects in each group.

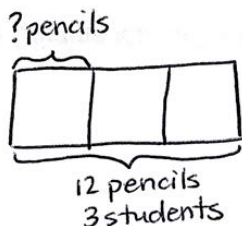


**Concept Development (31 minutes)**

Materials: (S) Personal white board

**Pictorial:** Draw and analyze tape diagrams to determine the unknown.

Write or project the following story and the tape diagram drawn below: Three students equally share a pack of 12 pencils.

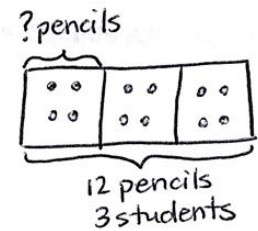


**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

This lesson is similar to Lesson 12. Depending on performance levels, modify guidance so that students work through pictorial examples quickly, in pairs or independently. Meet with groups or individuals who need support. Alternatively, maximize support by skipping the abstract example in favor of slowly working the class through the pictorial. As an additional scaffold, the teacher may choose to model and have students create tape diagrams with drawings inside of each unit to show the value. Students have used tape diagrams drawn with and without this feature in Grade 2.

MP.4

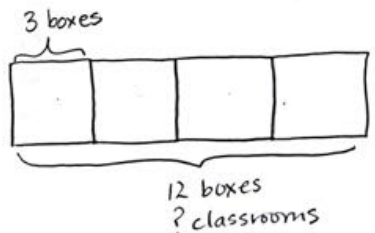
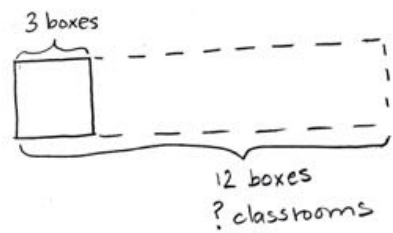
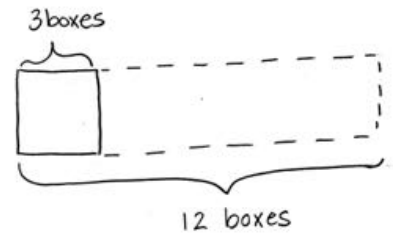
- T: What information do we know from reading the story?  
 S: The total pencils and the number of students.  
 T: How does the tape diagram show the story?  
 S: The whole diagram represents 12 pencils, and it's divided into 3 parts. Those are the students. We don't know how many pencils each student gets. That's what the question mark represents.  
 T: Write a division equation to find how many pencils each student gets.  
 S: (Write  $12 \div 3 = \underline{\quad}$ .)  
 T: Draw my tape diagram on your personal white board. Then, draw to share the 12 pencils equally among the 3 students. Fill in your division equation.  
 S: (Draw 4 in each unit on the tape diagram. Write  $12 \div 3 = 4$ .)



Students can check their work by writing a multiplication sentence.

Write or project the following problem and the first tape diagram drawn below: A school buys 12 boxes of pencils. Each classroom gets 3 boxes. How many classrooms get boxes of pencils?

- T: What information do we know from the problem?  
 S: The total boxes and the number of boxes each classroom gets.  
 T: The box drawn with a solid line represents the number of boxes 1 class gets. I used the dotted line to estimate the total boxes. How should I label the unknown on this diagram?  
 S: It's the number of classrooms that get boxes.  
 T: Where can I record my question mark?  
 S: Under *12 boxes*, write *? classrooms*.  
 T: (Label the unknown.) On your board, skip-count by threes to draw more units in the tape diagram. How will you know when to stop?  
 S: We stop when we get to 12. (Draw and count 6, 9, 12.)  
 T: Use the tape diagram to write and solve a division equation that represents the problem.  
 S: (Write  $12 \div 3 = 4$ .) It's the same division problem as before.  
 T: What does the 4 represent in this problem?  
 S: It's the number of classrooms that get boxes of pencils. → It's the number of groups.

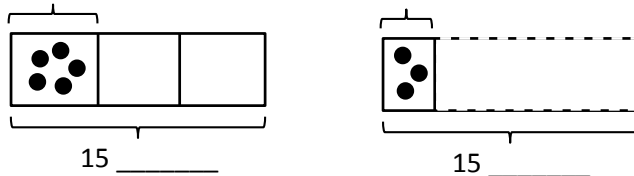


Repeat the process showing division with both types of unknowns using the following suggested expressions.

- $18 \div 3$
- $21 \div 3$

**Abstract: Interpret tape diagrams to determine the unknown and write division problems.**

Draw or project the following tape diagrams. Students work in pairs.



- Write division sentences to represent each diagram. (Division sentences should be the same for both diagrams.)
- Label each tape diagram, including the unknown.
- The tape diagrams and division sentences show solutions. Write a word problem to match each solution.
- Save the word problems to compare with other groups during the Student Debrief.



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

For the abstract portion of the lesson, some pairs may benefit from looking at word problems completed the previous day to gather ideas and examples upon which to model their work.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

Have students who need a challenge add a second step to their word problems. Early finishers should solve each other's problems and assess the reasonableness of one another's work.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

**Student Debrief (10 minutes)**

**Lesson Objective:** Interpret the quotient as the number of groups or the number of objects in each group using units of 3.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

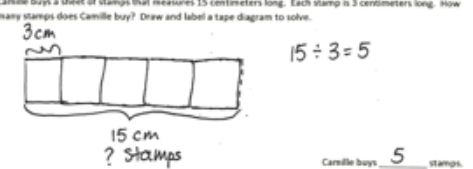
- Describe how the model in Problem 2(a) helped for drawing a tape diagram in Problem 2(b).
- How does the Application Problem connect the work we did yesterday to what we did today?
- Share work for Problem 5. The language *some friends* rather than a number may have presented a challenge.
- Compare Problems 4 and 5. How did your approach to drawing the tape diagram change? Why?
- Share word problems from the abstract activity in the Concept Development. The class may solve, or simply discuss, which is the unknown factor. (Guide students to notice how different the contexts are, but that each pair of problems always shows the same two unknowns.)

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 13 Problem Set 3•1

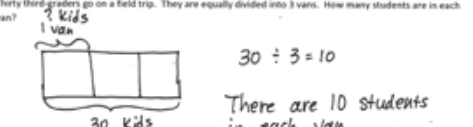
3. Camille buys a sheet of stamps that measures 15 centimeters long. Each stamp is 3 centimeters long. How many stamps does Camille buy? Draw and label a tape diagram to solve.



15 ÷ 3 = 5  
Camille buys 5 stamps.

---

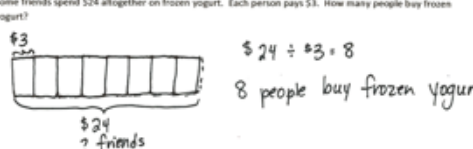
4. Thirty third graders go on a field trip. They are equally divided into 3 vans. How many students are in each van?



30 ÷ 3 = 10  
There are 10 students in each van.

---

5. Some friends spend \$24 altogether on frozen yogurt. Each person pays \$3. How many people buy frozen yogurt?



\$24 ÷ \$3 = 8  
8 people buy frozen yogurt.

COMMON CORE | Lesson 13: Interpret the quotient as the number of groups or the number of objects in each group using units of 1. | engage<sup>ny</sup> 1.0.34  
Date: 5/1/14

Number Correct: \_\_\_\_\_

# A

Multiply or Divide by 2

1.	$2 \times 2 =$	
2.	$3 \times 2 =$	
3.	$4 \times 2 =$	
4.	$5 \times 2 =$	
5.	$1 \times 2 =$	
6.	$4 \div 2 =$	
7.	$6 \div 2 =$	
8.	$10 \div 2 =$	
9.	$2 \div 1 =$	
10.	$8 \div 2 =$	
11.	$6 \times 2 =$	
12.	$7 \times 2 =$	
13.	$8 \times 2 =$	
14.	$9 \times 2 =$	
15.	$10 \times 2 =$	
16.	$16 \div 2 =$	
17.	$14 \div 2 =$	
18.	$18 \div 2 =$	
19.	$12 \div 2 =$	
20.	$20 \div 2 =$	
21.	$\_\_ \times 2 = 10$	
22.	$\_\_ \times 2 = 12$	

23.	$\_\_ \times 2 = 20$	
24.	$\_\_ \times 2 = 4$	
25.	$\_\_ \times 2 = 6$	
26.	$20 \div 2 =$	
27.	$10 \div 2 =$	
28.	$2 \div 1 =$	
29.	$4 \div 2 =$	
30.	$6 \div 2 =$	
31.	$\_\_ \times 2 = 12$	
32.	$\_\_ \times 2 = 14$	
33.	$\_\_ \times 2 = 18$	
34.	$\_\_ \times 2 = 16$	
35.	$14 \div 2 =$	
36.	$18 \div 2 =$	
37.	$12 \div 2 =$	
38.	$16 \div 2 =$	
39.	$11 \times 2 =$	
40.	$22 \div 2 =$	
41.	$12 \times 2 =$	
42.	$24 \div 2 =$	
43.	$14 \times 2 =$	
44.	$28 \div 2 =$	

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

# B

Multiply or Divide by 2


1.	$1 \times 2 =$	
2.	$2 \times 2 =$	
3.	$3 \times 2 =$	
4.	$4 \times 2 =$	
5.	$5 \times 2 =$	
6.	$6 \div 2 =$	
7.	$4 \div 2 =$	
8.	$8 \div 2 =$	
9.	$2 \div 1 =$	
10.	$10 \div 2 =$	
11.	$10 \times 2 =$	
12.	$6 \times 2 =$	
13.	$7 \times 2 =$	
14.	$8 \times 2 =$	
15.	$9 \times 2 =$	
16.	$14 \div 2 =$	
17.	$12 \div 2 =$	
18.	$16 \div 2 =$	
19.	$20 \div 2 =$	
20.	$18 \div 2 =$	
21.	$\_\_ \times 2 = 12$	
22.	$\_\_ \times 2 = 10$	

23.	$\_\_ \times 2 = 4$	
24.	$\_\_ \times 2 = 20$	
25.	$\_\_ \times 2 = 6$	
26.	$4 \div 2 =$	
27.	$2 \div 1 =$	
28.	$20 \div 2 =$	
29.	$10 \div 2 =$	
30.	$6 \div 2 =$	
31.	$\_\_ \times 2 = 12$	
32.	$\_\_ \times 2 = 16$	
33.	$\_\_ \times 2 = 18$	
34.	$\_\_ \times 2 = 14$	
35.	$16 \div 2 =$	
36.	$18 \div 2 =$	
37.	$12 \div 2 =$	
38.	$14 \div 2 =$	
39.	$11 \times 2 =$	
40.	$22 \div 2 =$	
41.	$12 \times 2 =$	
42.	$24 \div 2 =$	
43.	$13 \times 2 =$	
44.	$26 \div 2 =$	


Name \_\_\_\_\_

Date \_\_\_\_\_


1. Fill in the blanks to make true number sentences.




$1 \times 3 = 3$   
 $3 \div 3 = \underline{\quad}$




$2 \times 3 = 6$   
 $6 \div 3 = \underline{\quad}$




$3 \times 3 = 9$   
 $\underline{\quad} \div 3 = 3$




$4 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 4$




$5 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 5$




$6 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 6$




$7 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 7$



$8 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 8$



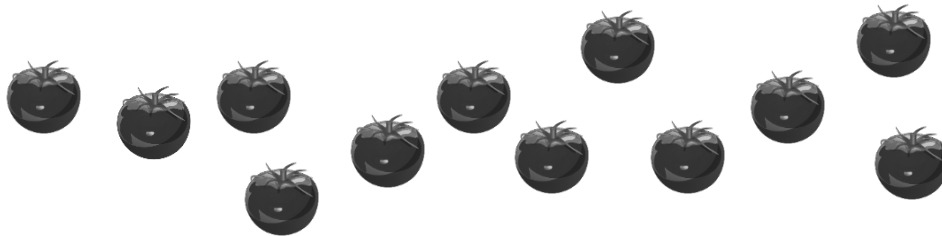
$9 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 9$



$10 \times 3 = \underline{\quad}$   
 $\underline{\quad} \div 3 = 10$

2. Mr. Lawton picks tomatoes from his garden. He divides the tomatoes into bags of 3.

a. Circle to show how many bags he packs. Then, skip-count to show the total number of tomatoes.



b. Draw and label a tape diagram to represent the problem.

\_\_\_\_\_  $\div$  3 = \_\_\_\_\_

Mr. Lawton packs \_\_\_\_\_ bags of tomatoes.

3. Camille buys a sheet of stamps that measures 15 centimeters long. Each stamp is 3 centimeters long. How many stamps does Camille buy? Draw and label a tape diagram to solve.

Camille buys \_\_\_\_\_ stamps.

---

4. Thirty third-graders go on a field trip. They are equally divided into 3 vans. How many students are in each van?

5. Some friends spend \$24 altogether on frozen yogurt. Each person pays \$3. How many people buy frozen yogurt?



Name \_\_\_\_\_

Date \_\_\_\_\_

1. Andrea has 21 apple slices. She uses 3 apple slices to decorate 1 pie. How many pies does Andrea make? Draw and label a tape diagram to solve.

2. There are 24 soccer players on the field. They form 3 equal teams. How many players are on each team?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Fill in the blanks to make true number sentences.

$2 \times 3 = 6$
$6 \div 3 = \underline{\quad}$

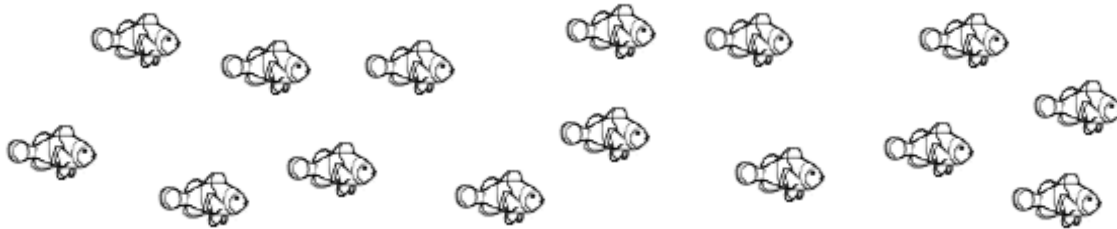
$1 \times 3 = \underline{\quad}$
$\underline{\quad} \div 3 = 1$

$7 \times 3 = \underline{\quad}$
$\underline{\quad} \div 3 = 7$

$9 \times 3 = \underline{\quad}$
$\underline{\quad} \div 3 = 9$

2. Ms. Gillette’s pet fish are shown below. She keeps 3 fish in each tank.

a. Circle to show how many fish tanks she has. Then, skip-count to find the total number of fish.



b. Draw and label a tape diagram to represent the problem.

\_\_\_\_\_  $\div$  3 = \_\_\_\_\_

Ms. Gillette has \_\_\_\_\_ fish tanks.

3. Juan buys 18 meters of wire. He cuts the wire into pieces that are each 3 meters long. How many pieces of wire does he cut?

---

4. A teacher has 24 pencils. They are divided equally among 3 students. How many pencils does each student get?

---

5. There are 27 third-graders working in groups of 3. How many groups of third-graders are there?



## Topic E

# Multiplication and Division Using Units of 4

3.OA.5, 3.OA.7, 3.OA.1, 3.OA.2, 3.OA.3, 3.OA.4, 3.OA.6

<b>Focus Standard:</b>	3.OA.5	Apply properties of operations as strategies to multiply and divide. <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)</i>
	3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$ , one knows $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
<b>Instructional Days:</b>	4	
<b>Coherence</b>		
-Links from:	G2–M6	Foundations of Multiplication and Division
-Links to:	G4–M3	Multi-Digit Multiplication and Division

Topic E begins by introducing students to multiplication by 4 through skip-counting objects in array models in Lesson 14. Students revisit the commutative property in Lesson 15, this time modeling commutativity using both arrays and tape diagrams. For example, students might initially draw a  $2 \times 4$  array and a  $4 \times 2$  array. Then, they see 2 bars of equal length, one with 4 equal parts and the other with 2 equal parts. Now, they have arrays that show  $(2 \times 4) = (4 \times 2)$ , as well as tape diagrams that reflect the equality. In Lesson 16, students examine the distributive property in greater depth. This lesson introduces the  $5 + n$  pattern as a strategy for finding unknown facts involving 4. For example, students know that  $4 \times 5$  is 20, so  $4 \times 6$  is the same as 20 + 4 more, which totals 24. By Lesson 17, practice of multiplication and division facts is dedicated to modeling the relationship between operations using facts of 4.

**A Teaching Sequence Toward Mastery of Multiplication and Division Using Units of 4**

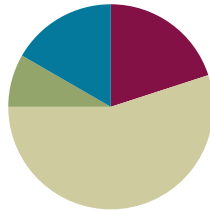
- Objective 1:** Skip-count objects in models to build fluency with multiplication facts using units of 4.  
(Lesson 14)
- Objective 2:** Relate arrays to tape diagrams to model the commutative property of multiplication.  
(Lesson 15)
- Objective 3:** Use the distributive property as a strategy to find related multiplication facts.  
(Lesson 16)
- Objective 4:** Model the relationship between multiplication and division.  
(Lesson 17)

## Lesson 14

**Objective:** Skip-count objects in models to build fluency with multiplication facts using units of 4.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Sprint: Multiply or Divide by 3 **3.OA.7** (9 minutes)
- Read Tape Diagrams **3.OA.3** (3 minutes)

### Sprint: Multiply or Divide by 3 (9 minutes)

Materials: (S) Multiply or Divide by 3 Sprint

Note: This activity builds fluency with multiplication and division using units of 3. It works toward students' fluency within 100. See Lesson 2 for the directions for administering a Sprint.

Instead of movement exercises between Sprints, have students:

- Count by twos to 20 forward and backward.
- Count by fours to 40 forward and backward.

### Read Tape Diagrams (3 minutes)

Materials: (S) Personal white board

Note: Students practice *reading* the difference between the value of the unit (the size of the groups) and the number of units. The activity anticipates using the tape diagram as a model for commutativity.

- T: (Project a tape diagram partitioned into 5 equal units, drawing 2 stars in the first unit.) What is the value of each unit?
- S: 2 stars.
- T: How many units are there?
- S: 5 units.

T: Write a multiplication sentence for this tape diagram.

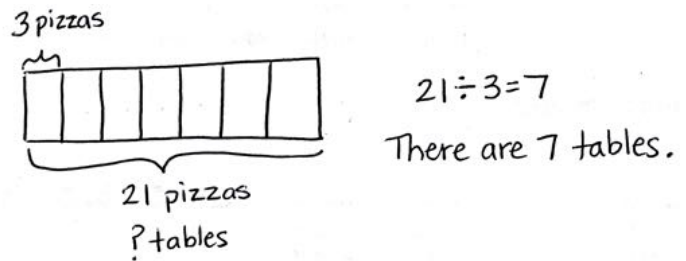
S: (Write  $5 \times 2 = 10$ .)

Repeat the process, alternating between finding the number of groups and the size of the groups, for  $4 \times 3 = 12$ ,  $8 \div 4 = 2$ , and  $15 \div 3 = 5$ .

### Application Problem (5 minutes)

Jackie buys 21 pizzas for a party. She places 3 pizzas on each table. How many tables are there?

Note: This problem reviews division from Lesson 13 where the unknown is the number of groups. In preparation for today's lesson, the teacher might choose to have students solve by skip-counting to add units until they reach the total of 21.



### Concept Development (33 minutes)

Materials: (S) Personal white board, fours array (Template) (pictured below)

#### Problem 1: Skip-count by fours using an array to multiply.

Students start with the template inserted into their personal white board.

T: Let's count to 40 using the array. Hum the number you count as you point to each dot. For the last dot in each row, say the number out loud and write it to the right of the row.

S: Hum, hum, hum, 4. (Write 4. Continue counting in this manner to 40.)

T: At the signal, tell what unit we counted by. (Signal.)

S: Fours!

T: I will say a multiplication expression. You find the answer on your array. Write the expression and an equal sign next to the answer to make an equation. (Say expressions that correspond to the array out of order, for example,  $4 \times 4$ ,  $9 \times 4$ , etc.)

S: (Write expressions and equal signs next to each answer.)

T: I will say the answer; you say the equation. 20.

S:  $20 = 5 \times 4$ .



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

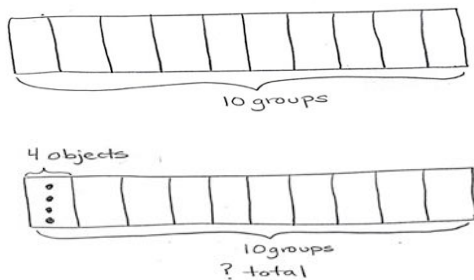
It may be tempting to skip the template for this problem; however, the template helps visual learners connect spoken numbers with their physical value. It illustrates the relationship between counting by fours and multiplying with units of 4.

Fours Array Template (Labeled)

○	○	○	○	4
○	○	○	○	8
○	○	○	○	12
○	○	○	○	16
○	○	○	○	20
○	○	○	○	24
○	○	○	○	28
○	○	○	○	32
○	○	○	○	36
○	○	○	○	40

**Problem 2: Use a tape diagram to model and solve multiplication.**

- T: Draw a tape diagram that represents the number of groups shown on the array template.
- S: (Draw a rectangle partitioned into 10 units and label it as *10 groups*.)
- T: Tell your partner the number of objects in each group, and then draw and label that information on your diagram.
- S: There are 4 objects in each group. (Label 1 unit as *4 objects*.)



- T: Label the unknown on your diagram. Check your work with your partner's.
- S: (Label the total unknown and check with a partner.)
- T: Skip-count units to find the total value of your tape diagram.
- S: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40.
- T: Write and solve an equation to represent the problem.
- S: (Write  $10 \times 4 = 40$ .)

Repeat the process using  $7 \times 4$  and  $4 \times 5$ . Consider asking students to draw the arrays, or vary practice by adding context to one or both of these problems.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

This is the first formal experience in Grade 3 using a tape diagram to model multiplication. Some students may have used one to solve the Application Problem in Lesson 12. If they need additional help identifying known and unknown information, prompt them to look back at the array, and then have them articulate the meaning of each factor.



**Student Debrief (10 minutes)**

**Lesson Objective:** Skip-count objects in models to build fluency with multiplication facts using units of 4.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

MP.4

- Discuss differences between the tape diagrams and unknowns in Problems 2 and 3. (In Problem 2, the value of the unit is four, and in Problem 3, the number 4 represents the number of units.)
- If you were to skip-count to solve Problem 3, what would you skip-count by? How would that be different from a skip-counting strategy to solve Problem 4?
- Could you skip-count Problem 4 without drawing a model? How?
- How did the array in Problem 1 help you solve the other problems on the Problem Set?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

# A

Number Correct: \_\_\_\_\_

Multiply or Divide by 3

1.	$2 \times 3 =$	
2.	$3 \times 3 =$	
3.	$4 \times 3 =$	
4.	$5 \times 3 =$	
5.	$1 \times 3 =$	
6.	$6 \div 3 =$	
7.	$9 \div 3 =$	
8.	$15 \div 3 =$	
9.	$3 \div 1 =$	
10.	$12 \div 3 =$	
11.	$6 \times 3 =$	
12.	$7 \times 3 =$	
13.	$8 \times 3 =$	
14.	$9 \times 3 =$	
15.	$10 \times 3 =$	
16.	$24 \div 3 =$	
17.	$21 \div 3 =$	
18.	$27 \div 3 =$	
19.	$18 \div 3 =$	
20.	$30 \div 3 =$	
21.	$\_ \times 3 = 15$	
22.	$\_ \times 3 = 12$	

23.	$\_ \times 3 = 30$	
24.	$\_ \times 3 = 6$	
25.	$\_ \times 3 = 9$	
26.	$30 \div 3 =$	
27.	$15 \div 3 =$	
28.	$3 \div 1 =$	
29.	$6 \div 3 =$	
30.	$9 \div 3 =$	
31.	$\_ \times 3 = 18$	
32.	$\_ \times 3 = 21$	
33.	$\_ \times 3 = 27$	
34.	$\_ \times 3 = 24$	
35.	$21 \div 3 =$	
36.	$27 \div 3 =$	
37.	$18 \div 3 =$	
38.	$24 \div 3 =$	
39.	$11 \times 3 =$	
40.	$33 \div 3 =$	
41.	$12 \times 3 =$	
42.	$36 \div 3 =$	
43.	$13 \times 3 =$	
44.	$39 \div 3 =$	

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

# B

Multiply or Divide by 3










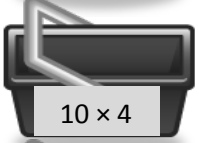
























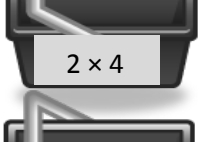









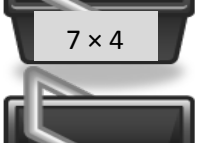




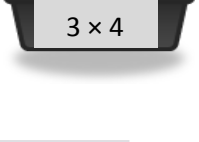
1.	$1 \times 3 =$	
2.	$2 \times 3 =$	
3.	$3 \times 3 =$	
4.	$4 \times 3 =$	
5.	$5 \times 3 =$	
6.	$9 \div 3 =$	
7.	$6 \div 3 =$	
8.	$12 \div 3 =$	
9.	$3 \div 1 =$	
10.	$15 \div 3 =$	
11.	$10 \times 3 =$	
12.	$6 \times 3 =$	
13.	$7 \times 3 =$	
14.	$8 \times 3 =$	
15.	$9 \times 3 =$	
16.	$21 \div 3 =$	
17.	$18 \div 3 =$	
18.	$24 \div 3 =$	
19.	$30 \div 3 =$	
20.	$27 \div 3 =$	
21.	$\_\_ \times 3 = 12$	
22.	$\_\_ \times 3 = 15$	

23.	$\_\_ \times 3 = 6$	
24.	$\_\_ \times 3 = 30$	
25.	$\_\_ \times 3 = 9$	
26.	$6 \div 3 =$	
27.	$3 \div 1 =$	
28.	$30 \div 3 =$	
29.	$15 \div 3 =$	
30.	$9 \div 3 =$	
31.	$\_\_ \times 3 = 18$	
32.	$\_\_ \times 3 = 24$	
33.	$\_\_ \times 3 = 27$	
34.	$\_\_ \times 3 = 21$	
35.	$24 \div 3 =$	
36.	$27 \div 3 =$	
37.	$18 \div 3 =$	
38.	$21 \div 3 =$	
39.	$11 \times 3 =$	
40.	$33 \div 3 =$	
41.	$12 \times 3 =$	
42.	$36 \div 3 =$	
43.	$13 \times 3 =$	
44.	$39 \div 3 =$	

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Skip-count by fours. Match each answer to the appropriate expression.

				<input type="text" value="4"/>	
				<input type="text" value="8"/>	
				<input type="text"/>	
				<input type="text"/>	
				<input type="text"/>	
				<input type="text"/>	
				<input type="text"/>	
				<input type="text"/>	
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				<input type="text"/>	

2. Mr. Schmidt replaces each of the 4 wheels on 7 cars. How many wheels does he replace? Draw and label a tape diagram to solve.

Mr. Schmidt replaces \_\_\_\_\_ wheels.

3. Trina makes 4 bracelets. Each bracelet has 6 beads. Draw and label a tape diagram to show the total number of beads Trina uses.

4. Find the total number of sides on 5 rectangles.

Name \_\_\_\_\_

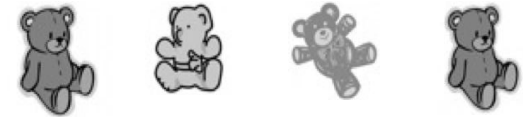







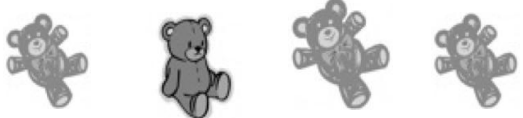



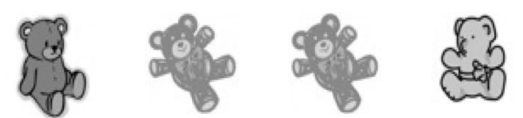

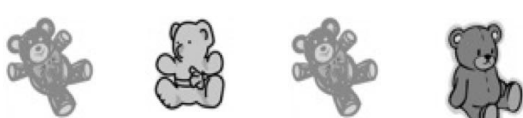



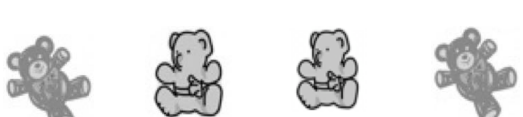

Date \_\_\_\_\_

Arthur has 4 boxes of chocolates. Each box has 6 chocolates inside. How many chocolates does Arthur have altogether? Draw and label a tape diagram to solve.

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Skip-count by fours. Match each answer to the appropriate expression.

	<input type="text" value="4"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	
	<input type="text"/>	

*Note: A dashed line connects the '4' in the first box to the '1 x 4' bag.*

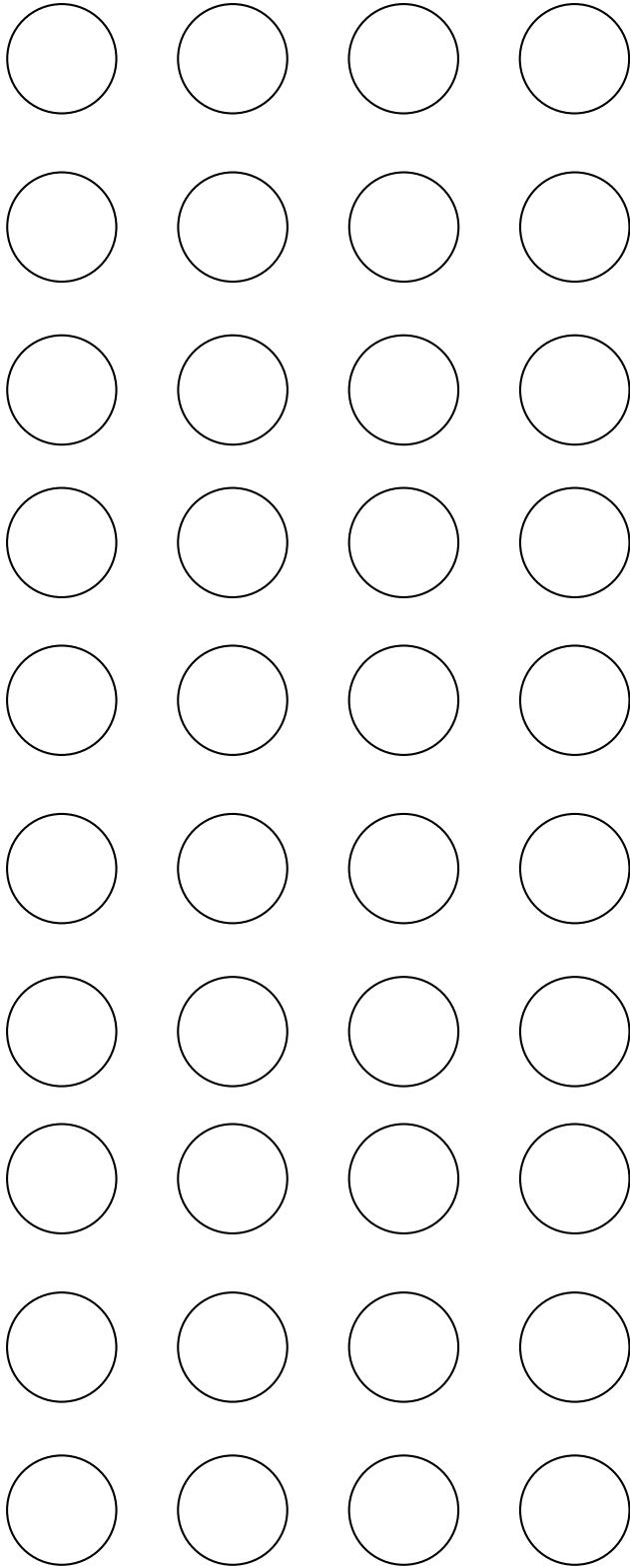
2. Lisa places 5 rows of 4 juice boxes in the refrigerator. Draw an array and skip-count to find the total number of juice boxes.

There are \_\_\_\_\_ juice boxes in total.

3. Six folders are placed on each table. How many folders are there on 4 tables? Draw and label a tape diagram to solve.

4. Find the total number of corners on 8 squares.





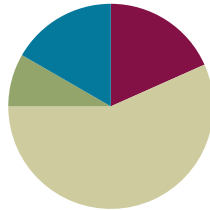
fours array

## Lesson 15

**Objective:** Relate arrays to tape diagrams to model the commutative property of multiplication.

### Suggested Lesson Structure

■ Fluency Practice	(11 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(34 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (11 minutes)

- Multiply by 4 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)

### Multiply by 4 (8 minutes)

Materials: (S) Multiply by 4 (1–5) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 4. It works toward the goal of students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

T: (Write  $5 \times 4 = \underline{\quad}$ .) Let's skip-count up by fours to find the answer. (Count with fingers to 5 as students count. Record the skip-count answers on the board.)

S: 4, 8, 12, 16, 20.

T: (Circle 20 and write  $5 \times 4 = 20$  above it. Write  $4 \times 4 = \underline{\quad}$ .) Let's skip-count up by fours again. (Count with fingers to 4 as students count.)

S: 4, 8, 12, 16.

T: Let's see how we can skip-count down to find the answer to  $4 \times 4$ . Start at 20. (Count down with fingers as students say numbers.)

S: 20, 16.

Repeat the process for  $3 \times 4$ .

T: Let's practice multiplying by 4. Be sure to work left to right across the page. (Distribute Multiply by 4 Pattern Sheet.)

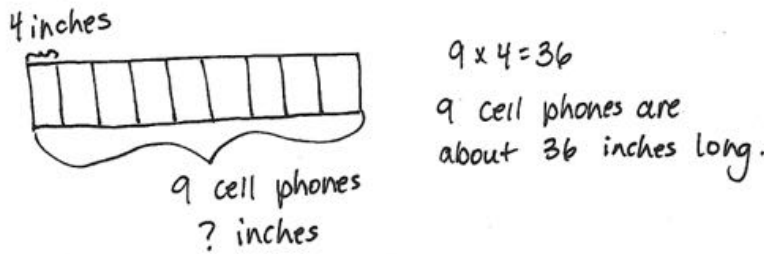
**Group Counting (3 minutes)**

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity reviews multiplication with units of 2 and 3 from Topics C and D.

- T: Let's count by twos. (Direct students to count forward and backward to 20.)
- T: Let's count by threes. (Direct students to count forward and backward to 30.)

**Application Problem (5 minutes)**

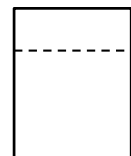
A cell phone is about 4 inches long. About how long are 9 cell phones laid end to end?



Note: This problem reviews multiplication using units of 4 from Lesson 14. It provides an opportunity to review using tape diagrams as tools for solving multiplication problems, which students further explore in today's lesson.

**Concept Development (34 minutes)**

Materials: (S) Personal white board, blank paper with  $\frac{1}{3}$  folded (shown to the right)



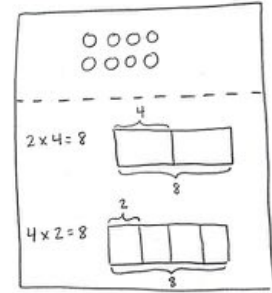
**Pictorial: Relate arrays to tape diagrams.**

Each student starts with one piece of blank, folded paper (shown to the right).

- T: Draw an array with 2 rows and 4 columns above the fold on your paper. Use the array to remind your partner about what the commutative property is. Turn your paper if you need to.
- S: (May rotate array 90 degrees.) The factors can switch places or trade meanings, but the total stays the same.
- T: Use the commutative property to write two multiplication equations for the array. Write them on the left side of the paper below the fold, one above the other.
- S: (Write  $2 \times 4 = 8$  and  $4 \times 2 = 8$ .)
- T: Next to each equation, draw and label a tape diagram to match. Make sure the diagrams are the same size because they both represent the same total.

MP.7

- S: (Draw two diagrams, shown to the right.)
- T: Explain to a partner how your tape diagrams relate to the array.
- S: (Discuss.)
- T: The array shows commutativity, and so do the tape diagrams as we compare them. Why is that true?
- S: What the factors represent in the tape diagrams changes to number of units or size of units. It depends on what the factors represent in the equations or in the array. → The tape diagrams are just a different way to represent the multiplication.



Repeat the process with  $9 \times 4$ . To facilitate comparing tape diagrams, remind students to draw diagrams of the same size.

**Pictorial–Abstract: Model commutativity using arrays and tape diagrams.**

Provide students with two examples:  $5 \times 4$  and  $4 \times 7$ .

Make further practice less guided. Ask students to do the following:

- Draw arrays to match the expressions.
- Write two equations for each array.
- Draw and label tape diagrams to represent the commutativity for each set of facts.

After they have completed both examples, invite students to share and discuss their work.

- T: Why is it that an array can show two multiplication sentences, but a tape diagram can only show one multiplication sentence?
- S: Because if you turn the tape diagram, the number of units and their size doesn't change. They just look different. → That's why we need two tape diagrams to model the commutativity of one array.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

Place students in groups or partners according to ability, or allow students to work on their own. Consider giving them the option of self-selecting their levels of independence.

**Student Debrief (10 minutes)**

**Lesson Objective:** Relate arrays to tape diagrams to model the commutative property of multiplication.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Students may have drawn different arrays for Problems 1(a), 1(b), and 1(c). Compare differences and discuss why both arrays reflect both diagrams.
- Compare Problems 3 and 4. Notice the model of commutativity even with different contexts.
- How do the array and the two tape diagrams show commutativity?
- How does the commutative property help us learn new multiplication facts?

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

2. Draw and label 2 tape diagrams to model why the statement in the box is true.  $4 \times 6 = 6 \times 4$

3. Grace picks 4 flowers from her garden. Each flower has 8 petals. Draw and label a tape diagram to show how many petals there are in total.

4. Michael counts 8 chairs in his dining room. Each chair has 4 legs. How many chair legs are there all together?

**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

The last bullet anticipates **3.OA.9**, not formally taught until Module 3. Students who need a challenge may use the commutative property to write known facts using units of 2, 3, 4, 5, and 10. They will realize they already know more than half of their facts!

Multiply.

$4 \times 1 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$

$4 \times 3 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$

$4 \times 2 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$

$4 \times 2 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$

$4 \times 1 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$      $4 \times 1 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$

$4 \times 2 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$

$4 \times 4 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$      $4 \times 3 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$

$4 \times 3 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$      $4 \times 4 = \underline{\quad}$

multiply by 4 (1–5)

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Label the tape diagrams and complete the equations. Then, draw an array to represent the problems.

a.

$2 \times 4 = \underline{\hspace{2cm}}$

$4 \times 2 = \underline{\hspace{2cm}}$

b.

$\underline{\hspace{2cm}} \times 4 = \underline{\hspace{2cm}}$

$4 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

c.

$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 28$

$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = 28$

2. Draw and label 2 tape diagrams to model why the statement in the box is true.

$$4 \times 6 = 6 \times 4$$

3. Grace picks 4 flowers from her garden. Each flower has 8 petals. Draw and label a tape diagram to show how many petals there are in total.

4. Michael counts 8 chairs in his dining room. Each chair has 4 legs. How many chair legs are there altogether?



Name \_\_\_\_\_

Date \_\_\_\_\_

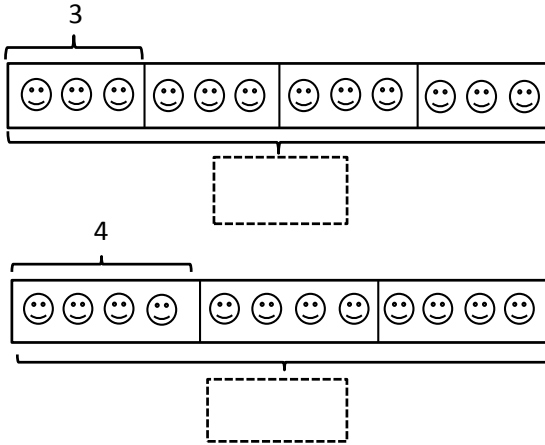
Draw and label 2 tape diagrams to show that  $4 \times 3 = 3 \times 4$ . Use your diagrams to explain how you know the statement is true.

Name \_\_\_\_\_

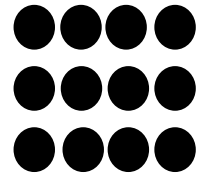
Date \_\_\_\_\_

1. Label the tape diagrams and complete the equations. Then, draw an array to represent the problems.

a.

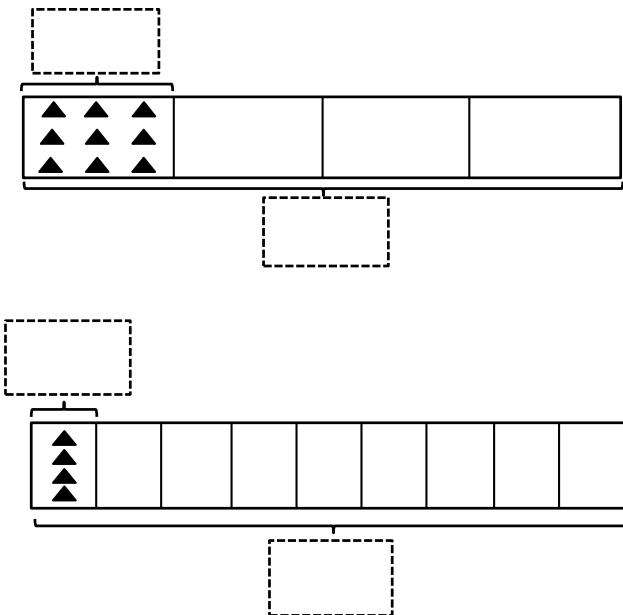


$4 \times 3 = \underline{\quad}$



$3 \times 4 = \underline{\quad}$

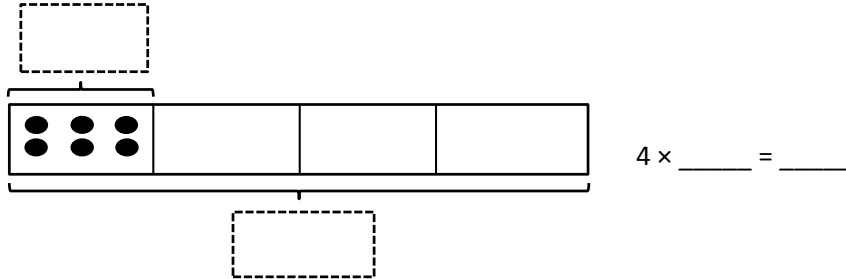
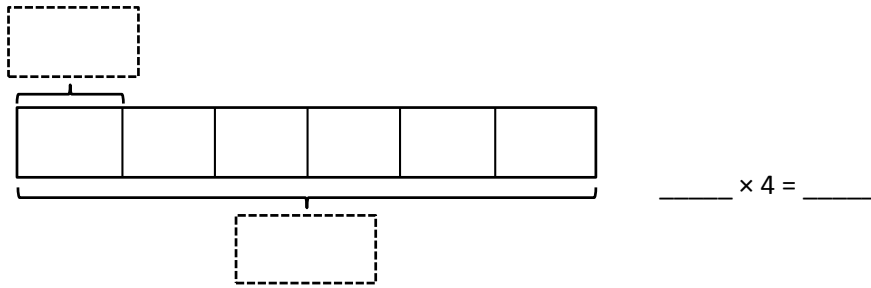
b.



$4 \times \underline{\quad} = \underline{\quad}$

$\underline{\quad} \times 4 = \underline{\quad}$

C.



2. Seven clowns hold 4 balloons each at the fair. Draw and label a tape diagram to show the total number of balloons the clowns hold.

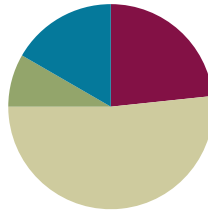
3. George swims 7 laps in the pool each day. How many laps does George swim after 4 days?

## Lesson 16

**Objective:** Use the distributive property as a strategy to find related multiplication facts.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(31 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Multiply by 4 Pattern Sheet **3.OA.7** (8 minutes)
- Group Counting **3.OA.1** (3 minutes)
- Read Tape Diagrams **3.OA.3** (3 minutes)

### Multiply by 4 Pattern Sheet (8 minutes)

Materials: (S) Multiply by 4 (6–10) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 4. It works toward the goal of students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

- T: (Write  $7 \times 4 = \underline{\quad}$ .) Let's skip-count up by fours to solve. (Count with fingers to 7 as students count.)
- S: 4, 8, 12, 16, 20, 24, 28.
- T: Let's skip-count up by fours starting at 5 fours or 20.
- S: (Show 5 fingers to represent 5 fours, or 20.) 20, 24, 28. (Count with fingers up to 7 fours as students count.)
- T: Let's skip-count down to find the answer to  $7 \times 4$ . Start at 10 fours or 40. (Count down with fingers as students say numbers.)
- S: 40, 36, 32, 28.

Repeat the process of skip-counting up from 5 fours and down from 10 fours to solve  $9 \times 4$  and  $8 \times 4$ . Distribute Multiply by 4 Pattern Sheet (6–10).

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by twos and threes in this activity reviews multiplication with units of 2 and 3 from Topics C and D.

- T: Let's count by twos. (Direct students to count forward and backward to 20.)
- T: Let's count by threes. (Direct students to count forward and backward to 30. Whisper the numbers between threes and speak each three out loud. For example, whisper 1, whisper 2, say 3, whisper 4, whisper 5, say 6, and so on.)

### Read Tape Diagrams (3 minutes)

Materials: (S) Personal white board

Note: Students practice reading the difference between the value of the unit (the size of the groups) and the number of units. The activity reviews using the tape diagram as a model for commutativity.

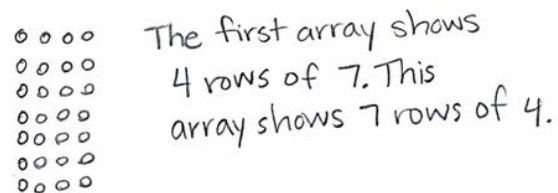
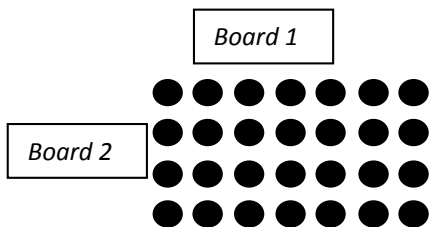
- T: (Project a tape diagram partitioned into 2 equal units. Draw 8 stars in each unit, and bracket the total with a question mark.) Say the addition sentence.
- S:  $8 + 8 = 16$ .
- T: Say the multiplication sentence starting with the number of groups.
- S:  $2 \times 8 = 16$ .
- T: Draw the tape diagram, and label units with numbers instead of stars. Label the missing total. Beneath the diagram, write a multiplication sentence.
- S: (Draw a tape diagram with 8 written inside both units and 16 written as the total. Beneath the diagram, write  $2 \times 8 = 16$ .)

Repeat the process for  $3 \times 7$  and  $4 \times 6$ .

### Application Problem (5 minutes)

Ms. Williams draws the array below to show the class seating chart. She sees the students in 4 rows of 7 when she teaches at Board 1. Use the commutative property to show how Ms. Williams sees the class when she teaches at Board 2.

Extension: On Monday, 6 students are absent. How many students are in class on Monday?



Extension:  $7 \times 4 = 28$   
 $28 - 6 = 22$ . There are 22 students in class on Monday.

Note: This problem reviews the commutative property from Lesson 15. Students may use a tape diagram to show their solution. The inclusion of the extension anticipates the two-step problem in the Lesson 17 Problem Set. If appropriate for the class, present the extension.

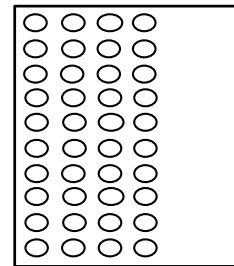
**Concept Development (31 minutes)**

Materials: (S) Personal white board, fours array (Lesson 14 Template) (pictured below)

**Problem 1: Model the  $5 + n$  pattern as a strategy for multiplying using units of 4.**

- T: Shade the part of the array that shows  $5 \times 4$ .
- S: (Shade 5 rows of 4.)
- T: Talk to your partner about how to box an array that shows  $(5 \times 4) + (1 \times 4)$ , and then box it.
- S: The box should have one more row than what's shaded. (Box  $6 \times 4$ .)
- T: What expression does the boxed array represent?
- S:  $6 \times 4$ .
- T: Label the shaded and un-shaded arrays in your box with equations.
- S: (Write  $5 \times 4 = 20$  and  $1 \times 4 = 4$ .)
- T: How can we combine our two multiplication equations to find the total number of dots?
- S:  $6 \times 4 = 24$ , or  $20 + 4 = 24$ .

Fours Array Template



Repeat the process with the following suggested examples:

- $5 \times 4$  and  $2 \times 4$  to model  $7 \times 4$
- $5 \times 4$  and  $4 \times 4$  to model  $9 \times 4$

- T: What expression did we use to help us solve all three problems?
- S:  $5 \times 4$ .
- T: Talk to your partner. Why do you think I asked you to solve using  $5 \times 4$  each time?
- S: You can just count by fives to solve it. → It equals 20. It's easy to add other numbers to 20.
- T: Compare using  $5 \times 4$  to solve your fours with  $5 \times 6$  to solve your sixes and  $5 \times 8$  to solve your eights.
- S: (Discuss. Identify the ease of skip-counting and that the products are multiples of 10.)
- T: Now that you know how to use your fives, you have a way to solve 7 sixes as 5 sixes and 2 sixes or 7 eights as 5 eights and 2 eights.

MP.7



**NOTES ON TEACHER BOARD:**

Keep track of the equations for all three examples. As students reflect, they can refer to the visual on the class board to see that  $5 \times 4$  is the consistent expression.



**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

Minimize instructional changes as you repeat with different numbers. Scaffolding problems using the same method allows students to generalize skills more easily.

**Problem 2: Apply the  $5 + n$  pattern to decompose and solve larger facts.**

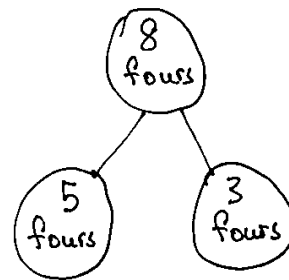
Students work in pairs.

- T: Fold the template so that only 8 of the 10 rows are showing. We'll use the array that's left. What multiplication expression are we finding?
- S: (Fold two rows away.)  $8 \times 4$ .
- T: Use the strategy we practiced today to solve  $8 \times 4$ .
- S: (Demonstrate one possible solution.) Let's shade and label  $5 \times 4$ .  $\rightarrow$  Then, we can label the un-shaded part.  $\rightarrow$  That's  $3 \times 4$ .  $\rightarrow 5 \times 4 = 20$  and  $3 \times 4 = 12$ .  $\rightarrow 20 + 12 = 32$ .  $\rightarrow$  There are 32 in total.
- T: (Write  $8 \times 4 = (5 \times 4) + (3 \times 4)$ .) Talk with your partner about how you know this is true.
- S: (Discuss.)
- T: We can break a larger fact into two smaller facts to help us solve it. (Draw number bond shown to the right.) Here, we broke apart 8 fours into 5 fours and 3 fours to solve. So, we can write an equation, 8 fours = 5 fours + 3 fours. (Write equation on the board.)
- T:  $(5 + 3) \times 4$  is another way of writing  $(5 \times 4) + (3 \times 4)$ . Talk with your partner about why these expressions are the same.
- S: (Discuss.)
- T: True or false? In  $5 \times 4$  and  $3 \times 4$ , the size of the groups is the same.
- S: True!
- T: Four represents the size of the groups. The expression  $(5 \times 4) + (3 \times 4)$  shows how we **distribute** the groups of 4. Since the size of the groups is the same, we can add the 5 fours and 3 fours to make 8 fours.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

Have students who need an additional challenge decompose the same problem using facts other than  $5 \times 4$ . They should see that other strategies work as well. Compare strategies to prove the efficiency of  $5 \times 4$ .



$$\begin{aligned}
 8 \text{ fours} &= 5 \text{ fours} + 3 \text{ fours} \\
 8 \times 4 &= (5 \times 4) + (3 \times 4) \\
 &= (5 + 3) \times 4
 \end{aligned}$$

Repeat the process with the following suggested example:

- $10 \times 4$ , modeled by doubling the product of  $5 \times 4$

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Use the distributive property as a strategy to find related multiplication facts.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Review vocabulary term **distribute**.
- Explain how breaking apart or finding the products of two smaller arrays helps find the product of a larger array in Problem 1(d).
- Share strategies for solving Problem 2.
- Explain the following sequence:
  - $(5 + 3) \times 4 =$
  - $(5 \times 4) + (3 \times 4) =$
  - 5 fours + 3 fours =
  - 8 fours =
  - $8 \times 4 =$
- How does the sequence above show a number being distributed?
- Could the strategy we learned today change your approach to finding the total students in our Application Problem? Why or why not?
- Why would the strategy we learned today be helpful for solving an even larger fact like  $15 \times 4$ ?

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Lesson 16 Problem Set 3•1

Name Gina Date \_\_\_\_\_

1. Label the array. Then fill in the blanks below to make true number sentences.

a.  $6 \times 4 = 24$   
 (5 × 4) = 20  
 (1 × 4) = 4  
 $(6 \times 4) = (5 \times 4) + (1 \times 4)$   
 $= 20 + 4$   
 $= 24$

b.  $7 \times 4 = 28$   
 (5 × 4) = 20  
 (2 × 4) = 8  
 $(7 \times 4) = (5 \times 4) + (2 \times 4)$   
 $= 20 + 8$   
 $= 28$

c.  $8 \times 4 = 32$   
 (5 × 4) = 20  
 (3 × 4) = 12  
 $(8 \times 4) = (5 \times 4) + (3 \times 4)$   
 $= 20 + 12$   
 $= 32$

d.  $9 \times 4 = 36$   
 (5 × 4) = 20  
 (4 × 4) = 16  
 $(9 \times 4) = (5 \times 4) + (4 \times 4)$   
 $= 20 + 16$   
 $= 36$

COMMON CORE Lesson 16: Use the distributive property as a strategy to find related multiplication facts. 1/17/14 engageNY 1.E.32

Lesson 16 Problem Set 3•1

2. Match the equal expressions.

Clouds:  $(5 \times 4) + (3 \times 4)$ ,  $(5 \times 4) + (1 \times 4)$ ,  $(5 \times 4) + (8 \times 4)$ ,  $(5 \times 4) + (2 \times 4)$

Balloons:  $9 \times 4 = 36$ ,  $8 \times 4 = 32$ ,  $8 \times 4 = 24$ ,  $7 \times 4 = 28$

3. Nolan draws the array below to find the answer to the multiplication expression  $10 \times 4$ . He says, "10 × 4 is just double 5 × 4!" Explain Nolan's strategy.

Array:  $5 \times 4 = 20$ ,  $5 \times 4 = 20$ ,  $20 + 20 = 40$

Handwritten explanation:  $5 \times 4 = 20$  and  $20 + 20 = 40$ . If I know  $5 \times 4 = 20$ , then I can double the answer and I will know  $10 \times 4 = 40$  because 10 is the double of 5.

COMMON CORE Lesson 16: Use the distributive property as a strategy to find related multiplication facts. 1/17/14 engageNY 1.E.32



Multiply.

$4 \times 1 = \underline{\quad\quad\quad}$      $4 \times 2 = \underline{\quad\quad\quad}$      $4 \times 3 = \underline{\quad\quad\quad}$      $4 \times 4 = \underline{\quad\quad\quad}$

$4 \times 5 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$

$4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$

$4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$

$4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$

$4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$

$4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$

$4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$

$4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$

$4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$

$4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$

$4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$

$4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 8 = \underline{\quad\quad\quad}$

$4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 6 = \underline{\quad\quad\quad}$

$4 \times 8 = \underline{\quad\quad\quad}$      $4 \times 10 = \underline{\quad\quad\quad}$      $4 \times 7 = \underline{\quad\quad\quad}$      $4 \times 9 = \underline{\quad\quad\quad}$

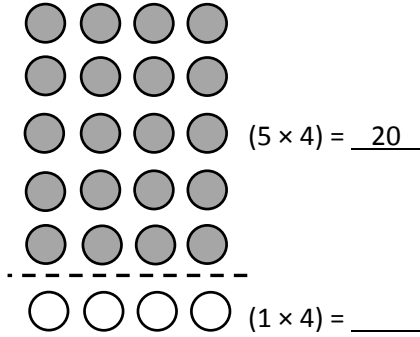
multiply by 4 (6–10)

Name \_\_\_\_\_

Date \_\_\_\_\_

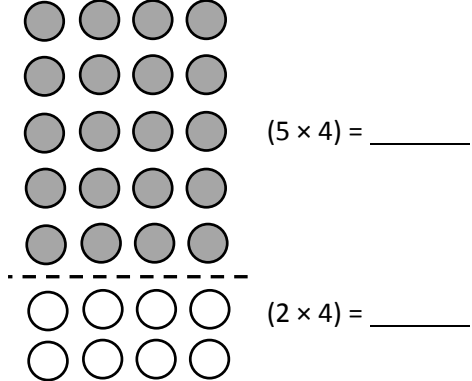
1. Label the array. Then, fill in the blanks below to make true number sentences.

a.  $6 \times 4 =$  \_\_\_\_\_



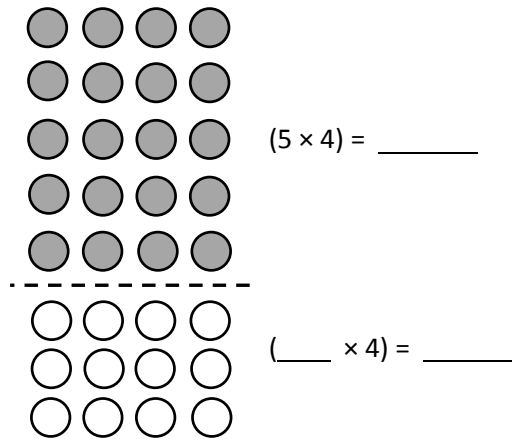
$$\begin{aligned} (6 \times 4) &= (5 \times 4) + (1 \times 4) \\ &= \underline{20} + \underline{\quad\quad} \\ &= \underline{\quad\quad} \end{aligned}$$

b.  $7 \times 4 =$  \_\_\_\_\_



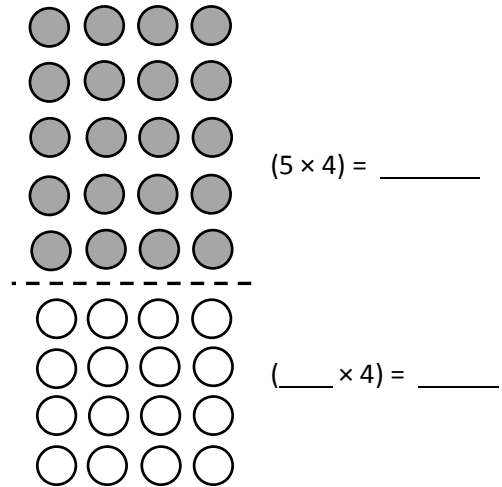
$$\begin{aligned} (7 \times 4) &= (5 \times 4) + (2 \times 4) \\ &= \underline{\quad\quad} + \underline{\quad\quad} \\ &= \underline{28} \end{aligned}$$

c.  $8 \times 4 =$  \_\_\_\_\_



$$\begin{aligned} (8 \times 4) &= (5 \times 4) + (\_\_\_ \times 4) \\ &= \underline{\quad\quad} + \underline{\quad\quad} \\ &= \underline{\quad\quad} \end{aligned}$$

d.  $9 \times 4 =$  \_\_\_\_\_



$$\begin{aligned} (9 \times 4) &= (5 \times 4) + (\_\_\_ \times 4) \\ &= \underline{\quad\quad} + \underline{\quad\quad} \\ &= \underline{\quad\quad} \end{aligned}$$

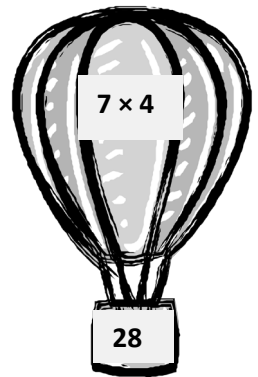
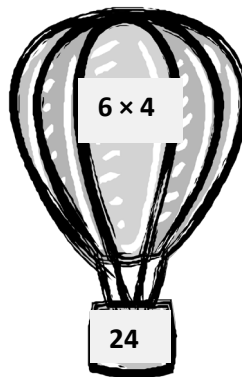
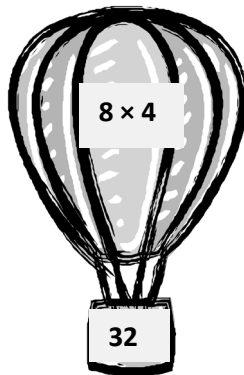
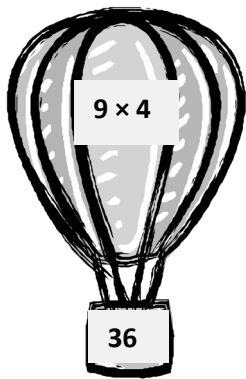
2. Match the equal expressions.

$(5 \times 4) + (3 \times 4)$

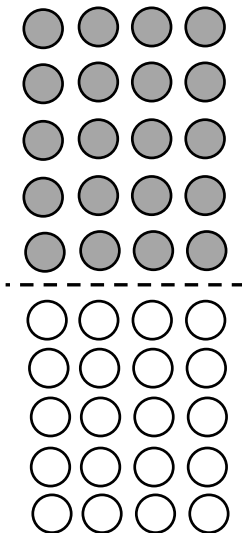
$(5 \times 4) + (1 \times 4)$

$(5 \times 4) + (4 \times 4)$

$(5 \times 4) + (2 \times 4)$



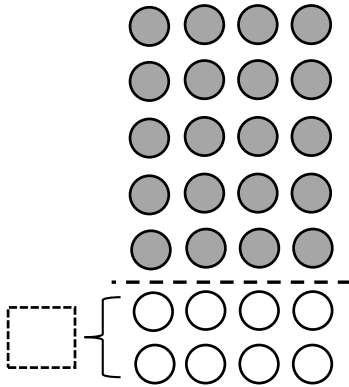
3. Nolan draws the array below to find the answer to the multiplication expression  $10 \times 4$ . He says, “ $10 \times 4$  is just double  $5 \times 4$ .” Explain Nolan’s strategy.



Name \_\_\_\_\_

Date \_\_\_\_\_

Destiny says, “I can use  $5 \times 4$  to find the answer to  $7 \times 4$ .” Use the array below to explain Destiny’s strategy using words and numbers.



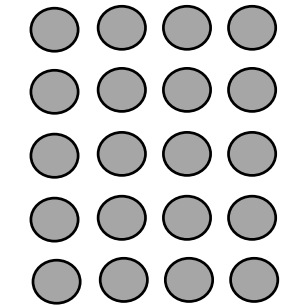
$(7 \times 4) = (5 \times 4) + (2 \times 4)$ $= \underline{\quad} + \underline{\quad}$ $= \underline{\quad}$
--

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Label the array. Then, fill in the blanks below to make true number sentences.

a.  $6 \times 4 =$  \_\_\_\_\_



$(5 \times 4) =$  20



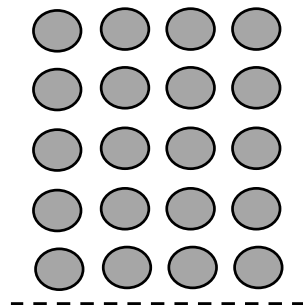
$(\text{ } \times 4) =$  \_\_\_\_\_

$(6 \times 4) = (5 \times 4) + (\text{ } \times 4)$

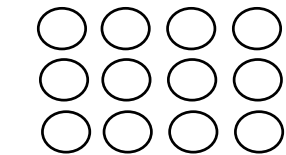
$=$  20  $+$  \_\_\_\_\_

$=$  \_\_\_\_\_

b.  $8 \times 4 =$  \_\_\_\_\_



$(5 \times 4) =$  \_\_\_\_\_



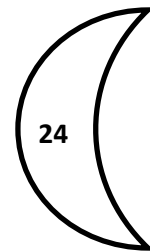
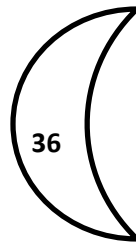
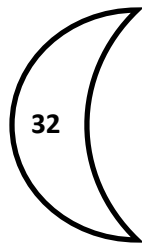
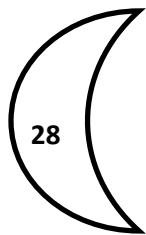
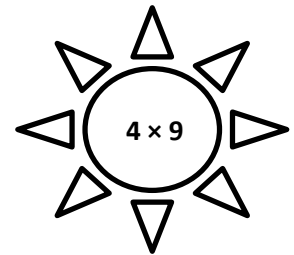
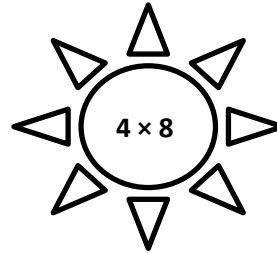
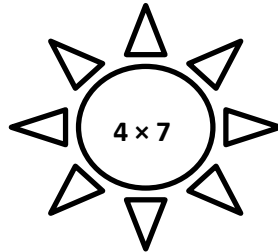
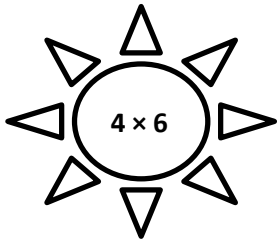
$(\text{ } \times 4) =$  \_\_\_\_\_

$(8 \times 4) = (5 \times 4) + (\text{ } \times 4)$

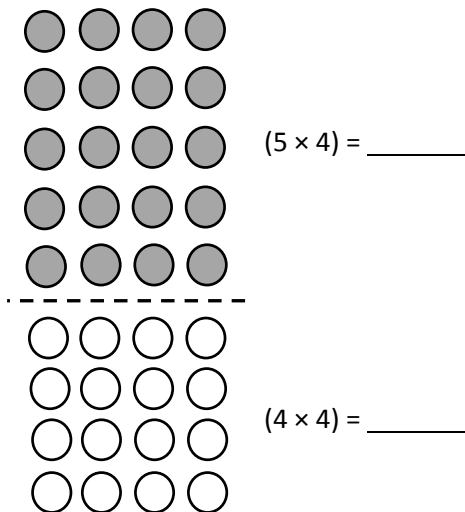
$=$  \_\_\_\_\_  $+$  \_\_\_\_\_

$=$  \_\_\_\_\_

2. Match the multiplication expressions with their answers.



3. The array below shows one strategy for solving  $9 \times 4$ . Explain the strategy using your own words.

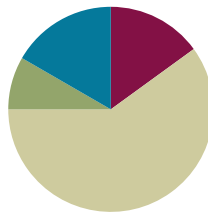


## Lesson 17

Objective: Model the relationship between multiplication and division.

### Suggested Lesson Structure

■ Fluency Practice	(9 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(36 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (9 minutes)

- Sprint: Multiply or Divide by 4 **3.OA.7** (9 minutes)

#### Sprint: Multiply or Divide by 4 (9 minutes)

Materials: (S) Multiply or Divide by 4 Sprint

Note: Framing division through missing factors in multiplication sentences builds a strong foundation for understanding the relationships between multiplication and division. See Lesson 2 for directions for administering a Sprint.

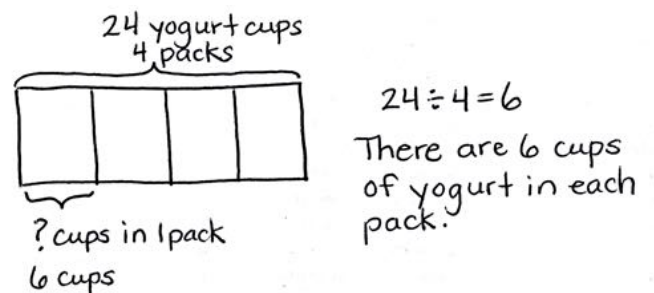
Between Sprints, include the following group counts in place of movement exercises.

- Count by twos to 20 forward and backward.
- Count by threes to 30, hum/talk forward and backward. (Hum as you think 1, 2, say 3, hum 4, 5, say 6, etc.)
- Count by fives to 50 forward and backward.

### Application Problem (5 minutes)

Mrs. Peacock bought 4 packs of yogurt. She had exactly enough to give each of her 24 students 1 yogurt cup. How many yogurt cups are there in 1 pack?

Note: This problem is designed to lead into the Concept Development. In Problem 1, students will analyze how a number bond represents the division expression  $24 \div 4$ .

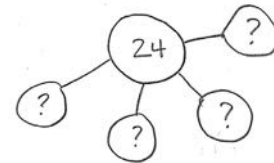


**Concept Development (36 minutes)**

Materials: (S) Personal white board

**Problem 1: Use the number bond to relate multiplication and division.**

T: (Draw or project the number bond shown to the right.)  
The number bond represents the division equation you wrote to solve the Application Problem. Turn and tell your partner how it shows  $24 \div 4$ .



S: (Discuss.)

T: Look back at the Application Problem. Is the unknown in the number bond the same as the unknown in the division problem? What does it represent?

S: They're the same. The unknown represents the size of the groups.

T: (Project a second number bond where the total and one part are drawn. Write  $\_ \times 4 = 24$ .)  
Skip-count by fours to find the unknown factor. Each time you say a four, I will make a new part of my number bond. (Draw the parts as students count.)

S: 4, 8, 12, 16, 20, 24.

T: How many fours make 24?

S: 6 fours!

T: So,  $24 \div 4$  equals...?

S: 6.

T: The division equations are the same. How do the quotients in the two number bonds represent different things?

S: The 6 in the first number bond represents the size of the groups. The 6 in the second number bond represents the number of groups.

Repeat the process with  $32 \div 4$ . (Model how the quotient can represent the number of groups or the size of the groups.)

T: How do the multiplication and division equations relate in each example?

S: I thought of the division equation like a multiplication equation with an unknown factor and skip-counted by fours until I reached the total.



**NOTES ON  
MULTIPLE MEANS  
OF ACTION AND  
EXPRESSION:**

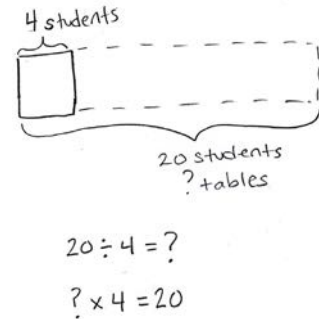
The expression  $32 \div 4$  is also used in Problem 3 of the Problem Set. Because of the duplication, the suggested process for completing the Problem Set is to save Problem 3 until the end. However, for some classes, it may prove useful to preview the example here and have students complete it as one of the first problems they do independently on the Problem Set. This will build confidence by giving students an immediate sense of success.



**Problem 2: Solve word problems to illustrate the relationship between multiplication and division.**

Write or project the following problem: A classroom has tables that seat a total of 20 students. Four students are seated at each table. How many tables are in the classroom?

- T: Draw and label a tape diagram to represent the problem.
- S: (Draw diagram shown to the right.)
- T: Without solving, write a division equation and a multiplication equation with an unknown factor to represent your drawing.
- S: (Write  $20 \div 4 = \underline{\quad}$  and  $\underline{\quad} \times 4 = 20$ .)
- T: What does the unknown in both problems represent?
- S: The number of groups.
- T: Tell your partner your strategy for solving each equation.
- S: To solve the division, I will add units of 4 to the tape diagram until I get to 20. → That is just skip-counting by fours. Skip-counting is a way to solve the multiplication, too. → The strategies are the same for both equations because you can use one to solve the other.
- T: Solve both equations now.



MP.2

Repeat the process with  $16 \div 4$ . (Problem 2 models division where the quotient represents the number of groups.)

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

**Student Debrief (10 minutes)**

**Lesson Objective:** Model the relationship between multiplication and division.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- In the first problem on the Problem Set, what patterns did you notice in the array?
- How did the patterns you noticed help you solve the multiplication and division sentences?
- Share student work from Problems 3 and 4. Students may have solved using number bonds or tape diagrams, multiplication, or division. Compare approaches.
- How can a number bond show both multiplication and division?
- Discuss: Division is an *unknown factor* problem.
- In Problems 3 and 4, the unknown is the size of each group. What is different about Problem 4? (It is a two-step problem.)

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Lesson 17 Problem Set 3•1

2. The baker packs 36 bran muffins in boxes of 4. Draw and label a tape diagram to find the number of boxes he packs.

$36 \div 4 = 9$   
 He packs 9 boxes of muffins.

---

3. The waitress arranges 32 glasses into 4 equal rows. How many glasses are in each row?

$4 \times 8 = 32$   
 $32 \div 4 = 8$   
 There are 8 glasses in each row.

---

4. Janet paid \$28 for 4 notebooks. Each notebook costs the same amount. What is the cost of 2 notebooks?

$28 \div 4 = 7$   
 $4 \times 7 = 28$   
 One notebook costs \$7.  
 $\$7 + \$7 = \$14$   
 Two notebooks cost \$14.

COMMON CORE Lesson 17: Model the relationship between multiplication and division. Date: 1/1/14 engage<sup>ny</sup> 3.E.4a

Number Correct: \_\_\_\_\_

# A

Multiply or Divide by 4

1.	$2 \times 4 =$	
2.	$3 \times 4 =$	
3.	$4 \times 4 =$	
4.	$5 \times 4 =$	
5.	$1 \times 4 =$	
6.	$8 \div 4 =$	
7.	$12 \div 4 =$	
8.	$20 \div 4 =$	
9.	$4 \div 1 =$	
10.	$16 \div 4 =$	
11.	$6 \times 4 =$	
12.	$7 \times 4 =$	
13.	$8 \times 4 =$	
14.	$9 \times 4 =$	
15.	$10 \times 4 =$	
16.	$32 \div 4 =$	
17.	$28 \div 4 =$	
18.	$36 \div 4 =$	
19.	$24 \div 4 =$	
20.	$40 \div 4 =$	
21.	$\_\_ \times 4 = 20$	
22.	$\_\_ \times 4 = 24$	

23.	$\_\_ \times 4 = 40$	
24.	$\_\_ \times 4 = 8$	
25.	$\_\_ \times 4 = 12$	
26.	$40 \div 4 =$	
27.	$20 \div 4 =$	
28.	$4 \div 1 =$	
29.	$8 \div 4 =$	
30.	$12 \div 4 =$	
31.	$\_\_ \times 4 = 16$	
32.	$\_\_ \times 4 = 28$	
33.	$\_\_ \times 4 = 36$	
34.	$\_\_ \times 4 = 32$	
35.	$28 \div 4 =$	
36.	$36 \div 4 =$	
37.	$24 \div 4 =$	
38.	$32 \div 4 =$	
39.	$11 \times 4 =$	
40.	$44 \div 4 =$	
41.	$12 \div 4 =$	
42.	$48 \div 4 =$	
43.	$14 \times 4 =$	
44.	$56 \div 4 =$	

**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Multiply or Divide by 4

1.	$1 \times 4 =$	
2.	$2 \times 4 =$	
3.	$3 \times 4 =$	
4.	$4 \times 4 =$	
5.	$5 \times 4 =$	
6.	$12 \div 4 =$	
7.	$8 \div 4 =$	
8.	$16 \div 4 =$	
9.	$4 \div 1 =$	
10.	$20 \div 4 =$	
11.	$10 \times 4 =$	
12.	$6 \times 4 =$	
13.	$7 \times 4 =$	
14.	$8 \times 4 =$	
15.	$9 \times 4 =$	
16.	$28 \div 4 =$	
17.	$24 \div 4 =$	
18.	$32 \div 4 =$	
19.	$40 \div 4 =$	
20.	$36 \div 4 =$	
21.	$\_\_ \times 4 = 16$	
22.	$\_\_ \times 4 = 20$	

23.	$\_\_ \times 4 = 8$	
24.	$\_\_ \times 4 = 40$	
25.	$\_\_ \times 4 = 12$	
26.	$8 \div 4 =$	
27.	$4 \div 1 =$	
28.	$40 \div 4 =$	
29.	$20 \div 4 =$	
30.	$12 \div 4 =$	
31.	$\_\_ \times 4 = 12$	
32.	$\_\_ \times 4 = 24$	
33.	$\_\_ \times 4 = 36$	
34.	$\_\_ \times 4 = 28$	
35.	$32 \div 4 =$	
36.	$36 \div 4 =$	
37.	$24 \div 4 =$	
38.	$28 \div 4 =$	
39.	$11 \times 4 =$	
40.	$44 \div 4 =$	
41.	$12 \times 4 =$	
42.	$48 \div 4 =$	
43.	$13 \times 4 =$	
44.	$52 \div 4 =$	

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Use the array to complete the related equations.



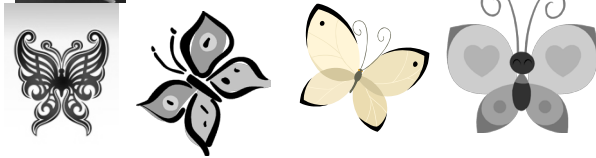
$1 \times 4 = \underline{\quad} 4$

$\underline{\quad} 4 \div 4 = 1$



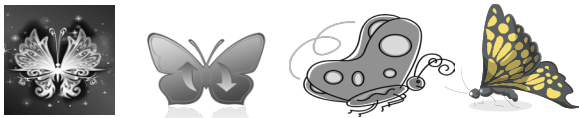
$2 \times 4 = \underline{\quad}$

$\underline{\quad} \div 4 = 2$



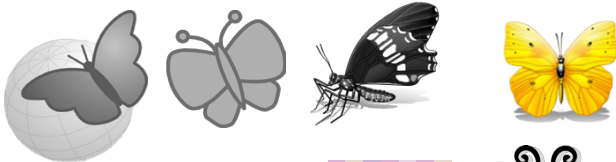
$\underline{\quad} \times 4 = 12$

$12 \div 4 = \underline{\quad}$



$\underline{\quad} \times 4 = 16$

$16 \div 4 = \underline{\quad}$



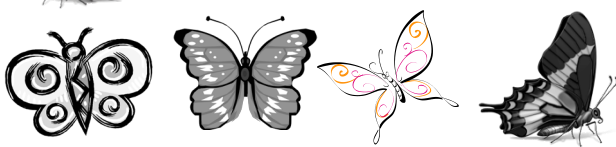
$\underline{\quad} \times \underline{\quad} = 20$

$20 \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = 24$

$24 \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times 4 = \underline{\quad}$

$\underline{\quad} \div 4 = \underline{\quad}$



$\underline{\quad} \times 4 = \underline{\quad}$

$\underline{\quad} \div 4 = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = \underline{\quad}$

$\underline{\quad} \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = \underline{\quad}$

$\underline{\quad} \div \underline{\quad} = \underline{\quad}$

2. The baker packs 36 bran muffins in boxes of 4. Draw and label a tape diagram to find the number of boxes he packs.

3. The waitress arranges 32 glasses into 4 equal rows. How many glasses are in each row?

4. Janet paid \$28 for 4 notebooks. Each notebook costs the same amount. What is the cost of 2 notebooks?



Name \_\_\_\_\_

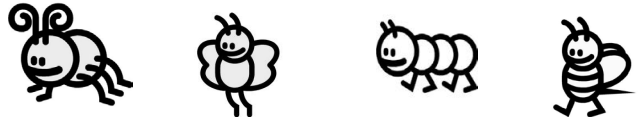
Date \_\_\_\_\_

1. Use the array to complete the related equations.

$1 \times 4 = \underline{\quad}$        $\underline{\quad} \div 4 = 1$



$2 \times 4 = \underline{\quad}$        $\underline{\quad} \div 4 = 2$



$\underline{\quad} \times 4 = 12$        $12 \div 4 = \underline{\quad}$



$\underline{\quad} \times 4 = 16$        $16 \div 4 = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = 20$        $20 \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = 24$        $24 \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times 4 = \underline{\quad}$        $\underline{\quad} \div 4 = \underline{\quad}$



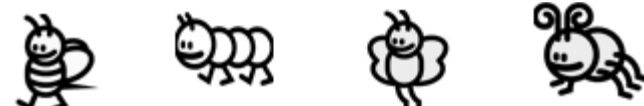
$\underline{\quad} \times 4 = \underline{\quad}$        $\underline{\quad} \div 4 = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = \underline{\quad}$        $\underline{\quad} \div \underline{\quad} = \underline{\quad}$



$\underline{\quad} \times \underline{\quad} = \underline{\quad}$        $\underline{\quad} \div \underline{\quad} = \underline{\quad}$





2. The teacher puts 32 students into groups of 4. How many groups does she make? Draw and label a tape diagram to solve.
- 
3. The store clerk arranges 24 toothbrushes into 4 equal rows. How many toothbrushes are in each row?
- 
4. An art teacher has 40 paintbrushes. She divides them equally among her 4 students. She finds 8 more brushes and divides these equally among the students, as well. How many brushes does each student receive?



## Topic F

# Distributive Property and Problem Solving Using Units of 2–5 and 10

3.OA.3, 3.OA.5, 3.OA.7, 3.OA.8, 3.OA.1, 3.OA.2, 3.OA.4, 3.OA.6

<b>Focus Standard:</b>	3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
	3.OA.5	Apply properties of operations as strategies to multiply and divide. <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)</i>
	3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$ , one knows $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
	3.OA.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
<b>Instructional Days:</b>	4	
<b>Coherence</b>	<b>-Links from:</b>	G2–M6 Foundations of Multiplication and Division
	<b>-Links to:</b>	G4–M3 Multi-Digit Multiplication and Division

Topic F introduces the factors 5 and 10, familiar from skip-counting in Grade 2. Students apply the multiplication and division strategies they have learned to mixed practice with all of the factors included in Module 1. Students model relationships between factors and decompose numbers as they further explore the relationship between multiplication and division. This culminates in Lessons 18 and 19 as students decompose the dividend in a division sentence to practice the distributive property with division. For example, students decompose  $28 \div 4$  as  $(20 \div 4) + (8 \div 4) = 5 + 2 = 7$ . In the final lessons of the module, students apply the tools, representations, and concepts they have learned to solve multi-step word problems. They demonstrate the flexibility of their thinking as they assess the reasonableness of their answers for a variety of problem types. Lesson 20 focuses on word problems involving multiplication and division, while Lesson 21 increases the complexity of problem solving by including word problems involving all four operations.

### A Teaching Sequence Toward Mastery of Distributive Property and Problem Solving Using Units of 2–5 and 10

**Objective 1: Apply the distributive property to decompose units.**  
(Lessons 18–19)

**Objective 2: Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers.**  
(Lesson 20)

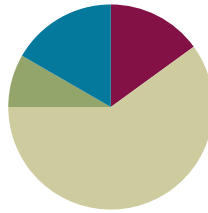
**Objective 3: Solve two-step word problems involving all four operations, and assess the reasonableness of answers.**  
(Lesson 21)

## Lesson 18

Objective: Apply the distributive property to decompose units.

### Suggested Lesson Structure

■ Fluency Practice	(9 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(36 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (9 minutes)

- Sprint: Add or Subtract Using 5 **2.NBT.5** (9 minutes)

### Sprint: Add or Subtract Using 5 (9 minutes)

Materials: (S) Add or Subtract using 5 Sprint

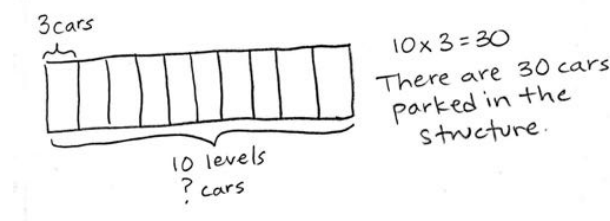
Note: This activity builds a foundation for multiplication using units of 5 through reviewing skip-counting from Grade 2. See Lesson 2 for the directions for administering a Sprint.

Between Sprints, include the following group counts in place of movement exercises.

- Count by threes to 30, think/talk forward and backward.
- Count by sixes to 30, forward and backward.
- Count by fours to 40, forward and backward.

### Application Problem (5 minutes)

A parking structure has 10 levels. There are 3 cars parked on each level. How many cars are parked in the structure?



Note:  $10 \times 3 = 30$  is the same problem used in Problem 2 of the Concept Development, only without the context provided here. Solving the problem ahead of time de-emphasizes the answer so that students more easily focus attention on the new concept of decomposing with number bonds.

**Concept Development (36 minutes)**

Materials: (S) Personal white board

**Problem 1: Use number bonds to decompose numbers and apply the distributive property.**

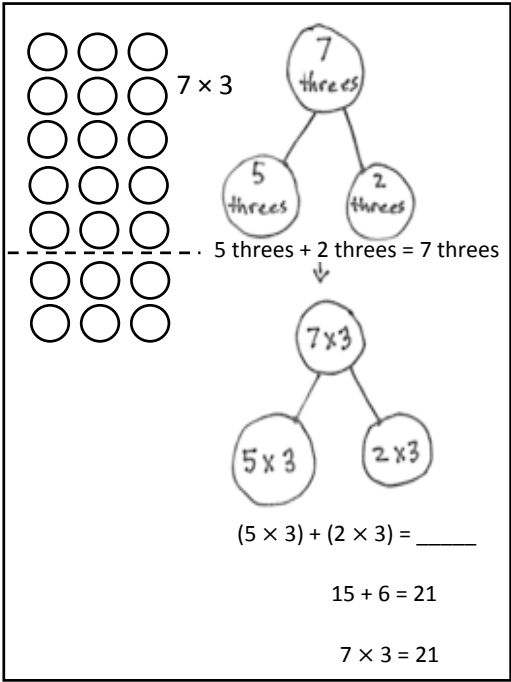
Project an array for  $7 \times 3$  with a line drawn as shown. Write  $7 \times 3$  next to the array.

- T: How many threes?
- S: 7 threes.
- T: The dotted line shows a way to break apart the array. The 7 threes are broken into...?
- S: 5 threes and 2 threes.
- T: Let's draw our number bonds.
- S: (Draw the number bond shown to the right.)
- T: Write the equation that shows how to add the two parts.
- S: (Write  $5 \text{ threes} + 2 \text{ threes} = 7 \text{ threes}$ .)
- T: Whisper to a partner the two multiplication sentences you used to help you solve  $7 \times 3$ .
- S: (Whisper  $5 \times 3 = 15$  and  $2 \times 3 = 6$ .)
- T: (Draw a second number bond using the expressions  $(5 \times 3)$  and  $(2 \times 3)$ .) The number bond is another way to show breaking apart. This shows how we partitioned the array and wrote the number bond using our number sentences.
- T: Let's rewrite this as the addition of two products using my frame. (Point to the equation below.)  
 $(\underline{\quad} \times 3) + (\underline{\quad} \times 3) = \underline{\quad} \times 3$   
 $\underline{\quad\quad\quad} + \underline{\quad\quad\quad} = \underline{\quad\quad\quad}$

- S: (Write.)  
 $(5 \times 3) + (2 \times 3) = 7 \times 3$   
 $15 + 6 = 21$

- T: How does the number sentence show the number bond?
- S: It shows the 7 broken into 5 and 2. → And, the threes are shared with both parts. → Yes, 5 threes and 2 threes. → One part has 5 threes, and the other part has 2 threes.
- Repeat the process with  $9 \times 4$ .
- T: Let's call it the break apart and distribute strategy. The number bond helps us see that we can find the total by adding two smaller parts together.

Sample Teacher Board

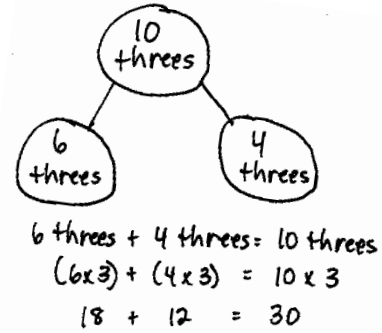


**NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**

Encourage students who need extra support to draw an array before using the number bond to decompose.

**Problem 2: Use number bonds and the distributive property.**

- T: (Write  $10 \times 3$ .) How many threes?  
 S: 10 threes.  
 T: What are some ways we can break apart 10?  
 S: 5 and 5.  $\rightarrow$  6 and 4.  $\rightarrow$  7 and 3.  $\rightarrow$  8 and 2.  
 T: So, if we were counting apples, that would be 5 apples and 5 apples or 6 apples and 4 apples?  
 S: Yes.  
 T: But we aren't counting apples. What are we counting?  
 S: Threes.  
 T: So, that would be 6 threes and...?  
 S: 4 threes.  
 T: Let's draw our number bonds.  
 S: (Draw number bond shown to the right.)  
 T: Write the equation that shows how to add the two parts.  
 Start with 6 threes and 4 threes.  
 S: (Write  $6 \text{ threes} + 4 \text{ threes} = 10 \text{ threes}$ .)  
 T: Rewrite this as the addition of two products using my frame. (Point to the equation below.)



$$(\underline{\quad} \times 3) + (\underline{\quad} \times 3) = \underline{\quad} \times 3$$

$$\underline{\quad\quad\quad} + \underline{\quad\quad\quad} = \underline{\quad\quad\quad}$$

S: (Write.)

$$(6 \times 3) + (4 \times 3) = 10 \times 3$$

$$18 + 12 = 30$$

Repeat the process with  $8 \times 4$ .

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Apply the distributive property to decompose units.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Compare the number bond and array models for showing the break apart and distribute strategy.
- Share work for Problem 4. Compare students' number choices.
- Why do you think we use the number bond as a method for breaking a total into two parts? How was this strategy helpful to find the answer to a larger fact in Problem 7?
- How does Problem 1 in the Concept Development relate to today's Application Problem?
- In anticipation of using the distributive property with division in Lesson 19, ask the following: Do you think the break apart and distribute strategy can be used with division? What might that look like?

5. There are 7 teams in the soccer tournament. Ten children play on each team. How many children are playing in the tournament? Use the break apart and distribute strategy, and draw a number bond to solve.

$7 \times 10 = ?$

$(5 \times 10) + (2 \times 10) = 7 \times 10$   
 $50 + 20 = 70$   
 $7 \times 10 = 70$

There are 70 children playing in the tournament.

---

6. What is the total number of sides on 8 triangles?  $\triangle$  3 sides

$8 \times 3 = ?$

$(5 \times 3) + (3 \times 3) = 8 \times 3$   
 $15 + 9 = 24$   
 $8 \times 3 = 24$

There are 24 sides on 8 triangles.

---

7. There are 12 rows of bottled drinks in the vending machine. Each row has 10 bottles. How many bottles are in the vending machine?

$12 \times 10 = ?$

$(10 \times 10) + (2 \times 10) = 12 \times 10$   
 $100 + 20 = 120$   
 $12 \times 10 = 120$

There are 120 bottles in the vending machine.

COMMON CORE | Lesson 18: Apply the distributive property to decompose units. | engage<sup>ny</sup> | 1.7-10  
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### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Number Correct: \_\_\_\_\_

# A

Add or Subtract Using 5

1.	$0 + 5 =$	
2.	$5 + 5 =$	
3.	$10 + 5 =$	
4.	$15 + 5 =$	
5.	$20 + 5 =$	
6.	$25 + 5 =$	
7.	$30 + 5 =$	
8.	$35 + 5 =$	
9.	$40 + 5 =$	
10.	$45 + 5 =$	
11.	$50 - 5 =$	
12.	$45 - 5 =$	
13.	$40 - 5 =$	
14.	$35 - 5 =$	
15.	$30 - 5 =$	
16.	$25 - 5 =$	
17.	$20 - 5 =$	
18.	$15 - 5 =$	
19.	$10 - 5 =$	
20.	$5 - 5 =$	
21.	$5 + 0 =$	
22.	$5 + 5 =$	

23.	$10 + 5 =$	
24.	$15 + 5 =$	
25.	$20 + 5 =$	
26.	$25 + 5 =$	
27.	$30 + 5 =$	
28.	$35 + 5 =$	
29.	$40 + 5 =$	
30.	$45 + 5 =$	
31.	$0 + 50 =$	
32.	$50 + 50 =$	
33.	$50 + 5 =$	
34.	$55 + 5 =$	
35.	$60 - 5 =$	
36.	$55 - 5 =$	
37.	$60 + 5 =$	
38.	$65 + 5 =$	
39.	$70 - 5 =$	
40.	$65 - 5 =$	
41.	$100 + 50 =$	
42.	$150 + 50 =$	
43.	$200 - 50 =$	
44.	$150 - 50 =$	



**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Add or Subtract Using 5

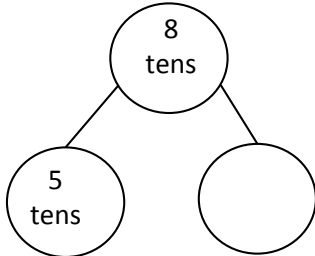
1.	$5 + 0 =$	
2.	$5 + 5 =$	
3.	$5 + 10 =$	
4.	$5 + 15 =$	
5.	$5 + 20 =$	
6.	$5 + 25 =$	
7.	$5 + 30 =$	
8.	$5 + 35 =$	
9.	$5 + 40 =$	
10.	$5 + 45 =$	
11.	$50 - 5 =$	
12.	$45 - 5 =$	
13.	$40 - 5 =$	
14.	$35 - 5 =$	
15.	$30 - 5 =$	
16.	$25 - 5 =$	
17.	$20 - 5 =$	
18.	$15 - 5 =$	
19.	$10 - 5 =$	
20.	$5 - 5 =$	
21.	$0 + 5 =$	
22.	$5 + 5 =$	

23.	$10 + 5 =$	
24.	$15 + 5 =$	
25.	$20 + 5 =$	
26.	$25 + 5 =$	
27.	$30 + 5 =$	
28.	$35 + 5 =$	
29.	$40 + 5 =$	
30.	$45 + 5 =$	
31.	$50 + 0 =$	
32.	$50 + 50 =$	
33.	$5 + 50 =$	
34.	$5 + 55 =$	
35.	$60 - 5 =$	
36.	$55 - 5 =$	
37.	$5 + 60 =$	
38.	$5 + 65 =$	
39.	$70 - 5 =$	
40.	$65 - 5 =$	
41.	$50 + 100 =$	
42.	$50 + 150 =$	
43.	$200 - 50 =$	
44.	$150 - 50 =$	

Name \_\_\_\_\_

Date \_\_\_\_\_

1.  $8 \times 10 =$  \_\_\_\_\_



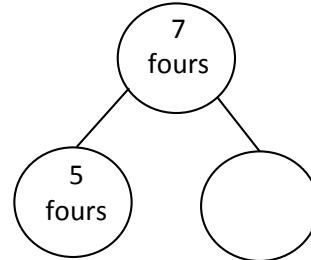
5 tens + \_\_\_\_\_ = 8 tens

$(5 \times 10) + (\text{_____} \times 10) = 8 \times 10$

$50 + \text{_____} = \text{_____}$

$8 \times 10 = \text{_____}$

2.  $7 \times 4 =$  \_\_\_\_\_



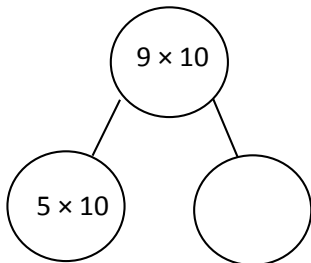
5 fours + \_\_\_\_\_ = 7 fours

$(5 \times 4) + (\text{_____} \times 4) = 7 \times 4$

$20 + \text{_____} = \text{_____}$

$7 \times 4 = \text{_____}$

3.  $9 \times 10 =$  \_\_\_\_\_



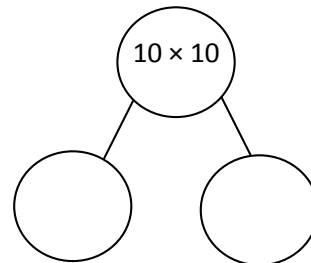
5 tens + \_\_\_\_\_ = 9 tens

$(5 \times 10) + (\text{_____} \times 10) = 9 \times 10$

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

$9 \times 10 = \text{_____}$

4.  $10 \times 10 =$  \_\_\_\_\_



\_\_\_\_\_ + \_\_\_\_\_ = 10 tens

$(\text{_____} \times 10) + (\text{_____} \times 10) = 10 \times 10$

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

$10 \times 10 = \text{_____}$

5. There are 7 teams in the soccer tournament. Ten children play on each team. How many children are playing in the tournament? Use the break apart and distribute strategy, and draw a number bond to solve.

There are \_\_\_\_\_ children playing in the tournament.

6. What is the total number of sides on 8 triangles?

7. There are 12 rows of bottled drinks in the vending machine. Each row has 10 bottles. How many bottles are in the vending machine?

Name \_\_\_\_\_

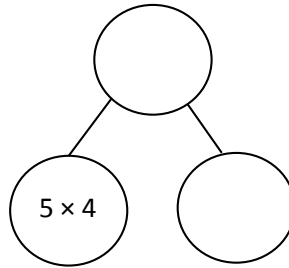
Date \_\_\_\_\_

Dylan used the break apart and distribute strategy to solve a multiplication problem. Look at his work below, write the multiplication problem Dylan solved, and complete the number bond.

Dylan's work:

$$(5 \times 4) + (1 \times 4) =$$

$$20 + 4 = 24$$

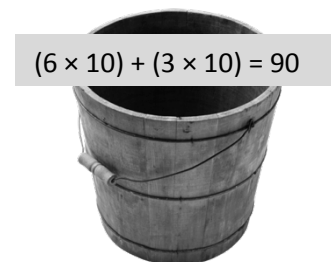
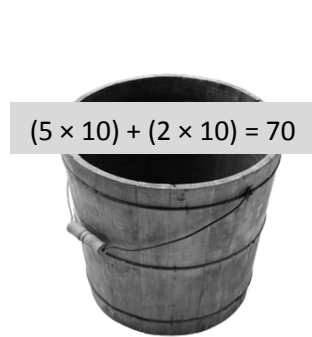
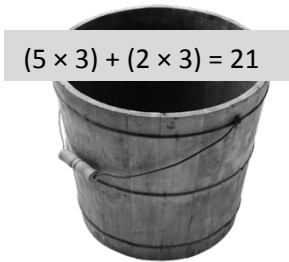
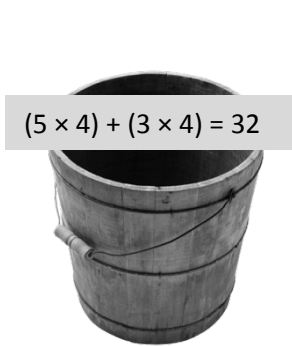
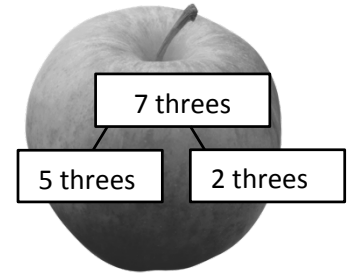
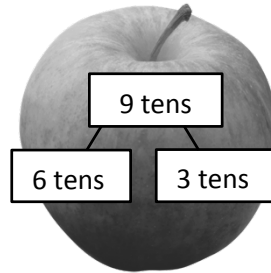
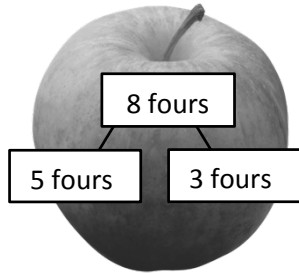
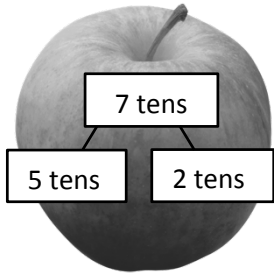


$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

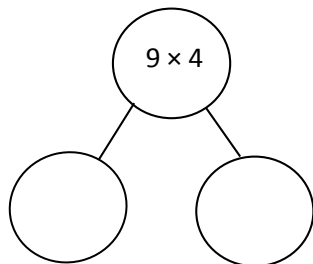
Name \_\_\_\_\_

Date \_\_\_\_\_

1. Match.



2.  $9 \times 4 =$  \_\_\_\_\_



$(\text{_____} \times 4) + (\text{_____} \times 4) = 9 \times 4$

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

$9 \times 4 =$  \_\_\_\_\_

3. Lydia makes 10 pancakes. She tops each pancake with 4 blueberries. How many blueberries does Lydia use in all? Use the break apart and distribute strategy, and draw a number bond to solve.

Lydia uses \_\_\_\_\_ blueberries in all.

4. Steven solves  $7 \times 3$  using the break apart and distribute strategy. Show an example of what Steven's work might look like below.

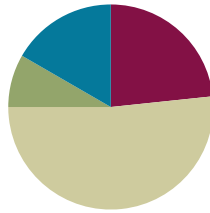
5. There are 7 days in 1 week. How many days are there in 10 weeks?

## Lesson 19

Objective: Apply the distributive property to decompose units.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(31 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Commutative Multiplying **3.OA.7** (3 minutes)
- Decompose and Multiply **3.OA.5** (4 minutes)
- Compose and Multiply **3.OA.5** (4 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by threes, fours, fives, and sixes in this activity reviews multiplication with units of 3, 4, and 5 and anticipates multiplication with units of 6 in Module 3.

- T: Let's count by fives. (Direct students to count forward and backward to 50.)
- T: Let's count by fours. (Direct students to count forward and backward to 40.)
- T: Let's count by threes. (Direct students to count forward and backward to 30.)
- T: Let's count by sixes. (Direct students to count forward and backward to 36, emphasizing the 24 to 30 transition.)

### Commutative Multiplying (3 minutes)

Note: This activity reviews the commutativity of multiplication, learned in Lessons 7, 8, and 15.

- T: (Write  $3 \times 2 = \underline{\quad}$ .) Say the multiplication sentence.
- S:  $3 \times 2 = 6$ .
- T: Flip it.
- S:  $2 \times 3 = 6$ .

Repeat the process for  $5 \times 2$ ,  $5 \times 3$ ,  $3 \times 4$ ,  $2 \times 8$ , and  $3 \times 7$ .

### Decompose and Multiply (4 minutes)

Materials: (S) Personal white board

Note: This activity anticipates multiplication using units of 6, 7, 8, and 9 by decomposing larger facts into smaller known facts. It reviews the break apart and distribute strategy.

- T: (Write  $7 \times 4 = \underline{\quad}$ .) Rewrite the equation in unit form.  
 S: (Write 7 fours =  $\underline{\quad}$ .)  
 T: (Write 7 fours = (5 fours) + ( $\underline{\quad}$  fours) =  $\underline{\quad}$ .) 7 fours is the same as 5 fours and how many fours?  
 S: 2 fours.  
 T: (Write (5 fours) + (2 fours) =  $\underline{\quad}$ . Below it, write  $20 + \underline{\quad} = \underline{\quad}$ .) Fill in the blanks.  
 S: (Write  $20 + 8 = 28$ .)  
 T:  $7 \times 4$  equals?  
 S: 28!

Sample Teacher board

$7 \times 4 = \underline{\quad}$
$7 \text{ fours} = (5 \text{ fours}) + (\underline{\quad} \text{ fours}) = \underline{\quad}$
$(5 \text{ fours}) + (2 \text{ fours}) = \underline{\quad}$
$20 + \underline{\quad} = \underline{\quad}$

Repeat for the following possible sequence:  $8 \times 3$ ,  $9 \times 2$ , and  $6 \times 4$ . Change the unknowns that students need to fill in.

### Compose and Multiply (4 minutes)

Materials: (S) Personal white board

Note: This activity anticipates multiplication using units of 6, 7, 8, and 9 by composing smaller known facts into larger unknown facts. It reviews the break apart and distribute strategy.

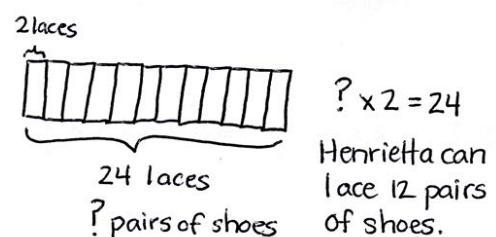
- T: (Write  $(5 \times 3) + (2 \times 3) = \underline{\quad}$ .) Fill in the blank to write a true multiplication sentence on your personal white board. Below the multiplication sentence, write an addition sentence.  
 S: (Write  $(5 \times 3) + (2 \times 3) = 21$ . Below it, write  $15 + 6 = 21$ .)  
 T: Write  $(5 \times 3) + (2 \times 3)$  as a single multiplication sentence.  
 S: (Write  $7 \times 3 = 21$ .)

Repeat for the following possible sequence:  $8 \times 2$  and  $9 \times 4$ .

### Application Problem (5 minutes)

Henrietta works in a shoe store. She uses 2 shoelaces to lace each pair of shoes. She has a total of 24 laces. How many pairs of shoes can Henrietta lace?

Note: This problem reviews material from Lesson 18 but intentionally previews  $24 \div 2$ , which is used in the first example of the Concept Development. Students may choose to solve the Application Problem with division or as an *unknown factor* multiplication problem. Use these variations in method to spark discussion.





**Concept Development (31 minutes)**

Materials: (S) Personal white board

**Problem 1: Model break apart and distribute using an array as a strategy for division.**

Draw or project a  $12 \times 2$  array and write  $24 \div 2 = \underline{\quad}$  above it.

- T: Let's use the array to help us solve  $24 \div 2 = \underline{\quad}$ . There are 24 dots total. (Draw a line after the tenth row.) This shows one way to break apart the array.
- T: Write division equations to represent the part of the array above the line and the part of the array below the line.
- S: (Write  $20 \div 2 = 10$  and  $4 \div 2 = 2$ .)
- T: How many twos are above the line?
- S: 10 twos.
- T: How many twos are below the line?
- S: 2 twos.
- T: Let's rewrite this as the addition of two quotients. Use my equations.

$$(\underline{\quad} \div 2) + (\underline{\quad} \div 2) = \underline{\quad} \div 2$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

Handwritten student work showing a  $12 \times 2$  array of dots. A horizontal line is drawn after the 10th row. To the right of the array, the equations  $20 \div 2 = 10$  and  $4 \div 2 = 2$  are written. Below the array, the equation  $24 \div 2 = (20 \div 2) + (4 \div 2)$  is written.

- S: (Line 1: Fill in totals. Line 2: Write  $10 + 2 = 12$ .)
- T: Explain to your partner the process we used to solve  $24 \div 2$ .
- S: We added the quotients of two smaller facts to find the quotient of a larger one.

Repeat the process with a  $13 \times 2$  array to show  $26 \div 2$ . Break it into  $20 \div 2$  and  $6 \div 2$ .

**Problem 2: Use break apart and distribute as a strategy for division.**

- T: (Write  $27 \div 3 = \underline{\quad}$ .) What are we focused on when we break apart to divide? Breaking up the number of groups (or rows), like in multiplication, or breaking up the total?
- S: Breaking up the total.
- T: Let's break up 27 into 15 and another number. Fifteen plus what equals 27?
- S: 12.
- T: Work with a partner to draw an array that shows  $27 \div 3$  where 3 is the number of columns.
- S: (Draw a  $9 \times 3$  array.)
- T: Box the part of your array that shows a total of 15.
- S: (Box the first 5 rows.)
- T: Write a division equation for the boxed portion to the right of the array.
- S: (Write  $15 \div 3 = 5$ .)

- T: Box the part of your array that shows a total of 12.  
 S: (Box the remaining 4 rows.)  
 T: Now, write a division equation for that part of the array.  
 S: (Write  $12 \div 3 = 4$ .)  
 T: Tell your partner how you will use the equations to help you solve the original equation,  $27 \div 3 = \underline{\quad}$ .  
 S: I'll add the quotients of the two smaller facts.  
 T: (Write the following.) Complete the following sequence to solve  $27 \div 3$  with your partner.

$$27 \div 3 = (15 \div 3) + (12 \div 3)$$

$$= \underline{\quad} + \underline{\quad}$$

$$= \underline{\quad}$$

Repeat the process with  $33 \div 3$ . Students can break apart 33 by using the number pair 30 and 3.

### Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

### Student Debrief (10 minutes)

**Lesson Objective:** Apply the distributive property to decompose units.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.



#### NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Add a challenge by asking students to think about other ways of breaking apart 27. A student will most likely choose parts that are not evenly divisible by 3. This will lead to a discussion that gets students to realize that, with division, the strategy relies on the decomposition being such that the dividends must be evenly divisible by the divisor.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

If appropriate, encourage the class or individual students to solve  $33 \div 3$  without using an array.

Any combination of the questions below may be used to lead the discussion.

- Compare Nell’s strategy in Problem 3 to the strategy for solving  $24 \div 2$  in the Concept Development.
- Yesterday, we used the break apart and distribute strategy with multiplication. How is the method we learned today similar?
- How is the break apart and distribute strategy different for multiplication than for division? (This strategy works for division when the total is broken into 2 parts that are evenly divisible by the divisor. For example, to solve  $33 \div 8$ , decomposing 33 into 25 and 8 is not effective at this level because neither 25 nor 8 is evenly divisible by 3.)

**Exit Ticket (3 minutes)**

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

2. Match the equal expressions.

3. Nell draws the array below to find the answer to  $24 \div 2$ . Explain Nell’s strategy:

Nell breaks apart 24 into 6 twos and 6 twos. 6 twos = 12. So she does  $12 \div 2$  for both parts and adds the answers to get  $24 \div 2$ .

$12 \div 2 = 6$

$6 + 6 = 12$

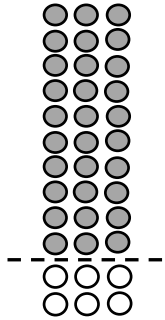
$24 \div 2 = 12$

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Label the array. Then, fill in the blanks to make true number sentences.

a.  $36 \div 3 = \underline{\quad}$

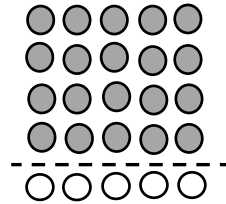


$(30 \div 3) = \underline{\quad}$

$(6 \div 3) = \underline{\quad}$

$(36 \div 3) = (30 \div 3) + (6 \div 3)$   
 $= \underline{10} + \underline{\quad}$   
 $= \underline{12}$

b.  $25 \div 5 = \underline{\quad}$

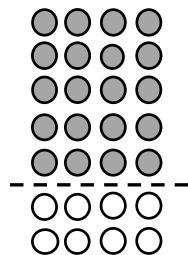


$(20 \div 5) = \underline{4}$

$(5 \div 5) = \underline{\quad}$

$(25 \div 5) = (20 \div 5) + (5 \div 5)$   
 $= \underline{4} + \underline{\quad}$   
 $= \underline{\quad}$

c.  $28 \div 4 = \underline{\quad}$

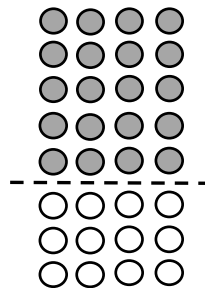


$(20 \div 4) = \underline{\quad}$

$(\underline{\quad} \div 4) = \underline{\quad}$

$(28 \div 4) = (20 \div 4) + (\underline{\quad} \div 4)$   
 $= \underline{\quad} + \underline{\quad}$   
 $= \underline{\quad}$

d.  $32 \div 4 = \underline{\quad}$



$(\underline{\quad} \div 4) = \underline{\quad}$

$(\underline{\quad} \div 4) = \underline{\quad}$

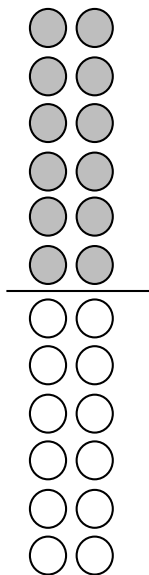
$(32 \div 4) = (\underline{\quad} \div 4) + (\underline{\quad} \div 4)$   
 $= \underline{\quad} + \underline{\quad}$   
 $= \underline{\quad}$

2. Match the equal expressions.

$24 \div 2$        $36 \div 3$        $39 \div 3$        $26 \div 2$

$(30 \div 3) + (6 \div 3)$        $(30 \div 3) + (9 \div 3)$        $(20 \div 2) + (6 \div 2)$        $(20 \div 2) + (4 \div 2)$

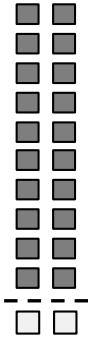
3. Nell draws the array below to find the answer to  $24 \div 2$ . Explain Nell’s strategy.



Name \_\_\_\_\_

Date \_\_\_\_\_

Complete the equations below to solve  $22 \div 2 = \underline{\hspace{2cm}}$ .



$(20 \div 2) = \underline{\hspace{2cm}}$

$(\underline{\hspace{2cm}} \div 2) = \underline{\hspace{2cm}}$

$$\begin{aligned}
 (22 \div 2) &= (20 \div 2) + (\underline{\hspace{2cm}} \div 2) \\
 &= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} \\
 &= \underline{\hspace{2cm}}
 \end{aligned}$$

Name \_\_\_\_\_

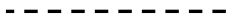
Date \_\_\_\_\_

1. Label the array. Then, fill in the blanks to make true number sentences.

a.  $18 \div 3 = \underline{\quad}$



$(9 \div 3) = 3$



$(9 \div 3) = \underline{\quad}$

$(18 \div 3) = (9 \div 3) + (9 \div 3)$

$= \underline{3} + \underline{\quad}$

$= \underline{6}$

b.  $21 \div 3 = \underline{\quad}$



$(15 \div 3) = 5$



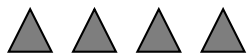
$(6 \div 3) = \underline{\quad}$

$(21 \div 3) = (15 \div 3) + (6 \div 3)$

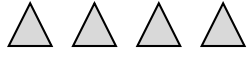
$= \underline{5} + \underline{\quad}$

$= \underline{\quad}$

c.  $24 \div 4 = \underline{\quad}$



$(20 \div 4) = \underline{\quad}$



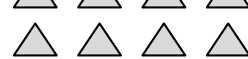
$(4 \div 4) = \underline{\quad}$

$(24 \div 4) = (20 \div 4) + (\underline{\quad} \div 4)$

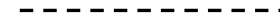
$= \underline{\quad} + \underline{\quad}$

$= \underline{\quad}$

d.  $36 \div 4 = \underline{\quad}$



$(20 \div 4) = \underline{\quad}$



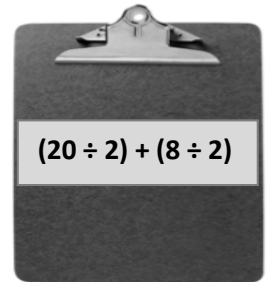
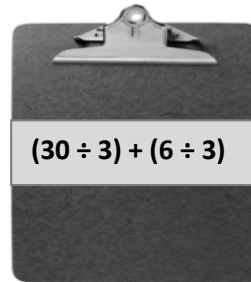
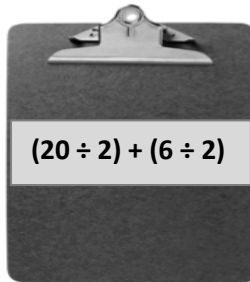
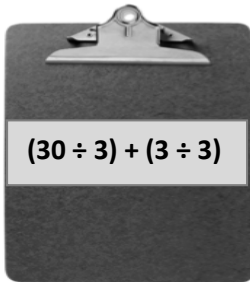
$(16 \div 4) = \underline{\quad}$

$(36 \div 4) = (\underline{\quad} \div 4) + (\underline{\quad} \div 4)$

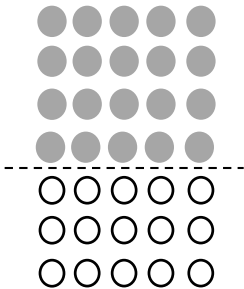
$= \underline{\quad} + \underline{\quad}$

$= \underline{\quad}$

2. Match equal expressions.



3. Alex draws the array below to find the answer to  $35 \div 5$ . Explain Alex's strategy.



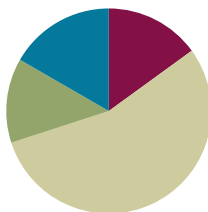


## Lesson 20

**Objective:** Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers.

### Suggested Lesson Structure

■ Fluency Practice	(9 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(33 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (9 minutes)

- Sprint: Skip-Count by 5 **2.NBT.2** (9 minutes)

#### Sprint: Skip-Count by 5 (9 minutes)

Materials: (S) Skip-Count by 5 Sprint

Note: This activity builds a foundation for multiplication using units of 5 through reviewing skip-counting from Grade 2. See Lesson 2 for the directions for administering a Sprint.

Between Sprints, include the following group counting in place of movement exercises:

- Count by fours to 40, hum/talk forward and backward. (Hum as you think 1, 2, 3; say 4. Hum as you think 5, 6, 7; say 8, etc.)
- Count by sixes to 42 forward and backward, emphasizing the 24 to 30 and 36 to 42 transitions.
- Count by threes to 30 forward and backward.

### Application Problem (8 minutes)

Red, orange, and blue scarves are on sale for \$4 each. Nina buys 2 scarves of each color. How much does she spend altogether?

Note: This problem reviews multiplication using units of 4. It also leads into Problem 1 of the Concept Development.

**Concept Development (33 minutes)**

Materials: (S) Personal white board

**Problem 1: Model a two-step problem with a tape diagram.**

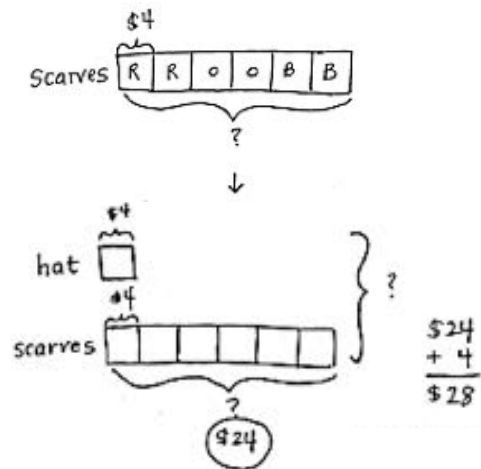
Write or project the following story: Red, orange, and blue scarves are on sale for \$4 each. Nina buys 2 scarves of each color. She also buys a hat that costs \$4. How much does she spend altogether?

- T: Compare this new problem with the Application Problem you just solved. What is different?
- S: The question is still the same, but the new problem adds the cost of a hat to the total.
- T: Turn and talk to your partner: How can we use our answer from the Application Problem to help solve the new problem?
- S: In our Application Problem, we found the cost of the 6 scarves. → We just have to add the cost of the hat to the total.
- T: (Draw tape diagram.) This tape diagram shows the Application Problem.
- T: Each of these boxes is 1 unit. Tell me what 1 unit represents.
- S: 1 scarf.
- T: What is the value of 1 unit?
- S: \$4.
- T: What do the 6 units represent?
- S: 6 scarves.
- T: How did you label the 6 units?
- S: With a question mark.
- T: What equation did you use to find the total of all the items?
- S:  $6 \times \$4 = \$24$ .
- T: Watch as I add to our model to represent the new problem.
- T: (Draw and label diagram as shown.) Now, I add the cost of the hat, \$4, to the total cost of the scarves, \$24, (write  $\$4 + \$24 = \underline{\quad}$ ), which is...?
- S: \$28.
- T: How many units did we add together to find the total of both items?
- S: 7 units. → 1 unit + 6 units.
- T: Tell your partner a multiplication sentence you could use to find the total cost of the scarves and hat without finding the value of the scarves first.
- S: 7 units of \$4 = \$28. →  $7 \times \$4 = \$28$ .



**NOTES ON MULTIPLE MEANS OF REPRESENTATION:**

The vignette follows the *I do, we do, you do* process to guide students through the two-step word problems. Adjust the level of support for each problem according to the needs students demonstrate. Consider working with a small group to solve Problem 3.



**Problem 2: Use the tape diagram to solve a two-step problem.**

Write or project the following story: Mr. Lim buys 7 plants for his garden. Each plant costs \$5. The next day, he buys a rose bush that also costs \$5. How much more do the 7 plants cost than the rose bush?

T: What information is known from reading the story?

S: The cost of each plant is \$5. We also know the rose bush costs \$5.

T: What information is unknown?

S: We don't know the total cost of the 7 plants, so we don't know how much more the plants cost than the rose bush.

T: Notice there are two unknowns in our problem. Let's first draw and label a tape diagram to model the unknown as the cost of the 7 plants.

S: (Draw and label tape diagram.)

T: Tell me how to find the cost of the plants.

S: We multiply  $7 \times \$5$ .

T: The plants cost...?

S: \$35.

T: Have we answered the question?

S: No.

T: What is the question we are trying to answer?

S: How much more the plants cost than the rose bush.

T: (Label the second question mark.) Tell your partner what strategy you might use to answer the question.

S: I might subtract the cost of the rose bush from the total cost of the 7 plants. → I might do  $6 \times \$5$  because the plants have 6 units more than the rose bush. → I'll skip-count the 6 extra fives on the plants diagram.

T: Write an equation and solve the problem on your personal white board.

S: (Possibly write:  $\$35 - \$5 = \$30$ ,  $6 \times \$5 = \$30$ ,  $\$5 + \$5 + \$5 + \$5 + \$5 + \$5 = \$30$ .)

T: Reread the question. Have we answered it?

S: (Reread and confirm.)

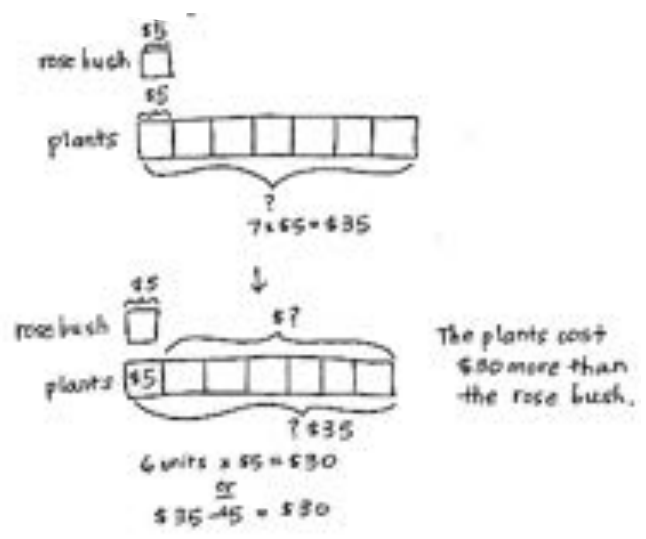
T: Is \$30 a reasonable answer? Why or why not?

S: Yes, 7 plants are expensive! \$5 is a lot less than \$35, so \$30 less makes sense. → I checked with addition.  $\$30 + \$5 = \$35$ .

T: (Erase the first diagram and the \$35 that marks the total value on the second diagram.) We first drew two models because the problem has two steps. How does this model represent the whole problem on its own?

S: (Discuss).

T: We know that 1 unit is \$5. How many units represent the additional cost of the plants?




- S: 6 units.
- T: Given what you know, is it necessary to find the total cost of the plants? Why or why not?
- S: You can just do  $6 \times \$5$  without having to know about \$35.
- T: Explain to your partner the difference between the two ways of solving this problem.

**Problem 3: Work with a partner to model and solve a two-step problem.**

Write or project the following story: Ten children equally share 40 almonds. How many almonds will 3 children get?

- T: What information is known?
- S: The total amount of almonds and the number of children.
- T: What is unknown?
- S: How many almonds 3 children get.
- T: In order to solve, what do you need to find first?
- S: The amount of almonds 1 child gets.
- T: With a partner, model and solve the problem. Make sure to reread the question to see if you have answered the question. Then, think about whether or not the answer makes sense. This is how we check the reasonableness of the answer.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

Scaffold Problem 3 by providing a tape diagram with no labels. This allows students to see the problem and analyze the steps they need to take to solve the problem.

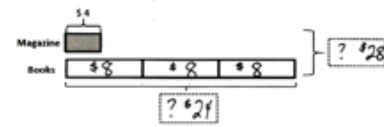
**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.

Lesson 20 Problem Set 3•1

Name Gina Date \_\_\_\_\_

1. Ted buys 3 books and a magazine at the book store. Each book costs \$8. A magazine costs \$4.

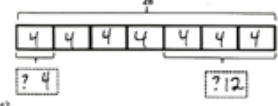


a. What is the total cost of the books?  
 $3 \times \$8 = \$24$  The books cost \$24.

b. How much does Ted spend all together?  
 $\$24 + \$4 = \$28$   
 Ted spends \$28.


---

2. Seven children share 28 silly bands equally.



a. How many silly bands does each child get?  
 $28 \div 7 = 4$   
 Each child gets 4 silly bands.

b. How many silly bands do 3 children get?  
 $3 \times 4 = 12$  3 children get 12 silly bands.

COMMON CORE Lesson 20 Solve two-step word problems involving multiplication and division and assess the reasonableness of answers. engage<sup>ny</sup> 1.F.31  
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### Student Debrief (10 minutes)

**Lesson Objective:** Solve two-step word problems involving multiplication and division, and assess the reasonableness of answers.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Compare the structure of Problems 1 and 2 to the rest of the Problem Set. Problems 1 and 2 explicitly ask two questions to scaffold the two-step word problems. Problems 3–5 still require two steps but only ask one question.
- Compare Problems 3 and 5. What do the unknowns represent? How are these problems similar? How are they different?
- Have students share their models. In Problems 3 and 5, how did you show the boxes of broken cups and the bags of pears sold?
- How did you check the reasonableness of your answers to each problem?

3. Eighteen cups are equally packed into 6 boxes. Two boxes of cups break. How many cups are unbroken?

18 Cups  
 $18 \div 6 = 3$   
 $4 \times 3 = 12$   
 12 cups are unbroken.

4. There are 25 blue balloons and 15 red balloons at a party. Five children are given an equal number of each color balloon. How many blue and red balloons does each child get?

blue  $25 \div 5 = 5$   
 red  $15 \div 5 = 3$   
 Each child gets 5 blue balloons and 3 red balloons.

5. Twenty-seven pears are packed in bags of 3. Five bags of pears are sold. How many bags of pears are left?

$27 \div 3 = 9$   
 $9 - 5 = 4$   
 9 bags of pears  
 There are 4 bags of pears left.

COMMON CORE | Lesson 20 | Solve two-step word problems involving multiplication and division and assess the reasonableness of answers. | engage<sup>ny</sup> | 1.F.32  
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### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Number Correct: \_\_\_\_\_

# A

Skip-Count by 5

1.	0, 5, __	
2.	5, 10, __	
3.	10, 15, __	
4.	15, 20, __	
5.	20, 25, __	
6.	25, 30, __	
7.	30, 35, __	
8.	35, 40, __	
9.	40, 45, __	
10.	50, 45, __	
11.	45, 40, __	
12.	40, 35, __	
13.	35, 30, __	
14.	30, 25, __	
15.	25, 20, __	
16.	20, 15, __	
17.	15, 10, __	
18.	0, __, 10	
19.	25, __, 35	
20.	5, __, 15	
21.	30, __, 40	
22.	10, __, 20	

23.	35, __, 45	
24.	15, __, 25	
25.	40, __, 50	
26.	25, __, 15	
27.	50, __, 40	
28.	20, __, 10	
29.	45, __, 35	
30.	15, __, 5	
31.	40, __, 30	
32.	10, __, 0	
33.	35, __, 25	
34.	__, 10, 5	
35.	__, 35, 30	
36.	__, 15, 10	
37.	__, 40, 35	
38.	__, 20, 15	
39.	__, 45, 40	
40.	50, 55, __	
41.	45, 50, __	
42.	65, __, 55	
43.	55, 60, __	
44.	60, 65, __	

**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Skip-Count by 5

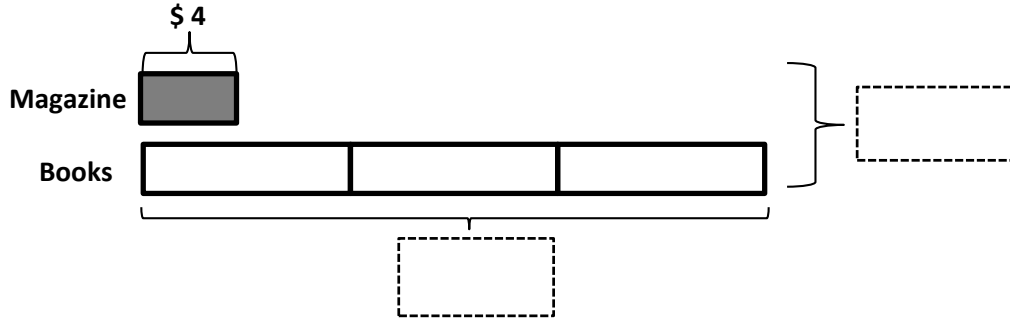
1.	5, 10, __	
2.	10, 15, __	
3.	15, 20, __	
4.	20, 25, __	
5.	25, 30, __	
6.	30, 35, __	
7.	35, 40, __	
8.	40, 45, __	
9.	50, 45, __	
10.	45, 40, __	
11.	40, 35, __	
12.	35, 30, __	
13.	30, 25, __	
14.	25, 20, __	
15.	20, 15, __	
16.	15, 10, __	
17.	0, __, 10	
18.	25, __, 35	
19.	5, __, 15	
20.	30, __, 40	
21.	10, __, 20	
22.	35, __, 45	

23.	15, __, 25	
24.	35, __, 45	
25.	20, __, 30	
26.	25, __, 15	
27.	50, __, 60	
28.	20, __, 10	
29.	45, __, 35	
30.	15, __, 5	
31.	35, __, 25	
32.	10, __, 0	
33.	35, __, 25	
34.	__, 15, 10	
35.	__, 40, 35	
36.	__, 20, 15	
37.	__, 45, 40	
38.	__, 10, 5	
39.	__, 35, 30	
40.	45, 50, __	
41.	50, 55, __	
42.	55, 60, __	
43.	65, __, 55	
44.	__, 60, 55	

Name \_\_\_\_\_

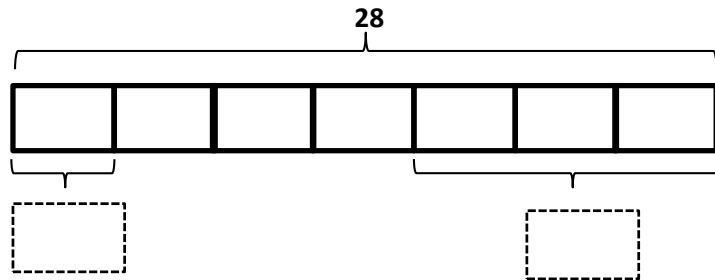
Date \_\_\_\_\_

1. Ted buys 3 books and a magazine at the book store. Each book costs \$8. A magazine costs \$4.



- a. What is the total cost of the books?
- b. How much does Ted spend altogether?

2. Seven children share 28 silly bands equally.



- a. How many silly bands does each child get?
- b. How many silly bands do 3 children get?

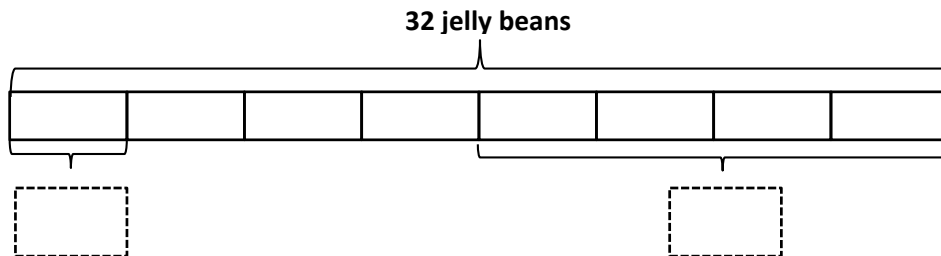


3. Eighteen cups are equally packed into 6 boxes. Two boxes of cups break. How many cups are unbroken?
- 
4. There are 25 blue balloons and 15 red balloons at a party. Five children are given an equal number of each color balloon. How many blue and red balloons does each child get?
- 
5. Twenty-seven pears are packed in bags of 3. Five bags of pears are sold. How many bags of pears are left?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Thirty-two jelly beans are shared by 8 students.

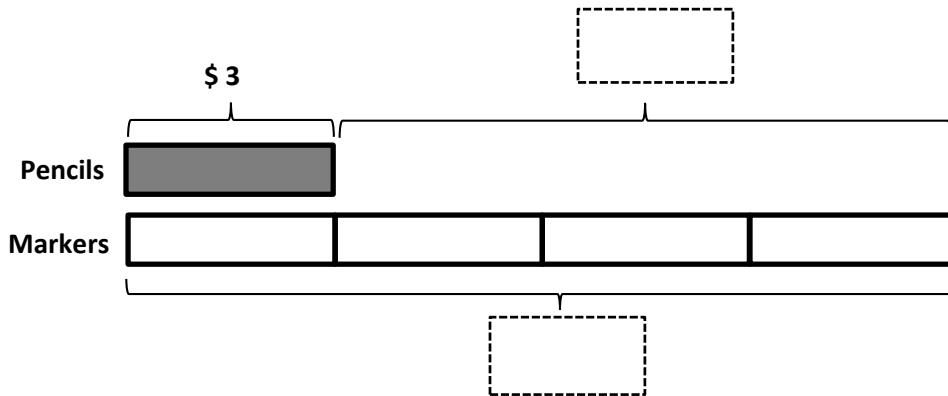


- a. How many jelly beans will each student get?
- b. How many jelly beans will 4 students get?
- 
2. The teacher has 30 apple slices and 20 pear slices. Five children equally share all of the fruit slices. How many fruit slices does each child get?

Name \_\_\_\_\_

Date \_\_\_\_\_

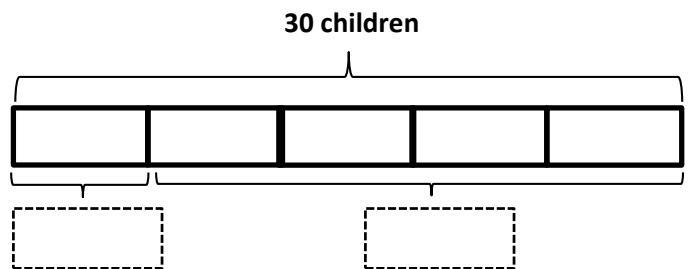
1. Jerry buys a pack of pencils that costs \$3. David buys 4 sets of markers. Each set of markers also costs \$3.



- What is the total cost of the markers?
- How much more does David spend on 4 sets of markers than Jerry spends on a pack of pencils?

2. Thirty students are eating lunch at 5 tables. Each table has the same number of students.

- How many students are sitting at each table?



- How many students are sitting at 4 tables?

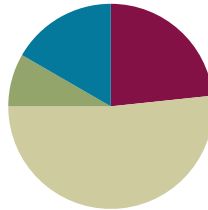
3. The teacher has 12 green stickers and 15 purple stickers. Three students are given an equal number of each color sticker. How many green and purple stickers does each student get?
- 
4. Three friends go apple picking. They pick 13 apples on Saturday and 14 apples on Sunday. They share the apples equally. How many apples does each person get?
- 
5. The store has 28 notebooks in packs of 4. Three packs of notebooks are sold. How many packs of notebooks are left?

## Lesson 21

**Objective:** Solve two-step word problems involving all four operations, and assess the reasonableness of answers.

### Suggested Lesson Structure

■ Fluency Practice	(14 minutes)
■ Application Problem	(5 minutes)
■ Concept Development	(31 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (14 minutes)

- Group Counting **3.OA.1** (3 minutes)
- Multiply by 5 Pattern Sheet **3.OA.7** (8 minutes)
- Commutative Multiplying **3.OA.7** (3 minutes)

### Group Counting (3 minutes)

Note: Group counting reviews interpreting multiplication as repeated addition. Counting by threes, fours, and sixes in this activity reviews multiplication with units of 3 and 4 and anticipates multiplication with units of 6 in Module 3.

- T: Let's count by threes. (Direct students to count forward and backward to 30.)
- T: Let's count by fours, think/talk forward and backward. (Direct students to count forward and backward to 40. Think 1, 2, 3; say 4. Think 5, 6, 7; say 8, etc.)
- T: Let's count by sixes. (Direct students to count forward and backward to 48, emphasizing the 24 to 30 and 36 to 42 transitions.)

### Multiply by 5 Pattern Sheet (8 minutes)

Materials: (S) Multiply by 5 (1–5) (Pattern Sheet)

Note: This activity builds fluency with multiplication facts using units of 5. It works toward students knowing from memory all products of two one-digit numbers. See Lesson 9 for the directions for administering a Multiply-By Pattern Sheet.

- T: (Write  $5 \times 5 = \underline{\quad}$ .) Let's skip-count up by fives to solve. (Count with fingers to 5 as students count. Record skip-count answers on the board.)
- S: 5, 10, 15, 20, 25.

T: (Circle 25 and write  $5 \times 5 = 25$  above it. Write  $3 \times 5 = \underline{\quad}$ .) Let's skip-count up by fives again. (Count with fingers to 3 as students count.)

S: 5, 10, 15.

T: Let's see how we can skip-count down to find the answer, too. Start at 25. (Count down with fingers as students say numbers.)

S: 25, 20, 15.

Repeat the process for  $9 \times 5$  and  $8 \times 5$ .

T: Let's practice multiplying by 5. Be sure to work left to right across the page. (Distribute Multiply by 5 Pattern Sheet.)

### Commutative Multiplying (3 minutes)

Note: This activity reviews the commutativity of multiplication, learned in Lessons 7, 8, and 15.

T: (Write  $4 \times 2 = \underline{\quad}$ .) Say the multiplication sentence.

S:  $4 \times 2 = 8$ .

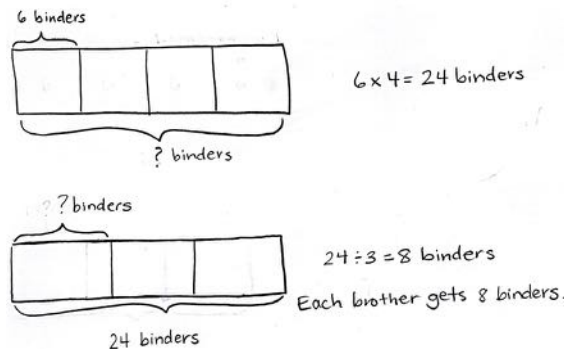
T: Flip it.

S:  $2 \times 4 = 8$ .

Repeat the process for  $5 \times 3$ ,  $9 \times 2$ ,  $4 \times 3$ ,  $2 \times 7$ , and  $3 \times 8$ .

### Application Problem (5 minutes)

There are 4 boxes with 6 binders in each one. Three brothers share the binders. How many binders does each brother get?



Note: This two-step problem reviews Lesson 20's objective. Students self-select an approach and independently solve. Practicing a two-step problem here scaffolds the difference between the structured practice in Lesson 20 and the open-ended practice in Lesson 21. Prepare students for today's exploration by guiding them to evaluate their methods for solving and assessing the reasonableness of their answers.

## Concept Development (31 minutes)

Materials: (S) Chart paper, markers, paper strips (optional for representing tape diagrams), glue

Today's lesson is a culminating exploration that follows the following process:

- Divide the class into groups no larger than four students.
- Assign each group one word problem from the Problem Set. (Cut the Problem Set so that initially each group only receives the problem they are assigned. More than one group may work on the same problem.)
- Each group collaborates to model and solve their assigned problem.
- Each group prepares to present their problem to the class, describing their method for solving and explaining the reasonableness of their answer.

Each group needs one set of the materials listed in the materials section.

Directions (similar to RDW process):

1. Read and analyze together to determine known and unknown information.
2. Discuss how to model.
3. Model and label diagrams.
4. Discuss and agree on the steps needed to solve.
5. Write equations and solve.
6. Assess the reasonableness of the solution. (Ask, "Does our answer make sense? How do we know?")
7. Write a complete sentence to answer the question.
8. Prepare a mini-presentation to explain each step of your work. Prepare to answer clarifying questions from the group.

Each group presents to the class. Audience members should be prepared to ask clarifying questions, challenge each other's work, and offer compliments. If more than one group solves the same problem, discussion might include similarities and differences between problem-solving approaches.

### Problem Set (5 minutes)

When all groups have presented, pass out the entire Problem Set, and have students solve the problems independently. The time allotment is short, as they have just seen and discussed every problem.



#### NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

The first two problems on the Problem Set have diagrams drawn to scaffold instructions. These diagrams may be removed for the exploration to adjust the level of support for the groups who solve them.

A visual representation of the CCLS Tables 1–2 could be used to help students determine the known and unknown information.



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Consider assigning roles so that group members participate and each student remains accountable for learning. This is particularly important with regard to each group's presentation. Set the expectation that each member actively contributes.

Another option is to reconfigure the groups and partner share the process and solution, encouraging the use of precise language (e.g., equation, product, and quotient).

MP.1

### Student Debrief (10 minutes)

**Lesson Objective:** Solve two-step word problems involving all four operations, and assess the reasonableness of answers.

After the presentations and discussion of the Problem Set during the lesson, today’s Debrief culminates the module with a celebration. Students reflect on their progress in learning to multiply and divide using units of 2, 3, 4, 5, and 10.

Students are seated with a personal white board. Select one student to stand behind someone seated. Say an expression or give a word problem. Of the pair, the first student to solve it correctly and lift his board wins the round. That student rotates one seat to the right. The goal is for a single child to work her way back to the seat behind which she originally stood. The game is very fast-paced to build excitement. Given the time constraint, the game is unlikely to finish. The winner can be the student who moves the most spaces.

Sample expressions or word problems:

- How many legs are there on 5 dogs?
- $4 \times 3$
- $6 \times 2$
- Write a related division fact for  $5 \times 3$ .
- $18 \div 3$

### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students’ understanding of the concepts that were presented in today’s lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 21 Problem Set 3•1

Name Gina Date \_\_\_\_\_

1. Jason earns \$6 per week for doing all his chores. On the fifth week, he forgets to take out the trash so he only earns \$4. Write and solve an equation to show how much Jason earns in 5 weeks.

$4 \times 6 = 24$   
 $24 + 4 = 28$

Jason earns \$28

2. Miss Lianto orders 4 packs of 7 markers. After passing out 6 markers to each student in her class, she has 6 left. Label the tape diagram to find how many students are in Miss Lianto’s class.

$4 \times 7 = 28$   
 $28 - 6 = 22$

There are 22 students in Miss Lianto’s class.

COMMON CORE Lesson 21: Solve two-step word problems involving all four operations and assess the reasonableness of answers. engage<sup>ny</sup> 3•1-41  
 Date: 5/15/14

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 21 Problem Set 3•1

3. Orlando buys a box of 18 fruit snacks. Each box comes with an equal amount of strawberry, cherry, and grape flavored snacks. He eats all of the grape flavored snacks. Draw and label a tape diagram to find how many fruit snacks he has left.

$18 \div 3 = 6$   
 $18 - 6 = 12$   
 There are 12 fruit snacks left.

4. Eudora buys 21 meters of ribbon. She cuts the ribbon so that each piece measures 3 meters in length.

a. How many pieces of ribbon does she have?

$21 \div 3 = 7$  Eudora has 7 pieces of ribbon.

b. If Eudora needs a total of 12 pieces of the shorter ribbon, how many more pieces of the shorter ribbon does she need?

$12 - 7 = 5$   
 She needs 5 more pieces of the shorter ribbon.

COMMON CORE Lesson 21: Solve two-step word problems involving all four operations and assess the reasonableness of answers. engage<sup>ny</sup> 3•1-42  
 Date: 5/15/14



Multiply.

$5 \times 1 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$

$5 \times 5 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$

$5 \times 3 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$

$5 \times 5 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$

$5 \times 2 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$

$5 \times 2 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$

$5 \times 1 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$

$5 \times 4 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$

$5 \times 4 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$

$5 \times 4 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$

$5 \times 4 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$      $5 \times 1 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$

$5 \times 2 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$

$5 \times 4 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$

$5 \times 5 = \underline{\quad\quad}$      $5 \times 3 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$

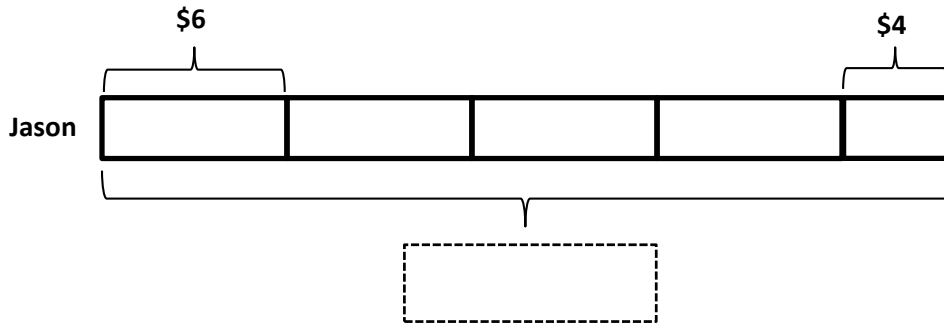
$5 \times 3 = \underline{\quad\quad}$      $5 \times 5 = \underline{\quad\quad}$      $5 \times 2 = \underline{\quad\quad}$      $5 \times 4 = \underline{\quad\quad}$

multiply by 5 (1–5)

Name \_\_\_\_\_

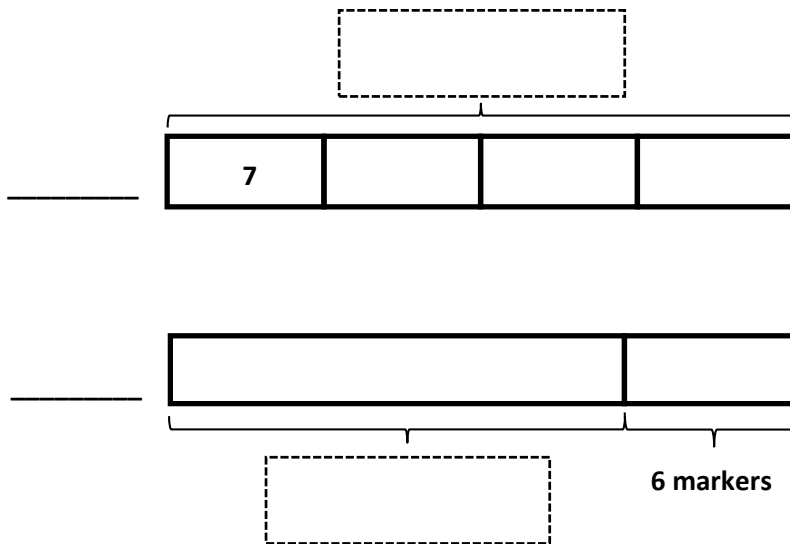
Date \_\_\_\_\_

1. Jason earns \$6 per week for doing all his chores. On the fifth week, he forgets to take out the trash, so he only earns \$4. Write and solve an equation to show how much Jason earns in 5 weeks.



Jason earns \_\_\_\_\_.

2. Miss Lianto orders 4 packs of 7 markers. After passing out 1 marker to each student in her class, she has 6 left. Label the tape diagram to find how many students are in Miss Lianto's class.



There are \_\_\_\_\_ students in Miss Lianto's class.

3. Orlando buys a box of 18 fruit snacks. Each box comes with an equal number of strawberry-, cherry-, and grape-flavored snacks. He eats all of the grape-flavored snacks. Draw and label a tape diagram to find how many fruit snacks he has left.

4. Eudora buys 21 meters of ribbon. She cuts the ribbon so that each piece measures 3 meters in length.
- a. How many pieces of ribbon does she have?

- b. If Eudora needs a total of 12 pieces of the shorter ribbon, how many more pieces of the shorter ribbon does she need?

Name \_\_\_\_\_

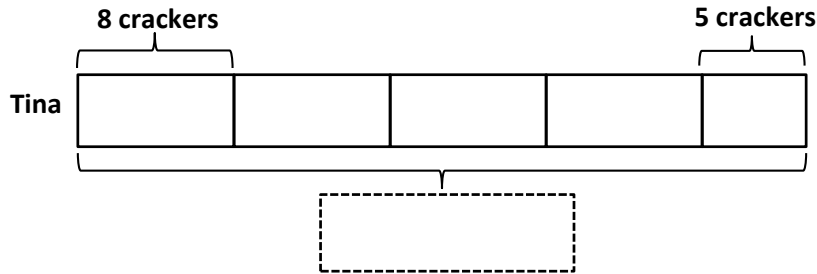
Date \_\_\_\_\_

Ms. Egeregor buys 27 books for her classroom library. She buys an equal number of fiction, nonfiction, and poetry books. She shelves all of the poetry books first. Draw and label a tape diagram to show how many books Ms. Egeregor has left to shelve.

Name \_\_\_\_\_

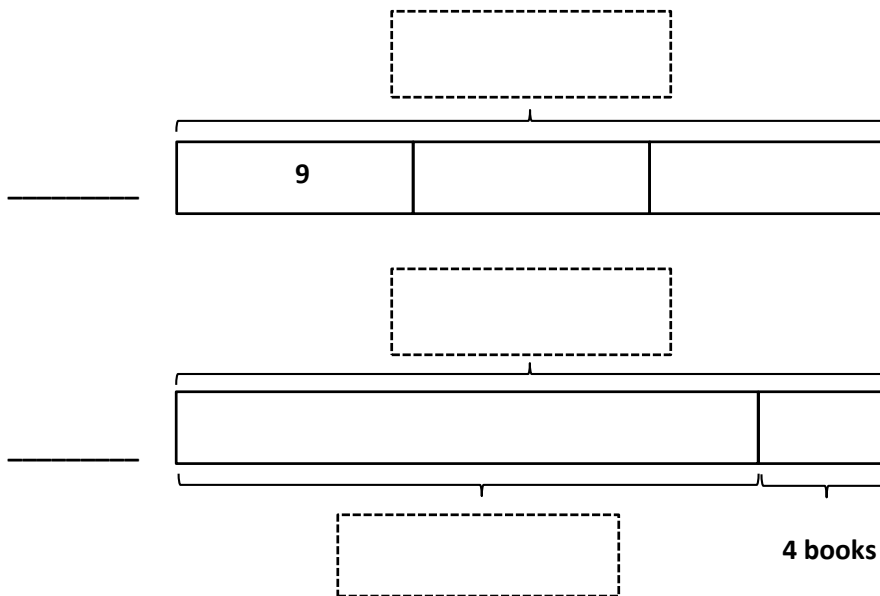
Date \_\_\_\_\_

1. Tina eats 8 crackers for a snack each day at school. On Friday, she drops 3 and only eats 5. Write and solve an equation to show the total number of crackers Tina eats during the week.



Tina eats \_\_\_\_\_ crackers.

2. Ballio has a reading goal. He checks 3 boxes of 9 books out from the library. After finishing them, he realizes that he beat his goal by 4 books! Label the tape diagrams to find Ballio's reading goal.



Ballio's goal is to read \_\_\_\_\_ books.

3. Mr. Nguyen plants 24 trees around the neighborhood pond. He plants equal numbers of maple, pine, spruce, and birch trees. He waters the spruce and birch trees before it gets dark. How many trees does Mr. Nguyen still need to water? Draw and label a tape diagram.

4. Anna buys 24 seeds and plants 3 in each pot. She has 5 pots. How many more pots does Anna need to plant all of her seeds?

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Mr. Lewis arranges all the desks in his classroom into 6 equal groups of 4. How many desks are in his classroom? Show a picture and multiplication sentence in your work.

a. What does the product in your multiplication sentence represent?

b. Fill in the blanks below to complete a related division sentence.

$$\underline{\hspace{2cm}} \div 4 = \underline{\hspace{2cm}}$$

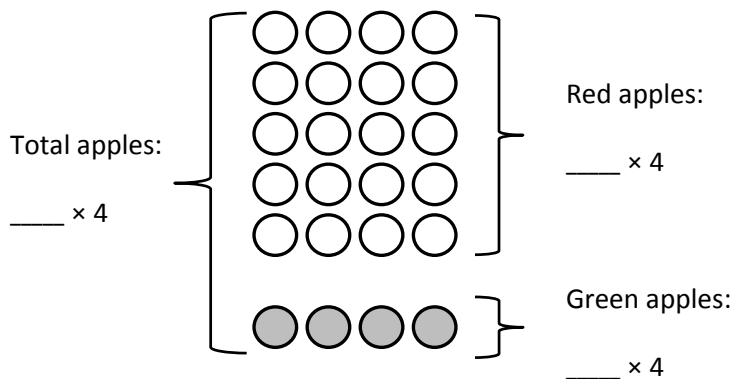
c. What does the quotient in Part (b) represent?

2. a. Draw an array that shows 9 rows of 2. Write a multiplication sentence to represent the array, and circle the factor that represents the number of rows.
- b. Draw another array that shows 2 rows of 9. Write a different multiplication sentence, and circle the factor that represents the size of the row.
- c. Explain the relationship between the two arrays using number sentences and words.



3. Ms. Park buys a tray of apples for a class party. There are 5 rows of 4 red apples. There is 1 row of 4 green apples.

a. The picture below shows Ms. Park’s apples. Fill in the blanks to complete the expressions.



b. Fill in the unknowns in the equation below to match the picture of the apples in Part (a). Use the break apart and distribute strategy to find the total number of apples Ms. Park bought.

$$\underline{\hspace{1cm}} \times 4 = \underline{\hspace{1cm}} \times 4 + \underline{\hspace{1cm}} \times 4$$

Ms. Park bought \_\_\_\_\_ apples.

c. Lilly brings 8 green apples for the class party. Show Lilly’s green apples on the picture in Part (a). Then, fill in the unknowns in the equation below to match the new picture. Solve to find the total number of apples.

$$\underline{\hspace{1cm}} \times 4 = \underline{\hspace{1cm}} \times 4 + \underline{\hspace{1cm}} \times 4$$

There are \_\_\_\_\_ apples in all.

4. Mr. Myer's class plays a game. The class earns 5 points each time they answer a question correctly. The class earns 50 points playing the game on Monday.
- a. How many questions did the class answer correctly? Show a picture and division sentence in your work.
- b. Mr. Myer uses the equation  $5 \times \underline{\quad} = 50$  to find how many questions the class answered correctly. Is his method correct? Why or why not?
- c. The class answered 7 questions correctly on Tuesday. What is the total number of points the class earned on both days?

5. Complete as many problems as you can in 100 seconds. Your teacher will time you and tell you when to stop.

$4 \times 1 = \underline{\quad}$      $3 + 1 = \underline{\quad}$      $10 \times \underline{\quad} = 20$      $2 \times 3 = \underline{\quad}$      $10 \div 5 = \underline{\quad}$

$4 + 2 = \underline{\quad}$      $2 \times \underline{\quad} = 4$      $15 \div 5 = \underline{\quad}$      $10 \times 3 = \underline{\quad}$      $4 \times \underline{\quad} = 12$

$3 \times 3 = \underline{\quad}$      $5 \times \underline{\quad} = 15$      $16 \div 4 = \underline{\quad}$      $2 \times \underline{\quad} = 8$      $10 \times 4 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$      $12 \div 4 = \underline{\quad}$      $4 \times \underline{\quad} = 20$      $5 \times 5 = \underline{\quad}$      $50 \div 10 = \underline{\quad}$

$15 \div 3 = \underline{\quad}$      $2 \times \underline{\quad} = 10$      $24 \div 4 = \underline{\quad}$      $10 \times 6 = \underline{\quad}$      $5 \times \underline{\quad} = 30$

$2 \times 6 = \underline{\quad}$      $4 \times \underline{\quad} = 24$      $35 \div 5 = \underline{\quad}$      $3 \times \underline{\quad} = 21$      $10 \times 7 = \underline{\quad}$

$4 \times 7 = \underline{\quad}$      $14 \div 2 = \underline{\quad}$      $3 \times \underline{\quad} = 24$      $5 \times 8 = \underline{\quad}$      $80 \div 10 = \underline{\quad}$

$32 \div 4 = \underline{\quad}$      $10 \times \underline{\quad} = 80$      $27 \div 3 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $5 \times \underline{\quad} = 45$

End-of-Module Assessment Task  
Standards Addressed

## Topics A–F

**Represent and solve problems involving multiplication and division.**

- 3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*
- 3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*
- 3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Glossary, Table 2.)
- 3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$*

**Understand properties of multiplication and the relationship between multiplication and division.**

- 3.OA.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)*
- 3.OA.6** Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

**Multiply and divide within 100.**

- 3.OA.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

**Solve problems involving the four operations, and identify and explain patterns in arithmetic.**

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using the mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order, i.e., Order of Operations.)

### Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left (Step 1) to right (Step 4) for Problems 1–4. The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the students CAN do now, and what they need to work on next. Problem 5 is scored differently since it is a timed assessment of fluency. Students complete as many problems as they can in 2 minutes. Although this page of the assessment contains 40 questions, answering 30 correct within the time limit is considered passing.

A Progression Toward Mastery				
Assessment Task Item and Standards Addressed	STEP 1 Little evidence of reasoning without a correct answer.  (1 Point)	STEP 2 Evidence of some reasoning without a correct answer.  (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer.  (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer.  (4 Points)
<p><b>1</b></p> <p><b>3.OA.1</b> <b>3.OA.2</b> <b>3.OA.3</b> <b>3.OA.4</b></p>	<p>Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student answers at least one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Finds the incorrect total number of desks.</li> <li>▪ Does not show understanding of the meaning of the product.</li> <li>▪ Places the numbers incorrectly in the division sentence.</li> <li>▪ Does not show understanding of the meaning of the quotient.</li> </ul>	<p>Student answers at least two questions correctly. Mistakes may include the following:</p> <ul style="list-style-type: none"> <li>▪ Finds the correct total number of desks but does not draw an accurate picture.</li> <li>▪ Incorrectly completes the related division sentence but understands that the quotient represents the number of groups.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Draws a picture, calculates the total number of desks, 24, and writes a multiplication sentence (<math>6 \times 4 = 24</math> or <math>4 \times 6 = 24</math>).</li> <li>▪ Explains that the product, 24, represents the total number of desks.</li> <li>▪ Fills in the blanks to complete the related division sentence (<math>24 \div 4 = 6</math>).</li> <li>▪ Explains that the quotient, 6, represents the number of groups.</li> </ul>



A Progression Toward Mastery				
<p><b>2</b></p> <p><b>3.OA.3</b> <b>3.OA.5</b></p>	<p>Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student answers at least one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Draws incorrect arrays in Part (a) and/or in Part (b).</li> <li>▪ Writes an incorrect multiplication sentence in either Part (a) or Part (b). Inaccurately explains the relationship between the two arrays.</li> </ul>	<p>Student answers at least two questions correctly. Mistakes may include the following:</p> <ul style="list-style-type: none"> <li>▪ Incorrectly circles 2 in Part (a) or Part (b).</li> <li>▪ Explanation of the relationship between the two arrays includes some inaccuracies.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Draws an array with 9 rows of 2, writes a multiplication sentence (<math>9 \times 2 = 18</math> or <math>2 \times 9 = 18</math>), and circles 9.</li> <li>▪ Draws an array with 2 rows of 9, writes a different multiplication sentence (<math>2 \times 9 = 18</math> or <math>9 \times 2 = 18</math>), and circles 9.</li> <li>▪ Provides an accurate explanation of the commutative property in Part (c).</li> </ul>
<p><b>3</b></p> <p><b>3.OA.3</b> <b>3.OA.5</b></p>	<p>Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student answers at least one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Incorrectly fills in the blanks in the expressions in Part (a).</li> <li>▪ Incorrectly fills in the unknowns in Part (b) and/or in Part (c).</li> <li>▪ Inaccurately shows Lilly's 8 apples in the picture in Part (a).</li> </ul>	<p>Student answers at least two questions correctly. Mistakes may include the following:</p> <ul style="list-style-type: none"> <li>▪ Incorrectly fills in the blank for the total apples in Part (a).</li> <li>▪ Correctly fills in the unknowns in Part (b) and/or Part (c) but incorrectly calculates the total number of apples.</li> <li>▪ Correctly calculates the total number of apples in Part (b) but does not use the distributive property.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Fills in the blanks to complete the expressions in Part (a). (Total apples: <math>6 \times 4</math>, red apples: <math>5 \times 4</math>, and green apples: <math>1 \times 4</math>.)</li> <li>▪ Fills in the unknowns in the equation (6, 5, 1) and uses the distributive property to calculate the total number of apples as 24.</li> <li>▪ Draws two more rows of green apples in the array in Part (a), fills in the unknowns (8, 5, 3), and calculates the total number of apples as 32.</li> </ul>

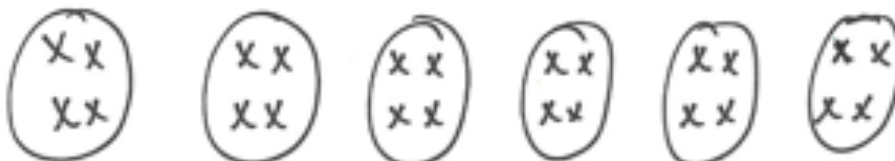


A Progression Toward Mastery				
<p><b>4</b></p> <p><b>3.OA.3</b> <b>3.OA.6</b> <b>3.OA.8</b></p>	<p>Student is unable to answer any question correctly. The attempt shows the student may not understand the meaning of the questions.</p>	<p>Student answers at least one question correctly. Mistakes may include those listed in the box to the right, and/or:</p> <ul style="list-style-type: none"> <li>▪ Draws an inaccurate picture.</li> <li>▪ Writes an incorrect division sentence.</li> <li>▪ Identifies that Mr. Myer’s method is correct but explanation includes inaccuracies. Incorrectly calculates the total number of points earned on both days in Part (c).</li> </ul>	<p>Student answers at least two questions correctly. Mistakes may include the following:</p> <ul style="list-style-type: none"> <li>▪ Explanation for Part (b) includes some limitations but no inaccuracies.</li> <li>▪ Correctly calculates the number of points earned on Tuesday but does not find the total for both days.</li> </ul>	<p>Student correctly:</p> <ul style="list-style-type: none"> <li>▪ Draws a picture, and writes a division sentence and calculates the number of questions (<math>50 \div 5 = 10</math>).</li> <li>▪ Explains division as an unknown factor problem in Part (b).</li> <li>▪ Calculates the total number of points the class earned on both days in Part (c) as 85.</li> </ul>
<p><b>5</b></p> <p><b>3.OA.7</b></p>	<p>Use the attached sample work to correct students’ answers on the fluency page of the assessment. Students who answer 30 or more questions correctly within the allotted time pass this portion of the assessment. They are ready to move on to the more complicated fluency page given with the Module 2 End-of-Module Assessment. For students who do not pass, you may choose to re-administer this fluency page with each subsequent End-of-Module Assessment until they are successful.</p> <p>Analyze the mistakes students make on this assessment to further guide your fluency instruction. Possible questions to ask as you analyze are:</p> <ul style="list-style-type: none"> <li>▪ Did this student struggle with multiplication, division, or both?</li> <li>▪ Did this student struggle with a particular factor?</li> <li>▪ Did this student consistently miss problems with the unknown in a particular position?</li> </ul>			

Name Gina

Date \_\_\_\_\_

1. Mr. Lewis arranges all the desks in his classroom into 6 equal groups of 4. How many desks are in his classroom? Show a picture and multiplication sentence in your work.



$$6 \times 4 = 24$$

There are 24 desks  
in his classroom.

- a. What does the product in your multiplication sentence represent?

The product is 24 and it represents the total number of desks.

- b. Fill in the blanks below to complete a related division sentence.

$$\underline{24} \div 4 = \underline{6}$$

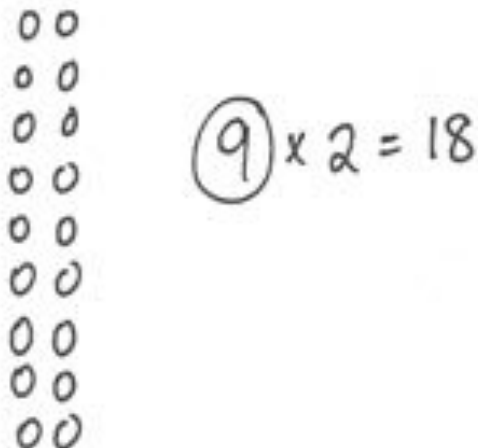
- c. What does the quotient in part (b) represent?

The quotient is 6 and it represents the number of equal groups of desks.

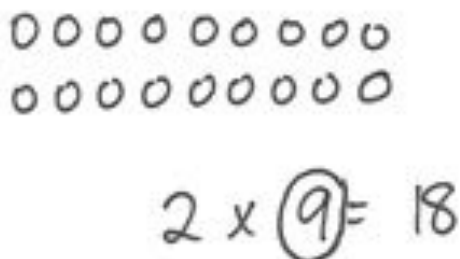


2.

- a. Draw an array that shows 9 rows of 2. Write a multiplication sentence to represent the array, and circle the factor that represents the number of rows.



- b. Draw another array that shows 2 rows of 9. Write a different multiplication sentence and circle the factor that represents the size of the row.

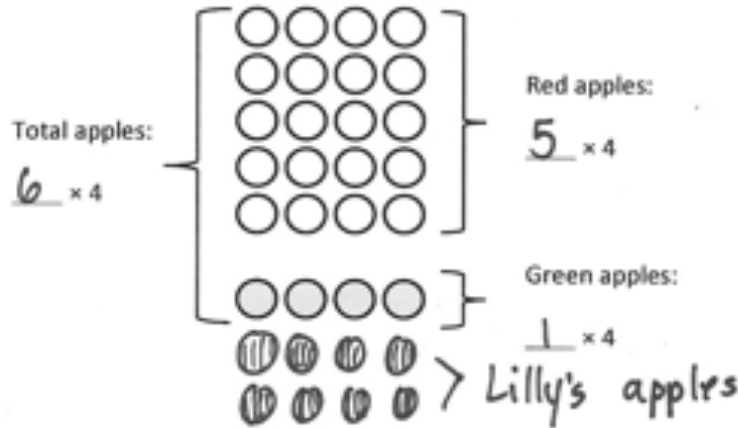


- c. Explain the relationship between the two arrays using number sentences and words.

The arrays have the same totals, 18 and they have the same factors, 2 and 9. The factors switch places. In  $9 \times 2 = 18$ , the 9 is the number of rows, but in  $2 \times 9 = 18$ , the 9 is the size of the row. It's the commutative property!

3. Ms. Park buys a tray of apples for a class party. There are 5 rows of 4 red apples. There is 1 row of 4 green apples.

a. The picture below shows Ms. Park’s apples. Fill in the blanks to complete the expressions.



b. Fill in the unknowns in the equation below to match the picture of the apples in part (a). Use the break apart and distribute strategy to find the total number of apples Ms. Park bought.

$$\underline{6} \times 4 = \underline{5} \times 4 + \underline{1} \times 4$$

$$6 \times 4 = 20 + 4$$

$$6 \times 4 = 24$$

Ms. Park bought 24 apples.

c. Lilly brings 8 green apples for the class party. Show Lilly’s green apples on the picture in part (a). Then, fill in the unknowns in the equation below to match the new picture. Solve to find the total number of apples.

$$\underline{8} \times 4 = \underline{5} \times 4 + \underline{3} \times 4$$

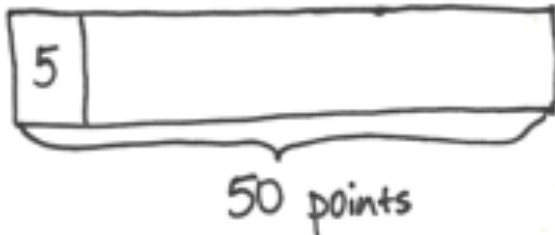
$$8 \times 4 = 20 + 12$$

$$8 \times 4 = 32$$

There are 32 apples in all.

4. Mr. Myer’s class plays a game. The class earns 5 points each time they answer a question correctly. The class earns 50 points playing the game on Monday.

a. How many questions did the class answer correctly? Show a picture and division sentence in your work.



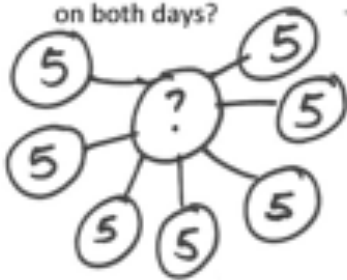
$$50 \div 5 = 10$$

The class answered 10 questions correctly.

b. Mr. Myer uses the equation  $5 \times \underline{\quad} = 50$  to find how many questions the class answered correctly. Is his method correct? Why or why not?

Yes, his method is correct. I solved using division, but he is solving using multiplication. The blank shows he is looking for a factor.  $5 \times 10 = 50$ , so he gets the same answer as  $50 \div 5 = 10$ . Both show the class answered 10 questions correctly.

c. The class answered 7 questions correctly Tuesday. What is the total number of points the class earned on both days?



$$7 \times 5 = 35$$



$$35 + 50 = 85$$

The class earned 85 points on both days.

5. Complete as many problems as you can in 100 seconds. Your teacher will time you and tell you when to stop.

$4 \times 1 = \underline{4}$      $3 \div 1 = \underline{3}$      $10 \times \underline{2} = 20$      $2 \times 3 = \underline{6}$      $10 \div 5 = \underline{2}$

$4 \div 2 = \underline{2}$      $2 \times \underline{2} = 4$      $15 \div 5 = \underline{3}$      $10 \times 3 = \underline{30}$      $4 \times \underline{3} = 12$

$3 \times 3 = \underline{9}$      $5 \times \underline{3} = 15$      $16 \div 4 = \underline{4}$      $2 \times \underline{4} = 8$      $10 \times 4 = \underline{40}$

$2 \times 4 = \underline{8}$      $12 \div 4 = \underline{3}$      $4 \times \underline{5} = 20$      $5 \times 5 = \underline{25}$      $50 \div 10 = \underline{5}$

$15 \div 3 = \underline{5}$      $2 \times \underline{5} = 10$      $24 \div 4 = \underline{6}$      $10 \times 6 = \underline{60}$      $5 \times \underline{6} = 30$

$2 \times 6 = \underline{12}$      $4 \times \underline{6} = 24$      $35 \div 5 = \underline{7}$      $3 \times \underline{7} = 21$      $10 \times 7 = \underline{70}$

$4 \times 7 = \underline{28}$      $14 \div 2 = \underline{7}$      $3 \times \underline{8} = 24$      $5 \times 8 = \underline{40}$      $80 \div 10 = \underline{8}$

$32 \div 4 = \underline{8}$      $10 \times \underline{8} = 80$      $27 \div 3 = \underline{9}$      $2 \times 9 = \underline{18}$      $5 \times \underline{9} = 45$



## Answer Key

# GRADE 3 • MODULE 1

## Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10

## Lesson 1

### Problem Set

- 15; 15; 15
  - 15; 15; 15
  - 24; 4, 24; 6, 24
  - 4, 4, 4, 4, 24; 4, 24; 4, 24
- No; explanations will vary.
- 2 equal groups of 3 apples
- Chocolates circled to show 3 groups of 4;  $4 + 4 + 4 = 12$ ;  $3 \times 4 = 12$  or  $4 \times 3 = 12$

### Exit Ticket

- 2, 2, 2, 8; 2, 8
- Picture showing  $3 + 3 + 3 = 9$  drawn;  $3 \times 3 = 9$

### Homework

- 20; 20; 20
  - 20; 20; 20
  - 18; 3, 18; 6, 18
  - 3, 3, 3, 3, 18; 3, 18; 3, 18
- Yes; explanations will vary.
- Picture showing  $4 \times 2 = 8$  drawn
- Pencils circled to show 3 groups of 6;  $6 + 6 + 6 = 18$ ;  $3 \times 6 = 18$  or  $6 \times 3 = 18$

## Lesson 2

### Sprint

#### Side A

- |        |        |        |         |
|--------|--------|--------|---------|
| 1. 2   | 12. 16 | 23. 6  | 34. 88  |
| 2. 4   | 13. 14 | 24. 8  | 35. 66  |
| 3. 6   | 14. 12 | 25. 10 | 36. 44  |
| 4. 8   | 15. 10 | 26. 12 | 37. 22  |
| 5. 10  | 16. 8  | 27. 14 | 38. 0   |
| 6. 12  | 17. 6  | 28. 16 | 39. 22  |
| 7. 14  | 18. 4  | 29. 18 | 40. 44  |
| 8. 16  | 19. 2  | 30. 20 | 41. 66  |
| 9. 18  | 20. 0  | 31. 22 | 42. 88  |
| 10. 20 | 21. 2  | 32. 44 | 43. 666 |
| 11. 18 | 22. 4  | 33. 66 | 44. 444 |

#### Side B

- |        |        |        |         |
|--------|--------|--------|---------|
| 1. 2   | 12. 16 | 23. 6  | 34. 88  |
| 2. 4   | 13. 14 | 24. 8  | 35. 66  |
| 3. 6   | 14. 12 | 25. 10 | 36. 44  |
| 4. 8   | 15. 10 | 26. 12 | 37. 22  |
| 5. 10  | 16. 8  | 27. 14 | 38. 0   |
| 6. 12  | 17. 6  | 28. 16 | 39. 22  |
| 7. 14  | 18. 4  | 29. 18 | 40. 44  |
| 8. 16  | 19. 2  | 30. 20 | 41. 66  |
| 9. 18  | 20. 0  | 31. 22 | 42. 88  |
| 10. 20 | 21. 2  | 32. 44 | 43. 444 |
| 11. 18 | 22. 4  | 33. 66 | 44. 666 |

**Problem Set**

1. a. 4  
b. 2
2. a. 3  
b. 6
3. a. 8  
b.  $2 \times 4$
4. a. 4  
b.  $5 \times 4$
5. a. 2 rows of 5 drawn  
b. Answers will vary.
6. 4 rows of 3 drawn;  $4 \times 3 = 12$
7. 5 rows of 3 drawn;  $5 \times 3 = 15$

**Exit Ticket**

1. a. 3  
b.  $4 \times 3 = 12$
2. 3 rows of 6 drawn;  $3 \times 6 = 18$

**Homework**

1. a. 3  
b. 2
2. a. 4  
b. 3
3. a. 15  
b.  $5 \times 3$
4. a. 4  
b.  $6 \times 4$
5. a. 3 rows of 4 drawn  
b. Answers will vary.
6. 5 rows of 4 drawn;  $5 \times 4 = 20$
7. Answers will vary.



## Lesson 3

### Sprint

#### Side A

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 4   | 12. 20 | 23. 14 | 34. 12 |
| 2. 4   | 13. 8  | 24. 14 | 35. 20 |
| 3. 10  | 14. 8  | 25. 18 | 36. 20 |
| 4. 10  | 15. 6  | 26. 18 | 37. 18 |
| 5. 6   | 16. 6  | 27. 16 | 38. 18 |
| 6. 6   | 17. 12 | 28. 16 | 39. 24 |
| 7. 8   | 18. 12 | 29. 9  | 40. 24 |
| 8. 8   | 19. 10 | 30. 9  | 41. 21 |
| 9. 15  | 20. 10 | 31. 12 | 42. 21 |
| 10. 15 | 21. 25 | 32. 12 | 43. 27 |
| 11. 20 | 22. 25 | 33. 12 | 44. 27 |

#### Side B

- |       |        |        |        |
|-------|--------|--------|--------|
| 1. 10 | 12. 8  | 23. 16 | 34. 9  |
| 2. 10 | 13. 6  | 24. 16 | 35. 20 |
| 3. 4  | 14. 6  | 25. 14 | 36. 20 |
| 4. 4  | 15. 12 | 26. 14 | 37. 21 |
| 5. 15 | 16. 12 | 27. 18 | 38. 21 |
| 6. 15 | 17. 8  | 28. 18 | 39. 27 |
| 7. 20 | 18. 8  | 29. 12 | 40. 27 |
| 8. 20 | 19. 25 | 30. 12 | 41. 18 |
| 9. 6  | 20. 25 | 31. 12 | 42. 18 |
| 10. 6 | 21. 10 | 32. 12 | 43. 24 |
| 11. 8 | 22. 10 | 33. 9  | 44. 24 |

**Problem Set**

- 4; 5
  - 20
  - 20
- 3
  - 6; 3
  - 3, 18
  - 18
- 3
  - 3; 4
  - 3, 12
  - 12
- 2
  - 5; 2
  - 5, 2, 10
  - 10
- $4 \times 3 = 12$
  - Number bond showing 4 units of 3 equals 12 drawn
- Array showing 2 rows of 3 or 3 rows of 2 drawn; number bond drawn depending on the array, showing 2 units of 3 equals 6 or 3 units of 2 equals 6

**Exit Ticket**

Array showing 5 rows of 3 squares drawn; number bond showing 5 units of 3 equals 15 drawn

**Homework**

- 5; 5
  - 25
  - 25
- 4
  - 6; 4
  - 4, 24
  - 24
- 4
  - 4; 4
  - 4, 16
  - 16
- 3
  - 6; 3
  - 6, 3, 18
  - 18
- Array showing 4 rows of 2 or 2 rows of 4 drawn; number bond drawn depending on the array, showing 4 units of 2 equals 8 or 2 units of 4 equals 8

## Lesson 4

### Sprint

#### Side A

- |       |        |        |        |
|-------|--------|--------|--------|
| 1. 15 | 12. 8  | 23. 12 | 34. 18 |
| 2. 15 | 13. 10 | 24. 12 | 35. 18 |
| 3. 15 | 14. 10 | 25. 12 | 36. 18 |
| 4. 6  | 15. 10 | 26. 9  | 37. 12 |
| 5. 6  | 16. 6  | 27. 9  | 38. 12 |
| 6. 6  | 17. 6  | 28. 15 | 39. 12 |
| 7. 10 | 18. 6  | 29. 15 | 40. 16 |
| 8. 10 | 19. 20 | 30. 15 | 41. 16 |
| 9. 10 | 20. 20 | 31. 14 | 42. 16 |
| 10. 8 | 21. 20 | 32. 14 | 43. 28 |
| 11. 8 | 22. 4  | 33. 14 | 44. 28 |

#### Side B

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 6   | 12. 10 | 23. 12 | 34. 16 |
| 2. 6   | 13. 6  | 24. 12 | 35. 16 |
| 3. 6   | 14. 6  | 25. 12 | 36. 16 |
| 4. 15  | 15. 6  | 26. 16 | 37. 14 |
| 5. 15  | 16. 10 | 27. 16 | 38. 14 |
| 6. 15  | 17. 10 | 28. 20 | 39. 14 |
| 7. 8   | 18. 10 | 29. 20 | 40. 18 |
| 8. 8   | 19. 20 | 30. 20 | 41. 18 |
| 9. 8   | 20. 20 | 31. 12 | 42. 18 |
| 10. 10 | 21. 20 | 32. 12 | 43. 24 |
| 11. 10 | 22. 4  | 33. 12 | 44. 24 |

**Problem Set**

1. 7
2. 7
3. 3; 10
4. 12, 2; 6; 6
5. 5; 5
6. 3
7. 6; 6
8. Four apples drawn in each basket; 4; 5, 4
9. 3; 15, 5, 3

**Exit Ticket**

1. Four glue sticks drawn in each group; 4; 4, 4
2. Picture showing  $15 \div 3$  drawn; 5

**Homework**

1. 6
2. 7
3. 5; 5
4. 9, 3; 3; 3
5. 3; 3
6. 4
7. 7; 7
8. Five pencils drawn on each table; 5; 4, 5
9. 4; 20, 5, 4

## Lesson 5

### Problem Set

- 2
- Four groups of 2 shown; 4; 4
- Two groups of 5 shown; 2
- 4 groups of 3 shown; 4; 4
- Three groups of 3 circled
  - $9 \div 3 = 3$
  - Number bond showing 3 units of 3 equals 9 drawn
- Count-by fours from 4 to 16 written and drawn
  - $16 \div 4 = 4$

### Exit Ticket

- Two groups of 6 shown; 2
- Count-by fives from 5 to 20 written and drawn

### Homework

- Answer given; 2
- Three groups of 3 shown; 3; 3
- Four groups of 3 shown; 4
- Three groups of 5 shown; 3; 3
- Two groups of 6 circled
  - $12 \div 6 = 2$
  - Number bond showing 2 units of 6 equals 12 drawn
- Count-by fours from 4 to 24 written and drawn
  - $24 \div 4 = 6$

## Lesson 6

### Problem Set

- Five groups of 3 circled; 5; 5; 5
- Five groups of 3 drawn and circled; 3; 3; 3
- Array of 5 rows of 3 drawn
  - 5; 5; the number of groups
  - 3; 3; the size of each group
- 3; 3; the number of groups
- 3; 3; answers will vary
- Array of 4 rows of 3 drawn

### Exit Ticket

Array of 2 rows of 6 drawn; 2; 2; the number of groups

### Homework

- Three groups of 4 circled; 3; 3; 3
- Three groups of 4 drawn and circled; 4; 4; 4
- Array of 3 rows of 4 drawn
  - 3; 3; the number of groups
  - 4; 4; the size of each group
- 6; 6; the size of each group
- 3; 3; answers will vary
- Array of 3 rows of 5 drawn

## Lesson 7

### Problem Set

- Array of 6 rows of 2 drawn
  - 6, 2, 12
- Array of 2 rows of 6 drawn
  - 2, 6, 12
- Same array in Problem 1 turned on its side in Problem 2
  - The meaning of the factors switched; 2 represents size of each group, and 6 represents number of groups in Problem 1; 2 represents number of groups, and 6 represents size of each group in Problem 2
- Answer provided
  - $2 \times 6 = 12$
  - $7 \times 2 = 14$
  - $2 \times 7 = 14$
  - $9 \times 2 = 18$
  - $2 \times 9 = 18$
  - $11 \times 2 = 22$
  - $2 \times 12 = 24$
- $4 \times 2 = 8$ ;  $2 \times 4 = 8$
- Agree; array of 7 rows of 2 and array of 2 rows of 7 drawn
- 5; 2; 10; 9
- Array of 2 rows of 6 drawn
  - $2 \times 6 = 12$
  - $6 \times 2 = 12$

### Exit Ticket

Agree; array of 2 rows of 5 and array of 5 rows of 2 drawn; skip-counts by fives or twos, depending on the array, written to show a total of 10 each

**Homework**

1.
  - a. Array of 7 rows of 2 drawn
  - b. 7, 2, 14
2.
  - a. Array of 2 rows of 7 drawn
  - b. 2, 7, 14
3.
  - a. Same array in Problem 1 turned on its side in Problem 2
  - b. The meaning of the factors switched; 2 represents size of each group, and 7 represents number of groups in Problem 1; 2 represents number of groups, and 7 represents size of each group in Problem 2
4.
  - a. Answer provided.
  - b.  $3 \times 2 = 6$
  - c.  $2 \times 3 = 6$
  - d.  $2 \times 4 = 8$
  - e.  $4 \times 2 = 8$
  - f.  $5 \times 2 = 10$
  - g.  $2 \times 5 = 10$
  - h.  $6 \times 2 = 12$
  - i.  $2 \times 6 = 12$
5.  $6 \times 2 = 12$ ;  $2 \times 6 = 12$
6. Agree; array of 2 rows of 8 and array of 8 rows of 2 drawn
7. 2; 7; 2; 10
8.
  - a. Array of 2 rows of 7 drawn
  - b.  $2 \times 7 = 14$
  - c.  $7 \times 2 = 14$



## Lesson 8

### Problem Set

- Array of 5 rows of 3 drawn
- Array of 3 rows of 5 drawn
- 5; 3; 3; 5
- Answer provided
  - $3 \times 2 = 6$
  - $3 \times 4 = 12$
  - $4 \times 3 = 12$
  - $3 \times 7 = 21$
  - $7 \times 3 = 21$
  - $3 \times 9 = 27$
  - $9 \times 3 = 27$
  - $10 \times 3 = 30$
- 15, matched with Part (e), 15
  - 27, matched with Part (f), 3
  - 24, matched with Part (d), 24
- Array of 7 rows of 3 drawn
  - $7 \times 3 = 21$ ; Isaac picks 21 tangerines in 7 days.
  - 3 rows of 3 x's added to array in Part (a)
  - $10 \times 3 = 30$
- 3, \$2, 6
  - 6, \$2, 12

### Exit Ticket

- Array of 3 rows of 4 drawn
- $3 \times 4 = 12$
- Rows of array labeled 4, 8, 12
- $4 \times 3 = 12$

**Homework**

1. Array of 6 rows of 3 drawn
2. Array of 3 rows of 6 drawn
3. 6; 3; 3; 6
4.
  - a. Answer provided
  - b.  $3 \times 5 = 15$
  - c.  $6 \times 3 = 18$
  - d.  $3 \times 6 = 18$
  - e.  $7 \times 3 = 21$
  - f.  $3 \times 7 = 21$
  - g.  $8 \times 3 = 24$
  - h.  $3 \times 9 = 27$
  - i.  $10 \times 3 = 30$
5.
  - a. 18, matched with Part (e), 18
  - b. 15, matched with Part (f), 3
  - c. 27, matched with Part (d), 27
6.
  - a. Array of 8 rows of 3 circles drawn
  - b.  $8 \times 3 = 24$ . Fernando uses 24 pictures.
  - c. 2 rows of 3 x's added to array in Part (a)
  - d.  $10 \times 3 = 30$
7.
  - a. 4, 3 cents, 12
  - b. 7, 3 cents, 21

## Lesson 9

### Pattern Sheet

2	4	6	8
10	2	4	2
6	2	8	2
10	2	4	6
4	8	4	10
4	2	4	6
2	6	4	6
8	6	10	6
8	2	8	4
8	6	8	10
8	10	2	10
4	10	6	10
8	4	8	6
10	6	4	8
6	10	4	8

### Problem Set

- 25
  - 3, 5
  - 5, 25
- 14; 10; 4; 14; 7
- 18; 20; 2; 2; 18
- Array of 4 rows of 3 x's drawn
  - 12
- 2 rows of 3 circles added to array in Problem 4(a)
  - 2, 6
  - 12, 6
  - 6, 3

**Exit Ticket**

- 10, 2, 20
- 10, 2, 8
  - 4
  - 8, 16

**Homework**

- 20
  - 2, 5
  - 5, 20
- 14; 12; 2; 14; 7
- 27; 30; 3; 3; 9
- Array of 5 rows of 4 x's drawn
  - 20
- 2 rows of 4 circles added to array in Problem 4
  - 2, 8
  - 20, 8
  - 7

## Lesson 10

### Pattern Sheet

2	4	6	8
10	12	14	16
18	20	10	12
10	14	10	16
10	18	10	20
12	10	12	14
12	16	12	18
12	14	12	14
16	14	18	14
16	12	16	14
16	18	18	12
18	14	18	16
18	16	12	18
14	18	12	16
18	14	12	16

### Problem Set

- 21; 6; 6; 6, 21
- 24; 4, 12; 4, 12; 12, 12; 8, 24
- Array of 2 rows of 3 shown in upper album, 2; array of 3 rows of 3 shown in lower album, 3
  - $5 \times 3$  broken into two smaller facts:  $2 \times 3 = 6$  and  $3 \times 3 = 9$ ; answers of two smaller facts added:  
 $6 + 9$ ;  $5 \times 3 = 6 + 9 = 15$

### Exit Ticket

- 18; 12; 6; 12, 6; 12, 6; 6, 18
- 21; 5, 15; 2, 6; 15, 6; 15, 6; 7, 21

**Homework**

1. 18; 6; 6, 18; 18
2. 16; 4, 8; 4, 8; 8, 8; 8, 16
3.
  - a. Array of 5 rows of 3 shown on top shelf, 5; array of 1 row of 3 shown on bottom shelf, 1
  - b.  $6 \times 3$  broken into two smaller facts:  $5 \times 3 = 15$  and  $1 \times 3 = 3$ ; answers of two smaller facts added:  
 $15 + 3$ ;  $6 \times 3 = 15 + 3 = 18$

## Lesson 11

### Pattern Sheet

3	6	9	12
15	3	6	3
9	3	12	3
15	3	6	9
6	12	6	15
6	3	6	9
3	9	6	9
12	9	15	9
12	3	12	6
12	9	12	15
12	15	3	15
6	15	9	15
12	6	12	9
15	9	6	12
9	15	6	12

### Problem Set

- Array drawn showing 2 columns of 6; 12, 6
  - 2 oranges drawn in each unit; unit labeled 2 oranges; whole labeled 12 oranges and/or ? bags
- 3; array drawn showing 6 columns of 3; tape diagram drawn showing 6 groups of 3 is 18
- 2; array drawn showing 7 columns of 2; tape diagram drawn showing 7 groups of 2 is 14
- 3; array drawn showing 8 columns of 3; tape diagram drawn showing 8 groups of 3 is 24
- 8

### Exit Ticket

9; array and tape diagram drawn showing 9 groups of 2 is 18

**Homework**

1. a. Array drawn showing 2 rows of 5; 10, 5  
b. 2 pears drawn in each unit; unit labeled 2 pears; whole labeled 10 pears and/or ? baskets
2. 5; array drawn showing 3 columns of 5; tape diagram drawn showing 3 groups of 5 is 15
3. 8; array drawn showing 2 columns of 8; tape diagram drawn showing 2 groups of 8 is 16
4. 6; array drawn showing 3 columns of 6; tape diagram drawn showing 3 groups of 6 is 18
5. 7



## Lesson 12

### Pattern Sheet

3	6	9	12
15	18	21	24
27	30	15	18
15	21	15	24
15	27	15	30
18	15	18	21
18	24	18	27
18	21	18	21
24	21	27	21
24	18	24	21
24	27	27	18
27	21	27	24
27	24	18	27
21	27	18	24
27	21	18	24

### Problem Set

- 4 groups of 2 birds circled; 4; 4
- 2 fish drawn in each bowl; 2; 2; 2
- First rabbit matched to 5  
Second rabbit matched to 8  
Third rabbit matched to 9  
Fourth rabbit matched to 7  
Fifth rabbit matched to 6
- 7; labels will vary.
- 6
- \$9

### Exit Ticket

7; tape diagram drawn and labeled to represent the problem

**Homework**

1. 5 groups of 2 people circled; 5; 5
2. 2 frogs drawn in each group;  
labels will vary; 2; 2; 2
3. First frog matched to 5  
Second frog matched to 8  
Third frog matched to 9  
Fourth frog matched to 7
4. 8; labels will vary.
5. 7
6. \$8

## Lesson 13

### Sprint

#### Side A

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 4   | 12. 14 | 23. 10 | 34. 8  |
| 2. 6   | 13. 16 | 24. 2  | 35. 7  |
| 3. 8   | 14. 18 | 25. 3  | 36. 9  |
| 4. 10  | 15. 20 | 26. 10 | 37. 6  |
| 5. 2   | 16. 8  | 27. 5  | 38. 8  |
| 6. 2   | 17. 7  | 28. 2  | 39. 22 |
| 7. 3   | 18. 9  | 29. 2  | 40. 11 |
| 8. 5   | 19. 6  | 30. 3  | 41. 24 |
| 9. 2   | 20. 10 | 31. 6  | 42. 12 |
| 10. 4  | 21. 5  | 32. 7  | 43. 28 |
| 11. 12 | 22. 6  | 33. 9  | 44. 14 |

#### Side B

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 2   | 12. 12 | 23. 2  | 34. 7  |
| 2. 4   | 13. 14 | 24. 10 | 35. 8  |
| 3. 6   | 14. 16 | 25. 3  | 36. 9  |
| 4. 8   | 15. 18 | 26. 2  | 37. 6  |
| 5. 10  | 16. 7  | 27. 2  | 38. 7  |
| 6. 3   | 17. 6  | 28. 10 | 39. 22 |
| 7. 2   | 18. 8  | 29. 5  | 40. 11 |
| 8. 4   | 19. 10 | 30. 3  | 41. 24 |
| 9. 2   | 20. 9  | 31. 6  | 42. 12 |
| 10. 5  | 21. 6  | 32. 8  | 43. 26 |
| 11. 20 | 22. 5  | 33. 9  | 44. 13 |

**Problem Set**

1. Top row: 1; 2; 9; 12, 12; 15, 15  
Bottom row: 18, 18; 21, 21; 24, 24; 27, 27; 30, 30
2. a. 4 groups of 3 circled; skip-count written as 3, 6, 9, 12  
b. Tape diagram drawn and labeled to represent problem; 12, 4; 4
3. 5; tape diagram drawn and labeled to represent problem
4. 10
5. 8

**Exit Ticket**

1. 7; tape diagram drawn and labeled to represent problem
2. 8

**Homework**

1. 2; 3, 3; 21, 21; 27, 27
2. a. 5 groups of 3 circled; skip-count written as 3, 6, 9, 12, 15  
b. Tape diagram drawn and labeled to represent problem; 15, 5; 5
3. 6
4. 8
5. 9

## Lesson 14

### Sprint

#### Side A

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 6   | 12. 21 | 23. 10 | 34. 8  |
| 2. 9   | 13. 24 | 24. 2  | 35. 7  |
| 3. 12  | 14. 27 | 25. 3  | 36. 9  |
| 4. 15  | 15. 30 | 26. 10 | 37. 6  |
| 5. 3   | 16. 8  | 27. 5  | 38. 8  |
| 6. 2   | 17. 7  | 28. 3  | 39. 33 |
| 7. 3   | 18. 9  | 29. 2  | 40. 11 |
| 8. 5   | 19. 6  | 30. 3  | 41. 36 |
| 9. 3   | 20. 10 | 31. 6  | 42. 12 |
| 10. 4  | 21. 5  | 32. 7  | 43. 39 |
| 11. 18 | 22. 4  | 33. 9  | 44. 13 |

#### Side B

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 3   | 12. 18 | 23. 2  | 34. 7  |
| 2. 6   | 13. 21 | 24. 10 | 35. 8  |
| 3. 9   | 14. 24 | 25. 3  | 36. 9  |
| 4. 12  | 15. 27 | 26. 2  | 37. 6  |
| 5. 15  | 16. 7  | 27. 3  | 38. 7  |
| 6. 3   | 17. 6  | 28. 10 | 39. 33 |
| 7. 2   | 18. 8  | 29. 5  | 40. 11 |
| 8. 4   | 19. 10 | 30. 3  | 41. 36 |
| 9. 3   | 20. 9  | 31. 6  | 42. 12 |
| 10. 5  | 21. 4  | 32. 8  | 43. 39 |
| 11. 30 | 22. 5  | 33. 9  | 44. 13 |

**Problem Set**

- 12, 16, 20, 24, 28, 32, 36, 40  
Answer provided; 8 matched to  $2 \times 4$ ; 12 matched to  $3 \times 4$ ; 16 matched to  $4 \times 4$ ; 20 matched to  $5 \times 4$ ;  
24 matched to  $6 \times 4$ ; 28 matched to  $7 \times 4$ ; 32 matched to  $8 \times 4$ ; 36 matched to  $9 \times 4$ ;  
40 matched to  $10 \times 4$
- Tape diagram drawn and labeled to represent problem; 28
- Tape diagram drawn and labeled to show 24 beads used
- 20

**Exit Ticket**

24; tape diagram drawn and labeled to represent problem

**Homework**

- 8, 12, 16, 20, 24, 28, 32, 36, 40  
Answer provided; 8 matched to  $2 \times 4$ ; 12 matched to  $3 \times 4$ ; 16 matched to  $4 \times 4$ ; 20 matched to  $5 \times 4$ ;  
24 matched to  $6 \times 4$ ; 28 matched to  $7 \times 4$ ; 32 matched to  $8 \times 4$ ; 36 matched to  $9 \times 4$ ;  
40 matched to  $10 \times 4$
- Array of 5 rows of 4 drawn; skip-count shown as 4, 8, 12, 16, 20; 20
- 24; tape diagram drawn and labeled to represent problem
- 32

## Lesson 15

### Pattern Sheet

4	8	12	16
20	4	8	4
12	4	16	4
20	4	8	12
8	16	8	20
8	4	8	12
4	12	8	12
16	12	20	12
16	4	16	8
16	12	16	20
16	20	4	20
8	20	12	20
16	8	16	12
20	12	8	16
12	20	8	16

### Problem Set

- Top: 8; 8  
Bottom: 8; 8
  - Top: 4, 12; 3, 12  
Bottom: 3, 12; 3, 12  
Array showing 3 rows of 4 or 4 rows of 3 drawn
  - Top: 4, 28; 7, 4  
Bottom: 7, 28; 4, 7  
Array showing 7 rows of 4 or 4 rows of 7 drawn
- Two tape diagrams drawn and labeled to model  $4 \times 6 = 6 \times 4$
- Tape diagram drawn and labeled to represent 32 petals
- 32

**Exit Ticket**

Two tape diagrams drawn and labeled to show  $4 \times 3 = 3 \times 4$ ; both total 12

**Homework**

1.
  - a. Top: 12; 12  
Bottom: 12; 12
  - b. Top: 9, 36; 9, 36  
Bottom: 4, 36; 9, 36  
Array showing 9 rows of 4 or 4 rows of 9 drawn
  - c. Top: 4, 24; 6, 24  
Bottom: 6, 24; 6, 24  
Array showing 6 rows of 4 or 4 rows of 6 drawn
2. Tape diagram drawn and labeled to represent 28 balloons
3. 28



## Lesson 16

### Pattern Sheet

4	8	12	16
20	24	28	32
36	40	24	28
24	32	24	36
24	40	24	28
24	28	32	28
36	28	40	28
32	24	32	28
32	36	32	40
32	36	24	36
28	36	32	36
40	36	40	24
40	28	40	32
40	36	40	24
32	40	28	36

### Problem Set

- 24; 4; 4, 24
  - 28; 20; 8; 20, 8
  - 32; 20; 3, 12; 3, 20, 12, 32
  - 36; 20; 4, 16; 4, 20, 16, 36
- First cloud matched to  $8 \times 4$ ; second cloud matched to  $6 \times 4$ ; third cloud matched to  $9 \times 4$ ; fourth cloud matched to  $7 \times 4$
- 10 fours broken into two smaller facts: 5 fours and 5 fours, or 5 fours doubled; sum of two smaller facts found to answer larger fact

**Exit Ticket**

8; 20, 8, 28; 7 fours broken into two smaller facts: 5 fours and 2 fours; sum of two smaller facts found to answer larger fact

**Homework**

- 24; 1, 4; 1, 4, 24
  - 32; 20; 3, 12; 3, 20, 12, 32
- First sun matched to 24; second sun matched to 28; third sun matched to 32; fourth sun matched to 36
- 20; 16; 9 fours broken into two smaller facts: 5 fours and 4 fours; sum of two smaller facts found to answer larger fact

## Lesson 17

### Sprint

#### Side A

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 8   | 12. 28 | 23. 10 | 34. 8  |
| 2. 12  | 13. 32 | 24. 2  | 35. 7  |
| 3. 16  | 14. 36 | 25. 3  | 36. 9  |
| 4. 20  | 15. 40 | 26. 10 | 37. 6  |
| 5. 4   | 16. 8  | 27. 5  | 38. 8  |
| 6. 2   | 17. 7  | 28. 4  | 39. 44 |
| 7. 3   | 18. 9  | 29. 2  | 40. 11 |
| 8. 5   | 19. 6  | 30. 3  | 41. 3  |
| 9. 4   | 20. 10 | 31. 4  | 42. 12 |
| 10. 4  | 21. 5  | 32. 7  | 43. 56 |
| 11. 24 | 22. 6  | 33. 9  | 44. 14 |

#### Side B

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 4   | 12. 24 | 23. 2  | 34. 7  |
| 2. 8   | 13. 28 | 24. 10 | 35. 8  |
| 3. 12  | 14. 32 | 25. 3  | 36. 9  |
| 4. 16  | 15. 36 | 26. 2  | 37. 6  |
| 5. 20  | 16. 7  | 27. 4  | 38. 7  |
| 6. 3   | 17. 6  | 28. 10 | 39. 44 |
| 7. 2   | 18. 8  | 29. 5  | 40. 11 |
| 8. 4   | 19. 10 | 30. 3  | 41. 48 |
| 9. 4   | 20. 9  | 31. 3  | 42. 12 |
| 10. 5  | 21. 4  | 32. 6  | 43. 52 |
| 11. 40 | 22. 5  | 33. 9  | 44. 13 |

**Problem Set**

1. Answer provided  
8; 8  
3; 3  
4; 4  
5, 4; 4, 5  
6, 4; 4, 6  
7, 28; 28, 7  
8, 32; 32, 8  
9, 4, 36; 36, 4, 9  
10, 4, 40; 40, 4, 10
2. Tape diagram drawn and labeled showing 9 boxes packed
3. 8
4. \$14

**Exit Ticket**

1. 4; number bond drawn showing 4 units of 4 equals 16
2. 14; tape diagram drawn and labeled to represent the problem

**Homework**

1. 4; 4  
8; 8  
3; 3  
4; 4  
5, 4; 4, 5  
6, 4; 4, 6  
7, 28; 28, 7  
8, 32; 32, 8  
9, 4, 36; 36, 4, 9  
10, 4, 40; 40, 4, 10
2. 8; tape diagram drawn and labeled to represent the problem
3. 6
4. 12

## Lesson 18

### Sprint

#### Side A

- |        |        |         |         |
|--------|--------|---------|---------|
| 1. 5   | 12. 40 | 23. 15  | 34. 60  |
| 2. 10  | 13. 35 | 24. 20  | 35. 55  |
| 3. 15  | 14. 30 | 25. 25  | 36. 50  |
| 4. 20  | 15. 25 | 26. 30  | 37. 65  |
| 5. 25  | 16. 20 | 27. 35  | 38. 70  |
| 6. 30  | 17. 15 | 28. 40  | 39. 65  |
| 7. 35  | 18. 10 | 29. 45  | 40. 60  |
| 8. 40  | 19. 5  | 30. 50  | 41. 150 |
| 9. 45  | 20. 0  | 31. 50  | 42. 200 |
| 10. 50 | 21. 5  | 32. 100 | 43. 150 |
| 11. 45 | 22. 10 | 33. 55  | 44. 100 |

#### Side B

- |        |        |         |         |
|--------|--------|---------|---------|
| 1. 5   | 12. 40 | 23. 15  | 34. 60  |
| 2. 10  | 13. 35 | 24. 20  | 35. 55  |
| 3. 15  | 14. 30 | 25. 25  | 36. 50  |
| 4. 20  | 15. 25 | 26. 30  | 37. 65  |
| 5. 25  | 16. 20 | 27. 35  | 38. 70  |
| 6. 30  | 17. 15 | 28. 40  | 39. 65  |
| 7. 35  | 18. 10 | 29. 45  | 40. 60  |
| 8. 40  | 19. 5  | 30. 50  | 41. 150 |
| 9. 45  | 20. 0  | 31. 50  | 42. 200 |
| 10. 50 | 21. 5  | 32. 100 | 43. 150 |
| 11. 45 | 22. 10 | 33. 55  | 44. 100 |

**Problem Set**

- 80; 3 tens; 3 tens; 3; 30, 80; 80
- 28; 2 fours; 2 fours; 2; 8, 28; 28
- 90;  $4 \times 10$ ; 4 tens; 4; 50, 40, 90; 90
- 100;  $5 \times 10$ ,  $5 \times 10$ ; 5 tens, 5 tens; 5, 5; 50, 50, 100; 100
- 70; number bond showing  $(5 \times 10) + (2 \times 10)$  equals  $7 \times 10$  drawn
- 24
- 120

**Exit Ticket**

$6 \times 4$ ;  $1 \times 4$ ; 6, 4, 24

**Homework**

- First apple matched to third bucket; second apple matched to first bucket; third apple matched to fourth bucket; fourth apple matched to second bucket
- 36;  $5 \times 4$ ,  $4 \times 4$ ; 5, 4; 20, 16, 36; 36
- 40; number bond showing  $(5 \times 4) + (5 \times 4)$  equals  $10 \times 4$  drawn
- Answers will vary.
- 70

## Lesson 19

### Problem Set

- 12; 10; 2; 2
  - 5; 1; 1, 5
  - 7; 5; 8, 2; 8, 5, 2, 7
  - 8; 20, 5; 12, 3; 20, 12, 5, 3, 8
- First bucket matched to fourth ball; second bucket matched to first ball; third bucket matched to second ball; fourth bucket matched to third ball
- $24 \div 2$  broken into two smaller facts:  $12 \div 2$  and  $12 \div 2$ ; sum of two smaller facts found to answer larger fact

### Exit Ticket

11; 10; 2, 1; 2; 10, 1, 11

### Homework

- 6; 3; 3
  - 7; 2; 2, 7
  - 6; 5, 1; 4, 5, 1, 6
  - 9; 5, 4; 20, 16, 5, 4, 9
- First white board matched to fourth clipboard; second white board matched to first clipboard; third white board matched to third clipboard; fourth white board matched to second clipboard
- $35 \div 5$  broken into two smaller facts:  $20 \div 5$  and  $15 \div 5$ ; sum of two smaller facts found to answer larger fact

## Lesson 20

### Sprint

#### Side A

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 10  | 12. 30 | 23. 40 | 34. 15 |
| 2. 15  | 13. 25 | 24. 20 | 35. 40 |
| 3. 20  | 14. 20 | 25. 45 | 36. 20 |
| 4. 25  | 15. 15 | 26. 20 | 37. 45 |
| 5. 30  | 16. 10 | 27. 45 | 38. 25 |
| 6. 35  | 17. 5  | 28. 15 | 39. 50 |
| 7. 40  | 18. 5  | 29. 40 | 40. 60 |
| 8. 45  | 19. 30 | 30. 10 | 41. 55 |
| 9. 50  | 20. 10 | 31. 35 | 42. 60 |
| 10. 40 | 21. 35 | 32. 5  | 43. 65 |
| 11. 35 | 22. 15 | 33. 30 | 44. 70 |

#### Side B

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. 15  | 12. 25 | 23. 20 | 34. 20 |
| 2. 20  | 13. 20 | 24. 40 | 35. 45 |
| 3. 25  | 14. 15 | 25. 25 | 36. 25 |
| 4. 30  | 15. 10 | 26. 20 | 37. 50 |
| 5. 35  | 16. 5  | 27. 45 | 38. 15 |
| 6. 40  | 17. 5  | 28. 15 | 39. 40 |
| 7. 45  | 18. 30 | 29. 40 | 40. 55 |
| 8. 50  | 19. 10 | 30. 10 | 41. 60 |
| 9. 40  | 20. 35 | 31. 30 | 42. 65 |
| 10. 35 | 21. 15 | 32. 5  | 43. 60 |
| 11. 30 | 22. 40 | 33. 30 | 44. 65 |



**Problem Set**

- Tape diagram labeled
  - \$24
  - \$28
- Tape diagram labeled
  - 4
  - 12
- 12
- 5 blue and 3 red
- 4

**Exit Ticket**

- Tape diagram labeled
  - 4
  - 16
- 10

**Homework**

- Tape diagram labeled
  - \$12
  - \$9
- Tape diagram labeled
  - 6
  - 24
- 4 green and 5 purple
- 9
- 4

## Lesson 21

### Pattern Sheet

5	10	15	20
25	5	10	5
15	5	20	5
25	5	10	15
10	20	10	25
10	5	10	15
5	15	10	15
20	15	25	15
20	5	20	10
20	15	20	25
20	25	5	25
10	25	15	25
20	10	20	15
25	15	10	20
15	25	10	20

### Problem Set

1. Tape diagram labeled;  $4 \times 6 = 24$ ;  $24 + 4 = 28$ ; \$28
2. Tape diagrams labeled; 22
3. Tape diagram drawn and labeled to represent problem; 12
4. a. 7  
b. 5

### Exit Ticket

Tape diagram drawn and labeled to represent problem; 18

**Homework**

1. Tape diagram labeled;  $4 \times 8 = 32$ ;  $32 + 5 = 37$ ; 37
2. Tape diagrams labeled; 23
3. Tape diagram drawn and labeled to represent problem; 12
4. 3

## Mathematics Professional Learning

TECS provides an array of opportunities for teachers to engage in curriculum-aligned professional learning in connection with Math instruction. These opportunities consist of both Math Professional Learning Communities (PLCs) and trainings provided by Great Minds.

The PLC calendar consists of:

- Monthly data meetings using formative, curricular, and STAR math assessments with dedicated Math coaches;
- Monthly lesson planning meetings with Math coaches;
- First-year teacher Making Sense of Math Book Talk trainings; and
- 2-3 monthly classroom walkthroughs accompanied by informal feedback.

Great Minds also provides a range of professional learning opportunities aligned with the EngageNY curriculum. These include:

- First-year teachers receiving two full-day professional learning opportunities (Launch Eureka Math and Fluency in Action) prior to the start of the school year in August;
- Second-year teachers receiving two full-day professional learning opportunities (Solving Word Problems and Understanding Major Work of the Grade Band) prior to the start of the school year in August; and
- All teachers being encouraged to watch additional professional learning videos from Great Minds writers.

## Mathematics MTSS Process

(1) We administer the STAR Math assessment three times annually. Each student receives a Fall, Winter, and Spring benchmark score. Teachers, coaches, and administrators hold monthly data meetings to assess the impact of instruction on student growth. Concepts that students appear to be having a difficult time mastering are spiraled back into the curriculum through thoughtful 'reteach' plans. Students whose benchmark scores identify them as needing Tier 2 interventions receive biweekly monitoring, while students in Tier 3 have their data monitored on a weekly basis.

(2) All students receive differentiated instruction via DreamBox, Freckle, or Zearn daily.

(3) Tier 3 students receive daily small-group instruction for 30 minutes using Bridges Intervention.

## Math Curriculum Resubmission Memo

**DDOE Early Review Submission Expectation: For grades 6-8, Eureka does not meet high-quality standards aligned instructional resource as indicated by EdReports, due to its yellow rating in Gateway 3. This means that the 6-8 curriculum has weaknesses in the areas of supports for teacher planning and instruction; supports for strong assessment practices; and guidance for differentiation and supporting struggling learners and special populations. While these materials do meet high-quality instructional materials standards for focus, coherence, mathematical rigor, and the mathematical practice standards, the school needs to articulate how it will address the usability weaknesses of the 6-8 materials through teacher collaboration and professional development.**

TECS Response: Math teachers in Grades 6-8 attended two full-day trainings provided by Great Minds to prepare them for planning and instruction, assessment practices, and differentiation.

- Launch: Bringing the Curriculum to Life. In this one-day session, teachers who are new to math curriculum from Great Minds investigate the structure, design, and components of *Eureka Math* while engaging with the curriculum's print and digital resources. Teachers explore the instructional role of all the curriculum resources (including *Eureka Math Equip* for those who also adopt the premium assessment tool) and be prepared to facilitate lessons with students. Educators in middle school grades attend a session geared toward Level 6–Algebra I.
- Teach: Effective Instruction with *Eureka Math*. This session provides teachers with a process for and practice with effective planning and instruction using the curriculum materials. Planning and preparation include the *Eureka Math Equip* resources for those who have purchased it. Educators in middle school grades attend a session geared toward Level 6–Algebra I.

Additionally, math teachers in Grades 6–8 attend the Great Minds *Assess: Embedded Opportunities to Inform Instruction* **professional development during the school year. In this training**, teachers explore the entire formative and assessment landscape of *Eureka Math*<sup>2</sup> and practice using each of them to understand students' areas of strength and progress toward proficiency, and to plan for responsive instruction. They engage with assessments and reports on the digital platform, including *Eureka Math*<sup>2</sup> *Equip* for those who have purchased it. Assessments are significantly different between grades/grade bands and are thus broken into smaller grade-band sessions. Educators in middle school grades attend a session geared toward Level 6–Algebra I.

TECS is also working to consummate a partnership with Great Minds for their in-person personalized coach track. Each personalized coaching track includes five coaching sessions.

## **Appendix 2 - Curriculum Documents :: Music**

# Music Curriculum Documents

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Thomas Edison Charter School's music program will help and encourage students to gain independence and learn more music skills. They will be given opportunities to strengthen their knowledge of musical concepts and history through experience, exploration, discovery, and self-expression. The Music Classroom will center on active participation in music-making through the band, strings, and choral programs.

## **DELAWARE MUSIC STANDARDS FOR K-8**

### **CREATING**

ANCHOR STANDARD 1: Generate and conceptualize artistic ideas and work. ANCHOR STANDARD 2: Organize and develop artistic ideas and work.

ANCHOR STANDARD 3: Refine and complete artistic work.

### **PERFORMING**

ANCHOR STANDARD 4: Select, analyze, and interpret artistic work for presentation. ANCHOR STANDARD 5: Develop and refine artistic techniques and work for presentation. ANCHOR STANDARD 6: Convey meaning through the presentation of artistic work.

### **RESPONDING**

ANCHOR STANDARD 7: Perceive and analyze artistic work ANCHOR STANDARD 8: Interpret intent and meaning in artistic work. ANCHOR STANDARD 9: Apply criteria to evaluate artistic work.

### **CONNECTING**

ANCHOR STANDARD 10: Synthesize and relate knowledge and personal experiences to make art.

ANCHOR STANDARD 11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding

	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>ELEMENTS</b>	Basic Rhythm Steady beat Difference between fast and slow Difference between loud and soft Difference between long and short Movement	Basic Rhythm Steady beat Difference between fast and slow Difference between loud and soft Difference between long and short Movement Melodic direction Difference between high and low pitches	Basic Rhythm Steady beat Difference between fast and slow Difference between loud and soft Difference between long and short Movement Melodic direction Difference between high and low pitches Musical note names Scales Staff	Basic Rhythm Steady beat Difference between fast and slow Difference between loud and soft Difference between long and short Movement Melodic direction Difference between high and low pitches Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures	Basic Rhythm Movement Melodic direction Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures Recognize theme & variations
<b>PLAYING</b>		Play simple rhythms Echo simple melodies Echo short rhythms and melodic patterns Tone color	Sing C Major Scale on “Do, Re, Mi, etc” Echo short rhythms and melodic patterns	Sing C Major Scale on “Do, Re, Mi, etc” Sing simple melodies Sing simple melodies accompanied and unaccompanied	Play simple melodies on various instruments Sing simple melodies accompanied and unaccompanied
<b>RHYTHM</b>		Become familiar with whole, Half, and quarter note	Become familiar with whole, Half, and quarter note Become familiar with whole, half, and quarter	Review whole, Half, eighth, and quarter note 4/4 2/4 and 3/4 meter Review whole, half, and quarter rest	Review whole, Half, eighth, and quarter note Review whole, half, and quarter rest Review 4/4 2/4 and 4/3

			rest		meter
<b>LISTENING AND UNDERSTANDING</b>	Recognizing instruments (guitar, piano, trumpet, flute, violin, drum)	Composers Orchestra Opera Ballet Jazz	Observe difference between piano, keyboard, and organ Instrument families	Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant	Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant Introduce sharps & flats Bar lines Names of lines and spaces Recognize harmony
<b>SONGS</b>	London Bridge Row your Boat This Old Man The Wheels on the Bus Go Tell Aunt Rhody In the Hall of the Mountain King Bingo The Bear Went Over the Mountain	America the Beautiful For he's a jolly good fellow La cucaracha Oh! Susanna On top of old smokey She'll be coming around the mountain Take me out to the ball game When the saints go marching in Yankee Doodle	Casey Jones Follow the Drinking Gourd Home on the Range The Star-Spangled banner Then Johnny Comes marching home This Land is Your Land	America ("My country 'tis of thee") Down in the Valley You're a Grand 'Ol Flag Alouette	Auld Lang Syne Cockles and Mussels Comin' through the Rye I Love the Mountains My Grandfather's Clock

	5	6	7	8
<b>ELEMENTS</b>	<p>Melodic direction Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures Recognize theme &amp; variations Recognize legato movement Sharps, flats, &amp; Naturals</p>	<p>Melodic direction Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures Recognize theme &amp; variations Recognize legato movement Recognize Italian terms (grave, largo, adagio, etc) Identify chords Octave Dynamics Sharps, flats, &amp; Naturals</p>	<p>Melodic direction Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures Recognize theme &amp; variations Recognize legato movement Recognize Italian terms (grave, largo, adagio, etc) Identify chords &amp; names Octave Dynamics Sharps, flats, &amp; Naturals</p>	<p>Melodic direction Musical note names Scales Staff Recognize outline of a song Treble clef Meter Signatures Recognize theme &amp; variations Recognize legato movement Recognize Italian terms (grave, largo, adagio, etc) Identify chords &amp; names Octave Dynamics Sharps, flats, &amp; Naturals</p>
<b>PLAYING</b>	<p>Play simple melodies on various instruments Sing complex melodies accompanied and unaccompanied Echo complex rhythms</p>	<p>Play simple melodies on various instruments Sing complex melodies accompanied and unaccompanied Echo complex rhythms</p>	<p>Play complex melodies on various instruments accompanied by other melodies Sing complex melodies accompanied and unaccompanied Echo complex rhythms</p>	<p>Play complex melodies on various instruments accompanied by other melodies Sing complex melodies accompanied and unaccompanied Echo complex rhythms</p>
<b>RHYTHM</b>	<p>Review whole. Half, eighth, and quarter note Review whole, half, and</p>	<p>Review whole. Half, eighth, and quarter note Review whole, half, and</p>	<p>Review whole. Half, eighth, and quarter note Review whole, half, and</p>	<p>Review whole. Half, eighth, and quarter note 4/4 2/4 and 3/4 meter</p>

	<p>quarter rest Review 4/4 2/4 and 4/3 meter Introduce grouped 16th notes &amp; paired eighth notes Tied &amp; dotted notes</p>	<p>quarter rest Review 4/4 2/4 4/3 3/4 6/8 meter Review grouped 16th notes &amp; paired eighth notes Tied &amp; dotted notes</p>	<p>quarter rest Review 4/4 2/4 4/3 3/4 6/8 meter Review grouped 16th notes &amp; paired eighth notes Tied &amp; dotted notes</p>	<p>Review whole, half, and quarter rest Tied &amp; dotted notes</p>
<p><b>LISTENING AND UNDERSTANDING</b></p>	<p>Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant Introduce sharps &amp; flats Tied &amp; dotted notes Bar lines Names of lines and spaces Recognize harmony Sing &amp; play melodies while reading scores Sing round and canons 2 &amp; 3-part singing</p>	<p>Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant Introduce sharps &amp; flats Tied &amp; dotted notes Bar lines Names of lines and spaces Recognize harmony Sing &amp; play melodies while reading scores Sing round and canons 2 &amp; 3-part singing</p>	<p>Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant Introduce sharps &amp; flats Tied &amp; dotted notes Bar lines Names of lines and spaces Recognize harmony Sing &amp; play melodies while reading scores Sing round and canons 2 &amp; 3-part singing</p>	<p>Review instrument families 4/4 2/4 and 4/3 meter Recognize the difference between vocal ranges (soprano, alto, tenor, bass) Gregorian chant Introduce sharps &amp; flats Tied &amp; dotted notes Bar lines Names of lines and spaces Recognize harmony Sing &amp; play melodies while reading scores Sing round and canons 2 &amp; 3-part singing</p>
<p><b>SONGS</b></p>	<p>Battle Hymn of the Republic Danny Boy God Bless America Greensleeves Havah Nagilah Red River Valley Sakura</p>	<p>Baroque, Classical, and Romantic music</p>	<p>Baroque, Classical, and Romantic music American Music Jazz African American Music Musical Theater</p>	<p>Baroque, Classical, and Romantic music American Music Jazz African American Music Opera Musical Theater</p>

## **GRADE 4–8 BAND**

### **TOPICS:**

**BREATH:** MEMORIZING AND EXECUTING A VARIETY OF VOCAL DRILLS WHILE PRACTICING GOOD VOCAL SKILLS

**DICTION/VOWEL FORMATION:** VOCALIZING VOWELS, CONSONANTS AND MULTIPLE LANGUAGES

**RANGE/PITCH/INTONATION:** SINGING ON PITCH AND CORRECTLY PLACING SOUND, CONTROLLING BREATH; EAR TRAINING

**POSTURE:** FACIAL/BODY RESONATORS, CORRECT SEATING AND STANDING

**VOCAL HEALTH:** VOCAL ANATOMY, VOCAL REST, AND PERFORMANCE PRACTICE

**MELODY:** PERFORMING A VARIETY OF REPERTOIRE WITH PITCH ACCURACY, UNISON BLEND, TWO PART, CHORD PROGRESSION AS WELL AS HARMONY AND TEXTURE

**HARMONIC BLEND:** HARMONIES THROUGH ROUNDS AND DUETS

**MUSIC SKILLS:** GROUP/INDIVIDUAL COMPOSITION, MUSIC NOTATION, RHYTHM READING, TONAL PATTERNS

**REHEARSAL ROUTINE:** PREPAREDNESS, UNDERSTANDING OF CUES AND CUT OFFS

**VOCAL WARM-UPS:** MEMORIZATION AND EXECUTION OF VOCAL DRILLS

**SIGHT SINGING:** SINGING SCALES AND SIGHT READING

**CONCERT REPERTOIRE:** INDIVIDUAL/GROUP INSTRUCTION AND VOCAL MODELING

**CONCERT PERFORMANCE:** SPRING/WINTER CONCERT

**CONCERT ETIQUETTE:** PERFORMANCE PRACTICE, DRESS CODE, AND ATTENDANCE

**CULTURAL MUSIC:** ACCULTURATING TO A VARIETY OF CULTURAL REPERTOIRE

**MUSIC GAMES:** PLAYING COOPERATIVE GAMES TO IMPROVE MUSICIANSHIP

**MUSICIANSHIP:** KNOWLEDGE OF MUSIC NOTATION, RHYTHMIC NOTATION, TEXTURE, SYMBOLS, DYNAMICS, TIME AND KEY SIGNATURES, INTERVALS, MELODIC DICTATION, FORMS, AND AUDIATION

## **GRADE 4–8 CHORUS**

### **TOPICS:**

**REHEARSAL ROUTINE:** PREPAREDNESS, UNDERSTANDING OF CUES AND CUT OFFS

**INSTRUMENT CARE:** CLEANING THE INSTRUMENT, REED CARE, OILING OF VALVES

**BALANCE:** MELODY AND HARMONY; PYRAMID OF SOUND

**TONE PRODUCTION:** PRODUCE GOOD CLEAR TONE

**NOTES AND RHYTHMS:** COUNTING NOTES AND RESTS AND PLAYING SYNCOPATED RHYTHMS AND STEADY BEATS

**INTONATION:** PLAYING IN TUNE WITH OTHERS. TIGHTENING AND LOOSENING ACCORDINGLY

**DYNAMICS:** UNDERSTANDING THE MEANING OF DYNAMICS AND EXECUTING THEM

**KEY SIGNATURE:** KNOWING THE KEY OF THEIR OWN INSTRUMENT RELATED TO CONCERT PITCH; IDENTIFY THE KEY ON ANY PIECE OF MUSIC.

**TIME SIGNATURE:** IDENTIFY THE TIME SIGNATURE AND PLAY ACCORDINGLY

**NOTE NAMES AND FINGERINGS:** IDENTIFY NOTE NAMES QUICKLY AND ACCURATELY

**SCALES:** PLAY 7 CONCERT SCALES; QUARTER NOTE = 80-120 BPM

**INSTRUMENT IDENTIFICATION:** IDENTIFY INSTRUMENTS STATING THEIR INSTRUMENT FAMILY AND HOW THEY ARE PLAYED

**VOCAL WARM-UPS:** MEMORIZATION AND EXECUTION OF VOCAL DRILLS

**SIGHT READING:** PLAYING SCALES AND SIGHT PLAYING

**CONCERT REPERTOIRE:** INDIVIDUAL/GROUP INSTRUCTION AND INTONATION MODELING

**CONCERT PERFORMANCE:** SPRING/WINTER CONCERT

**CONCERT ETIQUETTE:** PERFORMANCE PRACTICE, DRESS CODE, AND ATTENDANCE

**CULTURAL MUSIC:** ACCULTURATING TO A VARIETY OF CULTURAL REPERTOIRE

**MUSICIANSHIP:** KNOWLEDGE OF MUSIC NOTATION, RHYTHMIC NOTATION, TEXTURE, SYMBOLS, DYNAMICS, TIME AND KEY SIGNATURES, INTERVALS, FORMS

## BAND AND CHORUS ASSESSMENTS

1. INDIVIDUAL ASSESSMENT
2. COLLABORATIVE ASSESSMENT
3. PEER CRITIQUE AND REVIEW
4. REPERTOIRE ASSESSMENT
5. INSTRUCTOR OBSERVATION (VISUAL AND AURAL)
6. SELF-REFLECTION
7. NOTE ACCURACY TESTS
8. IDENTIFICATION TESTS

	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<p><b>PITCH</b> STUDENT PERFORMED ALL THE CORRECT NOTES</p>	ALWAYS	MOSTLY	SOMETIMES	NEVER
<p><b>RHYTHM</b> STUDENT PERFORMED THE RHYTHM CORRECTLY</p>	ALWAYS	MOSTLY	SOMETIMES	NEVER
<p><b>TEMPO</b> STUDENT KEPT A STEADY SPEED THROUGHOUT</p>	ALWAYS	MOSTLY	SOMETIMES	NEVER
<p><b>TONE QUALITY</b> STUDENT PLAYED/SANG WITH A CLEAR QUALITY SOUND</p>	ALWAYS	MOSTLY	SOMETIMES	NEVER
<p><b>POSTURE</b> STUDENT IS SITTING UP STRAIGHT WITH THEIR BACK NOT AGAINST THE CHAIR</p>	ALWAYS	MOSTLY	SOMETIMES	NEVER



K-1 SINGING LESSON		
<p><b>STANDARDS:</b> <b>(MU: Cr1.1.K)</b></p> <p>b. With guidance, generate musical ideas (such as movements or motives).</p>	<p><b>RESOURCES:</b></p> <p>Little Sally Walker Rhyme</p>	<p><b>LESSON GOALS:</b></p> <p>Students will understand steady beat Students will be able to chant and maintain steady beat simultaneously Students will be able to sing a simple melody</p>
<p><b>LESSON OBJECTIVES:</b></p> <p>Students will demonstrate an understanding of <i>steady beat</i> as they participate in this passing game. Singing, alone and with others, a varied repertoire of music; and Performing on instruments, alone and with others, a varied repertoire of music.</p>		
<p><b>PROCEDURES</b></p>		
<p><b>Step 1</b></p> <p>Teach <i>Little Sally Walker</i>. Begin by chanting the lyrics phrase by phrase. When your students have learned the first phrase, move on to the next phrase. Maintain a steady beat throughout this process by tapping the quarter note on your knees.</p> <p style="padding-left: 40px;">Little Sally Walker, Sitting in a saucer, Rise Sally rise, Wipe out your eyes, Turn to the east, And turn to the west, And turn to the one that you like best.</p>		
<p><b>Step 2</b></p> <p>Ask students to sit in a circle. Choose a student to stand in the middle of the circle. This student will be the first "it" child.</p>		

**Step 3**

Ask students to chant the "Little Sally Walker" rhyme while patching a steady beat on their knees. The "it" student follows the directions provided by the chant.

Little Sally Walker - Sit in the middle of the circle. Sitting  
in a saucer - Remain seated.  
Rise Sally rise - Stand up.

Wipe out your eyes - Wipe eyes.

Turn to the east - Spin in one direction with right arm extended and index finger  
pointing at students in the circle.

And turn to the west - Spin in the opposite direction.

And turn to the one that you like best - Stop spinning. This student is the next "it"  
child.

**Step 4**

Repeat several times to allow 4-5 students to be selected as the "it" child.

**Assessment**

Students will be assessed visually and aurally. Their goal is to be able to sing the song  
"Little Sally Walker" while maintaining a steady beat which they will keep while passing  
the cup.

**Grading Scale (Rubric):**

- 1- Student is able to sing all words of "Little Sally Walker"
- 2- Student is able to sing most words of "Little Sally Walker" while keeping a  
somewhat steady beat
- 3- Student is able to sing all words of "Little Sally Walker" while keeping a  
somewhat steady beat
- 4- Student is able to sing all words of "Little Sally Walker" while keeping a steady  
beat

GRADE 2–3 GAME LESSON		
<p><b>STANDARDS:</b> (MU: Cr1.1.K)</p> <p>b. With guidance, generate musical ideas (such as movements or motives).</p>	<p><b>RESOURCES:</b></p> <p>Entry Kentry Sheet Music Large Plastic cup or bean bag Tubanos, hand drums, and/or rhythm sticks</p>	<p><b>LESSON GOALS:</b></p> <p>Students will understand steady beat Students will be able to chant and maintain steady beat simultaneously Students will be able to sing a simple melody</p>
<p><b>LESSON OBJECTIVES:</b></p> <p>Students will demonstrate an understanding of <i>steady beats</i> as they participate in this passing game.</p> <p>Singing, alone and with others, a varied repertoire of music; and Performing on instruments, alone and with others, a varied repertoire of music.</p>		
<p><b>PROCEDURES</b></p>		
<p><b>Step 1</b></p> <p>Teach the lyrics to <i>Entry Kentry</i>. Begin by chanting the lyrics phrase by phrase. When your students have learned the first phrase, move on to the next phrase. Maintaining a steady beat throughout this process by tapping the whole note on your knees will increase the success of the students during game play.</p>		
<p><b>Step 2</b></p> <p>Learn the melody to <i>Entry Kentry</i>. Ask the students to perform the song phrase by phrase as you play the melody on the piano. When your students have learned the first phrase, move on to the next phrase. When the students seem confident, ask them to sing the song all the way through with you at the piano.</p>		
<p><b>Step 3</b></p> <p>Teach the students how to pass the plastic cup (or bean bag). Ask the students to sit in a circle. Ask them to draw a big McDonald's 'M' in the air. Tell them, "This is the way you should pass the cup. Pick it up, and set it down in the shape of the Golden Arch."</p>		
<p><b>Step 4</b></p> <p>Practice passing the cup. Pass the cup each measure (whole note). Ask the students to keep the beat (the whole note) on their knees as they pass the cup around the</p>		

circle. When they are successful, try playing the music as they pass the cup.

### **Game Instructions**

The objective of this passing game is for one student to become the final player, eliminating one player with each round. Each time the cup is set in motion, it continues to be passed around the circle until the song ends. The student receiving the cup at the end of the song is out. When a player is sent out, they receive a drum or a rhythm stick and continue to participate developing their steady beat skills as a 'music maker' until the end of the game.

### **Assessment**

Students will be assessed visually and aurally. Their goal is to be able to sing the song "Entry Key" while maintaining a steady beat which they will keep while passing the cup.

#### **Grading Scale (Rubric):**

- 1- Student is able to sing all words of "Entry Kentry"
- 2- Student is able to sing most words of "Entry Kentry" while keeping a somewhat steady beat
- 3- Student is able to sing all words of "Entry Kentry" while keeping a somewhat steady beat
- 4- Student is able to sing all words of "Entry Kentry" while keeping a steady beat

GRADE 4–5 RHYTHM LESSON		
<p><b>STANDARDS:</b>  <b>(MU:Cr1.1.4)</b>                      b Generate musical ideas (such as rhythms, melodies, and accompaniment patterns) within specific related tonalities, meters, and simple chord changes.</p> <p><b>(MU:Cr2.1.4)</b>                      b Use standard and/or iconic notation and/or recording technology to document personal rhythmic, melodic, and two chord harmonic musical ideas.</p> <p><b>(MU:Cr3.2.4)</b>                      a Present the final version of personal created music to others that demonstrates craftsmanship, and explain connection to expressive intent.</p>	<p><b>RESOURCES:</b></p> <p>Non-pitched percussion instruments                      Pencils Papers</p>	<p><b>LESSON GOALS:</b>                      Students will recognize eighth and quarter note rhythmic patterns Students will be able to create their own rhythmic pattern                      Students will be able to read simple rhythmic patterns</p>
<p><b>LESSON OBJECTIVES:</b></p> <p>Students work in cooperative groups (bands) to perform the rhythms of a rhyme/speech piece on non-pitched percussion instruments. The winning band is awarded a 'Battle of the Bands' certificate.</p>		
<p><b>PROCEDURES</b></p>		
<p><b>Step 1</b></p> <p>Tell students, "Today you will have the opportunity to participate in a Battle of the Bands. Each of the winners of the Battle of the Bands will be awarded this certificate. (Show certificate.) Before we divide the class into bands, let's go to the white board."</p>		
<p><b>Step 2</b></p> <p>Review eighth note/quarter note rhythm patterns to prepare students for the activity.</p>		
<p><b>Step 3</b></p> <p>Ask students to get into groups with four students per group.</p>		

**Step 4**

Provide each band with non-pitched percussion instruments and two copies of the selected rhyme/rhythm worksheet.

**Step 5**

Tell students, "The rhyme/rhythm worksheets will provide you with rhythmic ideas for your music. Speak the words, listen to the rhythms and use them in your music. You will have 10 minutes to work on your piece. You can choose to perform the rhyme with instruments only or play and chant the rhyme. At the end of the practice time we will listen to each band perform.

Bands will be judged based on:

- 1) Tempo (Did the band have a steady beat?)
- 2) Rhythm (Were the rhythms performed correctly?)
- 3) Balance (Could all the instruments be heard? If students chant the rhyme could every voice be heard?)

**Step 6**

Practice. Teacher will circulate the classroom to help students.

**Step 7**

Tell students, "It's time to begin the 'Battle of the Bands.' Please place rhyme/rhythm worksheets and instruments on the floor."

**Step 8**

Review evaluation criteria.

**Step 9**

Listen to and evaluate each performance. Ask the class how they did. Was the beat steady? Were the rhythms performed correctly? Could all the parts be heard? Ask students to clap for each performance while you point to a number on the Applause-O-Meter. Record the score on the white board. Step 10  
Award the best band with Battle of the Bands certificates. (Two certificates are included. One certificate requires a name and one certificate has no line for a name so it can be quickly handed to the student.)

**Assessment**

Students will be assessed visually and aurally by their peers and teacher.  
A rubric will be followed:

<b>RUBRIC</b>	1- Mastered	2- Satisfactory	3- Unsatisfactory
Creativity & Originality			
Accuracy of notes			

<b>GRADE 6 GAME LESSON</b>		
<p><b>STANDARDS:</b> <b>(MU:Cr2.1.6)</b> b Use standard and/or iconic notation and/or audio/ video recording to document personal simple rhythmic phrases, melodic phrases, and two- chord harmonic musical ideas.</p>	<p><b>RESOURCES:</b> Materials White Board Marker</p>	<p><b>LESSON GOALS:</b> Students will read simple rhythms Students will write simple rhythms</p>
<p><b>LESSON OBJECTIVES:</b> Students will demonstrate an understanding of simple rhythms by reading and performing rhythms to win tic-tac-toe squares in this musical twist on the classic "Tic-Tac-Toe" game.  Reading and notating music</p>		
<p><b>PROCEDURES</b></p> <p><b>Step 1:</b> Draw the nine-box game board on the white board.</p> <p><b>Step 2</b> Write a four beat rhythm in each of the nine boxes appropriate to the skill level of the class. Quarter notes, eighth notes and quarter rests work well with primary age classes.</p> <p><b>Step 3</b> Practice each rhythm by modeling it for the class. Give a few students the opportunity to demonstrate the rhythm for the class before you model it. Quiz students periodically on the last rhythm you practiced.</p> <p><b>Step 4</b> Divide the class into two (2) teams and then ask them to find a partner. Boys vs. Girls always works well.</p>		



**Step 5**

Assign the 'X' to one team and the 'O' to the other. Then select the team who will begin the game.

**Game Instructions**

From the starting team, invite the first pair to the white board. Ask them to select a rhythm from the tic-tac-toe game board. Tell them that they will have an opportunity to practice the rhythm before they perform it for the class.

When they are ready, count off 1-2-3-4.

If they clap the rhythm correctly their team will receive an 'X' or 'O' in the square. If they clap the rhythm incorrectly, no 'X' or 'O' will be placed in the square.

Teams alternate whether the rhythm is clapped correctly or not.

Repeat inviting pair after pair to the white board until either team achieves Tic-Tac-Toe-Three-in-a-Row or the game ends in a cat's game.

**Assessment**

Students will be assessed visually on how accurate their note placement is. They will also be assessed on how well they are reading the rhythms on the board. Students will also be quizzed before playing the game. Each student will have a chance to read a rhythm on the board and clap it back to the teacher.

**Grading Scale (Rubric):**

- 3- Student is able to clap each beat of their rhythm correctly
- 2- Student is able to clap some beats of their rhythm correctly
- 1- Student is unable to clap any beat of their rhythm correctly

<b>GRADE 7–8 MUSICAL FORM LESSON</b>		
<p><b>STANDARDS:</b>  <b>(MU:Cr3.1.7)</b>            a Evaluate their own work, applying selected criteria such as appropriate application of elements of music including style , form , and use of sound sources.</p> <p><b>(MU:Cr3.1.8)</b>            a Evaluate their own work by selecting and applying criteria including appropriate application of compositional techniques, style, form, and use of sound sources.</p>	<p><b>RESOURCES:</b>            Recording of Johannes Brahms' Hungarian Dance No.5</p>	<p><b>LESSON GOALS:</b>            Students will be able to            Students will write simple rhythms</p>
<p><b>LESSON OBJECTIVES:</b>            Students will learn about Johannes Brahms and his music through a fun-filled lesson on musical form.            Listening to, analyzing, and describing music.</p>		
<p><b>PROCEDURES</b></p> <p><b>Step 1:</b> Ask students, "Who knows this song? Raise your hand if you think you recognize it."            Play a recording or piano arrangement of Brahms' Lullaby.</p> <p><b>Step 2:</b> Ask students, "What is it?" "Who wrote it?"</p> <p><b>Step 3:</b> Tell students, "The piece I just played was written by German composer Johannes Brahms." Show them a picture of the composer.</p>		

**Step 4:** Share a few historical or fun facts about Johannes Brahms. Below are two fun facts that are not to be missed.

In 1889 Thomas Edison, an American inventor, visited Brahms in Vienna and invited him to perform for an experimental recording. Brahms played an abbreviated version of Hungarian Dance No.1 on the piano. The performance is one of the earliest recordings by a major composer.

Brahms was one of the few music composers who could devote his time completely to composing without having to accept other employment. In fact, he spent so much time composing that he sometimes neglected his appearance. Sometimes, when he forgot to attach his suspenders, he would have to hold his pants up while conducting to keep them from falling down.

**Step 5:**

Tell students, "Today we will be learning about musical form and listening to Johannes Brahms' Hungarian Dance No.5. Musical form has to do with the way music is put together.

As you listen to the recording I will show you how the music is put together. Each time a new section begins I will assign an alphabet letter to it. The first section will be A, the second section will be B, the third section will be C, and the fourth section will be D. Some of the sections repeat. If you hear a section of the music that you heard before, raise your hand before I write the alphabet letter on the board.

**Step 6:**

Start the recording. Form: A A B B C D A B Codetta

**Step 7:**

Tell students, "When we listen to this recording again we will put baseball moves to the music"

**Step 8**

Tell students, "Please stand up, spread out around the room, and face me."

**Step 9**

Tell students, "The A section is the warm-up section. You can copy my warm-up routine or do your own." Students may pretend to jog in place, stretch, or do jumping jacks.

**Step 10:**

Start the recording. Tell students, "Warm-up as you listen to section A of Johannes Brahms' Hungarian Dance No.5."

**Step 11**

The next section is the B section. Tell students, "You will be at bat during this section of the music."

**Step 12**

Start the recording. Students will swing the bat 3 times during each statement of this theme. Twice before the slow passage (swing on the syncopated note) and once after the slow passage (swing on the loud note immediately following the slow passage).

**Step 13**

The next section is the C section. Tell students, "During this section of the music you will run the bases."

**Step 14**

Start the recording. Run around the room as a class in clockwise motion.

**Step 15**

The next section is the D section. Tell students, "During this section of the music you will perform an instant replay of the game."

**Step 16**

Start the recording. Hold the bat at ready position during the slow passage and then swing on the loud note immediately following the slow passage. Drop the bat and run the bases on the fast passage. Repeat.

**Step 17**

Perform the movements for the reprise of the A and B sections. Play a little of each section for the students before they begin the movement. Ask them to identify the section and the movement that accompanies it.

**Step 18**

Tell students, "The work ends with a codetta. The word coda is Italian for 'tail.'" It refers to music that is placed at the tail-end of a piece to bring it to its conclusion. A codetta is like a coda except shorter.

**Step 19**

Tell students, "When we hear the three note codetta we will jump up and throw our baseball hats in the air."

**Step 20**

Start recording. Jump up and throw our baseball hats in the air.

**Step 21**

Quiz students on historical or fun facts about Johannes Brahms.

**Step 22**

Lead the students through a guided practice of the entire piece without stopping.

**Step 23**

Quiz students on historical or fun facts about Johannes Brahms.

**Step 24**

Ask students to show their understanding of the form of this work by performing the movements to Hungarian Dance No.5 on their own.

**Assessment**

Students will be assessed visually and aurally throughout the lesson. They will be assessed at the start when asked about returning sections as the music is playing. They will be assessed through the movements they perform as they correspond to the section of the song that they are hearing.

At the end of the lesson, students will take a formative assessment in the form of a small quiz. The quiz will test what they remember about Brahms.

Grading Scale (Rubric): (Yes or No)

Student can distinguish between Section A and Section B \_\_\_\_\_

Student can distinguish between Section B and Section C Student can  
distinguish between the Codetta and sections A, B, and C

Student has trouble keeping track of the 4 sections \_\_\_\_\_

## **Appendix 2 - Curriculum Documents :: Physical Education**

# Physical Education Curriculum Documents

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K–8 Scope and Sequence

p. 2





## Curriculum Sequence-Physical Education K-8

Grades

Goal Area	Objective	K	1	2	3	4	5	6	7	8
<b>Standard 1: Motor Skills &amp; Movement Patterns</b>										
<b>Locomotor</b>										
	Running	E	M	A	>	>	>	>	>	>
	Hopping	E	>	>	>	>	>	M	A	>
	Jumping/Landing	E	>	>	>	M	A	>	>	>
	* Spring & Step				E	>	M	A	>	>
	* Jump Stop							E	M	A
	* Jump Rope	E	>	>	M	A	>	>	>	>
	Galloping	E	>	>	M	A	>	>	>	>
	Leaping	E	>	>	M	A	>	>	>	>
	Sliding	E	>	>	M	A	>	>	>	>
	Skipping	E	>	>	M	A	>	>	>	>
<b>Non-Locomotor</b>										
	Swaying	E	>	>	M	A	>	>	>	>
	Balance	E	>	>	M	>	A	>	>	>
	Weight Transfer			E	M	>	>	A	>	>
	Bending	E	>	>	>	>	>	>	>	>
	Rocking	E	>	>	M	A	>	>	>	>
	Curling & Stretching	E	>	>	>	>	>	>	>	>
	Turning/Twisting	E	>	M	A	>	>	>	>	>
<b>Development of Fundamental and Specialized Skills</b>										
	Catching	E	>	>	>	>	>	M	A	>
	Dribbling/ball control									
	* Hands	E	>	>	>	M	>	A	>	>
	* Feet		E	>	>	>	M	A	>	>
	* With Implement				E	>	M	A	>	>
	Rolling	E	>	>	>	>	M	A	>	>
	Throwing									
	* Underhand	E	M	>	>	>	>	A	>	>
	* Overhand	E	>	M	>	>	>	A	>	>
	Kicking	E	>	>	>	M	>	A	>	>
	Striking (with long implement)		E	>	>	>	M	A	>	>

* Forehand/Backhand								E	>	
Striking (with short implement)	E	>	>	>	M	A	>	>	>	
* Forehand/Backhand							E	>	>	
Volleying										
* Underhand	E	>	>	>	M	A	>	>	>	
* Overhand					E	>	M	>	>	
* Set								E	>	
Combining Locomotors & manipulatives					E	>	M	>	A	
Combining jumping, landing locomotors &						E	M	A	>	
Combining balance & weight transfers			E	>	>	>	M	>	A	
Serving										
* Underhand							E	M	A	
* Overhand							E	>	>	
Shooting on goal	E	>	>	>	>	>	M	>	A	
Passing & receiving										
* Hands			E	>	>	M	>	>	A	
* Feet			E	>	>	M	>	>	A	
* With Implement			E	>	>	M	>	>	A	
* Forearm pass					E	>	>	M	>	
* Lead pass					E	>	>	M	>	
* Give and Go				E	>	>	M	>	A	
Offensive skills										
* Pivots							E	M	A	
* Fakes						E	>	M	A	
* Jab Step							E	M	A	
* Screen									E	
Defensive skills										
* Drop Step						E	>	M	>	
* Athletic Stance						E	>	M	>	

Rhythm

Command Dance	E	>	>	>	M	A	>	>	>	
Following rhythms	E	>	>	>	M	A	>	>	>	
Repeating rhythms				E	>	M	A	>	>	
Making rhythms/patterns				E	>	M	A	>	>	

Standard 2: Concepts & Strategies

Movement concepts, principles & knowledge

Chasing & Fleeting	E	>	>	M	A	>	>	>	>	
Dodging	E	>	>	>	>	M	A	>	>	
Pathways	E	>	>	M	A	>	>	>	>	
Levels	E	>	>	M	A	>	>	>	>	
Speed	E	>	>	>	>	M	A	>	>	

Direction	E	>	>	M	A	>	>	>	>
Communication	E	>	>	>	M	>	A	>	>
Spatial Awareness	E	>	>	M	A	>	>	>	>
Strategies & tactics				E	>	>	M	>	A

Invasion Games(Basketball, Soccer, Football, Lacrosse, Speedball, Ultimate Games, Field/Floor Hockey, Tchoukball)

Creating Space									
* Varying pathways, speed, direction							E	>	>
* Varying types of pass							E	>	>
* Selecting appropriate offensive tactics (with or without an object)							E	>	>
* Using length of field/court							E	>	>
Reducing Space									
* Change in defensive players size or direction for competitive advantage							E	>	>
* Denying pass/progress							E	>	>
Transition							E	M	A

Net/Wall Games(Tennis, Badminton, Pickleball, Table Tennis, Volleyball)

Creating Space									
* Varying force, angle/direction to gain competitive advantage							E	>	>
* Using offensive tactics to gain competitive advantage							E	>	>
Reducing Space									
* Returning to home position							E	>	>
* Shifting to reduce angle for return							E	>	>

Target Games(Bowling, Shuffleboard, Golf, Archery, Horse Shoes)

Selecting appropriate shot/lcub							E	>	>
Applying blocking strategy							E	>	>
Varying speed & trajectory							E	>	>

Fielding/Striking Games(Baseball, Softball, Cricket)

Appying offensive strategies								E	>
Reducing open space								E	>

Standard 3: Fitness and Physical Activity

Engages in Physical Activity	E	>	>	>	>	M	>	>	>
Physical Activity Knowledge	E	>	>	>	>	M	>	>	A
Fitness Knowledge	E	>	>	>	>	M	>	>	>
* Muscular System	E	>	>	>	>	>	M	>	>
* Skeletal System	E	>	>	>	>	>	M	>	>
* Goal Setting (Fitness)				E	>	>	>	>	>

* Nutrition	E	>	>	>	>	>	M	>	>
* Heart Rate	E	>	>	>	>	M	>	>	>
* FITT Principels				E	>	>	>	>	M
Health Related Fitness Components									
* Cardiorespiratory Endurance	E	>	>	>	>	>	M	>	>
* Muscular Strength	E	>	>	>	>	>	M	>	>
* Muscular Endurance	E	>	>	>	>	>	M	>	>
* Flexibility	E	>	>	>	>	>	M	>	>
* Body Comp.	E	>	>	>	>	>	M	>	>
Skill Related Fitness Components.									
Agility	E	>	>	>	M	>	A	>	>
Balance	E	>	>	>	M	>	A	>	>
Coordination	E	>	>	>	M	>	A	>	>
Power	E	>	>	>	M	>	A	>	>
Speed	E	>	>	>	M	>	A	>	>
Reation Time	E	>	>	>	>	>	A	>	>
Bike Safety	E	>	>	>	>	>	M	A	>
Weight Training and Conditioning									

Standard 4: Responsible Personal & Social Behavior

Teamwork	E	>	>	>	M	>	A	>	>
Respect for others, property, equipment	E	M	A	>	>	>	>	>	>
Follow instructions/directions & etiquette	E	M	A	>	>	>	>	>	>
Problem Solving	E	>	>	>	>	>	M	>	>
Advocacy				E	>	>	M	>	>
Goal Setting (Life-skills)				E	>	>	M	>	>
Anti-Bullying	E	M	A	>	>	>	>	>	>
Citizen's CPR									
Demonstrating Personal Responsibility	E	M	A	>	>	>	>	>	>

Standard 5: Recognizes the Value of Physical Activity

For Health			E	>	>	>	M	>	>
For Challenge			E	>	>	>	M	>	>
For Self-Expression/Enjoyment	E	>	>	>	>	M	>	>	>
For Social Interaction				E	>	>	M	>	>

**KEY: E = Emerging, M = Maturing, A = Applying**

Modified and Adapted from *National Standards & Grade-Level Outcomes for K-12 Physical Education* (SHAPE, 2014) pgs. 66-69

## **Appendix 2 - Curriculum Documents :: Science**

## Science Curriculum Documents

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**KINDERGARTEN**

<b>Trimester</b>	<b>Unit Topic (Using Delaware Science Coalition Kits)</b>	<b>Performance Expectations</b>	<b><u>Unit Phenomenon</u></b>	<b>Sample Student Activities &amp; Assessments</b>
1	Trees (FOSS)	K-LS1-1 K-PS3-1	How are the leaves of trees the same and different?	Campus Walk Art collaboration (leaves) Science journal
2	Push, Pull, Go	K-PS2-1 K-PS2-2	What happens when we push an object on strings? What happens when we use different strengths and directions of pushes and pulls on the motion of an object? The harder we push a toy car, the further it goes.	Investigate the swing-set. Explore a sand garden to see what happens to the sand. Push a toy car to a line that is close and a line that is far away. Bumper cars! Push, Pull, Go Unit. Science Journal
3	Weather & Me (STC)	K-ESS2-1 K-ESS3-2	Why do sunflowers follow the sun? What happens to a snowman on a warm day? Why? What are some differences between clouds? What is the weather like today, and how is it different from yesterday?	Snowman in weather (in winter). Campus walk to observe sunflowers (in June). Cloud watching discussion (class activity). Science Journal

## GRADE 1

Trimester	Unit Topic (Using Delaware Science Coalition Kits)	Performance Expectations	<u>Unit Phenomenon</u>	Sample Student Activities & Assessments
1, 2, 3	Bright Days / Dark Nights – NGSS	1-ESS1-1 1-ESS1-2	<u>What is the shadow illusion?</u> Describe seasonal patterns of sunrise and sunset. What can we predict using those observations?	Science Journals: Students create and carry out an investigation on the position of the sun. This long-term project leads them to make predictions. Guiding questions include: Can we log the length of the day on the same day each month? Can we compare the patterns of daylight in Delaware to those in Alaska? How? What do we notice? What conclusions can we draw?  Summative assessment.
2	Solids & Liquids	2-PS1-1 2-PS1-2	What properties do solids and liquids have? How can we classify them? What can testing tell us about these properties that our senses do not?	Students observe/test/sort a set of 20 solids based on physical properties. Students define the properties. Students observe/test/sort liquids. Students design and complete a race to order liquids from most viscous to most fluid. Student Journals Summative assessment.
3	Organisms (STC)	K-LS1-1 1-LS3-1	What happens to a seed when we plant it? How can we define the life of an organism?	Students plan and conduct an investigation to observe and draw conclusions on the growth of a plant. Students build terraria and aquaria and observe the plants and creatures within. What details and labels are required to make our scientific drawings useful and meaningful?
3	Catching the Wind (EiE)	K-2ETS1-1 K-2ETS1-2 K-ETS1-3 K-ETS2-1	<u>Why does the wind blow?</u> How can we use the wind to solve problems?	Students use the engineering design process to plan, create, test, and improve a model of a sail that will move a boat across stings with the air of a fan. Students use the engineering design process to design and build a windmill that lifts the most weight.



**GRADE 2**

<b>Trimester</b>	<b>Unit Topic (Using Delaware Science Coalition Kits)</b>	<b>Performance Expectations</b>	<b><u>Unit Phenomenon</u></b>	<b>Sample Student Activities &amp; Assessments</b>
1	Insects (STC)	3-LS-1 3-LS3-2	What patterns can be observed in the changes a butterfly goes through during their life?	DE-EOU-GR3 (Environmental Impacts on Organisms and Life Cycles and Traits) as a class activity. Science Journals. Plan and Carryout an investigation that observes the life cycle of a butterfly.
2	Bridges	2-PS1-2 2-PS1-3 K-2ETS1-1 K-2ETS2-1	What impact does the choice of materials have on a structure?	Students use the engineering design process to plan, design and build a model bridge. Discuss merits and properties of building materials. Design and carryout a test for the bridge. Summative reflection.
3	Soils (FOSS)	2-ESS1-1 2-ESS2-1 2-ESS2-2	What kind of events cause changes in the earth?	Students use the engineering design process to plan, design and build a model to slow or prevent water from changing the shape of the land.
3	Plants (no kit)	S-LS4-1 S-LS2-1	How does the weather change the health of a plant?	Plant a class garden. Design an investigation to answer questions on watering and sunlight/shade.

**GRADE 3**

<b>Trimester</b>	<b>Unit Topic (Using Delaware Science Coalition Kits)</b>	<b>Performance Expectations</b>	<b><u>Unit Phenomenon</u></b>	<b>Sample Student Activities &amp; Assessments</b>
1	Forces & Interactions(no kit)	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 3-5ETS1-1,2,3	Magnets produce fields that attract or repel other objects.	Students use the engineering design process to design, test, and improve a tabletop maglev transportation system.
2	Earth Materials (FOSS)	3-LS4-1 4-ESS1-1	Did an asteroid kill the dinosaurs?	Students investigate through taking apart and putting together. Students observe, describe, and record properties of rocks. Students observe the effects of vinegar on certain minerals. Students investigate and classify fossils.
3	Water, Water Everywhere (EiE)	3-5ETS1-1 3-5ETS1-2 3-5ETS1-3 3-ESS2-1	Dirty water must be cleaned before it is safe to drink.	Students use the engineering design process to investigate, plan, and test water filters.

## GRADE 4

Trimester	Unit Topic (Using Delaware Science Coalition Kits)	Performance Expectations	<u>Unit Phenomenon</u>	Sample Student Activities & Assessments
1	Structures of Life (FOSS)	3-LS1-1 3-LS2-1 3-LS3-1 3-LS4-1 3-LS4-2 3-LS4-3 3-LS4-4	<a href="#">Hemingway's Polydactyl Cats</a>	Students investigate and sort animals by characteristics Investigate the external structures of a beetle to analyze the impacts of those structures on its status as predator and/or prey Students classify animals by their young Investigate and compare properties of seeds and fruits Investigate crayfish to observe and record structural and behavioral adaptations Investigate skeletal systems. Hydroponics vs soil: an investigation
2	Magnetism & Electricity (Foss)	4-PS3-1 4-PS3-2 4-PS3-3 4-PS3-4 4-ESS3-1	Shuffling your feet on some floors can build up a static charge.	Design an experiment to identify conductors and insulators Discover the relationship between the number of turns of wire around an electromagnetic core and the strength of the magnetism Explore to discover attraction and repulsion with relationship to magnets Use the engineering design process to design and create a telegraph
3	Land & Water	4-ESS1-1 4-ESS2-1 4-ESS2-2 4-ESS3-1 4-ESS3-2	<a href="#">Grand Canyon</a>	DE EOU (Processes that Shape the Earth) in small groups Students look for evidence of patterns and systems in motion, weathering, fossils, and rock formations. Evidence of patterns and systems in streams as they encounter Earth features. Water on Earth: Investigate how water travels through sand, clay, dirt, and mud.

## GRADE 5

Trimester	Unit Topic (Using Delaware Science Coalition Kits)	Performance Expectations	<u>Unit Phenomenon</u>	Sample Student Activities & Assessments
1	Engineering Design Process	MS-ETS1-4	Testing a design can be helpful. <a href="#">Gallopig Gertie Bridge Disaster</a>	Students use the engineering design process to design and test a model airplane, including a prototype and redesign. Science Journal
1	Matter	5-PS1-1 5-PS1-2 5-PS1-3 5-PS1-3 5-PS2-1 5-PS3-1	<a href="#">Why does cutting an onion make you cry?</a> Observe a balloon with baking soda combined with a water bottle filled with vinegar – what happens?	DE-EOU (Structures and Properties of Matter) in small groups Heating & Cooling petroleum Plan the best ways to carry out an experiment that separates mixtures. Science Journal
2	Astronomy	5-ESS1-1 5-ESS1-2 5-ESS2-1	Observe the winter and summer solstice <a href="#">How do Sundials work?</a>	DE-EOU (Stars and the Solar System) in small groups Design and build a sun dial Design an investigation to measure shadows on campus throughout the day. Earth vs The Sun: a size comparison! Science Journal.
3	Ecosystems	5-LS2-1	<a href="#">Watered once in 50 year?</a>	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. Create and observe an ecosystem and investigate the roles of producers, consumers, and decomposers. Science Journal
3	Slick Solutions (EiE)	5-LS2-1 5-ESS3-1 3-5ETS-1 3-5ETS-2	The salvinia effect in plants	Students use the engineering design process to design a model clean-up of an oil spill. Science Journal

**GRADE 6**

<b>Trimester</b>	<b>Unit Topic (Using Delaware Science Coalition Kits)</b>	<b>Performance Expectations</b>	<b><u>Unit Phenomenon</u></b>	<b>Sample Student Activities &amp; Assessments</b>
1	Planet Earth (TCI) & Space (TCI)	MS-ESS-1 MS-ESS-2 MS-ESS-3 MS-ESS-4	<a href="#">How do sundials work?</a> What are star trails and what can we connections can we make by observing them? How much does the earth weigh?	Students design a model to explain rotation and revolution. They record their model in a short video as a formative assignment. Explore the motion of orbiting objects in the solar system. TCI Summative assessments.
2	Earth's History & Systems (no kit)	ME-ESS2-1 MS-ESS2-4 MS-ESS3-1	What happens as water changes state? What can we tell by observing rocks? Water entering the Geosphere.	Topographical map manipulation. Exploration of Natural Disasters through student selected research. Use the engineering design process to explore solutions to weathering and erosion. <a href="#">Where did the Water Go?</a>
3	Forces (TCI)	MS-PS2-1 MS-PS2-2 MS-PS2-4 MS-PS3-1 MS-PS3-5	<a href="#">Rube Goldberg Machines</a>	DE-EOU (Force & Motion) in small groups Use the engineering design process to plan, build, and present a Rube Goldberg Machine.

## GRADE 7

Trimester	Unit Topic (Using Delaware Science Coalition Kits)	Performance Expectations	<u>Unit Phenomenon</u>	Sample Student Activities & Assessments
1	Matter (TCI)	MS-PS1-1 MS-PS1-2 MS-PS1-3 MS-PS1-4 MS-PS1-5	To create stage makeup, chemists must account for the properties of the substances they will use. Water appears to disappear when boiled. <a href="#">Why doesn't it break?</a>	DE-EOU (Properties of Matter) in small groups for part, with part as a summative assessment. Students use the engineering design process to plan and design investigations chemical reactions, and make sense of information to describe the impacts of synthetic materials. Students use different tools to model simple molecules and more complex extended structures. Students identify unknown substances found at a fictional crime scene. Students predict state changes as a result of pressure and temperature changes. Students discover how the motion of particles is related to the thermal energy of a substance and the heat it gains or loses from other substances. They use this discovery to revise their initial models of matter.
2	Cells and Genetics (TCI)	MS-LS1-1 MS-LS1-2 MS-LS1-3 MS-LS3-1 MS-LS3-2	Why do cats have different hair color and length? <a href="#">Killer T-Cells</a> <a href="#">White blood cells</a> <a href="#">Inner Life of a Cell</a>	<a href="#">Antibiotic Resistance</a> History of Life on Earth The Evolution of Life Human Impacts on Evolution Students design and create a model of a cell from edible material How has the opposable thumb affected human survival? Students plan a Trait Trek to Madagascar.
3	Adaptations (TCI)	MS-LS4-1 MS-LS4-2 MS-LS4-3 MS-LS4-4 MS-LS4-5 MS-LS4-6	Similar fossils have been found in the same aged rock in fossil digs that are over 100 miles apart. <a href="#">Natural Fish Lure</a>	Students assume the role of paleontologist and collect data from one of six fossil sites around the world. They analyze the data to find patterns. Students use the engineering design process to design a tool to extract a plaster model of a fossil, develop possible solutions to problems they encounter, and evaluate their designs. Students construct a scientific explanation based on evidence obtained from sources. Look who's coming to Dinner: students formulate a hypothesis, test data, and derive conclusions.

**GRADE 8**

<b>Trimester</b>	<b>Unit Topic (Using Delaware Science Coalition Kits)</b>	<b>Performance Expectations</b>	<b><u>Unit Phenomenon</u></b>	<b>Sample Student Activities &amp; Assessments</b>
1	Waves (TCI)	MS-PS3-1,2,3 MS-PS4-1 MS-PS4-2 MS-ETS1-1 MS-ETS1-3	<a href="#">Ruben's Tube</a> <a href="#">Self-leveling pool table</a>	DE-EOU (Transformation of Energy) as a summative assessment. <a href="#">Ocean Waves</a> (cross-curricular with Math) Forces & Non-contact forces How does the mass and speed of a go-kart affect the forces involved in collision? Use a slinky to model a wave and create a plan for erosion.
2	Weather & Climate (TCI)	MS-ESS2-6	<a href="#">Build a Mountain to increase rainfall</a> <a href="#">Dark Snow Project</a>	DE-EOU (Weather and Climate) as a summative assessment. <a href="#">Four Cities</a>
3	Ecosystems (TCI)	MS-LS1-6,7 MS-LS2-1,2,3,4,5	<a href="#">Attack of the killer fungi</a> <a href="#">Too much of a good thing?</a>	Resources in Ecosystems Energy & Matter in Ecosystems Humans & Changing Ecosystems

**SCIENCE & ENGINEERING PRACTICES AND CROSSCUTTING CONCEPTS**

		Science & Engineering Practices							
		Asking Questions & Defining Problems	Developing & Using Models	Planning & Carrying Out Investigations	Analyzing & Interpreting Data	Using Mathematics & Computational Thinking	Constructing Explanations & Designing Solutions	Engaging in Argument from Evidence	Obtaining, Evaluation, and Communicating Information
<b>Crosscutting Concepts</b>	Patterns	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Cause & Effect	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Scale, Proportion, & Quantity	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Systems & System Models	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Energy & Matter	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Structure & Function	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8
	Stability & Change	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8	K – 8



**SAMPLE KINDERGARTEN LESSON  
(ADAPTED FROM PUSH, PULL, GO!)**

Standards:	Phenomenon:	Crosscutting concepts:	Disciplinary Core Ideas:	Science & Engineering Practices:
Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	What happens when we use different strengths and directions of pushes and pulls on the motion of an object?	Cause & Effect	PS2.A: Forces & Motion PS2.B: Types of interactions PS3.C: Relationship between Energy and Forces	Asking questions and defining problems. Planning & Carrying out Investigations. Analyzing & Interpreting Data. Constructing explanations.
Lesson Specific Objective: Use common playground equipment to continue building understanding of force and motion.				Essential Question: What makes the ball go? How can we make a plan to figure out a scientific answer?
This 45 minute lesson occurs on Day 2 of this unit. This unit takes approximately 2 weeks.				

Push, Pull, Roll Extension

Vocabulary: Push, pull, force, motion

Materials: Different playground balls, Anchor Chart labeled “Our Ideas about Force” and “Our Ideas about Motion”, Student Science Journals.

\*This lesson takes place partially outside.

### KINDERGARTEN ACTIVITY PLAN

Engage (5 minutes): Class begins outside with students seated. Teacher rolls a ball against a backdrop and challenges the students to use their new vocabulary words to discuss their observations through turn and talk. What do we notice? What would we wonder?
Explore (10 minutes): Teachers will pose 3 questions. (Can any of these playground balls move on their own? What can make them move? How can I make one move without touching it with any part of my body?) Students plan how to use the playground balls to answer those three questions. Teacher notes plan on Anchor Chart.
Explore: (15 minutes): Students investigate in their groups. Teachers may utilize collaborative group roles or partner roles. Teacher circulates to facilitate with sharing, on-task activity, and questioning.
<p><b>Sample Questions to further thinking:</b></p> <p>How is what stopped the ball a force? What can change the direction of the ball?</p> <p>How is what changed the direction of the ball a force?</p> <p>What is the same about the red ball and the green ball as we roll them?</p> <p>Why did the red ball go farther when Student A rolled it?</p> <p>You said you rolled the yellow ball harder (used more force), but it didn't go as far as the blue one. Why do you think that happened? How can you test that idea?</p>
Explain (10 minutes): Students note their observations in their Science Journals by drawing pictures.
Evaluate (5 minutes): Students share in groups what they learned. One student per group shares the group evaluation with the class. Student notes are logged on the classroom Anchor Charts, "Our Ideas about Force" and "Our Ideas about Motion".
Next Steps (3 minutes): How can we continue to explore force and motion tomorrow with the swing set?

**SAMPLE GRADE 4 LESSON**  
**(ADAPTED FROM STRUCTURES OF LIFE)**

Standards:	Phenomenon:	Crosscutting concepts:	Disciplinary Core Ideas:	Science & Engineering Practices:
Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	<a href="#">Butterfly Eye</a> or <a href="#">Desert Beetle harvesting water</a>	Cause & Effect	L.S4.B: Natural Selection	Constructing explanations and designing solutions. <ul style="list-style-type: none"> <li>Use evidence to construct an explanation</li> </ul>
Lesson Specific Objective: Investigate the external structures of a beetle to analyze the impacts of those structures on its status as predator or prey				Essential Question: What can we learn about a beetle by observing its external structures?
This lesson takes 60 minutes. This unit takes approximately 3 weeks.				

External Structures of a beetle

Tier 2 Vocabulary: antennae, joint, predator, prey, pinchers, structure, territory, external

Tier 3 Vocabulary: Abdomen, adaptation, nocturnal, stridulating

Materials: Bess beetles, bess beetle bins, paper towel tunnels (one per group), magnifying strips, observation sheet, journal section of science binder, pencil, Smart Board, sticky notes, “Look What Stuck With Us” Anchor poster.

**GRADE 4 ACTIVITY PLAN**

Engage (5 minutes): Students will view the butterfly eye phenomenon and turn and talk to discuss what they notice and what they wonder. A visual noise level monitor will be running on the Smart Board to help the students monitor their noise level, as beetles are sensitive to loud noises.
Explore (10 minutes): Teachers will post a photo of a bess beetle on the Smart Board and pose 3 questions. (How can we study the external structures of a beetle? What might those external structures tell us? The beetles that we will be studying today are all the same species; what can the differences between individual beetles tell us?) Students plan together how to use their materials to answer those three questions. Teacher notes plan on the Smart Board as groups note their plan in their Science Journals. Explore (15 minutes): Students use magnifying strips to investigate the beetles their groups. They note their observations on their observation sheet per their classroom routines.
Explore (15 minutes): Student groups receive a crayfish. Students use magnifying strips to compare the beetle behavior and body parts to the crayfish behavior and body parts.
<b>Sample Questions to further thinking:</b> Which of the external body structures indicate a defense against a predator? Which of the external body structures indicate a weakness against a predator? What do you think the pinchers do? What differences do you observe between the beetle and the crayfish? What do those differences lead us to conclude? How else can you make an observation? What else would be helpful to know?
Explain (10 minutes): Students note their “After Action Report” in their Science Journals by drawing pictures and writing bullet point key observations.
Evaluate (5 minutes): Students share in groups what they observed and what questions they now have as a result of their learning. One student per group shares the group evaluation with the class. Student notes are logged on the classroom “Look What Stuck With Us” Anchor Chart.
Next Steps: What other structures can we investigate to further inform our thinking on the structures of life?

**Unit:** The Earth-Sun-Moon System

**Lesson:** Eclipses

**Component:** Investigation 1: Modeling an Eclipse

**Standards Covered**

**Performance Expectation**

**MS-ESS1-1** Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

<p><b>Science and Engineering Practices</b></p> <p><b>Constructing Explanations and Designing Solutions</b></p> <ul style="list-style-type: none"> <li>Construct an explanation using models or representations.</li> </ul> <p><b>Developing and Using Models</b></p> <ul style="list-style-type: none"> <li>Develop and/or use a model to predict and/or describe phenomena.</li> </ul> <p><b>Using Mathematics and Computational Thinking</b></p> <ul style="list-style-type: none"> <li>Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems.</li> </ul> <p><b>Planning and Carrying Out Investigations</b></p> <ul style="list-style-type: none"> <li>Conduct an investigation and/or evaluate and/or revise the experimental design to produce data to serve as the basis for evidence that meet the goals of the investigation.</li> </ul> <p><b>Asking Questions and Defining Problems</b></p> <ul style="list-style-type: none"> <li>Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify and/or seek additional information.</li> </ul>	<p><b>Crosscutting Concepts</b></p> <p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>Patterns can be used to identify cause and effect relationships.</li> </ul> <p><b>Structure and Function</b></p> <ul style="list-style-type: none"> <li>Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.</li> </ul>	<p><b>Disciplinary Core Ideas</b></p> <p><b>ESS1.B: Earth and the Solar System</b></p> <ul style="list-style-type: none"> <li>This model of the solar system can explain eclipses of the sun and the moon. Earth’s spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.</li> </ul> <p><b>ESS1.A: The Universe and Its Stars</b></p> <ul style="list-style-type: none"> <li>Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.</li> </ul>
<p><b>Connections to Nature of Science</b></p> <p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.</li> </ul>		

## Common Core ELA Standards

Reading	Writing	Speaking and Listening
<p><b>Integration of Knowledge and Ideas</b></p> <ul style="list-style-type: none"> <li>• Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</li> <li>• Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).</li> </ul>	<p><b>Research to Build and Present Knowledge</b></p> <ul style="list-style-type: none"> <li>• Draw evidence from informational texts to support analysis reflection, and research.</li> </ul>	<p><b>Comprehension and Collaboration</b></p> <ul style="list-style-type: none"> <li>• Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.</li> </ul>

## Common Core Math Standards

Math
<p><b>Understand ratio concepts and use ratio reasoning to solve problems.</b></p> <ul style="list-style-type: none"> <li>• Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 21, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</li> </ul> <p><b>MP.Reason abstractly and quantitatively</b></p> <ul style="list-style-type: none"> <li>• CC.K-12.MP.2.Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.</li> </ul>

## Lesson Overview

Allow approximately 180 minutes for this lesson.

**Observing Phenomena:** Students discover and observe the phenomena of eclipses. [15 min]

Suggested Reading: Introduction

**Investigation 1:** Modeling an Eclipse

Students use a model of planetarium to find patterns that explain why eclipses occur. [30 min]

Suggested Reading: Sections 1-3

### **Investigation 2: Modeling the Moon's Orbital Plane**

Students model the orbital plane of the moon to find patterns that reveal why eclipses are rare. [30 min]

Suggested Reading: None

### **Investigation 3: Developing and Testing an Eclipse Model**

Students develop and revise models that describe, test, and predict information about eclipses. [45 min]

Suggested Reading: Section 4

### **Investigation 4: Investigating Apparent Size**

Students plan and carry out an investigation to show why the moon and sun appear about the same size from Earth. [45 min]

Suggested Reading: Section 5

**Making Sense of Phenomena:** Students design a storyboard that uses a model to explain what causes eclipses and why they are rare. [15 min]

Suggested Reading: Lesson Summary

## **Teacher Prep**

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### **Investigation 2: Modeling the Moon's Orbital Plane**

- Print Handout: *Moon's Orbital Plane Signs* and cut along the dashed line.
- Post the top sign in the front of the classroom, above the red orbital plane tape.
- Post the bottom sign in the back of the classroom, below the pink orbital plane tape.
- Attach a foam ball (moon) to a toy hoop (orbit) to represent the moon's orbital plane.

### **Investigation 3: Developing and Testing an Eclipse Model**

For Investigations 3, students will work in groups of three. Give groups access to all of the materials used so far in this unit. You may want to supply additional materials, such as clay, construction paper, chenille stems, etc. or have students bring in their own materials.

### **Investigation 4: Investigating Apparent Size**

For Investigation 4, students will work in groups of three. Give groups access to all of the materials used so far in this unit. You may want to supply additional materials, such as clay, construction paper, chenille stems, etc. or have students bring in their own materials.

## **Differentiating Instruction**

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## Quicker Coverage

**Avoid Repeating the Modeling** At the end of Investigation 1, students are asked to switch the Observer and Earth roles. To save time, eliminate the role swap. Similarly, Investigation 2 suggests having multiple volunteers experience and observe how the model works. Ensure that the class understands what the models represent, and skip having different sets of volunteers take turns demonstrating the model.

## Deeper Coverage

**Revisit the Investigation Preview** Ask students to revisit the questions they brainstormed about eclipses. If the question they starred was not covered by the lesson, have them research the answer to the question. If their starred question was answered, ask them to choose a different question or write a new question to research. Students should write at least one paragraph in response to the question.

**Distance from Earth** In Investigation 4, students learned how to predict the distance between Earth and celestial objects in the sky. Either assign each student three objects, such as planets and stars, or ask students to choose their own objects. Have them predict the distance of the object from Earth.

## English Language Learners

**Pre-teach Vocabulary** Pre-teach the difference between lunar and solar eclipses as vocabulary terms. Focus on the fact that these terms refer to what is hidden, not what is doing the hiding; otherwise, students may think lunar eclipses happen when the moon eclipses the sun. Connect the vocabulary to example images before starting the lesson.

## Learners Reading and Writing Below Grade Level

**Do the Notebook Prompts Together** Have volunteers read each section aloud while the rest of the class follows along. Complete the notebook prompts as a class and make sure that students understand the main ideas of each section before moving on.

## Students with Special Education Needs

**Eclipses and Waning Moons** During Investigation 1, students may have difficulty understanding the difference between new moons and eclipsed moons. Compare a lunar eclipse to a waning or new moon. Remind students that normally sections of the moon are dark because of its position relative to the Earth and sun, whereas eclipses are caused by actual obstruction of light. Also, the shadows of eclipses and waning of light happen in different directions.

**Teaching Umbra and Penumbra** When teaching the difference between umbra and penumbra, use multiple flashlights to emphasize that light rays leave the sun from different locations and in different directions, causing certain areas of the Earth to be only partially obscured by the moon.

## Advanced Learners

**Track an Upcoming Eclipse** Have students research when the next total or partial eclipse will occur. Consider providing resource links or suggestions for eclipse-focused apps. Have students research the predicted path of the eclipse and use a mapping program to find how far the nearest eclipse viewing area is from their house or school.

## Enhancing Learning

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We know you're always looking for ways to expand your lessons, so we've done the research for you! Suggestions here are for outside resources and may change from time to time. If you find a resource that is not working properly or have a resource you'd like to see added, please email us at [info@teachtci.com](mailto:info@teachtci.com) and we'll take a look.

### **Eclipse Interactive (simulation)**

[http://highered.mheducation.com/olcweb/cgi/pluginpop.cgi?it=swf::640::480::/sites/dl/free/007299181x/220730/eclipse\\_interactive.swf::Eclipse%20Interactive](http://highered.mheducation.com/olcweb/cgi/pluginpop.cgi?it=swf::640::480::/sites/dl/free/007299181x/220730/eclipse_interactive.swf::Eclipse%20Interactive)

This simulation guides students in modeling the relative locations and motion of the earth and the moon to explain how ellipses and their patterns occur. Students can adjust the size of the moon, the earth-moon distance, and the tilt from orbit to find out just how special eclipses truly are.

### **Lunar Eclipse Essentials (video)**

<http://svs.gsfc.nasa.gov/10787>

When the moon passes through the shadow caused by the earth, it appears red. This animated video explains why the moon looks so unusual during what is known as a lunar eclipse. Students watching will learn about the stages of a lunar eclipse and gain a scientific explanation as to why the moon turns red.

### **What Creates a Total Solar Eclipse? (video)**

<http://ed.ted.com/lessons/what-creates-a-total-solar-eclipse-andy-cohen#review>

This video provides students with an introduction to the solar eclipse. Animated visuals are accompanied by narration explaining the history of solar eclipses, the positional relationship that allows solar eclipse to occur, why partial eclipses occur, and the future of solar eclipses. The website also has post-video questions, a discussion, and additional sources.

### **Fill-in Diagram (website)**

<http://middle3.fatcow.com/eclipse.pdf>

This worksheet assists students in understanding the relative locations that the moon, sun and earth need to be at in order for a solar or lunar eclipse to occur. Students benefit through this activity by contrasting the cause for a solar versus a lunar eclipse. Teachers may find this helpful as an introductory activity to give students means of visualization.

## **Blended Learning**

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### **Investigation 1: Modeling an Eclipse**

#### **Lab Materials**

Many investigations with lab materials can be done by modeling. Create a lab station that you can show on camera, then model procedures while students watch on the screen. Use our slide sharing feature to share investigation procedures with students, which will allow them to follow along as you present the investigation. Students can answer notebook questions directly in the Notebook buttons in the slides, if you are unable or prefer not to pass out PDFs or use consumable notebooks.

If your students are physically distancing, allow them to complete the investigations by working safely in groups. Ensure students follow district/state safety guidelines, including washing hands before/after using lab materials and wearing masks. Be sure to sanitize materials before and after they are handled.

## Working in Groups

Ensure you provide students with a personal copy of any handouts prior to starting the investigation.

Most groupwork can be done individually, but consider the following options for creating more engagement. Have students work together through a shared document, this will allow you to provide feedback directly into their document. If you are using Zoom, consider using breakout groups. If you are using Google Classroom, consider having students use Google Meet.

If your student are physically distancing, be aware that your classroom might be louder than normal. Set a timer with a max number of minutes per discussion to provide breaks in the conversations. Have one student provide the group's responses as appropriate.

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## Investigation 2: Modeling the Moon's Orbital Plane

### Lab Materials

Many investigations with lab materials can be done by modeling. Create a lab station that you can show on camera, then model procedures while students watch on the screen. Use our slide sharing feature to share investigation procedures with students, which will allow them to follow along as you present the investigation. Students can answer notebook questions directly in the Notebook buttons in the slides, if you are unable or prefer not to pass out PDFs or use consumable notebooks.

If your students are physically distancing, allow them to complete the investigations by working safely in groups. Ensure students follow district/state safety guidelines, including washing hands before/after using lab materials and wearing masks. Be sure to sanitize materials before and after they are handled.

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## Investigation 3: Developing and Testing an Eclipse Model

### Lab Materials

Many investigations with lab materials can be done by modeling. Create a lab station that you can show on camera, then model procedures while students watch on the screen. Use our slide sharing feature to share investigation procedures with students, which will allow them to follow along as you present the investigation. Students can answer notebook questions directly in the Notebook buttons in the slides, if you are unable or prefer not to pass out PDFs or use consumable notebooks.

If your students are physically distancing, allow them to complete the investigations by working safely in groups. Ensure students follow district/state safety guidelines, including washing hands before/after using lab materials and wearing masks. Be sure to sanitize materials before and after they are handled.

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If your student are physically distancing, be aware that your classroom might be louder than normal. Set a timer with a max number of minutes per discussion to provide breaks in the conversations. Have one student provide the group's responses as appropriate.

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## Investigation 4: Investigating Apparent Size

### Lab Materials

Many investigations with lab materials can be done by modeling. Create a lab station that you can show on camera, then model procedures while students watch on the screen. Use our slide sharing feature to share investigation procedures with students, which will allow them to follow along as you present the investigation. Students can answer notebook questions directly in the Notebook buttons in the slides, if you are unable or prefer not to pass out PDFs or use consumable notebooks.

If your students are physically distancing, allow them to complete the investigations by working safely in groups. Ensure students follow district/state safety guidelines, including washing hands before/after using lab materials and wearing masks. Be sure to sanitize materials before and after they are handled.

### Students Present

If your students are physically distancing, consider having them present from their desks or mark the floor with a designated presentation area.

Have students present digitally. This can be done by having students share an online document or use a message board or a learning management system. Project the student's work and have them present from their own devices.

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### INVESTIGATION 1: MODELING AN ECLIPSE

#### SLIDE 1

#### INVESTIGATION 1 MODELING AN ECLIPSE

#### Support Buttons:

#### Investigation Overview

In this investigation, students model a lunar eclipse and a solar eclipse. Students gain a better understanding of these phenomena and the Earth-sun-moon relationship. To perform this investigation:

- First, students model how eclipses appear from Earth where one partner is Earth and the other partner is the Observer.
- Then, students experiment to see if solar energy reaches the moon during a lunar eclipse using yarn to represent sunlight. Students switch roles.
- Next, students experiment to see if solar energy reaches Earth during a solar eclipse using yarn to represent sunlight. Students switch roles.
- Finally, students reflect on their models and discuss the patterns that were observed.

#### Materials



- Ball, styrene, 3" **▲ Falling or Tripping Hazard, Moving Parts or Projectiles Hazard**
- Bamboo skewer **▲ Moving Parts or Projectiles Hazard, Sharp Edges Hazard**
- Light bulb **▲ Bright Light Hazard, Electrical Hazard**
- Light bulb stand **▲ Bright Light Hazard, Electrical Hazard**
- Marker, permanent
- Tape, painter's
- Yarn
- Handout: Polaris
- Spanish: Handout: Polaris

### Safety Info

Based on your students' age and learning readiness, prepare the classroom for a safe experience. Carefully review TCI's risk assessment for each of the materials listed for this investigation. Make sure to follow all district and state safety protocols for all potential risks. Please take careful note of the safety equipment you'll need, and ensure that you have trained your students on proper handling and use of materials.

Remind students to use caution when handling the bamboo skewers as they can cause puncture wounds if they're not handled properly. Tell students not to touch lighted light bulbs. Caution students to be careful moving around the light-bulb stand to avoid knocking it down.

### Teacher Prep

The classroom should be set up as a Planetarium. Complete instructions are on slide 2 of the Complete Lesson Guide.

### Connecting to Phenomena

In this investigation, students examine how eclipses occur when the shadow of one celestial object falls on another and that solar eclipses occur during a new moon and lunar eclipses occur during a full moon.

This knowledge will help students in forming their explanation of the lesson investigative phenomenon.

Students also determine Earth, the sun, and the moon are a system of moving parts that follow a pattern and conclude eclipses occur when the sun, the moon, and Earth are in alignment with each other.

Students will use this knowledge to progress their explanations of the unit anchoring phenomenon.

### Misconceptions

A common misconception is that eclipses are harbingers of something bad about to happen. Emphasize to students that we tend to remember occasions when two events happened together, but forget many other times when they did not. While bad things may happen after an eclipse, you can also find numerous cases when something good happens as well.

### Universal Access

**For English Language Learners**, pre-teach vocabulary. Pre-teach the difference between lunar and solar eclipses as vocabulary terms. Focus on the fact that these terms refer to what is hidden, not what is doing the hiding; otherwise, students may think lunar eclipses happen when the moon eclipses the sun. Connect the vocabulary to example images before starting the lesson.

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**SLIDE 2**

What does the phenomenon of an eclipse look like? You will work in pairs to model how eclipses appear from Earth.

One partner will be Earth and the other will be the Observer.

**Earth:** You will hold the foam moon and observe how eclipses appear from Earth's surface.

**Observer:** You will observe the orientation of the Earth-sun-moon system from outer space.

Let's darken the room and begin.

**Support Buttons:**

**SEP Toolkits**

Need more practice with Developing and Using Models? Use this toolkit.

**Materials**

- Ball, styrene, 3" **▲ Falling or Tripping Hazard, Moving Parts or Projectiles Hazard**
- Bamboo skewer **▲ Moving Parts or Projectiles Hazard, Sharp Edges Hazard**
- Light bulb **▲ Bright Light Hazard, Electrical Hazard**
- Light bulb stand **▲ Bright Light Hazard, Electrical Hazard**
- Marker, permanent
- Tape, painter's
- Yarn
- Handout: Polaris
- Spanish: Handout: Polaris

**Lesson Support**

This is the same classroom setup as Investigation 2 of Phases of the Moon where students modeled moon phases using a foam ball on a stick. The diagram on this slide shows a full moon or a lunar eclipse.

Before moving onto the next slide, consider giving pairs time to do some free experimentation and try to create eclipses on their own.

Alternatively, allow students to create their own models and use them to walk through Parts I and II of this investigation, modifying their models as needed to illustrate the same concepts.

Note that in Investigation 3, students will create and test completely new models from materials of their choosing.

**Connecting to Phenomena**

Have students carefully note and consider the positions and movement of the Earth and moon around the sun in slides 8-10. This knowledge is essential to understanding and explaining the lesson investigative phenomenon.



**SLIDE 3****Lunar Eclipse**

A lunar eclipse occurs when the moon passes through Earth's shadow.

Work with your partner to figure out how to model a lunar eclipse!

**Earth:** Which lunar phase occurs during a lunar eclipse?+

full moon

**Observer:** What is the orientation of the Earth-sun-moon system in a lunar eclipse?+

Earth is directly between the moon and the sun.

**Support Buttons:**

**Hint**

To view this image in more detail, sign in to TCI.

**Lesson Support**

If students are not immediately able to create a lunar eclipse, allow them to struggle with the model for a little while.

If necessary, talk through each of the components of the model again, asking scaffolded questions such as, *Where is the Earth/sun/moon in this model? What phenomenon are you trying to model? In what orientation would Earth block sunlight from reaching the moon?*

The final animation on this slide reveals a video that models a lunar eclipse.

**SLIDE 4**

Now we need one pair to step out of their model so they can use yarn to represent sunlight.

**Volunteer 1:** Carefully stand next to the sun (light bulb). Hold one end of the yarn.

**Volunteer 2:** Stretch the yarn in a straight line from the sun to one of the Earth students.

**Class:** Would you see a lunar eclipse during the day or night?

night

Can solar energy reach the moon during a lunar eclipse?

No, sunlight is blocked by Earth.

**Support Buttons:**

**Materials**

- Ball, styrene, 3" **▲ Falling or Tripping Hazard, Moving Parts or Projectiles Hazard**
- Bamboo skewer **▲ Moving Parts or Projectiles Hazard, Sharp Edges Hazard**
- Light bulb **▲ Bright Light Hazard, Electrical Hazard**
- Light bulb stand **▲ Bright Light Hazard, Electrical Hazard**
- Marker, permanent
- Tape, painter's
- Yarn
- Handout: Polaris
- Spanish: Handout: Polaris

**Lesson Support**

Have the student volunteers move around to as many of the Earth students as time allows, showing that the solar energy from the sun is blocked by Earth during a lunar eclipse.

Make sure students keep the yarn in a straight line at all times, emphasizing that light travels in straight lines. However, you may wish to bend the yarn around Earth and ask, *Can light do this? Why or why not? How do you know?*

Then have students plan and carry out a series of investigation to test how light moves through space.

Option: Instead of having student volunteers hold the yarn, you can conduct the demo yourself. If so, you may want to tape the yarn to the table the light bulb stand is on.

**Universal Access**

For students with special education needs, review eclipses and waning moons.

During Investigation 1, students may have difficulty understanding the difference between new moons and eclipsed moons.

Compare a lunar eclipse to a waning or new moon. Remind students that normally sections of the moon are dark because of its position relative to the Earth and sun, whereas eclipses are caused by actual obstruction of light.

Also, the shadows of eclipses and waning of light happen in different directions.





**SLIDE 5**

Switch roles and repeat the simulation, allowing each partner to view a lunar eclipse from a different perspective.

Then complete the notebook prompts.

**Support Buttons:****Connections to Your Life**

When will the next lunar eclipse occur? When was the last lunar eclipse? To find out, many websites online, including NASA's Eclipse Web Site, list the dates of past and future eclipses and provide other information about them as well.

**Universal Access**

For learners reading and writing below grade level, do the notebook prompts together. Have volunteers read each section aloud while the rest of the class follows along. Complete the notebook prompts as a class and make sure that students understand the main ideas of each section before moving on.

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**SLIDE 6**

**Solar Eclipse**

A solar eclipse occurs when light from the sun is blocked by the moon, and the moon's shadow falls on Earth.

Work with your partner to figure out how to model a solar eclipse!

Earth: Which lunar phase is visible during a solar eclipse?+

**new moon**

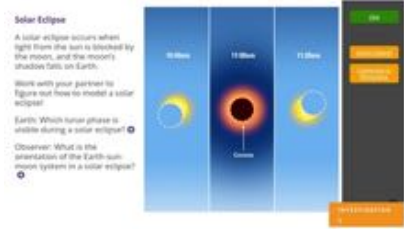
Observer: What is the orientation of the Earth-sun-moon system in a solar eclipse?+

**The moon is directly between Earth and the sun.**

**Support Buttons:**

**Hint**

*To view this image in more detail, sign in to TCI.*



**Lesson Support**

If students are not immediately able to create a solar eclipse, allow them to struggle with the model for a little while.

If necessary, talk through each of the components of the model again, asking scaffolded questions such as, *Where is the Earth/sun/moon in this model? What phenomenon are you trying to model? In what orientation would the moon block sunlight from reaching Earth?*

The final animation on this slide reveals a video that models a solar eclipse.

**Connecting to Phenomena**

Key to understanding solar eclipses and explaining the lesson investigative phenomenon, have students carefully note and examine the position and movement of the Earth and moon relative to the sun as depicted in slides 12-13.

**SLIDE 7**

Let's have another pair step out of their model and use the yarn to represent sunlight again.

**Volunteer 1:** Carefully stand next to the sun (light bulb). Hold one end of the yarn.

**Volunteer 2:** Stretch the yarn in a straight line from the sun to one of the "moons" (foam balls).

**Class:** Would you see a solar eclipse during the day or night?

day

Can solar energy reach the Earth during a solar eclipse?

Part of Earth's surface (in the umbra) does not receive solar energy during a solar eclipse.

**Support Buttons:**

**Materials**

- Ball, styrene, 3" **▲ Falling or Tripping Hazard, Moving Parts or Projectiles Hazard**
- Bamboo skewer **▲ Moving Parts or Projectiles Hazard, Sharp Edges Hazard**
- Light bulb **▲ Bright Light Hazard, Electrical Hazard**
- Light bulb stand **▲ Bright Light Hazard, Electrical Hazard**
- Marker, permanent
- Tape, painter's
- Yarn
- Handout: Polaris
- Spanish: Handout: Polaris

**Lesson Support**

Because the moon is so much smaller than Earth, a total solar eclipse is only viewed on Earth's surface in the umbra.

**SLIDE 8**

Switch roles and repeat the simulation, allowing each partner to view a solar eclipse from a different perspective.

Then complete the notebook prompts.

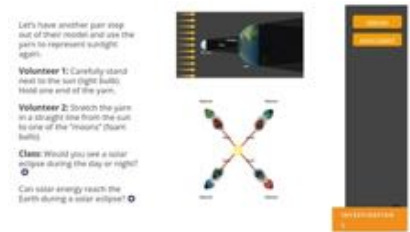
**Support Buttons:**

**Universal Access**

For quicker coverage, avoid repeating the modeling. At the end of Investigation 1, students are asked to switch the Observer and Earth roles. To save time, eliminate the role swap.

For learners reading and writing below grade level, do the notebook prompts together. As before, have volunteers read each section aloud while the rest of the class follows along.

Complete the notebook prompts as a class and make sure that students understand the main ideas of each section before moving on.



**SLIDE 9**

**Wrap Up**

Reflecting on the model:

- What are the components of the eclipse model you just used?+  
sun (light bulb), Earth (student), the moon (foam ball), sunlight (light from the bulb and yarn)
- What parts of this model are like the real world? Unlike the real world?+  
You can observe how your head's shadow (Earth's shadow) blocks the moon, or how the moon blocks the sun. But the relative sizes of the moon, sun, and Earth are incorrect.
- What patterns can be seen in this model?+  
This model shows how eclipses form when the Earth-sun-moon system is lined up.



**Support Buttons:**

**Suggested Reading**

**After**

Section 1 - Celestial Objects Cast Shadows

Section 2 - Lunar Eclipses

Section 3 - Solar Eclipses

**Connecting to Phenomena**

Students can reflect on what they discovered during Investigation 1 and use their knowledge to review their explanation on the lesson investigative phenomenon and make revisions if necessary.

Students can also apply the information they learned to shape their explanation of the unit anchoring phenomenon of why celestial objects appear to move in distinct patterns from Earth.

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**SCIENCE SCHEDULES**

<b>Grade(s)</b>	<b>Time Allotted for Science Instruction</b>
K-3	30 minutes every other day
4-5	35 minutes every other day
6	1 hour every other day
7-8	1 hour every day

## **PD, ACCESSIBILITY, MONITORING**

*(1) What is the professional development plan to support continuous three-dimensional learning along with your instructional resources?*

TECS teachers devote time in their Professional Learning Communities (PLCs) on a monthly basis to reviewing the practices and crosscutting concepts outlined in this submission. Teachers are encouraged to access the [Professional Learning for Science](#) materials and the [Resources for School Administrators](#) materials on the DOE's website (particularly those pertaining to professional development) and to participate in NGSX training to become Nextgen science teachers. Coaches observing science instruction use the techniques highlighted in these resources to provide guidance to teachers at each grade band.

*(2) Describe how you ensure accessibility for all students in science.*

TECS teachers utilize a number of the strategies highlighted in [NGSS Appendix D](#) to ensure accessibility for all students including those from economically disadvantaged households, students from major racial and ethnic groups, students with disabilities, English Learners, girls, and gifted and talented students. These strategies include using multiple means of representations, drawing on students' sociocultural backgrounds, and promoting images of successful science professionals from a diverse range of backgrounds.

*(3) Describe how your administrators are monitoring science instruction to ensure the shifts in science are occurring.*

Administrators have familiarized themselves with the evolving expectations associated with science instruction and routinely access the [resources](#) on the DOE's website to ensure they are positioned to support teachers working to implement the NGSS through our chosen high-quality instructional materials. Administrators also have access to the TCI website for 6–8 science materials and are prepared to reference these expectations when conducting observations, providing feedback to teachers, and determining how to modify instruction in response to interim assessment data.

## Science Curriculum Resubmission Memo

**DDOE Early Review Submission Expectation 1: Your scope and sequence doesn't match the Coalition's recommended curriculum for grades 2, 3, & 4. The kits are no longer available in those grade levels. I would recommend that you contact the Science Resource Center to order the correct kits and register your teachers in the science professional learning taking place on Aug. 10 and 11. For more information on professional learning contact Tonyea Mead (tonyea.mead@doe.k12.de.us)**

TECS Response: We have contacted the Science Resource Center and ordered the correct kits (i.e., those in the Delaware Science Coalition's Approved Kit Rotation) for use in 2022–23. Those kits are as follows:

Grade Level / Cycle	Cycle 1 (Aug. – Dec.)	Cycle 2 (Dec. – March)	Cycle 3 (March – June)
K	Trees	Push Pull & Go	Weather & Me
G1	Solids/Liquids	Organisms	Catching the Wind
G2	Changing Landforms (Amplify)	Properties of Materials (Amplify)	Plants and Animal Relationships (Amplify)
G5	Matter	Astronomy	Ecosystems/Slick Solutions
G6	6.1 Light and Matter (OSE) / 6.2 Thermal Energy (OSE)	Planet Earth (TCI)	Space (TCI)
G7	Matter (TCI)	Cells & Genetics (TCI)	Adaptations (TCI)
G8	Waves (TCI)	Weather and Climate (TCI)	Ecosystems (TCI)

Grade Level / Cycle	Cycle 1 (Aug. – Nov.)	Cycle 2 (Nov. – Jan.)	Cycle 3 (Jan. – April)	Cycle 4 (April – June)
G3	Balancing Forces	Environments & Survival	Inheritance & Traits	Weather & Climate
G4	Earth's Features	Energy Conversions	Vision & Light	Waves, Energy, & Information

**DDOE Early Review Submission Expectation 2: In your 6th grade unit, many of your activities are very traditional. The teacher is giving the students the information instead of students making sense of their own learning. This is a required shift in NGSS.**

TECS Response: As we work to fully embrace the profound shifts occasioned by the adoption of NGSS, we are striving to phase out all lesson activities that rely on a traditional mode of instructional delivery and to replace them with lessons that allow students to make sense of their learning. When administrators observe classroom instruction, they look for opportunities to encourage educators to utilize an inquiry-based approach that allows students to make sense of their own learning. We are also consistently reviewing science lesson plans and looking for ways to infuse student discovery into the learning process.

## **Appendix 2 - Curriculum Documents :: Social Studies**



## Social Studies Curriculum Documents

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August 2022 Resubmission Memo	p. 40

**K–3 SCOPE AND SEQUENCE**

Grade	Delaware Social Studies Standard Alignment	Unit and Timeline	Essential Question(s)	Theme and Big Idea(s)
K	<p><b>Civics Anchor Standard Four:</b> Students will develop and employ the civic skills necessary for effective, participatory citizenship.</p> <p>-K-3a: Students will demonstrate the skills necessary for participating in a group, including defining an objective, dividing, responsibilities and working cooperatively.</p>	<p>Year Long embedded curriculum</p> <p><i>Note: Teachers use daily behavior grades to track, monitor and assess student progress</i></p>	<p>Why is it important to work in a group?</p> <p>What words and actions are important when working in a group setting?</p>	<ul style="list-style-type: none"> <li>• Playing with others</li> <li>• Cooperation</li> <li>• Teamwork</li> <li>• Working in a group to solve a problem</li> <li>• Kindness</li> <li>• Responsibilities</li> </ul>
1	<p><b>Civics Anchor Standards One:</b> Students will examine the structure and purpose of governments with specific emphasis on constitutional democracy.</p> <p>-K-3a: Students will understand that leaders are sometimes chosen by election, and that elected officials are expected to represent the interests of the people who elected them.</p> <p>-K-3b: Students will understand that positions of authority carry responsibilities and should be respected.</p>	<p>Unit 1: People Everywhere</p>	<p>What can we learn from our families, school, and communities?</p>	<ul style="list-style-type: none"> <li>• Family</li> <li>• In your classroom</li> <li>• Leaders and Rules</li> <li>• Community</li> <li>• Moving to new homes</li> </ul>
1	<p><b>Geography Anchor Standard One:</b> Students will understand the nature and uses of maps, globes and other geo-graphics.</p> <p><i>-K-3a: Students will understand the nature and uses of maps, globes, and other geographic areas of the world.</i></p>	<p>Unit 2: Where we Live Unit 3: Maps</p>	<p>What do we know about Earth and the people living on it?</p> <p>What are the parts of a map?</p> <p>How can understanding a map help us solve problems?</p>	<ul style="list-style-type: none"> <li>• Our Earth</li> <li>• Land and Water</li> <li>• Natural resources</li> <li>• Weather and seasons</li> <li>• City, town, suburb</li> <li>• Our country</li> <li>• Our country's neighbors</li> <li>• Identify a map</li> <li>• Map key</li> <li>• Compass Rose</li> <li>• Map routes</li> </ul>

Grade	Delaware Social Studies Standard Alignment	Unit and Timeline	Essential Question(s)	Theme and Big Idea(s)
1	<p><b>History Anchor Standard Two:</b> Students will gather, examine, and analyze historical data</p> <p><i>-K-3a: Students will use artifacts and documents to gather information about the past.</i></p>	Unit 4: Holidays Around the World	What winter holidays are celebrated by different cultures across the world?	<ul style="list-style-type: none"> <li>• Hanukkah</li> <li>• Christmas</li> <li>• Kwanzaa</li> <li>• Las Posadas</li> </ul>
1	<p><b>Economics Anchor Standard One:</b> Students will analyze the potential costs and benefits of personal economic choices in a market economy.</p> <p><i>-K-3a: Students will understand that individuals and families with limited resources undertake a wide variety of activities to satisfy their wants.</i></p> <p><i>-K-3b: Students will apply the concept that economic choices require the balancing of costs incurred with benefits received.</i></p>	Unit 5: World of Work	What choices do people make to get the things they want?	<ul style="list-style-type: none"> <li>• Needs and wants</li> <li>• Goods and services</li> <li>• Buy, trade, and save</li> <li>• All kinds of jobs</li> <li>• Getting food to market</li> <li>• Money (identify and tell value of penny, nickel, dime, quarter)</li> </ul>
1	<p><b>History Anchor Standard One:</b> Students will employ chronological concepts in analyzing historical phenomena.</p> <p><i>- K-3a: Students will use clocks, calendars, schedules, and written records to record or locate events in time.</i></p>	Unit 6: Everything Changes	How do people and things change over time?	<ul style="list-style-type: none"> <li>• Learning about the past</li> <li>• The first Americans</li> <li>• Family life past and present</li> <li>• Going to school long ago</li> <li>• Moving people and things</li> <li>• Sharing news and ideas</li> <li>• Timeline project (done at home and presented in school) w/ oral presentation</li> </ul>
1	<p><b>Civics Anchor Standard One:</b> Students will examine the structure and purposes of governments with specific emphasis on constitutional democracy.</p> <p><i>- K-3b: Students will understand that positions of authority carry responsibilities and should be respected.</i></p>	Unit 7: Good Citizens	What do good citizens do?	<ul style="list-style-type: none"> <li>• People need laws</li> <li>• Government and leaders</li> <li>• Citizens</li> <li>• Heroes in our country</li> <li>• Symbols of our country</li> </ul>

Grade	Delaware Social Studies Standard Alignment	Unit and Timeline	Essential Question(s)	Theme and Big Idea(s)
2	<p><b>Civics Anchor Standard Two:</b> Students will understand the principles and ideals underlying the American political system [Politics].</p> <p><i>-K-3a: Students will understand that respect for others, their opinions, and their property is a foundation of civil society in the United States.</i></p>	<p>Houghton Mifflin “Neighborhoods” Unit 1: People and Places</p>	<p>How do land and people make up a community?</p>	<ul style="list-style-type: none"> <li>• All Kinds of Groups</li> <li>• Living Together</li> <li>• Cities and Suburbs</li> <li>• Rural Communities</li> </ul>
2	<p><b>History Anchor Standard Two:</b> Students will gather, examine, and analyze historical data [Analysis].</p> <p><i>-K-3a: Students will use artifacts and documents to gather information about the past.</i></p> <p><b>History Anchor Standard Three:</b> Students will interpret historical data.</p> <p><i>-K-3a: Students will understand that historical accounts are constructed by drawing logical inferences from artifacts and documents.</i></p>	<p>Houghton Mifflin “Neighborhoods”  Unit 2: America’s Past</p>	<p>Why is the past important to you today?</p>	<ul style="list-style-type: none"> <li>• First Americans</li> <li>• Explorers Travel the World</li> <li>• Jamestown and Plymouth</li> <li>• A New Country</li> <li>• Past heroes</li> <li>• Communities Change</li> <li>• Communication Changes</li> </ul>
2	<p><b>Geography Anchor Standard Two:</b> Students will develop knowledge of the ways humans modify and respond to the natural environment.</p> <p><i>-K-3a: Students will distinguish different types of climate and landforms and explain why they occur.</i></p>	<p>Houghton Mifflin “Neighborhoods”  Unit 3: Places Near and Far</p>	<p>Why is the world around you important to your life?</p>	<ul style="list-style-type: none"> <li>• Your Address</li> <li>• Land and Water</li> <li>• Weather and Climate</li> <li>• Regions</li> <li>• Resources</li> </ul>
2	<p><b>History Anchor Standard Four:</b> Students will develop historical knowledge of major events and phenomena in world, United States, and Delaware history.</p> <p><i>K-3a: Students will develop an understanding of the similarities between families now and in the past, including:</i></p> <ul style="list-style-type: none"> <li>-- Daily life today and in other times.</li> <li>-- Cultural origins of customs and beliefs around the world.</li> </ul>	<p>Houghton Mifflin “Neighborhoods”  Unit 4: Ways Of Living</p>	<p>What are some of the cultures that make up your community, state and nation?</p>	<ul style="list-style-type: none"> <li>• Families from Many Places</li> <li>• Sharing Cultures</li> <li>• America’s Symbols</li> <li>• We Celebrate Holidays</li> </ul>

Grade	Delaware Social Studies Standard Alignment	Unit and Timeline	Essential Question(s)	Theme and Big Idea(s)
3	<p><b>Civics Anchor Standard Three:</b> Students will understand the responsibilities, rights, and privileges of United States citizens. <i>-K-3a: Students will understand that American citizens have distinct rights, responsibilities, and privileges.</i></p>	<p>Delaware Recommended Curriculum  Unit 1: Citizenship</p>	<p>What is the nature of a privilege?  What do you have to do to earn or lose a privilege?  What is the relationship between my rights and responsibilities?</p>	<ul style="list-style-type: none"> <li>• Qualities of a good citizen</li> <li>• Rights, responsibilities, and privileges.</li> </ul>
3	<p><b>Geography Anchor Standard One:</b> Students will develop a personal geographic framework, or “mental map,” and understand the uses of maps and other geo-graphics.  <i>-K-3a: Students will understand the nature and uses of maps, globes, and other geo-graphics.</i></p>	<p>Delaware Recommended Curriculum  Unit 2: Maps and Globes</p>	<p>How do differences between flat maps and globes affect understanding of places in the world?  Why are there different types of maps?  How can they be “read” to discover the nature and contents of the real world?</p>	<ul style="list-style-type: none"> <li>• Patterns</li> <li>• Spatial Thinking</li> </ul>
3	<p><b>Geography Anchor Standard Three:</b> Students will develop an understanding of the diversity of human culture and the unique nature of places.  <i>-K-3a: Students will identify types of human settlement, connections between settlements, and the types of activities found in each.</i></p> <p><b>Geography Anchor Standard Four:</b> Students will develop an understanding of the character and use of regions and the connections between and among them.  <i>-K-3a: Students will be able to use the concepts of place and region to explain simple patterns of connections between and among places across the country and the world.</i></p>	<p>Delaware Recommended Curriculum  Unit 3: Regions and Places</p>	<p>How are places different in culture and activity?  How might connections between places affect their size and complexity?  How do places differ from regions?  How can regions be used to simplify an understanding of place diversity?  How might differences and similarities among regions result in connections between them?</p>	<ul style="list-style-type: none"> <li>• Patterns</li> <li>• Culture</li> </ul>

<p>3</p>	<p><b>Economics Anchor Standard Two:</b> Students will examine the interaction of individuals, families, communities, businesses, and governments in a market economy.</p> <p><i>K-3a: Students will understand how barter, money, and other media are employed to facilitate the exchange of resources, goods, and services.</i></p> <p><b>Economics Anchor Standard Three:</b> Students will understand different types of economic systems and how they change.</p> <p><i>-K-3a: Students will identify human wants and the various resources and strategies which have been used to satisfy them over time.</i></p>	<p>Delaware Recommended Curriculum:</p> <p>Unit 4: Economics/Mini Society.</p>	<p>How might the use of money affect the economy?</p> <p>Why is what we use as money valuable?</p>	<ul style="list-style-type: none"> <li>• Goods and Services</li> <li>• Producers and Consumers</li> <li>• Barter and Exchange</li> <li>• Functions of money</li> <li>• Characteristics of Money</li> </ul>
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### GRADE 4 SCOPE AND SEQUENCE

Delaware Social Studies Standard Alignment	Unit & Timeline	Essential Questions	Big Ideas
Civics  Anchor Standard 1 4 – 5a 4 – 5b  Anchor Standard 2 4 – 5b	Civics  August - September	Why does government exist?  How does our government function?  How do the structures within our government function together?	<ol style="list-style-type: none"> <li>1. Three Branches of Government: purpose, jobs, checks and balances               <ol style="list-style-type: none"> <li>a. Constitution-the law of the land</li> </ol> </li> <li>2. Variety of structures within the Government including local, state and national</li> <li>3. Civic responsibilities and civility</li> <li>4. Demographic Groups and how they function both formally and informally</li> </ol>
Economics  Anchor Standard 3 4 – 5a	Economics  October	How can different means of production and distribution change over time?  What impact do those changes have on our communities?	<ol style="list-style-type: none"> <li>1. Variety of production, distribution and exchange used within economic systems               <ol style="list-style-type: none"> <li>a. Different times and places</li> </ol> </li> <li>2. Economic Vocabulary</li> <li>3. Budget Plan practice</li> </ol>
Geography  Anchor Standard 1 4 – 5a  Anchor Standard 3 4 – 5a	Geography  November – February	How do we fit into our world?	<ol style="list-style-type: none"> <li>1. Cardinal and Intermediate directions</li> <li>2. Map Characteristics: grid system, keys, types of maps</li> <li>3. Map of Delaware: three counties, major bodies of water, major cities, physical features: Landmarks and landforms, first settlements</li> <li>4. United States Regions: Northeast, Southeast, Midwest, Southwest and West               <ol style="list-style-type: none"> <li>a. States, landmarks, landforms, bodies of water and major characteristics both physical and historical (what are they known for?)</li> </ol> </li> <li>5. Practice reading large maps, finding various routes that fit certain characteristics.</li> <li>6. Geographical skills and knowledge to develop profiles for areas based on region, climate and physical features.</li> </ol>

<p>History</p> <p>Anchor Standard 1 4 – 5a</p> <p>Anchor Standard 2 4 – 5b</p> <p>Anchor Standard 4 4 – 5a 4 – 5b</p>	<p>History</p> <p>March – June</p>	<p>Who are the American People?</p> <p>How does Delaware history connect to U.S. history?</p> <p>What caused these events? What effects can be traced through time back to these events?</p>	<ol style="list-style-type: none"> <li>1. Study historical events and people within a given time frame to determine cause and effect: timelines, articles, books, etc.</li> <li>2. Examine historical materials relating to regions, society or theme and place events in chronological order and analyze changes over time.</li> <li>3. Delaware History (settlements, production, agriculture, famous Delawareans)       <ol style="list-style-type: none"> <li>a. Caesar Rodney</li> <li>b. Lenape Indians</li> <li>c. William Penn</li> <li>d. Eluthere Irene DuPont</li> </ol> </li> <li>4. Native American settlements prior to European settlements</li> <li>5. European Explorers and settlements 1609-1775: Hudson, Cartier, Columbus, Cabot and Juan Ponce de Leon</li> <li>6. French and Indian War 1754-1763</li> <li>7. King George III: Treatment of Colonist, taxes, expansion of settlements       <ol style="list-style-type: none"> <li>a. Parliament</li> <li>b. Sugar Tax, tea tax</li> <li>c. Quartering Act</li> <li>d. Stamp Act</li> <li>e. Townsend Act required colonists to pay taxes on shipped goods such as tea</li> <li>f. Proclamation of 1763 prohibiting settlements beyond Appalachian Mountains</li> <li>g. Boston Tea Party</li> </ol> </li> <li>8. Revolutionary War 1775-1783 (War of Independence from Britain)       <ol style="list-style-type: none"> <li>a. Thirteen Colonies</li> <li>b. First Continental Congress in 1774 to make a list of complaints</li> <li>c. Timelines</li> <li>d. Major Battles</li> <li>e. Patriots vs Loyalists (Red Coats)</li> <li>f. Development of the first state</li> <li>g. Constitution</li> </ol> </li> <li>9. American People       <ol style="list-style-type: none"> <li>a. Demographics, immigration and changes in technology overtime</li> </ol> </li> </ol>
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**GRADE 5 SCOPE AND SEQUENCE**

Delaware Social Studies Standard Alignment	Unit & Timeline	Essential Questions	Big Ideas
<p>Economics</p> <p>Anchor Standard 1 4 – 5a 4 -5b</p> <p>Anchor Standard 2 4 – 5a</p>	<p>Economics</p> <p>August - October</p>	<p>How does supply and demand impact communities and countries?</p> <p>How are goods and services exchanged?</p> <p>In what ways does international trade impact the United States?</p>	<ol style="list-style-type: none"> <li>1. Understanding the role of banks and other financial institutions in the economy.</li> <li>2. Understand that prices in a market are based on supply and demand.</li> <li>3. Consumers and producers in a market economy make economic choices based on supply and demand.</li> <li>4. International trade links countries around the world; improving the economic welfare of nations.</li> </ol>
<p>Civics</p> <p>Anchor Standard 2 4 – 5a</p> <p>Anchor Standard 3 4 – 5a</p>	<p>Civics</p> <p>November – December</p>	<p>Why does government exist?</p> <p>How does our government function?</p> <p>How do a variety of structures within our government function together?</p>	<ol style="list-style-type: none"> <li>1. Fundamental Rights-Bill of Rights</li> <li>2. Principle of Due Process. (Execute and enforce laws).</li> <li>3. Selecting effective leaders; being informed about candidates and issues of the day.</li> </ol>
<p>History</p> <p>Anchor Standard 2 4 – 5b</p> <p>Anchor Standard 3 4 – 5a</p> <p>Anchor Standard 3 4 – 5a</p> <p>Anchor Standard 4 4 – 5a 4 – 5b</p>	<p>History</p> <p>January – April</p>	<p>Who are the American People?</p> <p>Why do historical accounts of the same event differ?</p> <p>What conclusions can be drawn from primary and secondary sources?</p> <p>How has Delaware changed since the 1940s?</p>	<ol style="list-style-type: none"> <li>1. Explain why historical accounts of the same event sometimes differ and relate this explanation to the evidence presented/point-of-view of the author.</li> <li>2. Draw historical conclusions and construct historical accounts from primary and secondary accounts.</li> <li>3. Development of the first state to the Civil War (1776-1865).</li> <li>4. Growth of Commerce, industry transportation and agriculture (1865-1945).</li> <li>5. Modern Delaware (1945-present).</li> <li>6. Students will develop an understanding of selected themes in the United States History: demographics, immigration.</li> <li>7. Who are the American People? (Wax Museum)</li> <li>8. How has technology changed our world?</li> </ol>

<p>Geography</p> <p>Anchor Standard 1 4 – 5a</p> <p>Anchor Standard 3 4 – 5a</p>	<p>Geography May – June</p>	<p>How are societal changes and the physical environment linked?</p> <p>How can the current locations of human activities be understood through geography?</p>	<ol style="list-style-type: none"> <li>1. Apply knowledge of topography, climate and vegetation of Delaware and United States and how society changes and is affected the physical environment.</li> <li>2. Students will understand the reasons for the locations of human activities and settlements and the routes connecting them in Delaware and in the United States.</li> </ol>
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**GRADE 6 SCOPE AND SEQUENCE**

Standards	Trimester	Unit	Essential Questions
<p><b>Civics 1A:</b> Students will understand why governments have the authority to make, enforce, and interpret laws and regulations, such as levying taxes, conducting foreign policy, and providing for national defense.</p>	1	Civics: Different Governments	<p>Why does a government have certain powers?</p> <p>What are the similarities and differences between different types of government?</p>
<p><b>History 4B:</b> Students will develop an understanding of ancient and medieval world history, and the continuing influence of major civilizations</p>	1	History/Civics: Different Governments	<p>Why does a government have certain powers?</p> <p>What are the similarities and differences between different types of government?</p>
<p><b>History 1A:</b> Students will examine historical materials relating to a particular region, society, or theme; analyze change over time, and make logical inferences concerning cause and effect.</p> <p><b>History 4B:</b> Students will develop an understanding of ancient and medieval world history, and the continuing influence of major civilizations.</p>	1-2	History: Ancient Civilizations	<p>How can thinking like a historian help us draw credible conclusions?</p> <p>What are the similarities and differences between different ancient civilizations? How have certain places changed over time?</p>
<p><b>Geography 2A:</b> Students will apply knowledge of the major processes shaping natural environments to understand how different peoples have changed and been affected by, physical environments in the world's sub-regions.</p> <p><b>Geography 3A:</b> Students will analyze patterns of cultural activity associated with different world regions in order to explain the reasons for the cultural development of a place.</p> <p><b>Geography 4A:</b> Students will understand the processes affecting the location of economic activities in different world regions.</p>	2	Geography: Culture and Civilization	<p>What makes a place culturally unique?</p> <p>What is culture? Why is it important to understand culture What makes ancient civilizations culturally unique?</p> <p>Under what conditions do cultures spread?</p> <p>To what extent did ancient civilizations influence culture of other places?</p>

<p>Geography 1A: Students will demonstrate mental maps of the world and its sub-regions which include the relative location and characteristics of major physical features, political divisions, and human settlements.</p>	<p>2-3</p>	<p>Geography: Building Global Mental Maps</p>	<p>What are mental maps?  How can mental maps be created and used effectively?  Why do maps have distortions?  How have cartographers minimized distortions?</p>
<p>Economics 3A: Students will demonstrate the ways in which the means of production, distribution, and exchange in different economic systems have a relationship to cultural values, resources, and technologies.</p>	<p>3</p>	<p>Economic Systems</p>	<p>How are decisions about the production and distribution of goods and services dependent upon the cultural values, availability and quality of resources and the intent and use of technology?  How does a society's economic system impact its standard of living?</p>

**GRADE 7/8 SCOPE AND SEQUENCE**

<b>Trimester</b>	<b>Unit</b>	<b>Descriptions</b>	<b>Week of:</b>	<b>Lesson:</b>	<b>Social Studies Standards</b>	
1	How Geographers Look at the World	Geography is the study of the earth's physical features and the living things that inhabit the planet. Geographers use many tools and methods to study and understand the world's places. By investigating the relationships among human activities, the earth's physical systems, and the environment, the study of geography can contribute to a better future for the world's people.	Week 1	Introduction & Autobiographical Map	Geography Anchor Standard One 6-8a Geography Anchor Standard Two 6-8a	
			Week 2	Vocabulary Determining location Hemispheres		
			Week 3	Latitude & Longitude Coordinates		
			Week 4	Maps vs. Globes, Reading Maps		
			Week 5	5 Themes of Geography		
			Week 6	Review & Assessment		
	Green Cities	Students will be able to use observation, analysis of graphics and photos, and other geographic skills to identify physical and human aspects of a site and apply information about human preferences to planning for a settlement.	Week 7	Lesson One: The Face of a Place	Geography Anchor Standard Three 6-8a CCSS.ELA. Literacy.RH.6-8.1 CCSS.ELA. Literacy.RH.6-8.4	
			Week 8	Lesson Two: Patterns & Plans for American Cities		
			Week 9	Lesson Three: Green Ideas Change City Designs		
			Week 10	Lesson Four: Greens Cities - Today & Tomorrow		
			Week 11	Transfer Task: Emerald City		
	Why Trade	Students will be able to evaluate the impact of government trade policies have on foreign and domestic consumers, producers, and resource owners, explain how and why people trade, analyze costs and benefits of trade.	Week 12-13	Lesson One: Why People Trade	Economics Standard Four 6-8a	
			Week 14	Lesson Two: Trade Connection		
			Week 15	Lesson Three: Specialization		
			Week 16-17	Lesson Four: Trade Barriers		
	2			Week 18	Microeconomics: Market Economy & Price	Economics Standard One 6-8a

			Week 19	Review & Assessment	Economics Standard Four 6-8a & Economics Standard One 6-8a
	Project Citizen	Students will be able to identify public policy issues in their community, implement research strategies to effectively gather information on a particular public policy issue, act responsibly with the interests of the larger community in mind.	Week 20	Lesson One: Public Policy	Civics Standard Four 6-8a
			Week 21	Lesson Two: Communicating with Office Holders	
			Week 22	Lesson Three: Solutions to Public Policy Problems	
	Expansion of Freedom	Students will be able to... <ul style="list-style-type: none"> <li>Identify the protections awarded to minorities by the Constitution.</li> <li>Analyze the individual protections in the Bill of Rights.</li> <li>Construct support for the necessity of protecting individual rights.</li> </ul>	Week 23	Lesson One: Majority Rule and Minority Rights	Civics Standard Two 6-8a CCSS. ELA-Literacy.6-8.1 CCSS. ELA-Literacy.6-8.2 CCSS. ELA-Literacy.6-8.3
			Week 24	Lesson Two: Constitutional Protections	
			Week 25	Lesson Two: Supreme Court Cases and Case Studies	
			Week 26	Lesson Three: Limiting Individual Rights	
			Week 27	Review & Assessment	
			Week 28	Civil Rights and Political Freedom	
3	Partnerships & Partitions	Students will be able to suggest borders or regional boundaries that will minimize conflict and identify or predict the likely result of a proposed border or boundary change.	Week 29	Lesson One: Drawing Borders	Geography Standard Four 6-8b
			Week 30	Lesson Two: Conflict and Cooperation in Czechoslovakia	
			Week 31	Lesson Three: Conflict and Cooperation in the Middle East	
			Week 32	Transfer Task	
			Week 33	Review & Assessment	

	<p>Early Civilizations</p>	<p>Students will develop an understanding of ancient and medieval world history, and the continuing influence of major civilizations, including:                  -- The beginnings of human society                  -- Early civilizations and pastoral peoples (4,000-1,000 BC)                  -- Classical traditions, major religions, and great empires (1,000 BC--300 AD)</p>	<p>Week 34</p>	<p>The Beginnings of Human Society</p>	<p>History Standard Two 6-8a History Standard Two 6-8b</p>	
			<p>Week 35</p>	<p>The Fertile Crescent</p>		
			<p>Week 36-37</p>	<p>Ancient Egypt &amp; Nubia</p>		

**K-3 SAMPLE ASSESSMENT**

Grade:	Standard Alignment:	Role:
3	Economics Anchor Standards 2 and 3	Mini-Society Creator, Prototype Designer, Producer, Business Owner, Salesperson
K – 2	Economics Anchor Standards 1 and 2	Consumer

Project Description

Third grade students will create a mini-society in their classrooms. They will culminate their learning experience in a “Market Day” where student “Business Owners”, hold a market that allows other students in the school to exchange money for goods or services.

Leading up to Market Day, third grade students will apply for a business license, design a classroom currency, explore the concept of scarcity, analyze the impacts of human wants and needs on a market economy, and study the interconnectivity of consumers, producers, services, money, resources, and goods.

On Market Day, third grade students will demonstrate understanding of barter, money, and other media and how they are employed to facilitate the exchange of resources, goods, and services. Kindergarten, first, and second grade students will attend the Market Day in order to analyze the potential costs and benefits of personal economic choices in a market economy.

Project Timeline

Approx. Date	Milestone
Beginning of April	Mini-Society Packets explained to students and parent letter sent home to third grade parents (See attached). Notifications of Market Day date sent to K – 2 teachers.
End of April	Business choice and parent notification slips due (third grade)
End of April	Business choices finalized (third grade)
Beginning of May	Prototypes due (third grade)
Middle of May	Business license due (third grade)
End of May	Market Day (Kindergarten – third grade)



Project Parent Letter (3<sup>rd</sup> Grade)

Dear Parents/Guardians,

The third grade will begin a unit in Social Studies learning about the aspects of community that involve economic concepts such as resources, scarcity, opportunity costs, products, goods, business, interdependence, and money (saving/spending). We will establish a Mini-Society in our room and we will be using a form of money designed by the children. The children will earn this money in the classroom.

As the students work in their society, they will establish rules to live by and each child will establish some sort of “business” to operate during the school day. They must make a product to sell (made by the student). Production costs for the item your child markets should not exceed \$15. Please ensure that your child has at least twenty of the same items to sell. The parents may NOT set up, clean up, or run the business for their child. Please remember that this is a learning experience for the children. It is their responsibility to take full charge of their own business and money.

If you have any questions about your child’s Mini-Society, please contact us. You will find a calendar of events attached to this letter that will help you remember deadlines along with a list of ideas for businesses that your child might like to consider. Please assist your child with completing the form and return it to school no later than April (TBD). To avoid duplication, we will notify your child of product approval on April (TBD). Your child is required to bring in a prototype (sample) of the product on (TBD). Thank you for your help in making this a worthwhile learning experience for your child.

Sincerely,

The 3<sup>rd</sup> Grade Teachers

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I have seen this Mini-Society letter.

Child’s Name: \_\_\_\_\_

Parent’s Signature: \_\_\_\_\_

**Mini Society News**

**Parents, Teachers, Friends**

**PLEASE COME TO THE THIRD GRADE MARKET DAY!**

**When: (TBD)**

**Where: Market Day will be held in the gym.**

**Time: 1:00 – 2:30**

**1:00 – 1:30: 4<sup>th</sup> & 5<sup>th</sup> grade**

**1:30 – 2:00: 2<sup>nd</sup> grade**

**2:00 – 2:30: K-1<sup>st</sup> grade**

**As the date approaches, please take time to notice the advertisements that will be posted around the school of what goods will be sold by our third grade businesses.**

**Bring real money. Every \$0.50 (real money) will equal \$1.00 Mini Society money. A banker will be available at the entrance to exchange real money for Mini Society money.**

**Thank you for your support!!!!**

## Market Day Project Rubric

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Business Name: \_\_\_\_\_ Product Created: \_\_\_\_\_

<b>Requirement</b>	<b>10 Points</b>	<b>8 Points</b>	<b>6 Points</b>	<b>4 Points</b>
<b>Quantity:</b> Did you make 20 of your product?	Student had all 20 products complete.	Student had 15 – 19 products complete.	Student had 11 – 14 products complete.	Student had 10 or less products complete.
<b>Timeliness:</b> Did you make your prototype by the due date? Did you finish making your products by Market Day?	Student met all due date deadlines and used their class time productively without reminders.	Student missed 1 deadline and /or was given a few reminders about being productive in class.	Student missed most deadlines and/or needed multiple reminders about being productive in class.	Student did not meet any of the deadlines and/or was consistently off task during production time in class.
<b>Creativity:</b> Was your product unique and helpful to others?	Product was very creative and was helpful to others.	Product showed some creativity and/or was useful for others.	Product could have been more creative and/or could have served a more useful purpose.	Product did not demonstrate any creativity in design, nor did it serve as a helpful tool.
<b>Quality of Product/Service:</b> Was your product neat, durable, and eye-catching? If it is a service, would others want to come back again?	The product was neat, durable, and attractive to the eye or the service was beneficial enough for repeat customers.	The product showed some neatness, durability, & attractiveness or the service had some customers that would visit again.	The product was lacking in neatness, durability, & attractiveness or the service didn't have a lot of supporters.	The product needed a lot of work to improve neatness, durability, & attractiveness or the service needed a different approach.
<b>Professionalism:</b> Did you take your business seriously during Market Day?	Student maintained a high level of professionalism throughout Market Day.	Student maintained an average level of professionalism throughout Market Day.	Student maintained a below average level of professionalism throughout Market Day.	Student maintained an unacceptable level of professionalism throughout Market Day.
<b>Total</b>	<b>_____ /50</b>			

Grade: \_\_\_\_\_

Comments:

## 4–5 SAMPLE ASSESSMENT

### 5<sup>th</sup> Grade Assessment: Wax Museum

The Wax Museum is a cross-curricular hands-on project designed to allow students to showcase their learning across multiple genres. Students use primary source material to research an American Hero, write a research paper, design, rehearse, and present an oral presentation, and participate in a ‘Wax Museum’.

The 5<sup>th</sup> grade students dress up as their character and act as the statue in the museum. Students from lower grades press the button to bring the statue to life, and the 5<sup>th</sup> grade presents their material to their audience, recreating the experience of an automated wax statue.

The 4<sup>th</sup> grade students use the opportunity as a formative assessment for ELA. They listen to three statues of their choice, take notes, and return to the classroom for a debrief. This serves to focus their learning, and also creates excitement as they look forward to their turn as a statue.

Standards for the Wax Museum Assessment:

Grade	Standard Alignment	Role
K – 4	History Anchor Standard 3	Museum Patrons
4	ELA Speaking & Listening 4.2, 4.3	Museum Patrons
5	History Anchor Standard 4	Wax Museum Statue, Researcher
5	ELA Speaking & Listening 5.5, 5.6	Wax Museum Statue, Researcher
5	ELA Writing, 5.2, 5.4, 5.7, 5.10	Researcher, Author

Grade 5

The 5<sup>th</sup> Grade Wax Museum project is an annual project that allows TECS 5<sup>th</sup> grade students to showcase their learning across multiple genres.

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# American Hero Book Report

The following packet is VERY IMPORTANT and contains all requirements for both the research report paper and wax museum, poster, and presentations. This research project is a joint *collaboration* for your child's writing and social studies classes.

Please read thoroughly and sign and return the bottom portion on the next page.

All poster work is to be done at home.

\*Research and rough draft of research paper and historical figure will be done in social studies and writing class.

\*Typed final draft is to be done at home or in technology.

\*Each student needs a biography book on their hero, most students were able to get one at TECS, if not please take them to the local library.

\*Students will need costume/props; check your local Dollar Tree, Goodwill, etc. If you have any questions or concerns, please contact your child's teacher.

Posters due:

A good poster will:

- Reflect your hero! Be creative and colorful. Include a nice header.
- Be neat! Type all information or write it neatly in your **very best handwriting**.
- Include all **10 facts** and other important information.
- Showcase relevant pictures of your hero – as many as possible!

Name: \_\_\_\_\_

**Wax Museum Rubric**

	<b>3</b>	<b>4</b>	<b>5</b>	<b>Score:</b>
<b>Poster</b>				
Creativity	The poster is adequate. It needs more color and more pictures to make it stand out.	The poster is well done, but is missing something to make it special.	The poster looks amazing! It is colorful, has great pictures, and has an overall “wow-factor”!	
Information	The poster is lacking necessary information and does not include all 10 facts.	The poster has 10 facts, however they are all basic and do not include important information.	The poster is full of interesting and thoughtful information, with all 10 facts!	
Neatness	The poster is messy and does not look carefully made.	The poster is okay, but the handwriting is messy or the pictures are not neatly presented.	The poster is beautifully done. It is neat and all information is easily read. It has been made with pride.	
<b>Presentation</b>				
Information	Less than 10 facts were included in the presentation.	10 facts were included, but were basic and did not include important information.	Student recited all 10 facts. They were meaningful and thought-provoking.	
Expression	Student sounded monotone.	Student had some expression.	Student presented with excitement and interest.	
Overall Presentation	Student had no eye contact and did not sound prepared.	Student presentation was okay. Eye contact was there, but inconsistent.	Student delivered a wonderful presentation. They had good eye contact and showed enthusiasm.	
<b>Wax Museum</b>				
Costume	Student did not wear anything special for the Wax Museum.	Student had a costume, but it did not represent the hero.	The costume fit the hero. It is evident that the student tried to dress as their hero.	
Behavior	Student did not manage their behavior and required multiple reminders to behave in character.	Students had a hard time remaining professional at times. They had one reminder to behave in character.	Student had excellent behavior and remained in character. No warning were given.	
Comments				<b>Total Score:</b>

# Wax Museum Research Paper Guidelines

## Page 1: Title Page – Cover Page

- American Hero name
- Portrait of American Hero
- Border on paper
- Your name
- Class
- Date

## Page 2: Childhood/Early Life (5-7 sentences)

- General basic information
- Parent’s information
- When and where they were born
- Where they went to school

## Page 3: Accomplishments/Achievements/Contributions (10-15 sentences)

- Why is this American hero famous?
- How did this American hero affect American history?
- Did they receive any awards or what milestones did they have?
- College education
- Occupation—what did they do for work?

## Page 4: Remembrance/Reflection (Bullet Points)

- Include 3 facts
- Include 2 quotes
- Death/Living

## Page 5: Bibliography (Citations)

- List at least 3 sources
- APA Format
- Citationmachine.net

Format

- Bold subtitles
- 12 point font
- Double Spaced
- Organized into paragraphs
- Times New Roman or Arial font

Reading Log

Reading Log is to be handed in  
completed and signed by  
parent/guardian

American Hero Wax Museum Research Project:

Name: \_\_\_\_\_

Score: /20

Criteria	3 Points	2 Points	1 Points	0 Points	Score
Cover Page	Cover page includes a portrait, border, name, class and date.	Cover page is missing one component.	Cover page is missing two or more components.	No cover page.	
Biography	Paragraph clearly details a short biography of the person's life. It includes 3 or more supporting details and/or examples.	Paragraph details a short biography of the person's life. It provides 1-2 supporting details and/or examples.	Paragraph gives very little information about the person's life. No details and/or examples are given.	No biography about the person is researched.	_____
Contributions	Paragraph clearly relates to contributions made by the person. It includes several supporting details and/or examples.	Paragraph relates to contributions made by the person. It provides 1-2 supporting details and/or examples	Paragraph gives very little information about the contributions made. No details and/or examples are given.	No contributions about the person are researched.	
Remembrance/ Reflection (Bullet Points)	Paragraph clearly relates to why the person is an American Hero. It includes several supporting details and/or examples.	Paragraph relates to why the person is an American hero. It provides 1 2 supporting details and/or examples.	Paragraph relates to why the person is an American hero. No details and/or examples are given.	No information about why the person is an American hero is stated.	_____
Bibliography	Bibliography contains at least 3 sources correctly formatted.	Bibliography is missing one component.	Bibliography is missing two components.	A bibliography was not included.	
Format / Conventions	Paper is double spaced, 12-font, and organized in paragraphs. No grammatical or spelling errors.	Paper is missing one component.1 2 grammatical or spelling errors.	Paper is missing two or more components.3-4 grammatical or spelling errors.	Paper is not in correct format. More than 5 grammatical or spelling errors.	_____
Reading Log	x	Reading Log is completed with signatures.	Reading Log is missing one or two components.	Reading Log is not turned in.	_____



# Wax Museum Reading Log

Student: \_\_\_\_\_ Time Frame: \_

\_\_\_\_\_

Date	Parent Signature	Minutes Read	# of Pages Read	Start Page — End Page

**6–8 SAMPLE ASSESSMENT****Emerald City – Planning a Sustainable City Project****Transfer Task**

This summative assessment is a transfer task that requires students to use knowledge and understandings to perform a task in a new setting or context.

The assessment and scoring guide should be reviewed with students prior to any instruction. Students should do the assessment after the lessons conclude.

**Essential Question measured by the transfer task:**

- What physical and human features make a place culturally unique?

Prior Knowledge	In this unit you have examined the idea of place. You have learned to identify important human and physical features of a site. You have learned how the geographic situation affects the lives of people in the place. You know that culture affects the way people build and change their neighborhoods, towns and cities.
Problem/Role	You are a city planner ( <a href="#">see Appendix 1</a> ). Your company would like to get the job of planning a modern city called “Emerald City.” Your job will be to help prepare a plan for the new city that will meet the needs of the residents. If your plan is selected, your company will continue to work on this project until the city is finished. Four sites for the residents to choose from have been selected ( <a href="#">Appendix 3</a> ).
Perspective	<p>The 50,000 people who will be living and working in Emerald City are committed to living a “green” way of life. They value technology as a way of making their life more convenient and reducing their impact on the environment. Emerald City residents like to spend a lot of time outdoors. They enjoy beautiful scenery and green space where they can exercise and gather for social and sports events.</p> <p>Here are their requests:</p> <ol style="list-style-type: none"> <li>1. The city should look and feel modern and tech-friendly.</li> <li>2. The city should have clean, unpolluted air.</li> <li>3. Most energy should come from wind power, hydroelectric power, or solar power.</li> <li>4. There should be plenty of room for outdoor activities and sports.</li> </ol>

Product	<p>You will prepare a presentation for the bid opening. Each team will get only 3 minutes to explain their plan. Work together to make the most of the time allowed persuading the Emerald City Planner Search Committee that you have the best plan.</p> <p>Use <a href="#">Appendix 2</a> to evaluations of the geographic site, situation, and cultural needs and perspectives of the residents.</p>
Criteria for an Exemplary Response	<p>To be judged excellent, your oral presentation will:</p> <ol style="list-style-type: none"> <li>1. Include a clear concise description or “vision” of Emerald City, the place of the future.</li> <li>2. Explain how you have selected the best spot for the city from the four choices offered.</li> <li>3. Explain how your design accomplishes the goals of the new residents.</li> </ol>

[Click here for a Student Rubric.](#) [Click here for a Teacher Rubric.](#)

Green Cities

Transfer Task

Appendix 1

### **Working as a City Planner**

#### **What does a city planner do?**

City planners help design cities. Guided by the needs and wants of the residents, a city planner decides some important things about the city. For example, he or she might plan how tall the buildings should be, how wide the streets should be, and the street pattern. Even the number of street signs, and the designs bus stops, lampposts and trash cans go into the plan for the city. Every building must be designed with careful thought. How will people get power and water? How can homes and apartments be located close to public transportation? Aesthetic design, or how things look, is something else the planner must think about. The designer wants the city to be a place where people feel comfortable. To make sure the plan is practical and also pleasing to the people who will live there, a city planner must be creative.

#### **How does a city planner get the job done?**

The planner begins by surveying the possible physical sites to select the right one. Then he studies the people who will live and work there. Demographic, economic, and environmental studies must be completed to assess the needs of the community. The planner also asks people for their opinions. When all the information is gathered, a planner creates maps and designs. People can look at these general plans and suggest changes. Then the city planner works with architects to plan for the construction of bridges, radio and telephone towers, and other infrastructure such as roads.

Adapted Text - <http://www.princetonreview.com/Careers.aspx?cid=162>

## Green Cities

## Transfer Task



Congratulations, you have graduated from college! You have started your first job as a city planner. Your company would like to get the job of planning a modern city called “Emerald City.”

You will work with a team to put together a proposal for the new city. The exact location of the Emerald City has not been decided. Your job will be to complete four steps:

- Complete the site evaluation.
- Select a good location for the city.
- Do a preliminary city plan complete with a drawing.
- Present your plan to the Search Committee.

## I am a City Planner

Read the background information about your new job. Complete the graphic organizer below.

My Responsibilities	My Thoughts

View the sites that are now open for development. Notice that there are four possible sites for your city. Look carefully at the site map and read the description for each one.

Green Cities

Transfer Task

**Select one of the sites for your city and answer the questions below.**

- Evaluate the physical features on the site map. What features make this site unique?
- List the physical features of the site you have chosen. What are the advantages/disadvantages of each physical feature when planning your city?

<b>PHYSICAL FEATURES</b>	<b>ADVANTAGES</b>	<b>DISADVANTAGES</b>

Choose 5 -10 human features that are essential for the development of a successful city.

- Explain why you chose this location.
- What was important when choosing this location?
- How was the environment modified by your choice?

<b>HUMAN FEATURES</b>	<b>WHY DID YOU CHOOSE THIS LOCATION?</b>	<b>WHAT WAS AN IMPORTANT FACTOR YOU CONSIDERED WHEN CHOOSING THIS LOCATION?</b>	<b>HOW WAS THE ENVIRONMENT CHANGED OR AFFECTED BY THIS CHOICE?</b>

Create your city plan by using the information provided and your rubric.

Green Cities

Transfer Task

Appendix 2 - Evaluating Site and Situation

Use this form to evaluate each of the four land parcels that are possible building sites for Emerald City. You will need to use a separate form for each parcel.

Parcel #	Physical Characteristics	Can be used "as is"	Must be changed	Problems or Notes
	Land and soil conditions			
	Climate			
	Natural resources			
	Outdoor space and Scenery			

Student reflection:

Which parcel would be your personal choice for a place to live? Explain your answer.

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Green Cities

Transfer Task

Appendix 2 - Evaluating Site and Situation

**Evaluating the Human Characteristics of the Site**

Now read below the information you have been given about the people who want to move to Emerald City.

The 50,000 people who will be living and working in Emerald City are committed to living a “green” way of life. They value technology as a way of making their life more convenient and reducing their impact on the environment. Emerald City residents like to spend a lot of time outdoors. They enjoy beautiful scenery and green space where they can exercise and gather for social and sports events.

Here are their requests:

- The city should look and feel modern and up-to-date.
- The city should have clean, unpolluted air.
- Most energy should come from wind power, hydroelectric power, or solar power.
- There should be plenty of room for outdoor activities and sports.

Use the graphic organizer below to evaluate the human characteristics of the site. Some facts have been added for you to get you started.

<b>HUMAN FEATURES</b>	Facts from the reading	What facilities should be included?	Research needed
Facts about the people	50,000 residents	Homes for 50,000 people	What age groups will be the largest?
Cultural values of the people			
Activities of the people			



Green Cities

Transfer Task

Appendix 2 - Evaluating Site and Situation

The **geographic situation** of Emerald City will be important, too. As a planner you should know three facts.

- On the other side of the mountains is a large desert. Few people live there.
- There are six coastal cities to the north, or to the right, of Land Parcel 4. All of these cities are factory towns with lumber mills and refineries.
- The winds in this area usually blow from west to east.

How might these facts affect your choice of the best spot for Emerald City? Explain your answer with an example.

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Now that you have completed your evaluation of the physical and human aspects of the **geographic site**, and you have also considered the **geographic situation**, it is time to make a decision where to build the city and begin the preliminary plan.

I choose Land Parcel \_\_\_\_\_.

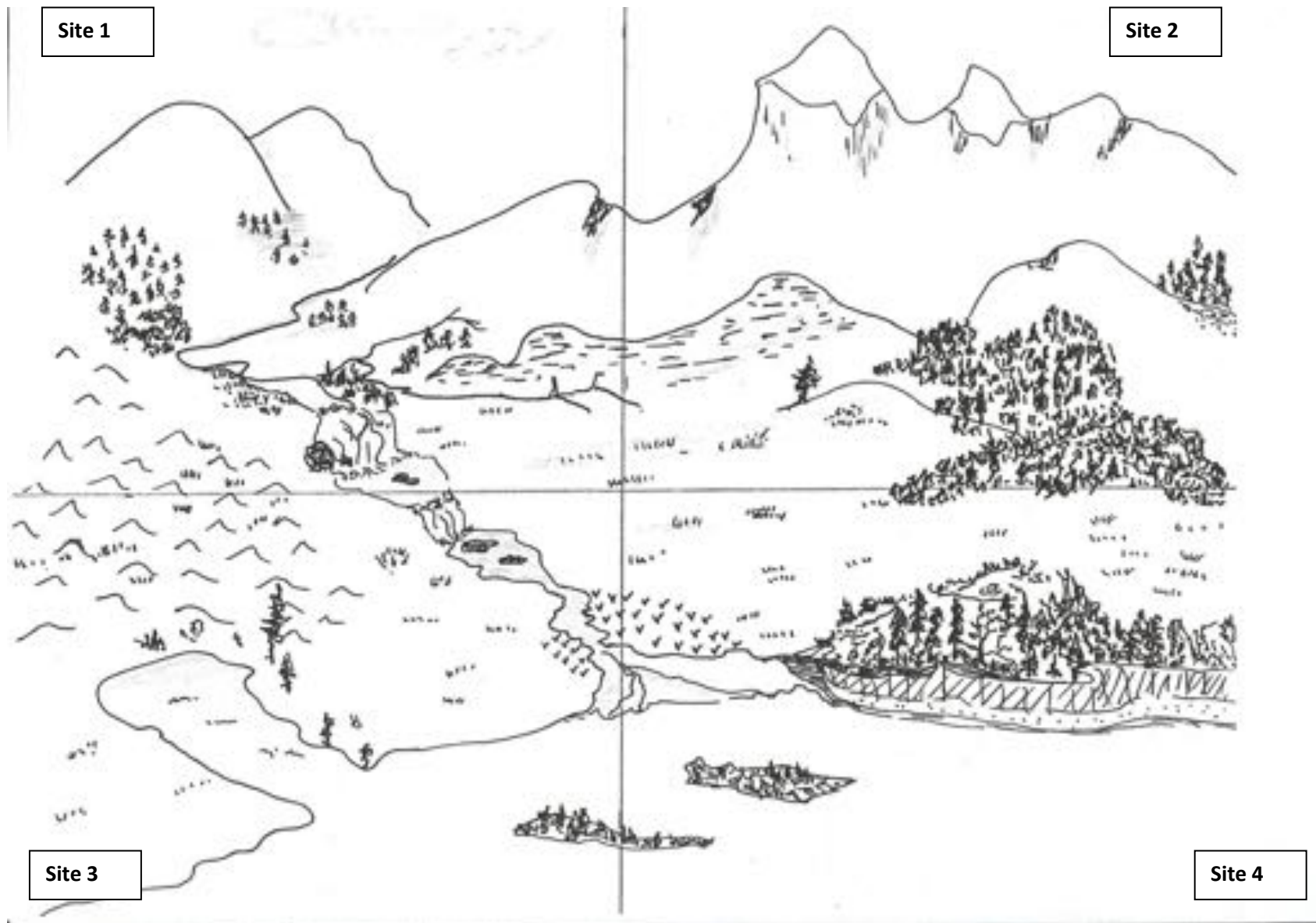
Part II - Planning Emerald City

Use the sketch of the land parcel you selected, your physical and human site evaluations, and your thoughts about the geographic situation to plan Emerald City.

Combine all your ideas in a map or graphic. Be sure to label the important features.

Remember you will be presenting your ideas to the search committee. While you may spend many hours working on the plan, you will have only three minutes to get your ideas across.

Green Cities  
Transfer Task  
Appendix 3 - Potential Sites



Green Cities  
 Transfer Task  
 Appendix 3 - Potential Sites

### Site 1

This mountain valley will be the perfect place for your new city. Residents can escape the summer heat and will enjoy the beautiful mountain landscape. Rivers and a waterfall might be put to work to make electricity, and sportsmen will enjoy fishing and hunting. Flooding in the valleys and lowlands can be a problem occasionally, especially after storms and in the spring when the snow melts in the mountains.

Elevation: 700-1800 ft Average Temperatures:

Summer 55°-80° F Winter 20°-50° F

- Soils: Rocky with erosion along streams
- Land features: Steep hillsides with a narrow river valley and a flat area at the base of the hills with good cropland
- Water features: Three fast-moving rivers come together before a waterfall. Stream flows are heavy after storms and in spring when snow melts in the hills.
- Vegetation: Heavily forested at lower elevations and a natural meadow near the streams
- Animal life: Abundant fish, deer and other small game

### Site 2

If you choose this site, your city will be high above all the rest. The scenery is beautiful, and the mountain climate makes skiing and other winter sports possible. Hunting is also a possibility. The benefits of this area will be worth the expense of building roads and transporting building materials. In the mountains, mineral deposits have already been discovered - including silver and lead - and there may be more!

Elevation: 1000-5000 ft. Average Temperatures:

Summer 30°-74° F Winter 10°-35° F

- Soils: Rocky, including granite and shale. Deposits of coal, small deposits of silver and lead.
- Water features: A few small mountain streams
- Vegetation: Heavily forested at lower elevations,
- Animal life: Deer, elk, bears and other game animals; a few sightings of mountain lions in recent years.

Green Cities  
Transfer Task  
Appendix 3 - Potential Sites

### Site 3

Stay connected with the rest of the world by building a harbor city on this site. Residents will enjoy the mild climate in winter. Building and water travel in this area will be easy. It will be easy to plan around the fact that low-lying coastal areas can sometimes experience damage from wind, rain and storm surges from coastal storms.

Elevation: Sea level - 700 ft

Average Temperatures: Summer 55°-85° F Winter 28°-65° F

- Soils: Clay deposits and sandy soils with rocky base
- Land features: Low hills with some flat meadowland in eastern portion. Marshy area near the coast.
- Water features: River with small islands. Tide lands at mouth of river. Deep water harbor.
- Vegetation: Hardwood trees and shrubs. Marsh grass in low areas.
- Animal life: Some small animals, fresh water fish in rivers, saltwater fish along coast.

### Site 4

Residents will enjoy the options created by the varied environments. Offshore islands, beautiful wooded areas and natural meadows contrast with the marshland. Perched on the cliffs, your city will be protected from coastal storms. Mosquitoes will only be a passing summer problem.

Elevation: Sea level – 1000 ft

Average Temperatures: Summer 55°-85° F Winter 28°-63° F

- Soils: Sandy soils with clay in marshy areas
- Land features: Mostly flat coastal plain with gentle hills in the interior. Erosion has caused a steep cliff along part of the coastline. Two small islands off shore.
- Water features: No rivers. Shallow water between coast and islands.
- Vegetation: Woodland covers about half the land area and both islands. Marshy land near the river. Some natural meadow.
- Animal life: Muskrats in the marsh. Deer, rabbits and small game.

Scoring Category This exhibit provides evidence that ...	Score Point 3	Score Point 2	Score Point 1
I can read maps, charts and geography texts to get the information I need. • Maps, Charts, Text	I can read geographic sources to get information.	I can read two kinds of geographic sources to find information.	I can read one geographic source to find information.
I can identify natural features of a site and tell how people could use them OR how people might have to change them in order to live in a place.	I can identify at least two natural features and their effects on the lives of people in a place.	I can identify one natural feature and its effects on the lives of people in a place.	I can identify at least one natural feature but cannot relate it to effects on the lives of people.
I can identify human or cultural characteristics of a site and explain how they affect a landscape.	I can identify at least two human or cultural characteristics and explain how they affect the landscape of the place.	I can identify at least one human or cultural characteristic and explain how it affect the landscape of the place.	I can identify at least one human or cultural characteristics but cannot explain its effect on the landscape of the place.
I can identify ways the geographic situation of a place (its location in relation to other places) might affect the lives of people in a place.	I can identify two ways the geographic situation of a place might affect the lives of people in a place.	I can identify one way the geographic situation of a place might affect the lives of people in a place.	I cannot identify or explain how the geographic situation of a place might affect the lives of people in a place.
I understand and apply geographic terms and concepts related to places. • Site, Landscape, Physical and Human Characteristics, Situation, Environment	I always use geographic terms and concepts correctly.	I sometimes use geographic terms and concepts correctly.	I misused or left out two or more of the key terms or geographic concepts.
I represented geographic ideas and information about place through graphics.	I used map elements (TODAL) and mapping tools to construct a map or graphic to represent my ideas. Included clear labels and a legend or key.	I used labels and map elements and tools to construct a map, although some are left out or unclear.	I used a map or graphic to represent ideas, but most key elements are missing or used incorrectly.
I included specific features in my city design to match physical and human characteristics of the site.	I included 3 specific features in my city (buildings or facilities) designed to match physical and human characteristics of the site.	I included 2 specific features in my city design to match physical and human characteristics of the site.	I included at least one specific feature in my city design to match physical and human characteristics of the site.

Scoring Category  This exhibit provides evidence that the student ...	Score Point 5	Score Point 3	Score Point 1
Uses geographic sources to extract information relevant to the question or problem.	Extracts relevant information from a variety of geographic sources. (maps, journals, text, charts and other geo-graphics)	Extracts relevant information from two or more geographic sources.	Extracts relevant information from only one geographic source.
Identifies natural features of a site and ways people might use or modify them in order to live in a place.	Identifies at least two natural features of a site and ways people might use or modify them in order to live in a place.	Identifies one natural feature of a site and ways people might use or modify it in order to live in a place.	Identifies natural features of a site but cannot clearly explain how people might use or modify them in order to live in a place.
Identifies human or cultural characteristics of a site and explains how they affect a landscape.	Identifies at least two human or cultural characteristics of a site and explains how they affect a landscape.	Identifies at least one human or cultural characteristics of a site and explains how they affect a landscape.	Identifies human or cultural characteristics of a site but cannot clearly and consistently relate them to landscape features.
Identifies ways the geographic situation of a place (its location in relation to other places) might affect the lives of people in a place.	Identifies two ways the lives of people in a place might be affected by its geographic situation.	Identifies one way the lives of people in a place might be affected by its geographic situation.	Cannot identify or explain how the lives of people in a place might be affected by its geographic situation
Understands and applies geographic terms and concepts related to <i>place</i> (Site, landscape, Physical and human characteristics, situation)	Geographic terms and concepts are <b>accurately and consistently used</b> and applied throughout the presentation.	Geographic terms and principles are generally used with success, but use and application are inconsistent.	Two or more key terms or geographic principles are omitted or applied incorrectly.
Geographic ideas and information are represented through graphics.	Uses appropriate techniques and tools to construct a map or appropriate graphic to represent ideas including legend or key.	Uses some techniques and tools to construct a map or appropriate graphic to represent ideas, but some elements are unclear or undefined.	Attempts to construct a map or appropriate graphic to represent ideas, but some key elements are missing or incorrectly applied.
Exhibit relates the requirements of physical and human characteristics of the site and the geographic situation to a plan for a city.	City plan includes at least three facilities or buildings that clearly relate to the physical characteristics of the site and/or human or cultural aspects of the site.	City plan includes at least two facilities or buildings that clearly relate to the physical characteristics of the site and/or human or cultural aspects of the site.	City plan includes at least one facility or buildings that clearly relate to the physical characteristics of the site and/or human or cultural aspects of the site.

**SOCIAL STUDIES SCHEDULE**

<b>Grade(s)</b>	<b>Time Allotted for Social Studies Instruction</b>
K-3	30 minutes every other day
4-5	35 minutes every other day
6	1 hour every other day
7-8	1 hour every day

## Social Studies Curriculum Resubmission Memo

**DDOE Early Review Submission Expectation 1: As a result of the state’s new “through assessment” system for social studies, standards and instruction have shifted in grades 4 through 8. This information has been communicated in SSCD meetings over the past few years. The scope and sequence documents shared give a time a place for each of the social studies standards; however, their grade level placement does not align to the shifts in standards and instruction. This misalignment will put students at a disadvantage when they take the required grade-level, content-specific through assessments.**

**DDOE Early Review Submission Expectation 2: Create scope and sequence documents that align to the realigned DRC for Social Studies. That realignment includes: Grade 4: U.S. History and Civics (1491-1787), Grade 5: Economics and Geography, Grade 6: World Geography, Grade 7: Economics and Civics, and Grade 8: U.S. History (1783-1877).**

TECS Response: TECS has joined the Social Studies Coalition of Delaware and has reviewed the recordings of the training sessions reviewing the standards shifts in elementary and middle school social studies. Teachers will use the re-aligned standards as learning goals.

As the new standards take effect, TECS will utilize the model lesson materials provided in the realigned, grade-specific Schoology groups for each of the five courses outlined above. As Delaware shifts away from the summative assessments in Grades 4–7 to a through-assessment system, we will prepare students to be assessed semiannually (in Grades 5 and 7) and three times annually (in Grades 4, 6, and 8) on the standards assigned to their respective grade levels. We will be participating in the DDOE through assessments this year and will consequently be able to gauge the degree to which our students have mastered the new standards and to use that data to drive adjustments to scheduling, grouping, pacing, and staffing.

In anticipation of executing these shifts, TECS will have its Grade 7–8 social studies teacher participate in the Grade 7 Economics Model Lesson Training provided by the University of Delaware Center for Economic Education and Entrepreneurship on August 15–18. We will also participate in the social studies professional development offered on the statewide PD day.

**DDOE Early Review Submission Expectation 3: For assistance, reach out to Dr. Michael Feldman, Education Associate for Social Studies Curriculum, Instruction, and Professional Development at [michael.feldman@doe.k12.de.us](mailto:michael.feldman@doe.k12.de.us).**

TECS Response: Elizabeth Yates, TECS’s assistant principal, met with Dr. Feldman on August 4, 2022, to discuss the recommendations and expectations outlined in the Department’s Early Submission Curriculum Review Memo. The information provided in this section, and the manner in which it is provided, was generated following that conversation with Dr. Feldman and finalized following an ensuing email exchange with Dr. Greg Fulkerson.



## **Appendix 2 - Curriculum Documents :: Visual Arts**

## Visual Arts Curriculum Documents

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**K–4 SCOPE AND SEQUENCE**

	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>LINE</b>	Identify a variety of lines (thick, thin, smooth, rough)	Identifying lines  Recognize the difference between horizontal and vertical lines	Recognize horizontal, vertical, and diagonal lines	Explore variety of lines Contour Descriptive Expressive Create Linear Designs	Explore variety of lines Contour Descriptive Expressive
<b>SHAPE</b>	Identify variety of shapes Recognize motions / movement for drawing shapes (freeform, geometric)	Identify variety of shapes (in nature, manmade, in artwork)	Observe and describe 2-D shapes	Observe and describe 2-D and 3-D shapes	Explore and create 3-D work
<b>COLOR</b>	Observe how colors create feelings <ul style="list-style-type: none"> <li>• Primary</li> <li>• Warm</li> <li>• Cool</li> <li>• Bright</li> <li>• Dull</li> </ul>	Identify the primary colors  Determine what color combinations create	Describe colors used in abstract art Understand the Color Wheel ROYGBIV	Explore mixing of colors Warm/Cool Primary/Secondary	Explore mixing of colors Warm/Cool Primary/Secondary Introduce Intermediate
<b>SPACE</b>	Observe size in space (small, medium, large) Observe placement of space (front, middle, back)	Forms take up space Buildings in space	Describe variety of size  Observe depth  Recognize positive and negative space	Observe how artists use depth in 3-D shapes Recognize positive and negative space Observe foreground, middle ground, and background Recognize landscapes	Explore Proportion Explore perspective (1 point) Positive and negative Realistic proportions

	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>FORM AND CONSTRUCTION</b>	Observe sculptures Ceramic Paper	Build sculptures by manipulating paper  Design fiber art with string and yarn  Describe 3-D sculptures	Design sculptures with clay, paper Describe 3-D sculptures	Build clay sculptures Construct collages Weave using warp, weft, and knotting techniques	Explore sculptures Weave using a loom, shuttle, and yarn Sew using burlap, needles, and yarn
<b>TEXTURE</b>	Observe the feeling of different materials  Observe and describe variety of artwork Material Exploration (clay, paint, crayons)	Describe qualities of texture (rough, slippery, smooth)  Material exploration	Describe qualities of texture (rough, slippery, smooth)	Create variety of textures with various materials	Compare and contrast real and implied texture
<b>BALANCE</b>	Even balance with animals		Identify symmetrical objects Visual rhythm	Identify symmetrical and asymmetrical objects	Identify symmetrical, asymmetrical, and radial objects Accurate proportions
<b>HISTORY AND CULTURE</b>	Landscape Pablo Picasso Northwest American Indian totem pole Statue of Liberty	Vincent Van Gogh Self Portrait Leonardo da Vinci, Mona Lisa Mural in Mexico	Line of Pablo Picasso Landscape Thomas Cole The Starry Night; Vincent Van Gogh	Observe American Indian works (Kachina, Navajo) Observe Ancient Roman Art (Byzantine civilization)	Observe spiritual use of African art (masks, carvings, sculptures) Observe famous portraits and paintings of the United States (Copley, Revere, Washington) Observe Chinese arts (scrolls, calligraphy)

**5–8 SCOPE AND SEQUENCE**

	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>LINE</b>	Explore variety of lines Contour Descriptive Expressive	Contour Descriptive Expressive Hatch Crosshatch Direction	Contour Descriptive Expressive Hatch Crosshatch Direction Optical Illusions	Explore variety of lines Contour Descriptive Expressive Hatch Crosshatch Direction Sketch Symbolism
<b>SHAPE</b>	Explore and create 3-D work	Explore and create 3-D work	Explore and create 3-D work	Explore and create 3-D work Symbolism
<b>COLOR</b>	Explore mixing of colors Warm/Cool Primary/Secondary Introduce Intermediate Monochromatic Neutral	Explore hues, tints, shades, color families and scale Opaque Transparent	Explore hues, tints, shades, color families and scale Value Emotion Opaque Transparent	Value Contrast
<b>SPACE</b>	Explore proportioning, foreshortening 2-point perspective Proportions in still-life	Explore proportioning, foreshortening 2-point perspective Spatial relationships	Explore proportioning, foreshortening Perspective	Explore proportioning, foreshortening Perspective Division of Picture Plane
<b>FORM AND CONSTRUCTION</b>	Ceramic Paper Construct a collage Sew using fabric Create 3-D Compositions with shading and line techniques	Design sculptures and jewelry Create functional baskets	Create life-sized sculptures Design sculptures and jewelry	Surrealistic and Cubist artwork Soft Sculpture Complex baskets

	5	6	7	8
<b>TEXTURE</b>	Observe the feeling of different materials Observe and describe variety of artwork Draw and paint on varied surfaces	Describe qualities of texture (rough, slippery, smooth)	Describe qualities of texture (rough, slippery, smooth) Decorative texture	Create various textures using: Pencils Charcoal Colored Pencils Actual Implied
<b>BALANCE</b>		Identify necessary balance for “picture inside picture”	Identify symmetrical objects	Identify symmetrical and asymmetrical objects
<b>HISTORY AND CULTURE</b>	Art of the Renaissance Greek and Roman Art 19th Century U.S. Art of Japan	Classical Art; The art of Ancient Gothic Art Baroque The Renaissance Rococo Neoclassical Romantic Realism	Impressionism Post-Impressionism Expressionism & Abstraction Modern American Painting	Painting since World War II 20th Century Sculpture Architecture since the Industrial Revolution

<p><b>KINDERGARTEN-FIRST GRADE</b></p> <p><b>PANDA PAINTING LESSON</b></p>												
<p><b>GOALS AND DESIRED OUTCOMES</b></p>												
<p><b>Timeline: 45 minutes</b>  <b>This lesson will take 3 class periods</b></p> <p><b>Part 1: Drawing the Panda Part 2: Painting the Panda Part 3: Painting the Panda</b></p>												
<p>VOCABULARY</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Asia</td> <td style="width: 15%;">China</td> <td style="width: 15%;">Panda</td> <td style="width: 15%;">Tempera Paint</td> <td style="width: 15%;">Proportion</td> <td style="width: 15%;">Endangered</td> </tr> <tr> <td>Animal/Species</td> <td></td> <td>Bamboo</td> <td>Zen</td> <td></td> <td></td> </tr> </table>	Asia	China	Panda	Tempera Paint	Proportion	Endangered	Animal/Species		Bamboo	Zen		
Asia	China	Panda	Tempera Paint	Proportion	Endangered							
Animal/Species		Bamboo	Zen									
<p>RESOURCES AND MATERIALS NEEDED</p> <p><b>Books:</b></p> <p><i>Zen Ties</i> by Jon J. Muth <i>Zen Shorts</i> by Jon J. Muth (Caldecott Honor Book) Reproductions:</p> <p>Pictures of “real” pandas Pictures of Kung Fu Panda</p> <p><a href="http://nationalzoo.si.edu/Animals/GiantPandas/">http://nationalzoo.si.edu/Animals/GiantPandas/</a></p> <p><b>Medium:</b> Tempera Paint / Oil Pastel</p> <p><b>Technology:</b> Elmo, Projector, and Laptop</p>												
<p>STANDARDS</p> <p>VA:Cr1.2.1a Use observation and investigation in preparation for making a work of art. VA:Cr2.1.1a</p> <p>Explore uses of materials and tools to create works of art or design.</p>												
<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> <li>● How can we use shapes to create images?</li> <li>● Where do pandas originate from?</li> <li>● How do we create art from overlapping shapes?</li> <li>● What is tempera paint?</li> </ul>												
<p>LEARNING OBJECTIVES:</p> <ul style="list-style-type: none"> <li>● <i>The student will understand:</i> How to draw a panda and know that pandas come from <b>China/Asia</b>. Compare and contrast a picture of a “real” panda with a</li> </ul>												

pretend panda (Kung Fu Panda). Understand the meaning of **proportion**.

- **The student will create:** a work of art that shows the use of overlapping shapes in correct proportions to create a panda, and bamboo. The students will paint the pandas and **bamboo** using correct techniques for **tempera paint**.

### ASSESSMENT STRATEGIES AND GOALS

- Teacher will critique each panda painting
- Teacher will informally assess with questions about pandas and tempera paintings

EVIDENCE:  
Finished painting

### LEARNING PLAN

#### **DAY 1: Drawing Pandas**

- Show the pictures of the pandas and where they live on the map.
- Discuss what endangered animals are.
- Handout blank paper
- Step-by-step draw the pandas with the students using a series of overlapping circles and ovals.
- Have the students make sure that they don't have any UFO's (un- identified floating objects) in their pictures.
- The panda's body parts should be "connected" and overlapping and the panda should be sitting on the ground not floating or levitating.
- Talk about the word proportion...making sure that the panda parts look like the sizes belong together.
- Collect the pandas.
- Show the pictures of Kung Fu Panda and ask if that is a "real" panda ? What type of panda is he? What do we call it when we make believe?  
Compare and contrast the pandas.

#### **DAY 2: PAINTING PANDAS**

- Review vocabulary.
- Handout pictures.
- Demonstrate how to hold paint brushes correctly.
- Talk briefly about how tempura is different from the watercolor paints they have already used this year.



- Have the students identify the white parts of the panda that they will be painting this week.
- Have the students paint the grass and bamboo...turning their paper to reach all the areas...not reaching across their paintings.
- Clean up and set paintings aside.
- Read from *Zen Ties*...make the connection that this is another pretend panda. Ask how they know that this panda is also a pretend panda?

### **DAY 3: PAINTING PANDAS**

- Pass out Pandas
- Review vocabulary
- Have students identify the parts of the panda that are black that they will be painting this week.
- Have the students clean up when they are done.
- Set the paintings aside to dry .

### **Assessment Questions**

1. Where do pandas originate from?
2. How do overlapping shapes lead to the creation of a panda?
3. How do we make panda ears proportionate to the panda's body?
4. What is an endangered species?
5. How is tempera paint different from watercolor paint or acrylic paint?

<p><b>SECOND-THIRD GRADE ANIMAL HABITATS LESSON</b></p>				
<p><b>GOALS AND DESIRED OUTCOMES</b></p>				
<p><b>Timeline: 45 minutes This lesson will take 2 class periods</b></p>				
<p>VOCABULARY</p> <p>Habitat      Terrain      Landforms      Environment      Predator</p> <p>Foreground      Background      Surrounding      Diorama</p> <p>Survival      Curling      3-dimensional      Setting Snipping</p>				
<p>RESOURCES AND MATERIALS NEEDED</p> <p>Self-hardening clay      Paint      water or tempera      Box lid or rounded plate</p> <p>Construction Paper      Cotton      Cloths Scraps      Glue      String or yarn</p> <p>Aluminum foil      Pipe cleaners      Beads</p> <p><b>Medium:</b> paper, paint, glue, clay, and all kinds of 3d materials</p> <p><b>Technology:</b></p>				
<p><b>STANDARDS</b></p> <p>VA.Cr 1.2.2a</p> <p>Make art or design with various materials and tools to explore personal interests, questions, and curiosity.</p> <p>VA.Cr 1.2.3a</p> <p>Apply knowledge of available resources, tools, and technologies to investigate personal ideas through the art-making process.</p>				
<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> <li>● What is a diorama?</li> <li>● How can we use art to replicate nature?</li> </ul>				
<p>LEARNING OBJECTIVES:</p>				

- Students will experience the use of 3 dimensional forms with a variety of materials. The objective is to be able to successfully manipulate the materials by cutting, curling, pinching, pulling and all the ways hands move to create form.
- This lesson gives them many opportunities to invent new ways to create and to practice instructed ways too.

### **ASSESSMENT STRATEGIES AND GOALS**

- Teacher will critique each diorama
- Teacher will use rubric

#### **LEVELS OF KNOWLEDGE**

- 1: Describe how we can create art.
2. Describe why the same steps can be followed and have different artistic results.

### **LEARNING PLAN**

Day 1: Introduce lessons with high enthusiasm. Create a clay creature and then build an environment where the animal will live. Instruct students in forming a plan for the habitat by painting the sky and land or terrain and discussing with each other the kinds of things their animal will need to survive. Students will have to match their chosen animal with the correct habitat.

Hand out boxes that are ready for students to begin painting. After they have created their design on paper, have them start painting their diorama.

Finish with ten minutes to clean and place them all on a table to dry before the next class.

Day 2: Step by step instruct the creation of a free standing tree trunk with tabs for feet to glue down. Use tissue paper or other paper for leaves.

Help students to use the clay to create their animals that will go inside their diorama.

Complete diorama with details such as rivers, caves, stones, shrubs, grass, clouds, flowers, insects, birds, fruit, etc. These items can be made from a multitude of scraps and materials in the art room. The more the better and the diorama becomes a masterpiece of originality.

Notes/Accommodations:

Small children (1<sup>st</sup> grade) need help with ideas to shape the animals they have chosen to make. Showing samples of a diorama helps students orient themselves to the project and gets them motivated. Inspire them to think of how they can provide food and shelter for their animals and add details to the setting like flowers and clouds and things we see every day in our own world environment.

Plan to assist one on one for differentiation needs. This lesson is not difficult but for some small students it may be their first time creating 3 dimensional objects and they will need one on one help.

**Assessment Rubric**

<b>RUBRIC</b>	<b>1 - MASTERED</b>	<b>2 - SATISFACTORY</b>	<b>3 - UNSATISFACTORY</b>
Craftsmanship and neatness			
Showed radial symmetry/balance			
Completed within 2 class sessions			

<p><b>FOURTH GRADE</b></p> <p><b>LINES AND SHAPES UNIT</b></p>
<p><b>GOALS AND DESIRED OUTCOMES</b></p>
<p><b>Timeline: 45 minutes</b>  <b>This lesson will take 2 class periods</b></p>
<p>VOCABULARY</p> <p>horizontal, vertical, diagonal, parallel, overlapping, negative space, positive space, viewpoint, birds eye view, pattern, background</p>
<p>RESOURCES AND MATERIALS NEEDED</p> <p><b>Resources</b> SRA textbooks Examples of finished artwork Maps: any city map</p> <p>Reproductions: Joseph Stella <i>The voice of the city of New York...</i> Joaquin Torres-Garcia <i>New York City-birds eye view</i></p> <p><b>Medium:</b> Pencils, black markers, color pencils or Crayons, watercolor paint</p> <p><b>Materials:</b></p> <p>12"x18" white paper, pencils, black markers, color pencils/crayons, rulers, tracers, watercolor paints.</p>
<p><b>STANDARDS</b></p> <p>VA.Cr 2.1.4a Explore and invent art-making techniques and approaches.</p>
<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> <li>● How can we use lines to create art?</li> <li>● What different types of lines are there?</li> </ul>
<p>LEARNING OBJECTIVES:</p> <ul style="list-style-type: none"> <li>● Students will be able to create arts using geometric shapes</li> <li>● Students will be able to create art using lines</li> <li>● Students will explore what they can create through overlapping lines</li> <li>● Students will be able to use different techniques for drawing lines</li> </ul>
<p><b>ASSESSMENT STRATEGIES AND GOALS</b></p>
<ul style="list-style-type: none"> <li>● Teacher will assess using a rubric</li> </ul>

**LEVELS OF KNOWLEDGE**

- 1: Describe how we can create art.
2. Describe why the same steps can be followed and have different artistic results.

**LEARNING PLAN**

First show the students the examples, reproductions,

and SRA materials. Then have the students turn the paper in a horizontal direction. Start the lesson with a pencil.

Show the students how to start simple

By placing the ruler in a vertical direction Anywhere along the bottom edge of the paper approximately 3” to 5”up. Next, Have them trace both sides of the ruler With vertical lines ending at the same height. Show them how to end it by drawing an arrowhead at the top. Now, have them hold the ruler horizontally coming from the right or the left side near the bottom of the paper. Make sure the lines they draw will overlap the previous lines. They need to keep all of

Their lines parallel. Now give them some options. Show them how to split their parallel lines (like a Y) with the lines going into different directions. Show them how to do curved lines, write cursive letters and words. Show them

how to make the parallel lines look like streets by drawing broken lines in the middle of the parallel lines. Show them how to draw simple cars, houses, street signs, bushes, trees, flowers, bridges, etc. Tell them that they can design playgrounds, city maps, games, etc, or you can decide which one of the lessons you want them to do. They need to have parallel lines that come from all directions, top, bottom, and both sides.

They also need to continue to overlap their parallel lines. They can do mostly straight or mostly curved lines. After they have all of the lines done, have them fill

in the negative (empty) spaces and blocks with patterns and designs. They

can fill some sections with grass, water, trees, flowers, and/or houses. This is the fun part. They now need to go over all

of their lines with a black marker. If any time is left they can use color pencils or crayons to add color and texture. Before they add any color, think about whether you want them to use a specific color scheme or if you just want them to balance their

colors. For the next lesson watercolor paint can be used to brighten it up. Afterwards, do your assessment and you are done.

**Assessment Rubric**

<b>RUBRIC</b>	<b>1 - MASTERED</b>	<b>2 - SATISFACTORY</b>	<b>3 - UNSATISFACTORY</b>
Craftsmanship and neatness			
Showed radial symmetry/balance			
Completed within 2 class sessions			

<b>FIFTH GRADE</b>
<b>Florida Highway Men Landscape LESSON</b>
<b>GOALS AND DESIRED OUTCOMES</b>
<b>Timeline: 45 minutes</b> <b>This lesson will take 1 class period</b>
<b>VOCABULARY</b> Landscape Silhouette Color Blending Horizon Line
<p><b>RESOURCES AND MATERIALS NEEDED</b></p> <p><b>Reproductions:</b></p> <p>Highway Men artwork Highwaymen book</p> <p>Palm tree and Sunrise visuals <b>Medium:</b></p> <p>Crayon, Oil pastels</p> <p><b>Materials:</b></p> <p>Crayons, Paper, Black oil Pastel</p>
<p><b>STANDARDS</b></p> <p>VA.Cr 2.3.5a</p> <p>Identify, describe, and visually document places and/or objects of personal significance.</p> <p>VA.Cr 3.1.5a</p> <p>Create artist statements using art vocabulary to describe personal choices in art-making.</p>
<p><b>ESSENTIAL QUESTIONS:</b></p> <ul style="list-style-type: none"> <li>● What is the difference between Foreground and Background?</li> <li>● How do we keep our colors balanced when blending?</li> <li>● What is a silhouette?</li> </ul>
<p><b>LEARNING OBJECTIVES:</b></p> <ul style="list-style-type: none"> <li>● Students will be able to use crayons to blend colors</li> <li>● Students will be able to describe a silhouette</li> <li>● Students will be able to describe the work of the Highway Men</li> <li>● Students will be able to create work that resembles the Highway Men art</li> </ul>



<b>ASSESSMENT STRATEGIES AND GOALS</b>
<ul style="list-style-type: none"> <li>• Teacher will assess using a rubric</li> </ul>
EVIDENCE
<p>ACTIVITIES</p> <p>Students will color blend crayons to create a sunrise over their whole paper. They will then draw silhouettes of palm trees on the foreground.</p>
<b>LEARNING PLAN</b>
<p>Part 1: Look at Highway Men art and share their story with the students. Direct students to use the colors they see in the sunrises to create their own sunrise.</p> <p>Part 2: Today look at palm trees with students and discuss the lines found. Students will then practice drawing silhouette palms with black oil pastel. When students are confident they can then create silhouette palms in the foreground of their sunrises.</p>

**Assessment Rubric**

<b>RUBRIC</b>	<b>1 - MASTERED</b>	<b>2 - SATISFACTORY</b>	<b>3 - UNSATISFACTORY</b>
Craftsmanship and neatness			
Student created a silhouette using contrasting colors			
Students blended colors to create a sunset			

<b>6TH-7TH GRADE COLOR SCHEME LESSON</b>
<b>GOALS AND DESIRED OUTCOMES</b>
<b>Timeline: 45 minutes</b> <b>This lesson will take at least 2 class periods</b>
<b>VOCABULARY</b> Color theory, Color Scheme, Tempera, Color value, Angles
<b>RESOURCES AND MATERIALS NEEDED</b>  Tempera paint, gray drawing paper, graphite pencils, objects of students choosing
<b>STANDARDS</b>  VA.Cr1.1.6a  Combine concepts collaboratively to generate innovative ideas for creating Art.  VA.Cr1.2.7a  Develop criteria to guide making a work of art or design to meet an identified goal.
<b>ESSENTIAL QUESTIONS:</b>  <ul style="list-style-type: none"> <li>● What is color theory?</li> <li>● How can we use angles and space to create illusions in art?</li> <li>● What is the color scheme?</li> </ul>
<b>LEARNING OBJECTIVES:</b>  <ul style="list-style-type: none"> <li>● Students will be able to describe color theory</li> <li>● Students will be able to describe color scheme</li> <li>● Students will understand the concept of color</li> <li>● Students will be able to effectively use the color wheel</li> </ul>
<b>ASSESSMENT STRATEGIES AND GOALS</b>

- Teacher will assess using a rubric as well as visually throughout the students planning their artwork

**LEARNING PLAN**

The teacher will begin by presenting the concepts of color theory including the color wheel, color values, and color schemes. Students will paint a color wheel, and complete color theory worksheets. The teacher will then introduce the assignment.

Students will bring in objects that they would like to use in their artwork. If the student fails to bring in objects, the teacher may choose to assign objects to students. The student will draw the object from observation. The teacher should encourage the student to draw the object from many different angles and try to create the illusion of space on the surface. The student will then divide the paper into three sections. The student will then paint the different sections with a different color scheme of their choosing. The teacher should encourage the students to use a full range of value in their artwork. When finished, the student should write the specific name of the color scheme (monochromatic, analogous, etc.) used on the back of the paper.

**Assessment Rubric**

<b>RUBRIC</b>	<b>1 - MASTERED</b>	<b>2 - SATISFACTORY</b>	<b>3 - UNSATISFACTORY</b>
Student brought in an object to draw			
Student drew the object from several different angles			
Student chose and correctly labeled their color scheme			

<b>8TH GRADE CLAY LESSON</b>
<b>GOALS AND DESIRED OUTCOMES</b>
<b>Timeline: 45 minutes</b> <b>This lesson will take at least 2 class periods</b>
<b>VOCABULARY</b> Form, Manipulate
<b>RESOURCES AND MATERIALS NEEDED</b> White earthenware clay, bats, water, kiln
<b>STANDARDS</b> VA.Cr1.1.8a Document early stages of the creative process visually and/or verbally in traditional or new media. VA.Cr2.1.8a Demonstrate willingness to experiment, innovate, and take risks to pursue ideas, forms, and meanings that emerge in the process of art- making or designing.
<b>ESSENTIAL QUESTIONS:</b> <ul style="list-style-type: none"><li>● How can we manipulate clay to create objects?</li><li>● How can we describe our building process?</li></ul>
<b>LEARNING OBJECTIVES:</b> <ul style="list-style-type: none"><li>● Students will be able to manipulate clay.</li><li>● Students will be able to describe their hand building technique</li><li>● Students will understand the difference between form and shape</li></ul>
<b>ASSESSMENT STRATEGIES AND GOALS</b>

- Teacher will assess using a rubric as well as visually throughout the students planning their artwork

**LEARNING PLAN**

Teacher will use the document camera to show a demonstration on the technique of scoring and slipping clay for attachment. Students should be fully aware of the proper techniques for connecting pieces of clay together.

Students will build their pieces in class while the teacher walks around and monitors progress. Be sure to have a good place to store the clay sculptures. A wet cabinet is best, although they are expensive to purchase. A nice alternative is a shelf. To keep the pieces moist so that they don't dry out too quickly, wrap them in plastic bags. Once the figures can stand on their own, you can take a sandwich bag and lay it on top, so that the piece is covered on the top but can begin to dry slowly from the bottom. Be sure that students create a base for the clay figures to stand on. Encourage students to be creative with their clay base. It's also a good idea to have them build the base first, and then proceed to creating the clay figure itself.

**Assessment Rubric**

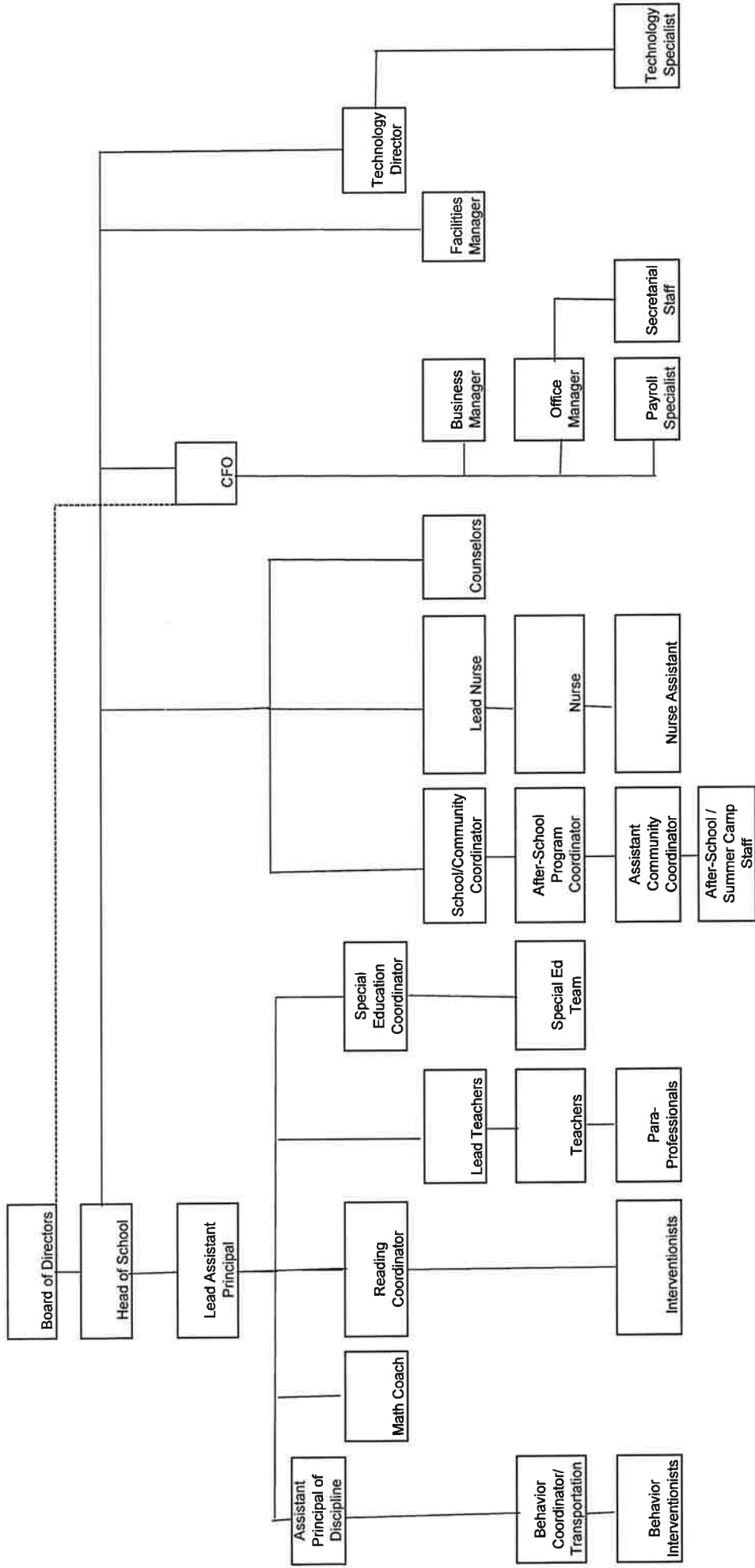
<b>RUBRIC</b>	<b>1 - MASTERED</b>	<b>2 - SATISFACTORY</b>	<b>3 - UNSATISFACTORY</b>
Craftsmanship and neatness			
Student designs their object so that it can stand			
Student follows the correct steps to create their object			

**VISUAL / PERFORMING ARTS SCHEDULE**

<b>Grade(s)</b>	<b>Time Allotted for Visual / Performing Arts Instruction</b>
K-2	55 minutes every day
3-5	55 minutes every day
6-8	55 minutes every day

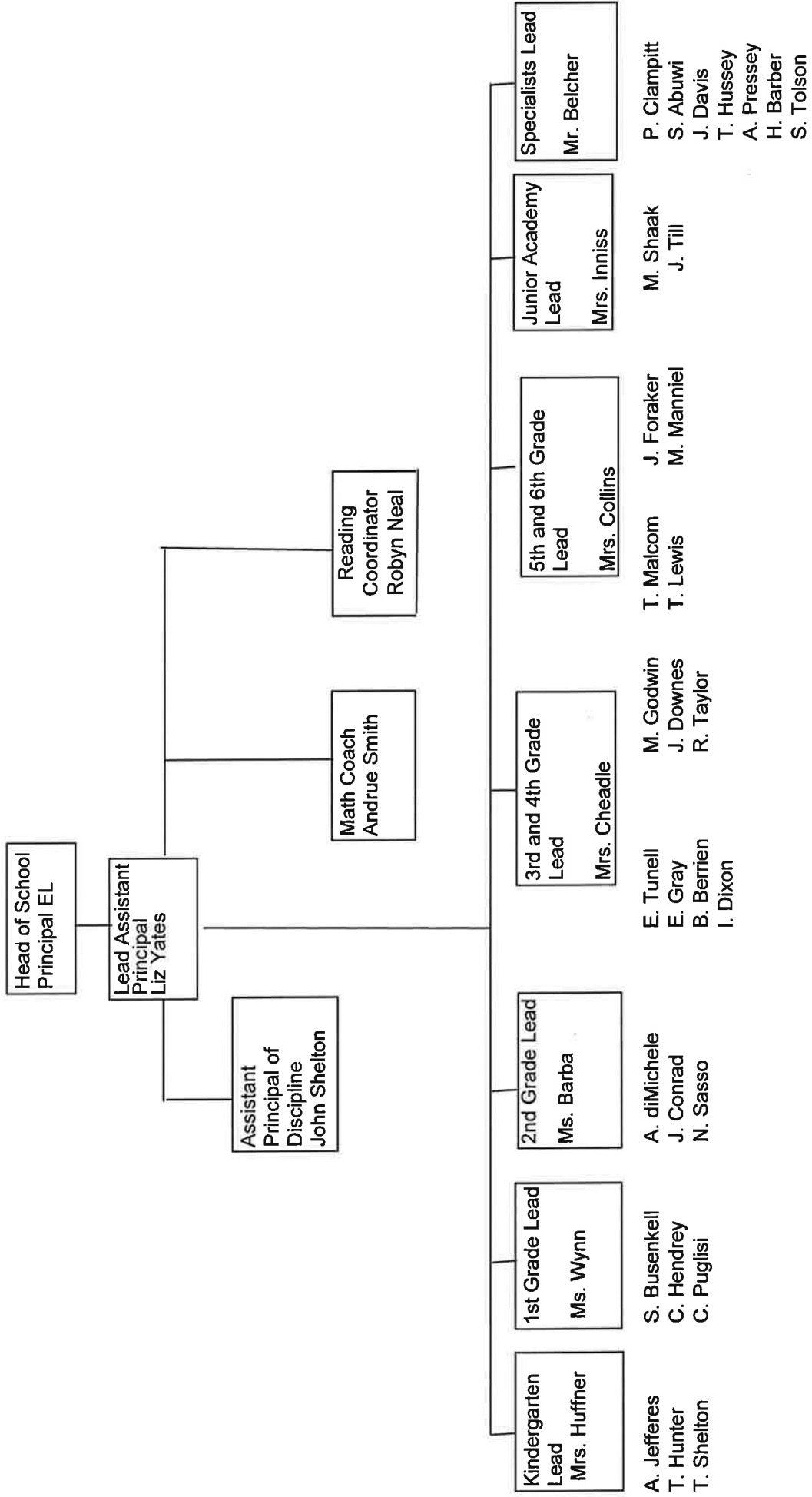
## **Appendix 3 - Current Organizational Chart**

**Thomas A. Edison Charter School  
 Organization Chart  
 2022 - 2023**





# Thomas A. Edison Charter School Organization Chart 2022- 2023



## **Appendix 4 - Board Governance Training Certificates/Documents**



September 29, 2022

Ms. Ami Patel, Secretary, Board of Directors  
Thomas Edison Charter School  
2200 N Locust St, Wilmington, DE 19802  
Via email: [Ami.Patel@tecs.k12.de.us](mailto:Ami.Patel@tecs.k12.de.us)

Dar Ms. Patel,

This letter certifies that 3 hours of charter school board excellence training was completed on September 29, 2022, for board members of Thomas Edison Charter School.

The following individuals participated in the training:

Board Members:

Emile Brown  
Wayne Cooper  
Nicole Huffner  
Ollie Johnson

Ami Patel  
Roopa Sabesan

Administration:

Patricia Winder, Chief Financial Officer

It was a pleasure to meet with you and members of the Board of Directors and facilitate conversation on the principles and practices of high quality charter school governance.

Sincerely,

*Pamela Leland*

Pamela Leland, PhD  
Executive Vice President, Member Support Programs

Cc: Mr. Mikkel Christie, Chair, Board of Directors, [mchristie@collegeave.com](mailto:mchristie@collegeave.com)  
Ms. Patricia Winder, Chief Financial Officer, [Patricia.Winder@tecs.k12.de.us](mailto:Patricia.Winder@tecs.k12.de.us)

## **Appendix 5 - Board Member and School Leader Succession Plans**

## Board Member and School Leader Succession Plans

**Board.** When vacancies arise on the board of trustees, existing members activate their personal and professional networks in an effort to identify mission-aligned individuals who would contribute to diversity (of perspectives, experiences, and skills) on the board. Internally, the board chair is responsible for providing intermediate leadership opportunities to other trustees (e.g., through committee chairmanships) and ensuring they have the training and experience necessary to assume progressively larger leadership roles on the board. Pursuant to the school's bylaws, the dedicated seats for a parent and a member of the school's faculty are filled after the school leader presents the board with a comprehensive slate of candidates for those seats. The board, as a self-perpetuating body, vets and appoints all members.

**School Leader.** At the school leadership level, we are fortunate to have internal candidates who could step in on an emergency basis and maintain continuity. We distinguish between emergency and long-term succession planning, however, and we maintain a focus on ensuring the school remains set up to be successful institutionally for years to come. Based on our work with the existing school leader, the board has created a list of skills and competencies that a TECS leader must possess. Those competencies effectively serve as a template for prospective leaders. The board works with the school leader to allow existing members of the TECS team to develop the competencies they would need as a school leader. While centering diversity and equity, we would also prepare to conduct a broad national search in order to ensure that whoever is selected as the next school leader is the most highly-qualified person for the role irrespective of where they currently work or how they developed the requisite expertise.

## **Appendix 6 - Current Board Bylaws**

2018 AMENDED AND RESTATED BY-LAWS

OF

THOMAS A. EDISON CHARTER SCHOOL OF WILMINGTON, INC.

(hereinafter called the "Corporation")

ARTICLE I

OFFICES

Section 1. Registered Office. The name and address of the registered agent of the Corporation is Corporation Service Company, 1013 Centre Road, City of Wilmington, County of New Castle.

Section 2. Other Offices. The Corporation may also have offices at such other places both within and without the State of Delaware as the Board of Directors may from time to time determine.

ARTICLE IA

CORPORATE POWERS

Section 1. Thomas Edison Charter School shall have the power to take any action permitted by the Delaware General Corporation Law (the "DGCL"), the Certificate of Incorporation, Section 501(c)(3) of the Code and these Bylaws, as they may be amended from time to time; Provided that any such action is taken in accordance with the Delaware Freedom of Information Act (FOIA).

Section 2. All of the assets and the earnings of Thomas Edison Charter School shall be used exclusively for scientific, educational or charitable purposes within the meaning of Section 501(c)(3) of Code, as set forth above, in the course

of which operation:

- (a) No part of the net earnings of Thomas Edison Charter School shall inure to the benefit of, or be distributable to, its members, directors, officers, or any interested persons, except that Thomas Edison Charter School shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth herein;
- (b) No substantial part of the activities of Thomas Edison Charter School shall be the carrying on of propaganda, or otherwise attempting to influence legislation, and Thomas Edison Charter School shall not participate in, or intervene in (including the publishing or distribution of statements), any political campaign on behalf of or in opposition to any candidate for public office except as authorized under the Code;
- (c) Notwithstanding any other provisions contained herein, Thomas Edison Charter School shall carry on only those other activities permitted to be carried on by a corporation exempt from tax under Section 501(c)(3) of the Code; and
- (d) In furtherance of the stated goals, objectives and purposes of Thomas Edison Charter School, the School shall not base any decision, determine the course of conduct or discriminate in any way on the basis of age, race, gender, religion, or political affiliations or beliefs, provided that Thomas Edison Charter School may conduct school classes for children of certain specified ages only.

Section 3. The Applicant's business is restricted to the opening and operation of: Charter Schools, before school programs, after school programs and



educationally related programs offered outside the traditional school year.

## ARTICLE II

### MEMBERS

Section 1. Members. The members of the Corporation (the "Members") shall be the persons who are members of the Board of the Corporation (the "Board"). A Member shall automatically cease to be a Member of the Corporation at such time as he or she shall cease to be a member of the Board, without the necessity of any action by any Member or by the Corporation

Section 2. Transfer of Membership. Membership in the Corporation is not transferable or assignable.

## ARTICLE III

### DIRECTORS

Section 1. Number. From time to time, the number of Directors constituting the entire Board shall be fixed by vote of a majority of the Community Directors, provided, however, that the number of Directors shall not be reduced so as to shorten the term of any Director in office at the time. Notwithstanding any provision of these By-Laws, the number of Directors constituting the entire Board shall not be less than that necessary to satisfy the requirements of the Charter School Act of 1995, 14 Del. C. §§ 401-16, as may be amended from time to time (the "Charter School Act").

Section 2. Membership. The Board shall consist of at least one (1) person who is a parent or guardian of a Thomas Edison Charter School student and at least one person who is a certified teacher at Thomas Edison Charter School;

further provided a single individual shall not represent both the certified teacher and parent role on the board. The President of the Parent Teacher Organization of Thomas Edison Charter School shall be an ex officio, voting member of the Board and shall count against the limit of members provided in Section 4.3, providing that if the President of the Parent Teacher Organization is an employee of Thomas Edison Charter School, then such member of that organization who is not an employee of Thomas Edison Charter School and who is appointed by that organization shall serve instead of the President so long as the President remains an employee of Thomas Edison Charter School. The Principal shall be a non-voting member of the Board and shall not count against the limit of members provided in Section 4.3. Should a person who is an employee, officer, and/or honorary official of the State of Delaware be elected to the Board, that individual will have no fiduciary duties and/or responsibilities to Thomas Edison Charter School as it relates to matters between Thomas Edison Charter School and the State of Delaware and that individual is hereby prohibited from lobbying, advocating, influencing or furthering the mission and goals of Thomas Edison Charter School or otherwise representing Thomas Edison Charter School before any agency or department of the State of Delaware.

Section 3. Qualification of Board. Directors need not be residents of the State of Delaware, but the composition of the Board shall not fail to conform with the representation requirements of the Charter School Act. Furthermore, no Director (other than a Faculty Director) shall own, acquire or purchase an equity or other financial interest (e.g., stock options) in any entity hired by the Board to manage the

operations of the School.

Section 4. Election of Directors: Term. The Directors shall be elected by a plurality vote of the Members represented in person or by proxy. Elected Directors shall hold office until the annual meeting for the year his or her terms expires and until his or her successor is duly elected and qualified or until his or her death, resignation or removal. The Directors shall be divided into three (3) classes, designated Class A, Class B and Class C. The term of each such class of directors shall be for three years. All these classes of directors are able to serve up to 4 consecutive 3 year terms. The Class A Directors serving as of February 2018 shall hold office for a term expiring at the November 2018 annual meeting of the Members; the Class B Directors serving as of February 2018 shall hold office for a term expiring at the November 2019 annual meeting of the Members; the Class C Directors serving as of February 2018 shall hold office for a term expiring at the November 2020 annual meeting of the Members.

Section 5. Nomination of Directors

Prior to each annual meeting of the Members at which a Faculty Director or Parent Director is to be elected, the Principal shall present the Board with one or two lists, as applicable, containing the full names of candidates nominated by the Principal to serve in the capacity of a Faculty Director and/or a Parent Director, as applicable. Any Director may propose additional nominees at any time at or prior to the annual meeting of the Members. Faculty Director and Parent Director will serve a 3 year term and may be elected to service up to 4 consecutive 3 year teams.

#### Section 6. Vacancies

Director vacancies and newly created directorships resulting from any increase in the authorized number of Directors may be filled by a majority of the Community Directors then in office, though less than a quorum, or by a sole remaining Community Director. Any Director chosen to fill such a vacancy shall hold office for the remainder of the term of the class or designation to which such Director's predecessor belonged, or until such Director's earlier resignation or removal. Any Director chosen to fill a vacancy by an increase in the authorized number of Directors shall hold office until the next election of the class or appointment of office for which such Director shall have been chosen, or until such Director's earlier resignation or removal.

Section 7. Removal. Any Community Director may be removed at any time, but only for cause and only by the affirmative vote of 66 2/3% or more of the Community Directors then in office. Regular failure to attend Board meetings shall constitute cause for removal of a Community Director. Any Faculty Director or Parent Director may be removed by the vote of a majority of the Community Directors at any time, with or without cause and with or without notice. The term of any Faculty Director shall automatically cease upon the termination of the Faculty Director's employment with the School, by any party, with or without cause. The term of any Parent Director shall automatically cease in the event the Parent Director is no longer the parent or legal guardian of a child regularly attending the School (except that a Parent Director may complete his or her normal term of office following the child's completion of the highest grade available at the School).

Section 8. Annual Meeting of the Board. The annual organization

meeting of the Board for, among other purposes, the election of officers, shall be held each year on the third Monday of November, unless another date is adopted by a majority of the Board.

Section 9. Regular Meetings. The Board may provide by resolution the time and place for the holding of additional regular meetings of the Board without other notice to members of the Board. Any business may be transacted at any regularly called meeting of the Board at which a quorum is declared present. The Board shall hold no less than one regular meeting each quarter including the Annual Meeting. Any business may be transacted at any regular meeting of the Board. Any annual, regular or special meetings shall be held in compliance with the State's Freedom of Information Act, 29 Del. C. Ch. 100 ("FOIA") and the school shall otherwise comply with FOIA.

Section 10. Special Meetings. Special meetings of the Board of Directors may be called by the President on twenty-four hours' notice to each Director, given either personally or by electronic transmission; special meetings shall be called by the President or the Secretary in like manner and on like notice on the written request of two Directors.

Section 11. Notice of Meetings. Notice of all Board meetings shall be provided to the public in compliance with FOIA and, except as herein otherwise provided, shall be delivered, mailed or sent electronically to each Director's residence or usual place of business at least five days before the meeting. Such notice may be waived by a Director. Each such notice shall state the general business to be transacted, the day, time and place of such a meeting, and, in the case of a special meeting, by whose request it was called.

Notice to the public shall comply with the FOIA.

Section 12. Quorum. A majority of the Directors or a majority of the Community Directors, shall each constitute a quorum for the transaction of business at any meeting of the Board; but if a quorum is not present at a meeting, a majority of the Directors present may adjourn the meeting from time to time without further notice. Notwithstanding the foregoing, a quorum shall be considered to be present solely for purposes of voting on any matter specified in Section 17 of this Article as to which the Faculty Directors are precluded from voting if either (a) a majority of the Directors other than the Faculty Directors or (b) a majority of the Community Directors is present.

Section 13. Duties and Powers. The Board shall be responsible for the effective management, direction, mission and governance of the property, activities, and affairs of the Corporation. The business of the Corporation shall be managed by or under the direction of the Board which may exercise all such powers of the Corporation and do all such lawful acts and things in furtherance of the operation of the Corporation.

Section 14. Manner of Action. Unless a greater number is required by law, the Certificate of Incorporation or these By-Laws, an act of the Board shall require the approval of (i) a majority of the Directors present at a meeting, (physically, in person, not by phone or electronic (computer, e-mail, etc.) at which a quorum is present and permitted to vote on the matter, and (ii) a majority of the Community Directors present at such meeting. Unless otherwise provided by the Certificate of Incorporation or these By-Laws, any action required or permitted to be taken at any meeting of the Board or of any committee thereof may be taken without

a meeting, if all the members of the Board or any such committee, as the case may be, consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the Board or any such committee.

Section 15. Compensation. Directors as such shall not receive any stated salaries for their services; but nothing herein contained shall be construed to preclude any Director from serving the Corporation in any other capacity and receiving compensation therefor.

Section 16. Interested Directors. No contract or transaction between the Corporation and one or more of its Directors or officers, or between the Corporation and any other corporation, partnership, association or other organization in which one or more of its Directors or officers are Directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the Director or officer is present at or participates in the meeting of the Board or committee thereof which authorizes the contract or transaction, or solely because his or their votes are counted for such purpose if (i) the material facts as to his or their relationship or interest and as to the contract or transaction are disclosed or are known to the Board or the committee, and the board or committee in good faith authorizes the contract or transaction by the affirmative Votes of a majority of the disinterested Directors, even though the disinterested Directors be less than a quorum; or (ii) the contract or transaction is fair as to the Corporation as of the time it is authorized, approved or ratified, by the Board or a committee thereof. Interested Directors may be counted in determining the presence of a quorum at a meeting of the Board or of a committee which authorizes the contract or transaction.

Section 17. Prohibited Votes Of Faculty Directors. No Faculty

Director shall vote on (i) any matter directly relating to the compensation of employees of the School; (ii) the annual budget or any amendment thereto.

#### ARTICLE IV

#### COMMITTEES

Section 1. Committees of Directors. The Board, by resolution adopted by a majority of the Directors in office, may designate and appoint one or more committees, each of which shall consist of two or more Directors, which committees, to the extent provided in said resolution, shall have and exercise the authority of the Board in the management of the corporation, except that no such committee shall have the authority of the Board in reference to amending, altering or repealing the By-Laws; electing, appointing or removing any member of any such committee or any Director or officer of the Corporation; amending or restating the Certificate of Incorporation; adopting a plan of merger or adopting a plan of consolidation with another corporation; authorizing the sale, lease, exchange or mortgage of all or substantially all of the property and assets of the Corporation; authorizing the voluntary dissolution of the Corporation or revoking proceedings therefor; adopting a plan for the distribution of the assets of the Corporation; or amending, altering or repealing any resolution of the Board which by its terms provides that it shall not be amended, altered or repealed by such committee. The designation and appointment of any such committee and the elevation thereto of authority shall not operate to relieve the Board, or any individual Director, of any responsibility imposed upon it, or him or her by law.

Section 2. Other Committees. Other committees not having and



exercising the authority of the Board in the management of the Corporation may be appointed in such manner as may be designated by a resolution adopted by a majority of the Directors present at a meeting at which a quorum is present. Except as otherwise provided in such resolution, members of each such committee shall be Members of the Corporation, and the President of the Corporation shall appoint the members thereof. Any member thereof may be removed by the person or persons authorized to appoint such member whenever in their judgment the best interests of the Corporation shall be served by such removal.

Section 3. Term of Office. Each member of a committee shall continue as such until the next annual meeting of the Board and until his or her successor is appointed, unless the committee shall be sooner terminated, or unless such member shall be removed from such committee, or unless such member shall cease to qualify as a member thereof.

Section 4. Chairman. One member of each committee shall be appointed chairman by the person or persons authorized to appoint the members thereof.

Section 5. Vacancies. Vacancies in the membership of any committee may be filled by appointments made in the same manner as provided in the case' of the original appointments.

Section 6. Quorum. Unless otherwise provided in the resolution of the Board designating a committee, a majority of the whole committee shall constitute a quorum and the act of a majority of the members present at a meeting at which a quorum is present shall be the act of the committee.

Section 7. Rules. Each committee may adopt rules for its own government not inconsistent with applicable law, the Certificate of Incorporation, these By-Laws or with rules adopted by the Board.

## ARTICLE V

### OFFICERS

Section 1. Officers. The officers of the corporation shall be a President, a Secretary, a Treasurer and such other officers as may be elected in accordance with the provisions of this Article. The Board may elect or appoint such other officers, including one or more Vice Presidents, one or more Assistant Secretaries and one or more Assistant Treasurers, as it shall deem desirable, such officers to have the authority and perform the duties prescribed, from time to time, by the Board. Any two or more offices may be held by the same person, except the offices of President and Secretary.

Section 2. Election and Term of Office. The officers of the corporation shall be elected annually by the Board at the regular annual meeting of the Board. If the election of officers shall not be held at such meeting, such election shall be held as soon thereafter as conveniently may be. New offices may be created and filled at any meeting of the Board. Subject to Section 3 of this Article V, each officer shall hold office until his successor shall have been duly elected and shall have qualified.

Section 3. Removal. Any officer elected or appointed by the Board may be removed by the Board whenever in its judgment the best interests of the Corporation would be served thereby, but such removal shall be without prejudice to the contract rights, if any, of the officer so removed.

Section 4. Vacancies. A vacancy in any office because of death, resignation, removal, disqualification or otherwise, may be filled by the Board for the unexpired portion of the term.

Section 5. President. The President shall be the principal executive officer of the Corporation and shall in general supervise and control all of the business and affairs of the Corporation. The President shall preside at all meetings of the Members and of the Board. The President may sign, with the Secretary or any other proper officer of the Corporation authorized by the Board, any deeds, mortgages, bonds, contracts or other instruments which the Board has authorized to be executed, except in cases where the signing and execution thereof shall be expressly delegated by the Board, by these By-Laws or by applicable law to some other officer or agent of the corporation; and, in general, the President shall perform all duties incident to the office of President and such other duties as may be prescribed by the Board from time to time.

Section 6. Vice President. The Vice President, if any, shall assist the President in the organizational and program affairs of the Corporation. In the absence of the President or in event of the President's inability or refusal to act, the Vice President shall perform the duties of the President, and when so acting, shall have all the powers of and be subject to all the restrictions upon the President. Any Vice President shall perform such other duties as from

time to time may be assigned to such Vice President by the President or by the Board.

Section 7. Treasurer. The Treasurer shall have charge and custody of and be responsible for all funds and securities of the Corporation; receive and give receipts for moneys due and payable to the Corporation from any source whatsoever, and deposit all such moneys in the name of the Corporation in such banks, trust companies or other depositories as shall be selected in accordance with the provisions of Article VIII of these By-Laws; and in general perform all the duties incident to the office of Treasurer and such other duties as from time to time may be assigned to the Treasurer by the President or by the Board. If required by the Board, the Treasurer shall give a bond for the faithful discharge of such duties in such sum and with such surety or sureties as the Board shall determine.

Section 8. Secretary. The Secretary shall keep the minutes of the meetings of the members and of the Board in one or more books provided for that purpose; see that all notices are duly given in accordance with the provisions of these By-laws or as required by law; be custodian of the corporate records and of the seal of the Corporation and see that the seal of the Corporation is affixed to all documents, the execution of which on behalf of the Corporation under its seal is duly authorized in accordance with the provisions of these By-Laws; keep a register of the address of each Member which shall be furnished to the Secretary by such Member; and in general perform all duties incident to the office of Secretary and such other duties as from time to time may be assigned to the Secretary by the President or by the Board.

Section 9. Assistant Treasurers and Assistant Secretaries. The Assistant Treasurers and Assistant Secretaries, in general, shall perform such duties as shall be assigned to them by the Treasurer or the Secretary or by the President or the Board. If required by the Board, the Assistant Treasurers shall give bonds for the faithful discharge of their duties in such sums

and with such sureties as the Board shall determine.

## ARTICLE VI

### CONTRACTS. CHECKS. DEPOSITS AND FUNDS

Section 1. Contracts. The Board may authorize any officer or officers, agent or agents of the Corporation, in addition to the officers so authorized by these By-Laws, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to specific instances.

Section 2. Gifts. The Board may accept on behalf of the Corporation any contribution, gift, bequest or devise for the general purposes or for any special purpose of the Corporation.

## ARTICLE VII

### FINANCES.

Section 1. Fiscal Year. The fiscal year of the Corporation shall begin on the first day of July and end on the last day of June in each year.

Section 2. Checks. Drafts and other Instruments. Funds on deposit with any bank, trust company or other depository shall be subject to withdrawal only on the signature of such person(s) as described in these By-Laws or as authorized from time to time by resolution of the Board. All checks, drafts or orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents of the Corporation and in such manner as shall from time to time be determined by resolution of the Board. In the absence of such determination by the Board, such instruments shall be signed by the Treasurer or an Assistant Treasurer, and

countersigned by the President or a Vice President, of the Corporation.

Section 3. Deposits. All funds of the Corporation shall be deposited to the credit of the Corporation in such banks, trust companies or other depositories as the Board may select.

## ARTICLE VIII

### BOOKS AND RECORDS

The Corporation shall keep correct and complete books and records of account and shall also keep minutes of the proceedings of the Board and committees having any of the authority of the Board, and shall keep at its registered or principal office a record giving the names and addresses of the Members entitled to vote. All books and records of the Corporation may be inspected by any Member, or his agent or attorney, for any proper purpose at any reasonable time.

## ARTICLE IX

### SEAL

The Board shall provide a corporate seal, which shall be in the form of a circle and shall have inscribed thereon the name of the Corporation and the words "Corporate Seal."

## ARTICLE X

### WAIVER OF NOTICE

Whenever any notice is required by the General Corporation Law of the State of Delaware, the Certificate of Incorporation or these By-Laws, a waiver thereof in writing signed by the person or persons entitled to such notice, whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice.

## ARTICLE XI

### INDEMNIFICATION

Section 1. Directors. The Corporation shall, to the fullest extent, now and hereafter permitted by law, indemnify a Director made or threatened to be made a party to any action or proceeding by reason of the fact that such person was a Director of the Corporation, against judgments, fines, amounts paid in settlement and reasonable expenses, including attorneys' fees.

Section 2. Officers and Employees. The Corporation may, by majority vote of the Board, indemnify a person made or threatened to be made party to any action or proceeding by reason of the fact that such person was an officer or employee of the Corporation, against judgments, fines, amounts paid in settlement and reasonable expenses, including attorneys' fees.

Section 3. Insurance. The Corporation may purchase and maintain insurance on behalf of any person who is or was a Director or officer of the Corporation, or is or was a Director or officer of the Corporation serving at the request of the Corporation as a Director, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the Corporation would have the power or the obligation to indemnify such person against such liability under the provisions of this Article.

## ARTICLE XII

### AMENDMENTS

Subject to the rights of Members under applicable law, these By-Laws may be altered, amended or repealed and new By-Laws may be adopted by two-thirds of the entire Board then in office, if at least two business days' written notice is given of intention to alter, amend or repeal or to adopt new By-Laws at such meeting.



## **Appendix 7 - Up-to-date Certificate of Occupancy**

**DEPARTMENT OF BUILDING INSPECTION**  
**WILMINGTON, DELAWARE**  
**CERTIFICATE OF USE & OCCUPANCY**

As provided by Section 119.1 of the Building Code it shall be unlawful to use or permit the use of any building or premises or part thereof hereafter created, erected, altered, changed or converted wholly or partly in its use or structure until a CERTIFICATE OF OCCUPANCY to the effect that the building or premises or the part thereof so created, erected, altered, changed or converted and the proposed use thereof conform to the provisions of the Code shall have been issued by the Chief Building Inspector.

Certificate of Occupancy No. 99120120 Date Issued 08/04/00 Fee Paid \$50.00  
 Location 900 E 22ND ST Parcel Number 2602940235  
 Owner's Name SCHOOL OF WILMINGTON THOMAS EDISON CHARTER

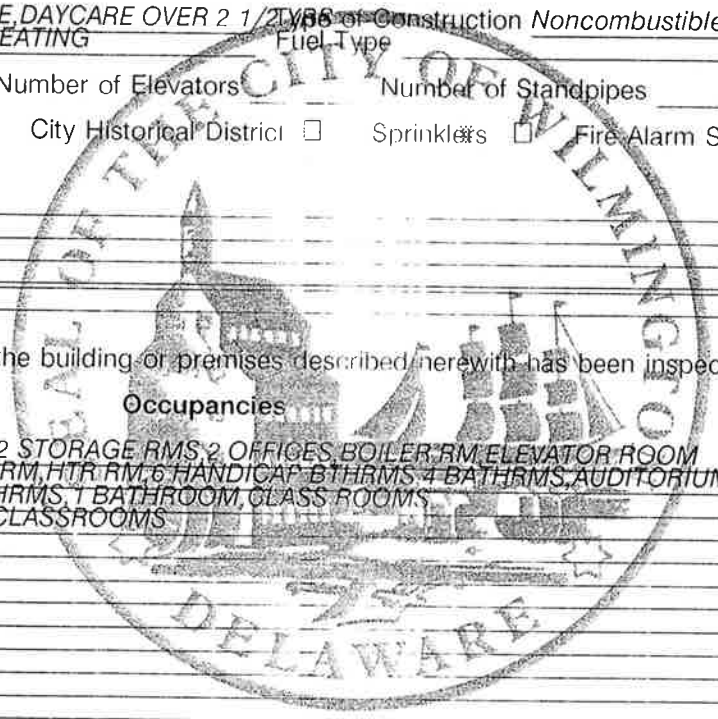
**Description of Building or Premises**

Use Group EDUCATIONAL USE, DAYCARE OVER 2 1/2 Type of Construction Noncombustible/Protected  
 Heating System GAS FIRED HEATING Fuel Type \_\_\_\_\_

Number of Stories 3 Number of Elevators \_\_\_\_\_ Number of Standpipes \_\_\_\_\_ Elevation \_\_\_\_\_

Air Cond. & Mech. Vent.  City Historical District  Sprinklers  Fire Alarm System  Flood Plain

Other Information:  
ADD TEMP C OF O



THIS IS TO CERTIFY that the building or premises described herewith has been inspected and the following occupancy thereof is hereby authorized.

**Occupancies**

Basement COMPUTER RM, 2 STORAGE RMS, 2 OFFICES, BOILER RM, ELEVATOR ROOM  
 1st Floor MECH RM, ELEC RM, HTR RM, 6 HANDICAP BTHRMS, 4 BATHRMS, AUDITORIUM  
 2nd Floor 2 HANDICAP BTHRMS, 1 BATHROOM, CLASS ROOMS  
 3rd Floor 2 BATHROOMS, CLASSROOMS  
 4th Floor \_\_\_\_\_  
 5th Floor \_\_\_\_\_  
 6th Floor \_\_\_\_\_  
 7th Floor \_\_\_\_\_  
 8th Floor \_\_\_\_\_  
 9th Floor \_\_\_\_\_  
 10th Floor \_\_\_\_\_  
 Other Floors \_\_\_\_\_

Notes:  
ELEC INSP 7/27/00 CONTROL WIRING INSP 8/4/00 FMO INSP 8/4/00 PLUMB/MECH INSP 8/4/00

Commissioner, Department of Licenses & Inspections

Any changes in the use and occupancy as designated hereon without the approval of the Department of Building Inspection will automatically render this Certificate null and void.

## **Appendix 8 - Up-to-date Fire Inspection Certificate**



## **Appendix 9 - Up-to-date Insurance Certificates**



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

08/18/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Sovereign Insurance Group 920 Cassatt Road Suite 100 Berwyn PA 19312	<b>CONTACT NAME:</b> SELECT <b>PHONE (A/C, No., Ext):</b> (800) 222-4478 <b>FAX (A/C, No.):</b> (610) 535-6810 <b>E-MAIL ADDRESS:</b> amyw@sovinsurance.com													
	<table border="1"> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A: Selective Way Insurance Company</td> <td>26301</td> </tr> <tr> <td>INSURER B:</td> <td></td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Selective Way Insurance Company	26301	INSURER B:		INSURER C:		INSURER D:		INSURER E:		INSURER F:
INSURER(S) AFFORDING COVERAGE	NAIC #													
INSURER A: Selective Way Insurance Company	26301													
INSURER B:														
INSURER C:														
INSURER D:														
INSURER E:														
INSURER F:														
<b>INSURED</b> THOMAS A EDISON CHARTER SCHOOL 2200 N LOCUST ST WILMINGTON DE 19802														

**COVERAGES**

CERTIFICATE NUMBER: 22-23 Liab

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Sexual Abuse & Molestation \$1,000,000/\$1,000,000 GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			S2481870	06/30/2022	06/30/2023	EACH OCCURRENCE	\$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	\$ 1,000,000
							MED EXP (Any one person)	\$ 20,000
							PERSONAL & ADV INJURY	\$ 1,000,000
							GENERAL AGGREGATE	\$ 3,000,000
							PRODUCTS - COMP/OP AGG	\$ 3,000,000
								\$
A	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			S2481870	06/30/2022	06/30/2023	COMBINED SINGLE LIMIT (Ea accident)	\$ 1,000,000
							BODILY INJURY (Per person)	\$
							BODILY INJURY (Per accident)	\$
							PROPERTY DAMAGE (Per accident)	\$
							Hired Car Physical	\$ 75,000
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0			S2481870	06/30/2022	06/30/2023	Damage EACH OCCURRENCE	\$ 5,000,000
							AGGREGATE	\$ 5,000,000
								\$
	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input type="checkbox"/> N/A						PER STATUTE	
							OTHER	
							E.L. EACH ACCIDENT	\$
							E.L. DISEASE - EA EMPLOYEE	\$
							E.L. DISEASE - POLICY LIMIT	\$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of Coverage.

**CERTIFICATE HOLDER****CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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## **Appendix 10 - Navigate School Safety Report**

[Home](#) [Call Lists](#) [Documents](#) [Maps](#) [Binders](#) [Flipcharts](#) [Drill Logs](#) [Safety Plans](#)

[Back](#) [Schedule Drills](#) [Log A Drill](#) [Drill Log Search](#) [Drill Statistics](#)  
[Printable Drill Reports](#) [Drill Log Settings](#)

 **Drill Log Search**

**Site:**

**Drill Type:**   
 Bus Evacuation Drill  
 Custom Drill  
 Custom Tabletop

**School Year:**







**Log Is Posted:**

**Actual Drill Date:** Start Date: -, End Date: -  
 Date Posted: 07/01/2021 - 06/18/2022

**Scheduled Drill Date:** Start Date: -, End Date: -

[Search Drill Logs](#) [Print Listed Drills](#) [Download Drill Logs Listed Below](#)

Filter by: **Completed:**  **In Progress:**  **Scheduled:**  **Overdue:**

Status	Site	School Year	Drill Type	Scheduled Date	Date of Actual Drill	Date Posted	View
<u>Completed</u>	Edison Charter School	2021 - 2022	Tabletop Exercise	02/10/22 10:45 am	02/10/22 10:45 am	05/13/22 03:28 pm	
<u>Completed</u>	Edison Charter School	2021 - 2022	Fire Drill	10/21/21 08:00 am	10/21/21 02:00 pm	10/26/21 03:48 pm	
<u>Completed</u>	Edison Charter School	2021 - 2022	Fire Drill	05/13/21 10:30 am	05/13/21 10:30 am	10/26/21 03:50 pm	
<u>Completed</u>	Edison Charter School	2021 - 2022	Fire Drill	05/02/22 01:30 pm	05/02/22 01:30 pm	05/13/22 03:31 pm	
<u>Completed</u>	Edison Charter School	2021 - 2022	Lockdown/Intruder Drill	05/13/22 01:15 pm	05/13/22 01:15 pm	05/13/22 03:02 pm	
<u>Completed</u>	Edison Charter School	2021 - 2022	Lockdown/Intruder Drill	05/25/22 01:00 pm	05/25/22 01:00 pm	05/31/22 02:54 pm	





**Appendix 12 - Final Fiscal Year 2022 Revenue and Expenditure Budget  
Report**

**REVENUE BUDGET**

Thomas A. Edison Charter School  
For the Month Ending June 30, 2022

	Bd Approved Budget	Receipt to Date	% Received	Anticipated Receipts Remaining
<b>STATE FUNDS</b>				
1 Operations (0213)	4,660,336.69	4,215,152.00	90.4%	\$ (445,184.69)
2 Other State Funds (Type 01)	508,191.00	1,197,866.98	235.7%	\$ 689,675.98
<b>Total State Funds</b>	<b>5,168,527.69</b>	<b>5,413,018.98</b>	<b>104.7%</b>	<b>\$ 244,491.29</b>
<b>LOCAL FUNDS (Include Food Services)</b>	<b>3,243,609.38</b>	<b>3,197,300.97</b>	<b>98.6%</b>	<b>\$ (46,308.41)</b>
<b>FEDERAL Funds (Current FY Only)</b>	<b>2,955,092.00</b>	<b>2,085,235.85</b>	<b>70.6%</b>	<b>\$ (869,856.15)</b>
<b>Transfers</b>	<b>-</b>	<b>-</b>	<b>0.0%</b>	<b>\$ -</b>
<b>All Funds Total</b>	<b>11,367,229.07</b>	<b>10,695,555.80</b>	<b>94.1%</b>	<b>-\$671,673.27</b>

**EXPENDITURE BUDGET**

Thomas A. Edison Charter School  
For the Month Ending June 30, 2022

Operating Budget Description	Bd Approved Budget	Encumbrance	Expenditures	Remaining Balance	% Obligated
1 Salaries and Benefits	6,853,075.11		6,839,583.85	13,491.26	99.8%
2 Utilities	183,000.00		114,321.48	68,678.52	62.5%
3 Facility--Lease	-		-	-	0.0%
4 Facility--Mortgage	292,922.16		268,511.98	24,410.18	91.7%
5 Transportation	708,000.00		772,836.77	(64,836.77)	109.2%
6 Contractor--Financial	743,360.00		616,531.58	126,828.42	82.9%
7 Contractor--Food Services	20,000.00		15,793.10	4,206.90	79.0%
8 Management Company	-		-	-	0.0%
9 Textbooks and Instructional Supplies	664,359.00		411,674.90	252,684.10	62.0%
10 Building Maintenance and Custodial Serv.	1,400,868.27		1,199,686.08	201,182.19	85.6%
11 Other Expenses	352,930.00		299,546.01	53,383.99	84.9%
12 Contingency	139,000.00			139,000.00	0.0%
<b>Total Operating Budget</b>	<b>11,357,514.54</b>		<b>10,538,485.75</b>	<b>819,028.79</b>	<b>92.8%</b>
<b>Federal Expenses (included in lines above)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0%</b>
<b>All Funds Total</b>	<b>11,357,514.54</b>	<b>0.00</b>	<b>10,538,485.75</b>	<b>819,028.79</b>	<b>92.8%</b>

**Appendix 13 - Approved Preliminary Fiscal Year 2023 Budget**

Thomas Edison Charter School

2022-2023 Budget

Based on 700 students

1) Summarized FSF Financial Results	Budgeted YE 6/30/23
<b>REVENUES</b>	

FSF Revenues

		Based on prior year - 700 students; 2% salary increase on state portion \$49,000; 27th pay state portion salary & OEC's \$131,250
State - Unit Formula (05213)	\$ 4,903,689	
State - MCI Ops (0871)	\$ 112,247	Based on Prior Year
State - Technology Block Grant (05235)	\$ 14,579	Based on Prior Year / FY 2023 GROBH
State - Ed Sustainment Fund (05289)	\$ 108,335	Based on Prior Year / FY 2023 GROBH
State - Opportunity Fund Flex / Mental Health	\$ 455,117	Based on Prior Year / FY 2023 GROBH
State - Student Success Block Grant (05309-05310)	\$ 82,537	Based on Prior Year / FY 2023 GROBH
Federal - Title 1 Consolidated 40554	\$ 801,445	Based on 2023 Allocations Page for TECS
Federal - Title II TQ Consolidated 40114	\$ 93,164	Based on Unused 2022 Allocations
Federal - Title IV Consolidated	\$ 68,223	Based on Unused 2022 Allocations
Federal - 21ST CENTURY Cohort 8 - 40240	\$ 400,000	Based on Grant Application
Federal - IDEA 3-5 Consolidated 40565	\$ 2,823	Based on 2023 Allocations Page for TECS
Federal - IDEA 6-21 Consolidate 40564	\$ 178,674	Based on 2023 Allocations Page for TECS
Federal - School Emergency Relief	\$ 3,125,000	Based on ESSER Budgets / Funds
Local - District Funding (#28000)	\$ 2,926,946	Based on prior year - 700 students
Local - CSD Settlement (#99150)	\$ -	Settlement Exhausted
Local - Interest Income 48505/49137 - 98000	\$ -	Based on Prior Year
Local Transfer fr. Bal. Sheet 6 (#8009)	\$ -	
Local - Other (8010) - 8999)	\$ -	
Local - Summer Camp	\$ -	
Local - K Trent (98242)	\$ -	
Local - MISC Funds (98146)	\$ -	
Local - E-Rate (98029)	\$ -	
Local - Kngrt (98225)	\$ -	
Local - Tipton (98238)Yellow House	\$ -	
Local - Miles MBNA (98227)	\$ -	
Local - Col Red Hse (98241)	\$ -	
Local - Eaton MBNA (98239)	\$ -	
Local - Sogdenmba (98228)	\$ -	
Local - Wellington (98245)	\$ -	
Local - Barclay Grant (99128)	\$ -	
Local - Superstars (98236)	\$ -	
Local - Purple Hse (98243)	\$ -	
Local - CSCRP (98041)	\$ -	
Local - Garden Seed-Weeds (98246)	\$ -	
Local - Nemrs Fitness (99112)	\$ -	
Local - Stip/Reimb (91200)	\$ -	
Local - Bookfair (98008)	\$ -	
Local - Chess Team (98009)	\$ -	
Transfers	\$ -	
<b>Total Revenues - all Categories</b>	<b>\$ 13,272,779</b>	

FSF Expenditures

Salaries (category 10)	\$ 5,109,222	Based on FY 2022-2023 Salary Schedule
Other Employment Costs (cat 20)	\$ 2,349,239	Based on FY 2023 Gov's Carney's RBHPE
Svcs to Clients & Agencies (30)	\$ -	
Travel/Tuition reimb (category 40)	\$ 29,500	Estimated Based on Stage of COVID
Total - Debt services/Contracted services (50)	\$ 3,336,281	See Expenditure Detail
Supplies & Materials (category 60)	\$ 498,000	See Expenditure Detail
Capital Outlay-Equipment (category 70)	\$ 51,000	Based on Tech 2021-2022 Budget; Prior Years
Total Capital Outlay-Property (80)	\$ 1,465,745	ESSER Budget
Computer Equip/Software (88)	\$ 275,000	Based on Tech 2021-2022 Budget; ESSER Budget
Contingency Reserve	\$ 139,000	Based on Prior Year
<b>Total expenditures - All categories</b>	<b>\$ 13,252,987</b>	
<b>Net Excess or (Deficit) for Year/Month</b>	<b>\$ 19,792</b>	

Thomas Edison Charter School  
2022-2023 Budget

Obj Category	Oject Code	Description	FY2023 Budget
	<b>Staffing</b>		
		Salaries	
10-11	51155	Chf. Sch. Officer	\$ 163,909
10-11	51192	Director	\$ 112,551
10-11	51151	Spec. Support Serv.	\$ 186,152
10-11	51166	Asst. Prin./ Dean	\$ 210,878
10-11	51151	Guidance Csl	\$ 110,200
10-11	51100	Tchr Sal/Reg	\$ 2,090,937
10-11	51100	Reading Coordinator	\$ 72,002
	51100	Math Coach	\$ 60,111
	51100	Reading Interventist / Teacher	\$ 49,238
	51100	Support/SEL Teachers	\$ 93,962
10-11	51100	Librarian	\$ 49,696
10-11	51100	SES Coordinator	\$ 63,156
10-11	51104	Para	\$ 865,112
10-11	51130	Nurse	\$ 120,994
10-11	51022	Clerical	\$ 133,726
10-11	51187	Payroll Specialist	\$ 19,539
10-11	51101	Subsitute Teachers	\$ 20,000
10-11	51017	Summer Enrichment (Summer School)	\$ 23,040
10-11		Saturday School	\$ 11,760
10-11		Sign on Bouns	\$ -
10-11		Head of School Bonus	\$ 15,000
10-11		Admin Staff Bonus	\$ 20,000
10-11		Staff Bonus	\$ 40,000
10-11	51110	21st Century Coordinator-After School & Summer Camp	\$ 67,200
10-11	51110	21st Century Teachers - After School & Summer Camp	\$ 254,760
10-11		Extra Curricular	\$ 80,300
		27th pay	\$ 175,000
		<b>Total Salaries/Other (10) 510/511</b>	<b>\$ 5,109,222</b>
	<b>Other Employment Costs</b>		
		OEC'S	
20	52001	Pensions/employer share (21.80%)	\$ 1,083,391
20	52002	Health Insurance/Employer Share (15.9%)	\$ 790,180
20	52005	Workmen's Compensation (1.55%)	\$ 79,193
20	52006	Social Security Employer Share (6.2%)	\$ 316,772
20	52009	Unemployment Insurance (0.11%)	\$ 5,620
20	52010	Prescription Plan	\$ -
20	52011	Dental Plan	\$ -
20	52015	Disability Insurance	\$ -
20	52016	Medicare/Employer Share (1.45%)	\$ 74,084
20	52019	Flex Credit Vision	\$ -
		<b>Total Other Employment Costs (20) 520</b>	<b>\$ 2,349,239</b>
30	3203	Grant Reversions	\$ -
30	3603	Tuition Reimbursement	\$ -
		<b>Total Svcs To Clients &amp; Agencies (30)</b>	<b>\$ -</b>
	<b>Travel</b>		
	54000	Travel	
40		Professional Development Conferences	
40	54001	Mileage/Prv Car - W/in State	\$ 1,000
40	54005	Other travel - W/in State	\$ 500

Nat'l Charter School Conf; 21st Century Conf;  
Professional Develop Conf. Title II,  
"  
"  
"

40	54103	Meals/OT-ST	\$	3,000	"
40	54104	Lodging/Out-of-State	\$	15,000	"
40	54105	Other travel - Out of State	\$	10,000	"
		<b>Total Travel (40) 540</b>	<b>\$</b>	<b>29,500</b>	
		<b>Contracted Services</b>			
		Professional Services			
50	55000	Other Prof. Service-Programming/Sys	\$	315,000	Title IV \$35,000 ; Title I \$60,000; 21st CCLC \$90,000; Title II \$50,000; ESSER \$80,000
50	55000	Auditors / Other Professional Services	\$	22,900	Whisman Giordano - Contract
50	55110	Protect SVC - Black Star	\$	125,520	Based on contract. 4 officers @ 19per hr. / 190 days = 115,520 + 10,000 for additional service
50	55507	Exterminator	\$	7,000	Western Pest-Moyer / Contract - Prior year
50	55010	Med. Related Services / Psychologist	\$	245,000	In-Psychologist - \$50,000; IDEA 611 (3-21) Speech - \$67,000; Back to Basics \$25,500; Nurse Substitutes; Oppor Mental Health \$100,000
	55020	Legal Services	\$	4,000	Prior Years \$268. Legal Fees have been less than \$500 since 2019
50	55101	Postage	\$	4,500	Based on prior year rounded up.
50	55104	Express Charges	\$	300	Annualized; based on current year rounded up.
50	55125	Telephone Services	\$	12,000	Based on prior year rounded up.
50	55200	Public Utilities - Water/Sewer	\$	60,000	Based on prior year rounded up.
50	55203	Electricity/Energy	\$	95,000	Based on prior year rounded up.
50	55130	OFC Furniture	\$	200,000	ESSER III Modulars
	55721	Family Support	\$	20,000	Title I - Homeless Fund; ARP-HCY
50	55452	Insurance	\$	60,000	Based on Insurance Agent
50	55402	Building - Office Space	\$	292,922	School Rent - Originating on DCIC and Foundation payments. Need to have a lease.
50	55400	Photocopiers	\$	45,315	Based on lease agreement & projected color copies
50	55400	Equipment Rental / Computer Maintenance /Maintenance Contracts Tech	\$	200,000	Aims Web \$7,500; Phone Service agreement \$3,000; iPad apps \$500; Laptop Repair \$35,000; Microsoft Licensing \$9,000; GBC \$2,500; Security Agreement \$3,000; Schoology \$1,500; Replacement Parts \$8,000; ZOOM \$7,500; Smart Lic \$6,000
50	55036	Transportation - School Buses	\$	790,988	Advance Student Transportation - 21/22 regular school day rate + 2.25% increase = \$669,287.60 based on contract; \$110,700 After Care/Summer Camp; Field Trips \$5,000; Title I \$6,000
50	55111	Permit/Certs/Trans/Misc Fee/Lics	\$	3,000	Estimate
50	55500	Ground Maintenance	\$	25,000	Dig U Out, LLC-Snow Removal; Antonio Landscaping
50	55510	Repairs by O/S Vendors - Building / Grounds Repair / Equipment Repair	\$	200,000	Service Unlimited Heating & HVAC \$7,000; Water-Tec \$1,200; ThyssenKrupp - Elevator \$2,236; Eastern Generator \$1,741.84; Advance Power/Albiero - ATC/BMS/EMS \$3,883; Sobieski \$3,000; DelCollo Security \$720; Painting \$20,000; KN restroom remodel \$24,000; Air filters 20,000 Buses; Tree removal \$2,500; LED Lighting replacement \$21,175; Shade replacements \$10,500
50	55692	TRSH RMV-CNT	\$	23,000	Annualized; based on current year rounded up.
50	55506	Interstate / Maintenance	\$	472,836	Based on Interstate Contract
50	55600	Printing & Binding	\$	10,000	Annualized; based on current year rounded up.
50	55610	Advertising	\$	7,000	Annualized; based on current year rounded up.
50	55631	Assoc Dues & Conf. Fee	\$	30,000	Annualized; based on current year rounded up.
50	55647	Student Body Activity	\$	25,000	Summer Camp \$15,000; Field Trips; Title I \$6,000
50	55667	Training	\$	40,000	Kagan, UD, Franklin Covey
		<b>Total - Contracted Services (50)</b>	<b>\$</b>	<b>3,336,281</b>	
60	56000	Office Supplies	\$	130,000	Based on current year; ESSER III; 21 cclc; Consolidated
60	56111	Food-Institution / Food Service	\$	18,000	Based on prior years.
60	56120	Clothing & Linens	\$	30,000	Staff shirts -Staff funds, School ties purchased by students, School Uniforms -Title I homeless funds,, Staff tee shirts - half purchased by staff and parents; 21 cclc

60	56128	Medical Supplies/Medicines/Health Aides	\$	15,000	Based on current year
60	56141	Custodial Supplies	\$	70,000	Based on current year; ESSER III- \$60,000
60	56145	Computer Supplies	\$	35,000	ESSER III Repairs \$25,000; Headphones \$1,200; Bulbs \$5,000; Smartboard Misc Cabling/parts \$2,000; Toner \$1,000
60	56150	Instructional Supplies	\$	100,000	Title I; After Care/Summer Camp; Title IV; IDEA; ESSER
60	56157	Books and Publications / Txbk-Hbk Sbkbk	\$	100,000	Common Core; Aftercare \$9,000, Bookworms, Illustrious
		<b>Total Supplies/Materials (60)</b>	\$	<b>498,000</b>	
70	57002	Instructional Equipment	\$	-	
70	57004	Athletic Equipment	\$	6,000	Based on 21st CCLC
70	57010	OFC Equipment	\$	45,000	Printers \$10,000; Toners \$20,000; Proj Repl \$10,000; Elmos/Doc Cameras \$4,000
70	57020	Institutional Equipment	\$	-	
70	57210	Shop Machinery / Equip / Tools	\$	-	
70	57520	Recreational Equipment	\$	-	
		<b>Total Capital Outlay - Equipment (70)</b>	\$	<b>51,000</b>	
80	8303	BDG Altr/NST	\$	1,465,745	New Roof \$265,745; ESSER Roof Top / Splitrooms Units 100,000; Modular Outdoor Classrooms and mental health offices 1,100,000;
		<b>Total Capital Outlay - Property (80)</b>	\$	<b>1,465,745</b>	
88	8800	Computer Equipment	\$	275,000	Student Laptops \$200,000; Staff Laptops \$75,000
88	57040	Audio/Video Equipment/Multimedia Equipment	\$	-	
		<b>Total Computer/WP/Software (88)</b>	\$	<b>275,000</b>	
		<b>Grand Totals - All Categories</b>	\$	<b>13,113,987</b>	

**Appendix 14 - Fiscal Year 2022 Audited Financial Statements**





WHISMAN GIORDANO  
CERTIFIED PUBLIC ACCOUNTANTS

Building Extraordinary Relationships

Single Audit Report

**THOMAS A. EDISON CHARTER SCHOOL**  
[A Component Unit of the State of Delaware]  
Wilmington, Delaware

Years Ended June 30, 2022 and 2021

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**THOMAS A. EDISON CHARTER SCHOOL**  
[A Component Unit of the State of Delaware]

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WHISMAN GIORDANO  
CERTIFIED PUBLIC ACCOUNTANTS

Building Extraordinary Relationships

**Report of Independent Auditor**

Members of the School Board  
Thomas A. Edison Charter School  
Wilmington, Delaware

**Report on the Audit of the Financial Statements**

***Opinions***

We have audited the financial statements of the governmental activities, the aggregate discretely presented component unit, each major fund, and the aggregate remaining fund information of Thomas A. Edison Charter School [the School], Wilmington, Delaware [a component unit of the State of Delaware] as of and for the years ended June 30, 2022 and 2021, and the related notes to the financial statements, which collectively comprise Thomas A. Edison Charter School's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, the aggregate discretely presented component unit, each major fund, and the aggregate remaining fund information of Thomas A. Edison Charter School, as of June 30, 2022 and 2021, and the respective changes in financial position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

***Basis for Opinions***

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards (Government Auditing Standards)*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of Thomas A. Edison Charter School and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

***Responsibilities of Management for the Financial Statements***

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about Thomas A. Edison Charter School's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

**Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Thomas A. Edison Charter School's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Thomas A. Edison Charter School's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

**Required Supplementary Information**

Accounting principles generally accepted in the United States of America require a schedule of budgetary comparison information, schedules of proportionate share of net pension and OPEB liabilities, and schedules of pension and OPEB contributions, reflected on pages 29 to 34, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance. The School has omitted the management's discussion and analysis section that accounting principles generally accepted in the United States of America require to be presented to supplement the basic financial statements. Such missing information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. Our opinion on the basic financial statements is not affected by this missing information.

***Supplementary Information***

Our audits were conducted for the purpose of forming opinions on the financial statements that collectively comprise Thomas A. Edison Charter School's basic financial statements. The supplementary information reflected on pages 35 and 36 is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information reflected on pages 35 and 36 is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

***Other Reporting Required by Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated October 21, 2022 on our consideration of Thomas A. Edison Charter School's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and in considering Thomas A. Edison Charter School's internal control over financial reporting and compliance.

***Restriction on Use***

Our report is intended solely for the information and use of management, the Finance Committee, Members of the School Board, others within the School, the Delaware Department of Education, Office of the Governor, Office of the Comptroller General, Office of the Attorney General, Office of Management and Budget, the Secretary of Finance, Office of Auditor of Accounts, and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties. However, this report is a public record, and its distribution is not limited.

***Whisman Giordano & Associates, LLC***

Newark, Delaware  
October 21, 2022

## **Basic Financial Statements Section**

**THOMAS A. EDISON CHARTER SCHOOL**  
**STATEMENTS OF NET POSITION**  
As of June 30, 2022 AND 2021

	2022		2021	
	Primary	Component	Primary	Component
	Governmental	Unit	Governmental	Unit
	Activities	Foundation	Activities	Foundation
<b>ASSETS</b>				
<b>Current assets:</b>				
Cash and equivalents	\$ 4,575,138	\$ 951,211	\$ 4,315,301	\$ 908,614
Receivables-other	450	-	-	-
Due from other governments	72,114	-	14,530	-
Prepayments and other assets	10,030	-	-	-
Replacement reserve:				
Cash and equivalents	-	21,567	-	21,565
Due from component unit/primary government	7,313	24,410	-	-
<b>Total current assets</b>	<b>4,665,045</b>	<b>997,188</b>	<b>4,329,831</b>	<b>930,179</b>
<b>Noncurrent assets:</b>				
Net pension asset	2,292,180	-	-	-
Capital assets, net of accumulated depreciation	895,567	3,551,919	575,730	3,772,892
<b>Total noncurrent assets</b>	<b>3,187,747</b>	<b>3,551,919</b>	<b>575,730</b>	<b>3,772,892</b>
<b>TOTAL ASSETS</b>	<b>7,852,792</b>	<b>4,549,107</b>	<b>4,905,561</b>	<b>4,703,071</b>
<b>DEFERRED OUTFLOWS OF RESOURCES</b>				
Deferred contributions and changes in proportion related to pension activity	1,129,455	-	340,290	-
Deferred contributions related to other postemployment benefits	5,949,996	-	3,495,817	-
<b>Total deferred outflows of resources</b>	<b>7,079,451</b>	<b>-</b>	<b>3,836,107</b>	<b>-</b>
<b>LIABILITIES</b>				
<b>Current liabilities:</b>				
Accounts payable	130,455	75,000	89,875	50,040
Accrued salaries and related costs	439,755	-	438,663	-
Compensated absences liability	-	-	-	-
Due to component unit/primary government	24,410	7,313	-	-
<b>Total current liabilities</b>	<b>594,620</b>	<b>82,313</b>	<b>528,538</b>	<b>50,040</b>
<b>Noncurrent liabilities:</b>				
Compensated absences liability, net of current	236,647	-	216,241	-
Net pension liability	-	-	2,639,436	-
Net other postemployment benefits liability	18,323,910	-	19,082,936	-
<b>Total noncurrent liabilities</b>	<b>18,560,557</b>	<b>-</b>	<b>21,938,613</b>	<b>-</b>
<b>TOTAL LIABILITIES</b>	<b>19,155,177</b>	<b>82,313</b>	<b>22,467,151</b>	<b>50,040</b>
<b>DEFERRED INFLOWS OF RESOURCES</b>				
Deferred investment earnings related to pension activity	4,006,269	-	297,790	-
Deferred postemployment benefits	3,735,100	-	1,059,749	-
<b>Total deferred inflows of resources</b>	<b>7,741,369</b>	<b>-</b>	<b>1,357,539</b>	<b>-</b>
<b>NET POSITION (LIABILITY)</b>				
Net investment in capital assets	895,567	3,551,919	575,730	3,772,892
Restricted for specific programs	762,737	-	613,575	-
Unrestricted	3,071,041	914,875	2,971,477	880,139
Pension and postemployment commitment	(16,693,648)	-	(19,243,804)	-
<b>TOTAL NET POSITION (LIABILITY)</b>	<b>\$ (11,964,303)</b>	<b>\$ 4,466,794</b>	<b>\$ (15,083,022)</b>	<b>\$ 4,653,031</b>

The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**  
STATEMENT OF ACTIVITIES  
Year Ended June 30, 2022

Functions	Expenses	Program Revenues			Net (Expenses) Revenues and Changes in Net Position	
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	Governmental Activities	
					Primary Government	Component Unit
<b>GOVERNMENTAL ACTIVITIES</b>						
Instructional services	\$ 5,633,954	\$ -	\$ 2,933,247	\$ -	\$ (2,700,707)	\$ -
Supporting services:						
Operations and maintenance of facilities	1,299,839	-	-	-	(1,299,839)	-
Transportation	716,052	-	508,287	-	(207,765)	-
Food services	5,558	-	-	-	(5,558)	-
Depreciation-unallocated	80,613	-	-	-	(80,613)	-
<b>TOTAL PRIMARY GOVERNMENT</b>	<b>7,736,016</b>	<b>-</b>	<b>3,441,534</b>	<b>-</b>	<b>(4,294,482)</b>	<b>-</b>
<b>DISCRETELY PRESENTED COMPONENT UNIT</b>						
Foundation	484,405	292,922	5,136	-	-	(186,347)
<b>TOTAL PRIMARY GOVERNMENT AND COMPONENT UNIT</b>	<b>\$ 8,220,421</b>	<b>\$ 292,922</b>	<b>\$ 3,446,670</b>	<b>\$ -</b>	<b>(4,294,482)</b>	<b>(186,347)</b>
<b>GENERAL REVENUES AND TRANSFERS</b>						
Charges to school districts					2,926,947	-
State funding not restricted to specific purposes					4,215,152	-
Earnings on cash and equivalents					-	110
Miscellaneous revenues					192,819	-
Christina School District settlement					78,283	-
<b>Total general revenues and transfers</b>					<b>7,413,201</b>	<b>110</b>
<b>CHANGE IN NET POSITION</b>					<b>3,118,719</b>	<b>(186,237)</b>
<b>NET POSITION (LIABILITY)</b>						
Beginning of year					(15,083,022)	4,653,031
End of year					<b>\$(11,964,303)</b>	<b>\$ 4,466,794</b>

The accompanying notes are an integral part of the basic financial statements



**THOMAS A. EDISON CHARTER SCHOOL**  
STATEMENT OF ACTIVITIES  
Year Ended June 30, 2021

Functions	Expenses	Program Revenues			Net (Expenses) Revenues and Changes in Net Position	
		Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	Governmental Activities	
					Primary Government	Component Unit
<b>GOVERNMENTAL ACTIVITIES</b>						
Instructional services	\$ 8,399,188	\$ -	\$ 2,828,444	\$ -	\$ (5,570,744)	\$ -
Supporting services:						
Operations and maintenance of facilities	1,240,740	-	-	-	(1,240,740)	-
Transportation	588,132	-	523,207	-	(64,925)	-
Food services	-	-	-	-	-	-
Depreciation-unallocated	67,389	-	-	-	(67,389)	-
<b>TOTAL PRIMARY GOVERNMENT</b>	<b>10,295,449</b>	<b>-</b>	<b>3,351,651</b>	<b>-</b>	<b>(6,943,798)</b>	<b>-</b>
<b>DISCRETELY PRESENTED COMPONENT UNIT</b>						
Foundation	311,982	292,922	143	55,000	-	36,083
<b>TOTAL PRIMARY GOVERNMENT AND COMPONENT UNIT</b>	<b>\$ 10,607,431</b>	<b>\$ 292,922</b>	<b>\$ 3,351,794</b>	<b>\$ 55,000</b>	<b>(6,943,798)</b>	<b>36,083</b>
<b>GENERAL REVENUES AND TRANSFERS</b>						
Charges to school districts					3,049,266	-
State funding not restricted to specific purposes					4,078,055	-
Earnings on cash and equivalents					34,205	297
Miscellaneous revenues					49,873	-
Christina School District settlement					77,853	-
<b>Total general revenues and transfers</b>					<b>7,289,252</b>	<b>297</b>
<b>CHANGE IN NET POSITION</b>					<b>345,454</b>	<b>36,380</b>
<b>NET POSITION (LIABILITY)</b>						
Beginning of year					<u>(15,428,476)</u>	<u>4,616,651</u>
End of year					<u>\$ (15,083,022)</u>	<u>\$ 4,653,031</u>

The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**  
**BALANCE SHEETS-GOVERNMENTAL FUNDS**  
As of June 30, 2022 and 2021

	Governmental Funds	
	2022	2021
<b>ASSETS</b>		
Cash and equivalents	\$ 4,575,138	\$ 4,315,301
Receivables-other	450	-
Due from other governments	72,114	14,530
Prepayments and other assets	10,030	-
Due from component unit	7,313	-
<b>TOTAL ASSETS</b>	<b>\$ 4,665,045</b>	<b>\$ 4,329,831</b>
<b>LIABILITIES</b>		
Accounts payable	\$ 130,455	\$ 89,875
Accrued salaries and related costs	439,755	438,663
Due to component unit	24,410	-
<b>Total liabilities</b>	<b>594,620</b>	<b>528,538</b>
<b>FUND BALANCES</b>		
Restricted-specific programs	762,737	613,575
Committed-encumbered	32,761	150,400
Unassigned	3,274,927	3,037,318
<b>Total fund balances</b>	<b>4,070,425</b>	<b>3,801,293</b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>\$ 4,665,045</b>	<b>\$ 4,329,831</b>

The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**  
RECONCILIATION OF THE BALANCE SHEETS OF GOVERNMENTAL FUNDS  
TO THE STATEMENTS OF NET POSITION  
As of June 30, 2022 and 2021

	Governmental Funds	
	2022	2021
Amounts reported for governmental activities in the statements of net position are different because:		
<b>Fund balances-Total governmental funds</b>	<b>\$ 4,070,425</b>	<b>\$ 3,801,293</b>
Capital assets used in governmental activities are not financial resources and, are therefore not reported in the fund financial statements. As of June 30, 2022 and 2021, the total cost of capital assets is \$2,644,487 and \$2,244,037 and the related accumulated depreciation is \$1,748,920 and \$1,668,307, respectively.	895,567	575,730
Compensated absences are not due and payable for the periods reported, and are therefore not reported in the fund financial statements.	(236,647)	(216,241)
Some liabilities, including net pension and net OPEB obligations, are not due and payable in the periods reported, and are therefore not reported in the fund financial statements:		
Net pension (liability)/asset	2,292,180	(2,639,436)
Net other postemployment benefits [OPEB] (liability)/asset	(18,323,910)	(19,082,936)
Deferred outflows and deferred inflows of resources related to pension and OPEB activities are applicable to future periods, and are therefore not reported in the fund financial statements:		
Deferred outflows of resources related to pension activity of \$1,129,455 and \$340,290 consist of \$579,453 and \$(166,596) of deferred outflows of resources pension expense (benefit) and \$550,002 and \$506,886 of deferred outflows of the 2022 and 2021 employer contributions related to the pension activity, respectively.	1,129,455	340,290
Deferred inflows of resources related to pension activity.	(4,006,269)	(297,790)
Deferred outflows of resources related to the OPEB activity consisting of \$5,949,996 and \$3,495,817 consists of \$5,442,816 and \$3,010,634 of deferred outflows of resources OPEB expense and \$507,180 and \$485,183 of deferred outflows for the 2022 and 2021 employer contributions related to the OPEB activity, respectively.	5,949,996	3,495,817
Deferred inflows of resources related to OPEB activity.	(3,735,100)	(1,059,749)
<b>Net position (liability)-Governmental activities</b>	<b>\$ (11,964,303)</b>	<b>\$ (15,083,022)</b>

The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**STATEMENTS OF REVENUES, EXPENDITURES AND CHANGE IN FUND BALANCES-GOVERNMENTAL FUNDS  
Years Ended June 30, 2022 and 2021

	Governmental Funds	
	2022	2021
<b>REVENUES</b>		
Charges to school districts	\$ 2,926,947	\$ 3,049,266
State funding-allocation	4,723,439	4,601,262
State funding-other	790,429	867,124
Federal funding	2,142,818	1,961,320
Earnings on cash and equivalents	-	34,205
Program services fees	-	-
Miscellaneous revenues	192,819	49,873
<b>Total revenues</b>	<b>10,776,452</b>	<b>10,563,050</b>
<b>EXPENDITURES</b>		
Current:		
Instructional services	7,975,135	7,660,803
Supporting services:		
Operation and maintenance of facilities	1,299,839	1,240,740
Transportation	716,052	588,132
Food services	5,558	-
Capital outlay	589,019	229,047
<b>Total expenditures</b>	<b>10,585,603</b>	<b>9,718,722</b>
<b>EXCESS (DEFICIT) REVENUES OVER EXPENDITURES</b>	<b>190,849</b>	<b>844,328</b>
<b>OTHER FINANCING SOURCES (USES)</b>		
Christina School District settlement	78,283	77,853
<b>Total other financing sources (uses)</b>	<b>78,283</b>	<b>77,853</b>
<b>NET CHANGE IN FUND BALANCES</b>	<b>269,132</b>	<b>922,181</b>
<b>FUND BALANCES</b>		
Beginning of year	3,801,293	2,879,112
End of year	\$ 4,070,425	\$ 3,801,293

The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**

RECONCILIATION OF THE STATEMENTS OF REVENUES, EXPENDITURES AND

CHANGE IN FUND BALANCES OF GOVERNMENTAL FUNDS TO THE STATEMENTS OF ACTIVITIES  
 Years Ended June 30, 2022 and 2021

	Governmental Funds	
	2022	2021

Amounts reported for governmental activities in the statements of activities are different because:

<b>Net change in fund balances-Total governmental funds</b>	<b>\$ 269,132</b>	<b>\$ 922,181</b>
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In the financial statements of the governmental funds, capital outlay is reported as an expenditure. However, in the government-wide statement of activities, assets with an initial, individual cost of \$5,000 or more are capitalized and the cost is allocated over the estimated useful lives of the capital assets and reported as depreciation expense. The following table reflects the amount by which depreciation expense either exceeds or is less than capital outlay capitalized as capital assets for the periods presented.

Description	2022	2021		
Capital assets additions	\$ 400,450	\$ 140,673		
Depreciation expense	(80,613)	(67,389)	319,837	73,284

In the government-wide statement of activities, certain operating expenses such as compensated absences [vacation] are measured by the amounts earned during the period. In the governmental funds, however, expenditures for these items are measured by the amount of financial resources used [essentially, amounts actually paid]. Compensated absences liability decreased/(increased) for the periods presented.

	(20,406)	(52,835)
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The governmental funds report pension and OPEB contributions as expenditures. However, in the statement of activities, the cost of pension and OPEB benefits earned net of contributions is reported as an expense.

Description	2022	2021		
School contributions	\$1,057,182	\$ 992,069		
Cost of benefits earned net of contributions (expense)	1,492,974	(1,589,245)	2,550,156	(597,176)

<b>Change in net position-Governmental activities</b>	<b>\$ 3,118,719</b>	<b>\$ 345,454</b>
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The accompanying notes are an integral part of the basic financial statements

**THOMAS A. EDISON CHARTER SCHOOL**  
STATEMENTS OF FIDUCIARY NET POSITION-AGENCY FUND  
As of June 30, 2022 and 2021

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	Student Activities Fund	
	2022	2021
<b>ASSETS</b>		
Cash and equivalents	\$ 7,736	8,077
<b>LIABILITIES</b>		
Due to student and other groups	\$ 7,736	\$ 8,077

The accompanying notes are an integral part of the basic financial statements

**NOTE 1 - NATURE OF THE GOVERNMENT**

Thomas A. Edison Charter School, located within the limits of the City of Wilmington, Delaware, is organized under Title 14, Chapter 5 of the State of Delaware Code. The Charter School Law grants authority for independent public schools to be created for the purpose of increasing choices for parents of public-school students and academic performance. A charter school operates as an independent public school governed by the School Board of Directors. In Delaware, charter schools have the same basic standing as a school district with some exceptions - most notably, they cannot levy taxes. To encourage innovation, charter schools operate free from many State laws and regulations. Charter schools are funded similarly to other public schools in that state and local funds are allocated for each enrolled student. State funds are not provided for charter school facilities. Charter schools may charge for selected additional services consistent with those permitted by the school districts. Because charter schools receive local, state, and federal funding, they may not charge tuition.

**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The financial statements of Thomas A. Edison Charter School [the School] have been prepared in conformity with U.S. generally accepted accounting principles as applied to local governmental units. The Governmental Accounting Standards Board [GASB] is the accepted standard-setting body for establishing governmental accounting and financial reporting principles. The significant accounting policies of the School are as follows:

Reporting Entity

The School is the primary government and is considered a component unit of the State of Delaware. A component unit, although a legally separate entity, is, in substance, part of the operations of the State of Delaware. The School has one component unit which it has included in the reporting entity because of the significance of its operational and financial relationship to the school.

Discretely Presented Component Unit

On November 12, 1997, Thomas A. Edison Charter School of Wilmington, Inc. [the Foundation] was incorporated as a 501(c)(3) nonprofit corporation for the purpose of constructing a school from grades K through 8 by substantially improving an existing facility, which was placed in service July 1, 2000. The primary role of the Foundation is to assist the school in carrying out its mission. The Foundation is a discretely presented component unit because of the significance of its financial relationship to the school.

Government-Wide and Fund Financial Statements

The government-wide financial statements [statement of net position and statement of activities] report financial information on all of the nonfiduciary activities of the School. For the most part, the effects of interfund activity have been removed from the financial statements.

The statement of activities demonstrates the degree to which the direct expenses of a given program are offset by program revenues. *Direct expenses* are those that are clearly identifiable with a specific program. *Program revenues* include charges to students or other third parties who purchase or directly benefit from the goods and services provided, and grants and contributions that are restricted to meeting the operating or capital requirements of a function.

Separate financial statements are provided for both governmental funds and the fiduciary fund, even though the fiduciary fund is excluded from the government-wide financial statements. Major governmental funds are reported as separate columns in fund financial statements.

Measurement Focus, Accounting Basis, and Financial Statement Presentation

The **government-wide financial statements** are reported using the *economic resources measurement focus* and the *accrual basis of accounting*, as are the financial statements of the fiduciary fund. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Charges to school districts are recognized as revenues in the year for which they are billed. Grants and similar items are recognized as revenue as soon as all of the eligibility requirements imposed by the provider are met.

**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** [continued]

Measurement Focus, Accounting Basis, and Financial Statement Presentation [continued]

The **governmental fund financial statements** are reported using the *current financial resources measurement focus* and the *modified accrual basis of accounting*. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current year or soon enough thereafter to pay liabilities of the current year. For this purpose, the School generally considers revenues to be available if they are collected within 60 days of the end of the fiscal year. Expenditures generally are recorded when a liability is incurred, as under the accrual basis of accounting. However, debt service expenditures, as well as expenditures related to compensated absences, early retirement, and postemployment healthcare benefits, are recorded only when payment is due.

Charges to school districts, grants, contributions, and interest earned associated with the fiscal year are all considered to be susceptible to accrual and so have been recognized as revenues of the fiscal year. Generally, all other revenue items are considered to be measurable and available only when the School receives cash.

The School reports the following major governmental fund:

- The **general fund** is the School's primary operating fund. It accounts for all financial resources of the School, except those required to be accounted for in another fund.

Additionally, the School reports the following fund type:

- The **student activities agency fund** [a fiduciary fund] accounts for assets held on behalf of student groups and other organizations. Since the agency fund is custodial in nature, the fund does not present results of operations.

Amounts reported as program revenues include 1) charges to students for special fees, material, supplies, or services, provided; 2) operating grants and contributions; and 3) capital grants and contributions. Internally dedicated resources are reported as general revenues rather than as program revenues.

Use of Estimates

Preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and reported amounts of revenues and expenses or expenditures during the reporting period. Accordingly, the actual results may differ from those estimates.

Cash and Equivalents

The School considers cash and equivalents as cash on hand, demand deposits, and short-term investments with original maturities of three months or less from the date of acquisition.

Interfund Balances

Activities between funds that are representative of lending arrangements outstanding at the end of the fiscal year are referred to as either "interfund balances" [current portion] or "interfund advances" [noncurrent]. The School has no such activities for the years presented.

Advances between the funds reported in the fund financial statements, when present, are offset by assigned fund balances in the governmental funds to indicate that the advances are not available for appropriation and are not expendable available financial resources.



**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** [continued]

Prepayments and Other Assets

Payments made to vendors for goods and services that will benefit periods beyond the current period are recorded as prepayments and other assets using the consumption method by recording an asset for the prepaid amount and reflecting the expenditure/expense in the period in which the goods and services are consumed.

Capital Assets

**Primary Government**-Capital assets, which include leasehold improvements, and furniture and equipment, are reported in the government-wide financial statements. The School defines a capital asset as an asset with an initial, individual cost of \$5,000 or more and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated cost if purchased or constructed. Donated capital assets are recorded at estimated fair value as of the date of donation. The cost of normal maintenance and repairs that do not add to the value or materially extend the life of the capital asset is not capitalized. Major outlays for capital assets and improvements are capitalized as projects are constructed; however, the interest cost incurred during construction is not capitalized.

Leasehold improvements, and furniture and equipment are depreciated using the straight-line method over their estimated useful lives ranging between 5 to 10 years.

**Component Unit**-Capital assets are stated at cost and consist mostly of leasehold improvements to the school facility. The cost of maintenance and repairs are charged to expense as incurred; the costs of renewals and betterments are capitalized. When capital assets are sold or otherwise disposed of, the cost and the related accumulated depreciation are removed from the accounts, and any gain or loss is included in the statement of activities. The component unit defines a capital asset as an asset with an initial, individual cost of \$5,000 or more and an estimated useful life in excess of one year.

The leasehold improvements are depreciated using the straight-line method based on the estimated useful lives of the improvements ranging from 15 to 39 years.

Impairment of Long-Lived Assets

In accordance with the Financial Accounting Standards Board statement on *Accounting for the Impairment or Disposal of Long-Lived Assets*, the entities review their capital assets for impairment whenever events or changes in circumstances indicate that the carrying value of a capital asset may not be recoverable. If the fair value is less than the carrying amount of the capital asset, an impairment loss is recognized for the difference. No impairment loss is recognized for both entities for the years presented.

Compensated Absences Liability Policy

Vacation pay, plus related payroll taxes, is accrued when incurred in the government-wide financial statements. However, in the governmental funds, a liability is reported when the amount has matured, for example, an employee resignation or retirement.

**Vacation**-Twelve-month employees can accumulate up to 42 days of vacation. Days in excess of 42 days are dropped as of July 1 of each year. Employees are paid for unused vacation upon termination, retirement, etc. at the current rate of pay.

**Sick Leave**-Sick leave is earned as follows: 10 days for ten-month employees, 11 days for eleven-month employees, and 12 days for twelve-month employees. Unused sick days shall be accumulated to the employee's credit without limit. The compensation for accumulated sick days is paid when an employee [a] qualifies and applies for State pension is paid at a rate of 50% of the per diem rate of pay not to exceed 90 days or [b] in the case of death, payment is made to the employee's estate at a rate of one day's pay for each day of unused sick leave not to exceed 90 days.

**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** [continued]

Deferred Outflows and Inflows of Resources

In addition to assets, the statement of net position reports a separate section for deferred outflows of resources. Deferred outflows of resources represent a consumption of net position that applies to a future period and so will not be recognized as an outflow of resources [expense/expenditure] until that period. The School has two items that qualify for reporting in this category. The first item is deferred contributions and changes in proportion related to the School's pension activity, and the second item refers to its OPEB activity. The amounts are reported in the statement of net position and deferred and amortized over periods of five to six years.

In addition to liabilities, the statement of net position reports a separate section for deferred inflows of resources. Deferred inflows of resources represent an acquisition of net position that applies to a future period and so will not be recognized as an inflow of resources [revenue] until that time. The School has two items that qualify for reporting in this category: the first item is the deferred investment earnings related to pension activity and the second item relates to OPEB activity. These items are reported only in the statement of net position and, are deferred and recognized as an inflow from resources in the periods that the amounts become available.

Net Position and Fund Equity

The net position, in the government-wide financial statements, is reported in three categories: net position invested in capital assets, net of related debt; restricted net position; and unrestricted net position. Net position invested in capital assets represents capital assets less accumulated depreciation less outstanding principal of the related debt. Net position invested in capital assets does not include any unspent proceeds of capital debt. The restricted net position represents net assets restricted by parties outside of the school [such as creditors, grantors, contributors, laws, and regulations of other governments] and includes unspent awards not considered refundable advances. All other net position is considered unrestricted.

The school follows the requirements of GASB Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions* for its governmental funds. Under the GASB Statement, fund balances are required to be reported according to the following classifications:

- **Non-spendable fund balance**-Includes amounts that cannot be spent because they are either not in spendable form, or, for legal or contractual reasons, must be kept intact. This classification generally includes prepaid amounts, inventories, assets held for sale, and long-term receivables.
- **Restricted fund balance**-Constraints placed on the use of these amounts are either externally imposed by creditors [such as debt covenants], grantors, contributors, or other governments; or imposed by law through constitutional provisions or enabling legislation.
- **Committed fund balance**-Amounts that can only be used for specific purposes because of a formal action [resolution] by the school's highest level of decision-making authority: The School Board.
- **Assigned fund balance**-Amounts that are constrained by the school's intent to be used for specific purposes, but do not meet the criteria to be classified as restricted or committed. The intent can be stipulated by the School Board, or by an official to whom that authority has been given. With the exception of the general fund, this is the residual fund balance classification for all governmental funds with positive balances.
- **Unassigned fund balance**-This is the residual classification of the general fund. Only the general fund reports a positive unassigned fund balance. Other governmental funds might report a negative balance in this classification, as the result of overspending for specific purposes for which amounts had been restricted, committed or assigned.

When both restricted and unrestricted resources are available for use, it is the policy of the school to use restricted resources first, then unrestricted resources as needed.

**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** [continued]

Encumbrance Accounting

Encumbrance accounting is employed by the governmental funds of the School. Encumbrances [e.g., purchase orders and contracts] outstanding at the year-end are reported as reservations of fund balances and do not constitute expenditures or liabilities because the commitments are re-appropriated and honored during the subsequent year. At June 30, 2022 and 2021, encumbrances outstanding are \$32,761 and \$150,400, respectively.

Accounting System

In accordance with the State of Delaware Charter Law, the School is required to maintain its accounting system with the Delaware Division of Accounting and as such the School uses the State codes and code structure identified in the State's *Budget and Accounting Policy Manual*.

Income Tax Status

The **school** qualifies as a tax-exempt organization under Section 170 of the Internal Revenue Code and is not liable for federal or state income taxes.

The **component unit** is exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Service [IRS] Code. However, income from certain activities not directly related to the component unit's tax-exempt purpose is subject to taxation as unrelated business income. In addition, the component unit qualifies for the charitable contribution deduction under IRS Section 170(b)(1)(A) and has been classified as an organization that is not a private foundation.

The Financial Accounting Standards Board on statements pertaining to the *Accounting for Uncertainty in Income Taxes* recognized in the financial statements prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken on a tax return. The federal returns of the component unit for the prior three fiscal years are subject to examination by the IRS, generally for three years after the returns are filed. The tax positions taken for these years are based on clear and unambiguous tax law; management has a high level of confidence in the technical merits of the positions taken.

**NOTE 3 - CASH AND EQUIVALENTS**

The School's deposits [cash and equivalents] consist of the following:

Deposits Held by the State of Delaware

At June 30, 2022 and 2021, the School has cash and equivalents of \$4,582,874 and \$4,323,378, respectively consisting of balances from the general fund of \$4,575,138 and \$4,315,301 and agency fund of \$7,736 and \$8,077, respectively. These deposits are part of the State investment pool controlled and administered by the State Treasurer's Office in Dover, Delaware, and all investment decisions are made by the same State office. The deposits are considered highly liquid and available for immediate use and, thus, are reflected as cash equivalents in the financial statements. Deposits held by the State's investment pool, an internal investment pool, are specifically identified for the school; however, the credit risk cannot be categorized for these deposits. Credit risk for such deposits depends on the financial stability of the State of Delaware. The State reports that its investment securities are stated at quoted market prices, except that investment securities with remaining maturity at the time of purchase [one year or less] are stated at cost or amortized cost.

Deposits Held by Financial Institutions

At June 30, 2022 and 2021, the reported amount of deposits maintained by the **component unit** outside of the State Treasurer's Office is \$972,778 [book values of \$951,211 and \$21,567] and \$930,179 [book values of \$908,614 and \$21,565], respectively. The deposits held by the one financial institution totaling \$972,838 and \$930,319 were in excess of the Federal Deposit Insurance Corporation [FDIC] limits in the amount of \$722,838 and \$680,319 respectively, and therefore, any excess [or non-coverage] of FDIC is exposed to custodial credit risk. Custodial credit risk is the risk that in the event of a financial institution failure, the deposits may not be returned to the Component Unit.

**NOTE 4 - INTERGOVERNMENTAL RECEIVABLES**

Amounts due from other governments represent receivables for revenues earned by the School. At June 30, the intergovernmental receivables are:

Description	2022	2021
Passed through the State of Delaware:		
Local school districts	\$ -	\$ -
Federal government-Department of Agriculture	-	-
Federal government-Department of Education	72,114	14,530
<b>Total amount due from other governments</b>	<b>\$ 72,114</b>	<b>\$ 14,530</b>

**Component unit:**

Delaware Division of Social Services	\$ -	\$ -
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**NOTE 5 - CAPITAL ASSETS**

The following tables summarize the annual changes to the capital assets:

Description	As of and Year Ended June 30, 2022			
	Beginning Balances	Increases	Decreases	Ending Balances
<b>Governmental activities:</b>				
Capital assets, being depreciated:				
Leasehold improvements	\$ 1,031,933	\$ 215,405	\$ -	\$ 1,247,338
Furniture and equipment	1,212,104	185,045	-	1,397,149
<b>Totals</b>	<b>2,244,037</b>	<b>400,450</b>	<b>-</b>	<b>2,644,487</b>
Less accumulated depreciation:				
Leasehold improvements	514,111	51,759	-	565,870
Furniture and equipment	1,154,196	28,854	-	1,183,050
<b>Totals</b>	<b>1,668,307</b>	<b>80,613</b>	<b>-</b>	<b>1,748,920</b>
<b>Governmental activities capital assets, net</b>	<b>\$ 575,730</b>	<b>\$ 319,837</b>	<b>\$ -</b>	<b>\$ 895,567</b>
<b>Component unit:</b>				
Capital assets, being depreciated:				
Leasehold improvements	\$ 7,933,627	\$ 7,313	\$ -	\$ 7,940,940
Less accumulated depreciation:				
Leasehold improvements	4,160,735	228,286	-	4,389,021
<b>Component unit capital assets, net</b>	<b>\$ 3,772,892</b>	<b>\$ (220,973)</b>	<b>\$ -</b>	<b>\$ 3,551,919</b>
Description	As of and Year Ended June 30, 2021			
	Beginning Balances	Increases	Decreases	Ending Balances
<b>Governmental activities:</b>				
Capital assets, being depreciated:				
Leasehold improvements	\$ 899,060	\$ 132,873	\$ -	\$ 1,031,933
Furniture and equipment	1,204,304	7,800	-	1,212,104
<b>Totals</b>	<b>2,103,364</b>	<b>140,673</b>	<b>-</b>	<b>2,244,037</b>
Less accumulated depreciation:				
Leasehold improvements	464,622	49,489	-	514,111
Furniture and equipment	1,136,296	17,900	-	1,154,196
<b>Totals</b>	<b>1,600,918</b>	<b>67,389</b>	<b>-</b>	<b>1,668,307</b>
<b>Governmental activities capital assets, net</b>	<b>\$ 502,446</b>	<b>\$ 73,284</b>	<b>\$ -</b>	<b>\$ 575,730</b>
<b>Component unit:</b>				
Capital assets, being depreciated:				
Leasehold improvements	\$ 7,933,627	\$ -	\$ -	\$ 7,933,627
Less accumulated depreciation:				
Leasehold improvements	3,932,842	227,893	-	4,160,735
<b>Component unit capital assets, net</b>	<b>\$ 4,000,785</b>	<b>\$ (227,893)</b>	<b>\$ -</b>	<b>\$ 3,772,892</b>

**NOTE 6 - RISK MANAGEMENT**

The school purchases commercial insurance policies in response to risks of loss related to torts; theft, damage, or destruction of assets; errors or omissions; injuries to employees; or acts of nature. The premium payments for the insurance policies are recorded as expenditures/expenses of the school; and the insurance settlements did not exceed insurance coverage for the years presented.

**NOTE 7 - LONG-TERM DEBT OBLIGATIONS**

The following table summarizes the annual changes to long-term obligations:

Description	As of and Year Ended June 30, 2022				
	Long-Term Obligations				Due
	Beginning			Ending	Within
	Balance	Additions	Deletions	Balance	One Year
<b>Governmental activity:</b>					
Other long-term debt:					
Compensated absences	\$ 216,241	\$ 20,406	\$ -	\$ 236,647	\$ -

The compensated absences liability for governmental activities is generally liquidated with general fund resources.

Component Unit

On December 12, 2000, the **component unit** entered into a mortgage note agreement with the Delaware Community Investment Corporation [DCIC] in the amount of \$3,037,000. The mortgage note was secured by a leasehold mortgage and a security agreement on the property located at 2200 Locust Street, Wilmington, Delaware. The terms of the mortgage note required 240 monthly payments of \$24,410, including interest at a rate of 7.47%. The mortgage note matured January 1, 2021.

**NOTE 8 - PENSION PLAN**

The School's pension plan is part of the State Employees' Pension Plan [the Plan] which is a cost-sharing multiple-employer defined benefit pension plan established in the Delaware Code. The General Assembly of the State of Delaware is responsible for setting benefits and contributions and amending the plan provisions; administrative rules and regulations are adopted and maintained by the Board of Pension Trustees [the Board]. The management of the Plan is the responsibility of the Board, which is comprised of five members appointed by the Governor and confirmed by the State Senate, plus two exofacial members. The daily operation is the responsibility of the Delaware Office of Pensions.

Although most of the assets of the Plan are commingled with other plans for investment purposes, the Plan's assets may be used only for the payment of benefits to the members of the Plan in accordance with the terms of the Plan. The following is a brief description of the Plan in effect at June 30, 2021 and 2020. For a complete description, refer to the Delaware Public Employee's Retirement System [DPERS] Annual Comprehensive Financial Report [CAFR].

Separately issued financial statements for DPERS are available from the State of Delaware Office of Pensions: McCardle Building, Suite 1; 860 Silver Lake Blvd; Dover, Delaware 19904.

**NOTE 8 - PENSION PLAN** [continued]

General Information About the Plan

**Plan Description and Eligibility:** The State Employees' Pension Plan covers virtually all full-time or regular part-time employees of the State, including employees of other affiliated entities such as the School.

There are two tiers within the Plan: 1) Employees hired prior to January 1, 2012 [Pre-2012], and 2) Employees hired on or after January 1, 2012 [Post-2011].

**Service Benefits:** Final average monthly compensation [employee hired post-2011 may not include overtime in pension compensation] multiplied by 2.0% and multiplied by years of credited service prior to January 1, 1997, plus final average monthly compensation multiplied by 1.85% and multiplied by years of credited service after December 31, 1996, subject to minimum limitations. For the Plan, final average monthly compensation is the monthly average of the highest three periods of 12 consecutive months of compensation.

**Vesting:** Pre-2012 date of hire: 5 years of credited service. Post-2011 date of hire: 10 years of credited service.

**Retirement:** Pre-2012 date of hire: Age 62 with 5 years of credited service; age 60 with 15 years of credited service; or after 30 years of credited service at any age. Post-2011 date of hire: age 65 with at least 10 years of credited service; age 60 with 20 years of credited service; and 30 years of credited service at any age.

**Disability Benefits:** Pre-2012 date of hire: Same as Service Benefits. Employees must have 5 years of credited service. In lieu of disability pension benefits, over 90% of the plan members opted into a Disability Insurance Program offered by the State effective January 1, 2006. Post-2011 date of hire; in the Disability Insurance Program.

**Survivor Benefits:** If the employee is receiving a pension, the eligible survivor receives 50% of pension [or 67.70% with 2% reduction, 75% with 3% reduction, or 100% with 6% reduction of benefit]; if the employee is active with at least 5 years of credited service, eligible survivor receives 75% of the pension the employee would have received at age 62.

**Burial Benefit:** \$7,000 per member.

**Contributions:**

- Employer: Determined by the Board of Pension Trustees, actuarially determined.
- Pre-2012 date of hire Member: 3% of earnings in excess of \$6,000.
- Post-2011 date of hire Member: 5% of earnings in excess of \$6,000.

Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions

At June 30, 2022 and 2021, the School reported pension liability/(asset) of \$(2,292,180) and \$2,639,436, respectively, for its proportionate share of the net pension liability/(asset). The net pension liability/(asset) was measured as of June 30, 2021 and 2020, respectively, and the total pension liability/(asset) used to calculate the net pension liability/(asset) was determined by an actuarial valuation as of those dates. The School's proportion of the net pension liability/(asset) was based on a projection of the School's long-term share of contributions to the pension plan relative to the total projected contributions of the State and all participating schools, actuarially determined. At June 30, 2021 and 2020, the School's proportion was 0.1881 and 0.1878 percent, which was an increase of 0.0003 and a decrease of 0.0001 percent from its proportion measured as of June 30, 2020 and 2019, respectively.

**NOTE 8 - PENSION PLAN** [continued]

Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions [continued]

As a result of its requirement to contribute to DPERS, the school recognized pension expense/(benefit) of \$(1,462,300) and \$686,273 for the years ended June 30, 2022 and 2021, respectively. At June 30, 2022 and 2021, the school reported deferred outflows of resources and deferred inflows of resources from the following sources as a result of its requirement to contribute to DPERS:

Description	Deferred Resources			
	2022		2021	
	Outflows	Inflows	Outflows	Inflows
Difference between expected and actual experience	\$ 449,853	\$ (23,263)	\$ 217,672	\$ (26,883)
Changes of assumptions	206,565	-	(107,736)	-
Net difference between projected and actual earnings on pension plan investments	(75,108)	3,967,773	(253,370)	293,375
Contributions subsequent to the measurement date	550,002	-	506,886	-
Change in proportion and differences between school contributions and proportionate share of contributions	(1,857)	61,759	(23,162)	31,298
<b>Totals</b>	<b>\$1,129,455</b>	<b>\$ 4,006,269</b>	<b>\$ 340,290</b>	<b>\$ 297,790</b>

\$506,866 and \$484,118 reported as deferred outflows of resources related to the pension resulting from school contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability for the years ended June 30, 2022 and 2021, respectively. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to the pension will be recognized in pension expense as follows:

Years Ending June 30	Amount
2023	\$ (896,349)
2024	(866,586)
2025	(897,713)
2026	(887,259)
2027	121,091
<b>Total</b>	<b>\$ (3,426,816)</b>

**Actuarial Assumptions:** The total pension liability/(asset) in the June 30, 2021 and 2020 actuarial valuations was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Description	Percentages	
	2021	2020
Inflation	2.50%	2.50%
Projected salary increases	2.50% plus merit	2.50% plus merit
Investment return/discount rate	7.00%, net of pension investment expense	7.00%, net of pension investment expense
Cost-of-living adjustments	0.00%	0.00%

**NOTE 8 - PENSION PLAN** [continued]

Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions [continued]

The total pension liabilities/(assets) are measured based on assumptions pertaining to the interest rates, inflation rates, and employee demographic behavior in future years. It is likely that future experience will not exactly conform to these assumptions. To the extent that actual experience deviates from these assumptions, the emerging liabilities may be higher or lower than anticipated. The more the experience deviates, the larger the impact on future financial statements.

Mortality assumptions are based on the RP-2014 tables with gender adjustments for healthy annuitants and disabled retirees and an adjusted version on MP-2015 mortality improvement scale on a fully generational basis.

Projected benefit payments do not include the effects of projected ad hoc cost-of-living adjustments [ad hoc COLAs] as they are not substantively automatic. The primary considerations relevant to making this determination include the historical pattern of granting the changes and the consistency in the amounts of the changes.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return [expected returns, net of investment expense and inflation] are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighing the expected future real rates of return by an asset allocation percentage, which is based on the nature and mix of current and expected Plan investments, and by adding expected inflation. Best estimates of geometric real rates of return for each major asset class included in the Plan's current and expected asset allocation are summarized in the following table:

Asset Class	Long-Term Expected		Asset Allocation	
	Real Rate of Return			
	2021	2020	2021	2020
Domestic equity	5.70%	5.70%	32.30%	28.50%
International equity	5.70%	5.70%	18.10%	15.20%
Fixed income	2.00%	2.00%	20.60%	28.80%
Alternative investments	7.80%	7.80%	24.20%	23.00%
Cash and equivalents	0.00%	0.00%	4.80%	4.50%

**Discount Rate:** The discount rate used to measure the total pension liability/(asset) was 7.00% for both periods presented. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at rates determined by the Board of Pension Trustees, actuarially determined. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.



**NOTE 8 - PENSION PLAN** [continued]

Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions [continued]

**Sensitivity of the School's Proportionate Share of the Net Pension Liability/(Asset) to Changes in the Discount Rate:** The following presents the proportionate share of the net pension liability/(asset) calculated using the discount rate of 7.00%, as well as what the School's proportionate share of the net pension liability/(asset) would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

Plan	1% Decrease [6.00%]	Discount Rate [7.00%]	1% Increase [8.00%]
Proportionate share of net pension liability/ (asset) of Thomas A. Edison Charter School:			
Fiscal year 2021	\$ 280,154	\$ (2,292,180)	\$ (4,451,146)
Fiscal year 2020	\$ 5,067,777	\$ 2,639,436	\$ 593,122

**NOTE 9 - POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS [OPEB]**

**Plan Description:** The School's OPEB Plan is part of the State of Delaware's Other Postemployment Benefit [OPEB] Fund Trust [the Plan] which is a cost-sharing multiple-employer defined-benefit plan established in the Delaware Code. The Plan is administered by the Delaware Public Employees' Retirement System [DPERS]. The State of Delaware [the State] is responsible for the policy and management of the OPEB benefits provided to retirees. The Plan's assets may be used only for the payment of benefits to the members of the Plan in accordance with the terms of the Plan.

Additional financial and actuarial information with respect to the Plan may be found in the *State of Delaware Other Postemployment Benefits [OPEB] Fund Trust Financial Statements* available online at <https://open.omb.delaware.gov/Financials.shtml>.

**Benefits:** The Plan provides medical coverage to pensioners and their eligible dependents. The participant's cost of Plan benefits varies based on years of service within those pension plan categories defined by the Plan. Pensioners retiring after July 1, 2012 and who become eligible for Medicare will pay an additional 5% of the Medicare Supplement offered by the State. Surviving spouses are eligible for coverage after a retiree's death.

**Contributions:** Participating employers, such as the School, fund the Plan for current retirees on a pay-as-you-go basis along with funding for future benefits at a rate that is approved in the annual budget, but not actuarially determined. By State Statute Chapter 52, Title 29 of the Delaware Code, contribution requirements of plan members and the government are established and may not be amended by the State Legislature. Funds are recorded in the Plan for the payment of retiree healthcare claims, administrative and investment expenses. Administrative costs are financed through investment earnings. State appropriations, other employer contributions, and retiree contributions for healthcare are recorded in the Plan. The funds available are invested under the management of the DPERS Board of Pension Trustees, which acts as the Board of Trustees for the Plan and is responsible for the financial management of the Plan. The School's contractually required contribution rate for the years ended June 30, 2021 and 2020, was 18.17% and 18.33% of covered-employee payroll, respectively. Total contributions for the years ended June 30, 2021 and 2020 were \$506,463 and \$485,183, respectively.

**NOTE 9 - POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS [OPEB] [continued]**

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

At June 30, 2022 and 2021, the school reported a liability of \$18,323,910 and \$19,082,936, respectively, for its proportionate share of the net OPEB liability. The net OPEB liability was measured as of June 30, 2021 and 2020, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of those dates. The School's proportion of the net OPEB liability was based on a projection of the School's long-term share of contributions to the OPEB plan relative to the projected contributions of all participating entities and affiliates, actuarially determined. At June 30, 2021 and 2020, the School's proportion was 0.1817 and 0.1833 percent, which was a decrease of 0.0016 and a decrease of 0.0078 percent from its proportion measured as of June 30, 2020 and 2019, respectively.

For the years ended June 30, 2022 and 2021, the school recognized OPEB expense/(benefit) of \$(30,674) and \$902,972, respectively. At June 30, 2022 and 2021, the School reported deferred outflows and inflows of resources related to OPEB from the following sources:

Description	Deferred Resources			
	2022		2021	
	Outflows	Inflows	Outflows	Inflows
Difference between expected and actual experience	\$ 735,578	\$2,533,495	\$ 461,738	\$ 706,071
Changes of assumptions	4,604,752	356,925	2,521,290	19,094
Net difference between projected and actual earnings				
on pension plan investments	-	179,194	-	5,467
Contributions subsequent to the measurement date	507,180	-	485,183	-
Change in proportion and differences between School contributions and proportionate share of contributions	102,486	665,486	27,606	329,117
<b>Totals</b>	<b>\$5,949,996</b>	<b>\$3,735,100</b>	<b>\$3,495,817</b>	<b>\$1,059,749</b>

\$485,183 and \$506,463 was reported as deferred outflows of resources related to OPEB resulting from School contributions subsequent to the measurement date will be recognized as a reduction of the net OPEB liability in the years ended June 30, 2022 and 2021, respectively. Other amounts reported as deferred outflows and inflows of resources related to OPEB will be recognized in OPEB expense as follows:

Years Ending June 30	Amount
2023	\$ 128,894
2024	393,038
2025	602,415
2026	602,415
2027	(19,046)
<b>Total</b>	<b>\$ 1,707,716</b>

**NOTE 9 - POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS [OPEB]** [continued]

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB [continued]

**Actuarial Assumptions:** The total OPEB liability in the June 30, 2021 and 2020 actuarial valuations were determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Description	Percentages	
	2021	2020
Discount rate	2.16%	2.21%
Salary increases	3.25% plus merit	3.25% plus merit
Investment return/discount rate	n/a	n/a
Healthcare cost trend rate	5.50%	5.60%

Mortality rates are based on the sex-distinct employee healthy annuitant, and disabled annuitant mortality tables derived from the Pub-2010 General Benefits Weighted Annuity Mortality Table, including adjustment factors. Future mortality improvements are reflected by applying a custom projection scale on a generational basis to adjusted base tables from the base year.

The total OPEB liabilities are measured based on assumptions pertaining to the interest rates, inflation rates, health costs, and employee demographic behavior in future years. The assumptions used were based on the results on an actuarial experience study performed in 2021 and covering the period of July 1, 2015 through June 30, 2020. It is likely that future experience will not exactly conform to these assumptions. To the extent that actual experience deviates from these assumptions, the emerging liabilities may be higher or lower than anticipated. The more the experience deviates, the larger the impact on future financial statements.

**Discount Rate:** The discount rate used to measure the total OPEB liability was 2.21% at the beginning of the current measurement period and 2.16% at the end, based on the Bond Buyer GO 20-Bond Municipal Bond Index. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rate and that employer contributions to the Plan will continue to follow the pay-as-you-go contribution policy. Based on the assumptions of a pay-as-you-go plan, the discount rate used at the June 30, 2021 and 2020 measurement dates is equal to the applicable rate of the 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

**Sensitivity of the School's Proportionate Share of the Net OPEB Liability to Changes in the Discount Rate:** The following presents the School's proportionate share of the net OPEB liability, as well as what the School's proportionate share of the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current discount rate:

Plan	1% Decrease	Discount Rate	1% Increase
Proportionate share of net OPEB liability of Thomas A. Edison Charter School:			
Fiscal Year 2021 [Discount Rate at 2.16%]	\$ 21,893,507	\$ 18,323,910	\$ 15,503,385
Fiscal Year 2020 [Discount Rate at 2.21%]	\$ 22,875,043	\$ 19,082,936	\$ 16,120,105

**NOTE 9 - POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS [OPEB] [continued]**

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB [continued]

**Sensitivity of the School's Proportionate Share of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates:** The following presents the School's proportionate share of the net OPEB liability as well as what the School's proportionate share of the net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rates:

Plan	1% Decrease	Healthcare Trend	1% Increase
Proportionate share of healthcare trend liability of Thomas A. Edison Charter School:			
Fiscal Year 2021 [Healthcare Rate at 5.50%]	<u>\$ 14,987,547</u>	<u>\$ 18,323,910</u>	<u>\$ 22,717,355</u>
Fiscal Year 2020 [Healthcare Rate at 5.60%]	<u>\$ 17,906,570</u>	<u>\$ 19,082,936</u>	<u>\$ 20,877,174</u>

**NOTE 10 - COMMITMENTS AND CONTINGENCIES**

In the normal course of business, there are outstanding various commitments and contingent liabilities in addition to the normal encumbrances for the purchase of goods and services. The school does not anticipate significant losses from these transactions.

Government Awards

The School participates in certain state and local awards not subject to the audit requirements under the Uniform Guidance. These awards may be subjected to oversight audits by the grantors and/or their representatives. No audits of these awards have been conducted as of June 30, 2022. Accordingly, the School's compliance with applicable award requirements will be established at some future date. The amount of costs which may be disallowed by these agencies cannot be determined at this time although the School expects such amounts, if any, not to be significant to the financial statements.

Government Awards Subject to the Uniform Guidance

The School participates in certain federal grant awards subject to the audit requirements under the Uniform Guidance. A compliance audit of the federal grant awards was conducted under the Uniform Guidance as of and for the year ended June 30, 2022. The compliance audit did not identify any questioned costs; however, questioned costs may exist which have not been identified. The amount of costs not identified which could be disallowed by federal agencies at some future date cannot be determined at this time although the school expects such amounts, if any, not to be significant to the financial statements.

Leasing Arrangements

The School has leasing arrangements for certain office equipment. These arrangements are usually for a period of three years and are generally not significant to the basic financial statements.

**NOTE 11 - LEASING ARRANGEMENTS**

The **component unit** leases the land and building shell from an unrelated third party under the terms of an operating leasing arrangement dated August 25, 1999. The arrangement has a term of 45 years, commencing September 1, 2000 [original commitment date was September 1, 1999] and ending August 31, 2044. Thereafter, the lessee shall have the right and option to extend the term of this lease for five consecutive extended terms of ten years each [the "extended terms"] unless and until this lease shall be sooner terminated. The annual lease payment is due and payable the first day of each lease year as follows:

Periods	Amount
First 5 years	\$1 per annum
6th through 10th year	Not to exceed \$10,000
11th through 15th year	\$15,000 per annum
16th through 20th year	\$20,000 per annum
21st through 25th year	\$25,000 per annum
26th through 45th year	To be negotiated

At June 30, 2022, the minimum future rental payments required under the leasing arrangement having remaining terms in excess of one year for the remaining years in the aggregate are:

Years Ending June 30	Amount
2023	\$ 25,000
2024	25,000
Minimum future lease payments required	<u>\$ 50,000</u>

The **Component Unit** in turn subleases the property to the school on a month-to-month arrangement. Total rental revenue under the leasing arrangement amounted to \$292,922 and \$292,922 for years ended June 30, 2022 and 2021, respectively.

**NOTE 12 - GASB STATEMENT IMPLEMENTATION**

In June of 2017, GASB issued Statement No. 87, *Leases*. Implementation was originally required for periods beginning after December 15, 2019, with earlier application encouraged. GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, postponed the effective date of required implementation by eighteen months to periods beginning after June 15, 2021. The objective of the Statement is to better meet the information needs of the financial statement users by improving the accounting and financial reporting for leases by governments. The Statement establishes a single model for lease accounting based on the principle that leases are financing of the right to use an underlying asset. Implementation of the Statement had no significant impact on the financial statements.

In January of 2020, GASB issued Statement No. 92, *Omnibus 2020*. Implementation for requirements related to Statement No. 87 was originally effective for fiscal years beginning after December 15, 2019. Implementation for requirements related to Statements No. 73, 74, and 84 was originally effective for fiscal years beginning after June 15, 2020. GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, postponed the effective date of required implementation by one year. The primary objective of the Statement is to improve the consistency of authoritative literature by addressing practice issues that have been identified during implementation and application of certain GASB statements. Implementation of the Statement had no significant impact on the financial statements.

**NOTE 12 - GASB STATEMENT IMPLEMENTATION** [continued]

In June of 2020, GASB issued Statement No. 97, *Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans*. Implementation is required for periods ending after June 15, 2021, with earlier application encouraged. The primary objectives of the Statement are to [1] increase consistency and comparability related to the reporting of fiduciary component units in circumstances in which a potential component unit does not have a governing board and the primary government performs the duties that a governing board typically would perform; [2] mitigate costs associated with the reporting of certain defined contribution pension plans, defined contribution other postemployment benefit [OPEB] plans, and employee benefit plans other than pension plans or OPEB plans [other employee benefit plans] as fiduciary component units in fiduciary fund financial statements; and [3] enhance the relevance, consistency, and comparability of the accounting and financial reporting for Internal Revenue Code [IRC] Section 457 deferred compensation plans [Section 457 plans] that meet the definition of a pension plan and for benefits provided through those plans. Implementation of the Statement had no significant impact on the financial statements.

**NOTE 13 - PENDING GASB STATEMENTS**

The school has not completed the various analyses required to estimate the future impact of the following new pronouncements on its financial statements. Generally, the School does not early implement GASB statements and pronouncements.

In May of 2019, GASB issued Statement No. 91, *Conduit Debt Obligations*. Implementation was originally required for periods beginning after December 15, 2020, with earlier application encouraged. GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, postponed the effective date of required implementation by one year to periods beginning after December 15, 2021. The primary objectives of the Statement are to provide a single method of reporting conduit debt obligations by issuers and eliminate diversity in practices associated with [1] commitments extended by issuers, [2] arrangements associated with conduit debt obligations, and [3] related note disclosures. The Statement achieves the objectives by clarifying the existing definition of a conduit debt obligation; establishing that a conduit debt obligation is not a liability of the issuer; establishing standards for accounting and financial reporting of additional commitments and voluntary commitments extended by issuers and arrangements associated with conduit debt obligations; and improving required note disclosures.

In March of 2020, GASB issued Statement No. 93, *Replacement of Interbank Offered Rates*. Implementation was originally required for periods ending after December 31, 2021, with earlier application encouraged. GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, postponed the effective date of required implementation by one year to periods ending after December 31, 2022. The primary objective of the Statement is to address those and other accounting and financial reporting implications that result from the replacement of an IBOR.

In March of 2020, GASB issued Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*. Implementation was originally required for periods ending after June 15, 2022, with earlier application encouraged. GASB Statement No. 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, postponed the effective date of required implementation by one year to periods ending after June 15, 2023. The primary objective of the Statement is to better meet the informational needs of financial statement users by improving comparability of financial statements among governments that enter into PPPs and APAs and by enhancing the understandability, reliability, relevance, and consistency of information about PPPs and APAs.

In March of 2020, GASB issued Statement No. 96, *Subscription-Based Information Technology Arrangements*. Implementation is required for periods ending after June 15, 2022, with earlier application encouraged. The primary objective of the Statement is to better meet the informational needs of financial statement users by [1] establishing uniform accounting and financial reporting requirements for SBITAs; [2] improving the comparability of financial statements among governments that have entered into SBITAs; and [3] enhancing understandability, reliability, relevance, and consistency of information about SBITAs.

**NOTE 13 - PENDING GASB STATEMENTS** [continued]

In October of 2021, GASB issued Statement No. 98, *The Annual Comprehensive Financial Report*. Implementation is required for periods ending after December 31, 2021, with earlier application encouraged. The primary objective of the Statement is to replace the term comprehensive annual financial report with annual comprehensive financial report (ACFR).

In June of 2022, GASB issued Statement No. 100, *Accounting Changes and Error Corrections*. Implementation is required for periods ending after June 15, 2024, earlier application encouraged. The primary objective of this Statement is to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability.

In June of 2022, GASB issued Statement No. 101, *Compensated Absences*. Implementation is required for periods ending after December 15, 2024, earlier application encouraged. The objective of this Statement is to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures.

**NOTE 14 - RECLASSIFICATIONS**

Certain amounts in the basic financial statements, related disclosures, and supplementary information have been reclassified for comparative purposes to conform with the current year financial statement presentation.

**NOTE 15 - EVALUATION OF SUBSEQUENT EVENTS**

Management has evaluated all subsequent events through the date of the auditor's report, the date on which the financial statements were available to be issued. Management has determined that no additional disclosures or adjustments are necessary to the basic financial statements.

**Required Supplementary Information [RSI] Section**



**THOMAS A. EDISON CHARTER SCHOOL**

**SCHEDULE OF REVENUES, EXPENDITURES AND CHANGE IN FUND BALANCE-BUDGET AND ACTUAL-GENERAL FUND  
Year Ended June 30, 2022**

	Budgeted Amounts		Actual Amounts	Variance with Final Budget	
	Original	Final		Favorable (Unfavorable)	
<b>REVENUES</b>					
Charges to school districts	\$ 3,088,405	\$ 3,088,405	\$ 2,926,947	\$ (161,458)	
State funding-allocation	4,660,337	4,660,337	4,723,439	63,102	
State funding-other	508,191	508,191	790,429	282,238	1
Federal funding	2,955,092	2,955,092	2,142,818	(812,274)	1
Earnings on cash and equivalents	70,000	70,000	-	(70,000)	2
Miscellaneous revenues	21,500	21,500	192,819	171,319	3
<b>Total revenues</b>	<b>11,303,525</b>	<b>11,303,525</b>	<b>10,776,452</b>	<b>(527,073)</b>	
<b>EXPENDITURES</b>					
Current:					
Salaries	4,636,031	4,636,031	4,626,539	9,492	
Employment costs	2,217,044	2,217,044	2,214,137	2,907	
Travel	17,350	17,350	24,866	(7,516)	1
Contracted services	699,360	699,360	598,666	100,694	1
Communications	18,200	18,200	10,565	7,635	4
Public utility services	170,000	170,000	106,436	63,564	4
Insurance	54,000	54,000	49,357	4,643	
Transportation	708,000	708,000	716,052	(8,052)	
Land/Building/Facilities	857,170	857,170	934,075	(76,905)	
Repairs and maintenance	172,000	172,000	209,971	(37,971)	4
Other contracted services	132,000	132,000	87,233	44,767	1
Supplies and materials	369,000	369,000	335,033	33,967	
Operating supplies	80,000	80,000	78,096	1,904	
Food service	-	-	5,558	(5,558)	
Contingency	139,000	139,000	-	139,000	
Capital outlay	1,088,359	1,088,359	589,019	499,340	1
<b>Total expenditures</b>	<b>11,357,514</b>	<b>11,357,514</b>	<b>10,585,603</b>	<b>771,911</b>	
<b>EXCESS (DEFICIT) REVENUES OVER EXPENDITURES</b>	<b>(53,989)</b>	<b>(53,989)</b>	<b>190,849</b>	<b>244,838</b>	
<b>OTHER FINANCING SOURCES (USES)</b>					
Christina School District settlement	63,704	63,704	78,283	14,579	
<b>Total other financing sources (uses)</b>	<b>63,704</b>	<b>63,704</b>	<b>78,283</b>	<b>14,579</b>	
<b>NET CHANGE IN FUND BALANCES</b>	<b>9,715</b>	<b>9,715</b>	<b>269,132</b>	<b>259,417</b>	
<b>FUND BALANCES</b>					
Beginning of year	-	-	3,801,293	3,801,293	
End of year	\$ 9,715	\$ 9,715	\$ 4,070,425	\$ 4,060,710	

Continued

See Report of Independent Auditor

**THOMAS A. EDISON CHARTER SCHOOL**

**SCHEDULE OF REVENUES, EXPENDITURES AND CHANGE IN FUND BALANCE-BUDGET AND ACTUAL-GENERAL FUND (CONTINUED)**

Year Ended June 30, 2022

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**SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

The school annually adopts a budget for the general fund. The budget is integrated into the accounting system, and the budgetary data, as presented in the financial statements for all funds with annual budgets, compares the expenditures with the amended budgets. Budgets for governmental funds are presented on the modified accrual basis of accounting. Accordingly, the accompanying budgetary comparison schedule for the general fund presents actual expenditures in accordance with the accounting principles generally accepted in the United States of America on a basis consistent with the legally adopted budgets as amended. Generally, unexpended appropriations on annual budgets lapse at the end of each fiscal year.

Significant Variances Compared to Budget of 10% and Above

1. The favorable variance in State funding is a result of increased support due to the impact of the COVID pandemic. The unfavorable variance in Federal funding is due to delay by the school in spending the COVID pandemic funding received. The expenditures line items respectively increased or decreased due to the level of such funding.
2. The unfavorable variance in earnings on cash and equivalents is a result of actions taken by the Federal Reserve Bank by keeping interest rates low.
3. The favorable variance in the miscellaneous revenues line item is due to better-than-expected budgeted results. The significant cause of the variance is due to a one-time funding of \$160,000 from the School's Foundation to provide COVID pandemic bonuses to employees of the School. This category of revenue is generally difficult to budget given its nature of unpredictability.
4. The favorable and unfavorable variances in expenditures are due to the disruption of normal School activities arising from the COVID pandemic.

See Report of Independent Auditor

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**THOMAS A. EDISON CHARTER SCHOOL**  
**SCHEDULES OF PROPORTIONATE SHARE OF NET PENSION LIABILITY**  
As of and Years Ended June 30,

	2022	2021	2020	2019
School's proportion of net pension liability/(asset)	0.1881%	0.1878%	0.1879%	0.1960%
School's proportionate share of net pension liability/(asset)	\$ (2,292,180)	\$ 2,639,436	\$ 2,965,834	\$ 2,531,620
School's covered-employee payroll	\$ 4,183,982	\$ 4,137,872	\$ 4,039,646	\$ 4,029,520
School's proportionate share of net pension liability/(asset) as a percentage of its covered-employee payroll	-54.78%	63.79%	73.42%	62.83%
Plan's fiduciary net position as percentage of total pension liability	110.48%	87.27%	85.41%	87.49%
	2018	2017	2016	2015
School's proportion of net pension liability/(asset)	0.1929%	0.1910%	0.1987%	0.1968%
School's proportionate share of net pension liability/(asset)	\$ 2,828,473	\$ 2,877,704	\$ 1,321,860	\$ 724,534
School's covered-employee payroll	\$ 3,931,516	\$ 3,852,415	\$ 3,932,693	\$ 3,794,866
School's proportionate share of net pension liability/(asset) as a percentage of its covered-employee payroll	71.94%	74.70%	33.61%	19.09%
Plan's fiduciary net position as percentage of total pension liability	85.31%	84.11%	92.67%	95.80%

**Note to Schedule:**

The amounts presented above are determined as of June 30th of each preceding year.

See Report of Independent Auditor

**THOMAS A. EDISON CHARTER SCHOOL**  
**SCHEDULES OF PENSION CONTRIBUTIONS**  
Years Ended June 30,

	2022	2021	2020	2019
Contractually required contribution	\$ 550,002	\$ 506,866	\$ 484,118	\$ 467,629
Contributions in relation to contractually required contribution	550,002	506,866	484,118	467,629
Annual contribution (deficiency) excess	\$ -	\$ -	\$ -	\$ -
School's covered-employee payroll	\$ 4,627,836	\$ 4,183,982	\$ 4,137,872	\$ 4,039,646
Contributions as percentage of covered-employee payroll	11.88%	12.11%	11.70%	11.58%
	2018	2017	2016	2015
Contractually required contribution	\$ 405,547	\$ 360,069	\$ 348,903	\$ 354,261
Contributions in relation to contractually required contribution	405,547	360,069	348,903	354,261
Annual contribution (deficiency) excess	\$ -	\$ -	\$ -	\$ -
School's covered-employee payroll	\$ 4,029,520	\$ 3,931,516	\$ 3,852,415	\$ 3,932,693
Contributions as percentage of covered-employee payroll	10.06%	9.16%	9.06%	9.01%

See Report of Independent Auditor

**THOMAS A. EDISON CHARTER SCHOOL**  
 SCHEDULES OF PROPORTIONATE SHARE OF NET OPEB LIABILITY  
 Years Ended June 30,

	2022	2021	2020	2019	2018
School's proportion of net OPEB liability/(asset)	<u>0.1817%</u>	<u>0.1833%</u>	<u>0.1911%</u>	<u>0.1885%</u>	<u>0.1851%</u>
School's proportionate share of net OPEB liability/(asset)	<u>\$18,323,910</u>	<u>\$19,082,936</u>	<u>\$14,776,634</u>	<u>\$15,686,338</u>	<u>\$15,563,982</u>
School's covered-employee payroll	<u>\$ 4,183,982</u>	<u>\$ 4,137,872</u>	<u>\$ 4,039,646</u>	<u>\$ 4,029,520</u>	<u>\$ 3,931,516</u>
School's proportionate share of net OPEB liability/(asset) as a percentage of its covered-employee payroll	<u>437.95%</u>	<u>461.18%</u>	<u>365.79%</u>	<u>389.29%</u>	<u>395.88%</u>
Plan's fiduciary net position as percentage of total OPEB liability	<u>0.06%</u>	<u>0.04%</u>	<u>0.05%</u>	<u>0.05%</u>	<u>0.04%</u>
	<u>2017</u>				
School's proportion of net OPEB liability/(asset)	<u>0.1851%</u>				
School's proportionate share of net OPEB liability/(asset)	<u>\$16,810,307</u>				
School's covered-employee payroll	<u>\$ 3,852,415</u>				
School's proportionate share of net OPEB liability/(asset) as a percentage of its covered-employee payroll	<u>436.36%</u>				
Plan's fiduciary net position as percentage of total OPEB liability	<u>0.03%</u>				

**Note to Schedule:**

The amounts presented above are determined as of June 30th of each preceding year.

See Report of Independent Auditor

**THOMAS A. EDISON CHARTER SCHOOL**  
**SCHEDULES OF OPEB CONTRIBUTIONS**  
Years Ended June 30,

	2022	2021	2020	2019	2018
Contractually required contribution	\$ 507,180	\$ 485,183	\$ 506,463	\$ 465,993	\$ 429,169
Contributions in relation to contractually required contribution	<u>507,180</u>	<u>485,183</u>	<u>506,463</u>	<u>465,993</u>	<u>429,169</u>
Annual contribution (deficiency) excess	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
School's covered-employee payroll	<u>\$ 4,627,836</u>	<u>\$ 4,183,982</u>	<u>\$ 4,137,872</u>	<u>\$ 4,039,646</u>	<u>\$ 4,029,520</u>
Contributions as percentage of covered-employee payroll	<u>10.96%</u>	<u>11.60%</u>	<u>12.24%</u>	<u>11.54%</u>	<u>10.65%</u>
	2017				
Contractually required contribution	\$ 447,223				
Contributions in relation to contractually required contribution	<u>447,223</u>				
Annual contribution (deficiency) excess	<u>\$ -</u>				
School's covered-employee payroll	<u>\$ 3,931,516</u>				
Contributions as percentage of covered-employee payroll	<u>11.38%</u>				

See Report of Independent Auditor

## **Supplementary Information Section**

**THOMAS A. EDISON CHARTER SCHOOL**  
BALANCE SHEETS-GENERAL FUND  
As of June 30, 2022 and 2021

	2022				2021			
	State Fund	Local Fund	Federal Fund	Total General Fund	State Fund	Local Fund	Federal Fund	Total General Fund
<b>ASSETS</b>								
Cash and equivalents:								
Unrestricted	\$ 116,078	\$ 3,696,323	\$ -	\$ 3,812,401	\$ 220,720	\$ 3,481,006	\$ -	\$ 3,701,726
Restricted	388,853	373,884	-	762,737	314,936	298,639	-	613,575
Receivables-other	-	450	-	450	-	-	-	-
Due from other governments	-	-	72,114	72,114	-	-	14,530	14,530
Prepayments and other assets	10,030	-	-	10,030	-	-	-	-
Due from component unit	7,313	-	-	7,313	-	-	-	-
<b>TOTAL ASSETS</b>	<b>\$ 522,274</b>	<b>\$ 4,070,657</b>	<b>\$ 72,114</b>	<b>\$ 4,665,045</b>	<b>\$ 535,656</b>	<b>\$ 3,779,645</b>	<b>\$ 14,530</b>	<b>\$ 4,329,831</b>
<b>LIABILITIES</b>								
Accounts payable	\$ 54,331	\$ 4,010	\$ 72,114	\$ 130,455	\$ 75,345	\$ -	\$ 14,530	\$ 89,875
Accrued salaries and related costs	439,755	-	-	439,755	438,663	-	-	438,663
Due to component unit	24,410	-	-	24,410	-	-	-	-
<b>Total liabilities</b>	<b>518,496</b>	<b>4,010</b>	<b>72,114</b>	<b>594,620</b>	<b>514,008</b>	<b>-</b>	<b>14,530</b>	<b>528,538</b>
<b>FUND BALANCES</b>								
Restricted-specific programs	388,853	373,884	-	762,737	314,936	298,639	-	613,575
Committed-encumbered	-	32,761	-	32,761	147,098	3,302	-	150,400
Unassigned	(385,075)	3,660,002	-	3,274,927	(440,386)	3,477,704	-	3,037,318
<b>Total fund balances</b>	<b>3,778</b>	<b>4,066,647</b>	<b>-</b>	<b>4,070,425</b>	<b>21,648</b>	<b>3,779,645</b>	<b>-</b>	<b>3,801,293</b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>\$ 522,274</b>	<b>\$ 4,070,657</b>	<b>\$ 72,114</b>	<b>\$ 4,665,045</b>	<b>\$ 535,656</b>	<b>\$ 3,779,645</b>	<b>\$ 14,530</b>	<b>\$ 4,329,831</b>

See Report of Independent Auditor



**THOMAS A. EDISON CHARTER SCHOOL**  
**STATEMENTS OF REVENUES, EXPENDITURES AND CHANGE IN FUND BALANCES-GENERAL FUND**  
Years Ended June 30, 2022 and 2021

	2022				2021			
	State Fund	Local Fund	Federal Fund	Total General Fund	State Fund	Local Fund	Federal Fund	Total General Fund
<b>REVENUES</b>								
Charges to school districts	\$ -	\$ 2,926,947	\$ -	\$ 2,926,947	\$ -	\$ 3,049,266	\$ -	\$ 3,049,266
State funding-allocation	4,723,439	-	-	4,723,439	4,601,262	-	-	4,601,262
State funding-other	678,182	112,247	-	790,429	762,968	104,156	-	867,124
Federal funding	-	-	2,142,818	2,142,818	-	-	1,961,320	1,961,320
Earnings on cash and equivalents	-	-	-	-	-	34,205	-	34,205
Program services fees	-	-	-	-	-	-	-	-
Miscellaneous revenues	-	192,819	-	192,819	-	49,873	-	49,873
<b>Total revenues</b>	<b>5,401,621</b>	<b>3,232,013</b>	<b>2,142,818</b>	<b>10,776,452</b>	<b>5,364,230</b>	<b>3,237,500</b>	<b>1,961,320</b>	<b>10,563,050</b>
<b>EXPENDITURES</b>								
Current:								
Salaries	2,121,146	1,749,634	755,759	4,626,539	2,543,610	1,197,448	496,227	4,237,285
Employment costs	1,065,413	822,093	326,631	2,214,137	1,228,637	587,363	225,317	2,041,317
Travel	-	1,263	23,603	24,866	-	35	-	35
Contracted services	158,954	46,707	393,005	598,666	148,437	40,317	246,577	435,331
Communications	799	9,766	-	10,565	6,520	10,852	2,394	19,766
Public utility services	99,471	6,965	-	106,436	90,227	-	-	90,227
Insurance	49,423	(66)	-	49,357	42,679	-	-	42,679
Transportation	472,018	182,555	61,479	716,052	579,241	-	8,891	588,132
Land/Building/Facilities	877,273	10,927	45,875	934,075	797,773	2,144	33,407	833,324
Repairs and maintenance	125,393	63,112	21,466	209,971	64,121	173,292	37,097	274,510
Other contracted services	33,955	18,793	34,485	87,233	23,540	8,442	36,396	68,378
Supplies and materials	161,780	65,997	107,256	335,033	111,298	29,836	101,238	242,372
Operating supplies	14,882	33,742	29,472	78,096	(15,572)	15,220	616,671	616,319
Food services	-	5,558	-	5,558	-	-	-	-
Capital outlay	238,984	6,248	343,787	589,019	52,827	19,115	157,105	229,047
<b>Total expenditures</b>	<b>5,419,491</b>	<b>3,023,294</b>	<b>2,142,818</b>	<b>10,585,603</b>	<b>5,673,338</b>	<b>2,084,064</b>	<b>1,961,320</b>	<b>9,718,722</b>
<b>EXCESS (DEFICIT) REVENUES OVER EXPENDITURES</b>	<b>(17,870)</b>	<b>208,719</b>	<b>-</b>	<b>190,849</b>	<b>(309,108)</b>	<b>1,153,436</b>	<b>-</b>	<b>844,328</b>
<b>OTHER FINANCING SOURCES (USES)</b>								
Christina School District settlement	-	78,283	-	78,283	-	77,853	-	77,853
<b>Total other financing sources</b>	<b>-</b>	<b>78,283</b>	<b>-</b>	<b>78,283</b>	<b>-</b>	<b>77,853</b>	<b>-</b>	<b>77,853</b>
<b>NET CHANGE IN FUND BALANCES</b>	<b>(17,870)</b>	<b>287,002</b>	<b>-</b>	<b>269,132</b>	<b>(309,108)</b>	<b>1,231,289</b>	<b>-</b>	<b>922,181</b>
<b>FUND BALANCES</b>								
Beginning of year	21,648	3,779,645	-	3,801,293	330,756	2,548,356	-	2,879,112
End of year	\$ 3,778	\$ 4,066,647	\$ -	\$ 4,070,425	\$ 21,648	\$ 3,779,645	\$ -	\$ 3,801,293

See Report of Independent Auditor

**Reports Required by  
the Uniform Guidance**



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**Report of Independent Auditor  
on Internal Control over Financial Reporting and on Compliance  
and Other Matters Based on an Audit of the Financial Statements  
Performed in Accordance with Government Auditing Standards**

Members of the School Board  
Thomas A. Edison Charter School  
Wilmington, Delaware

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the governmental activities, the discretely presented component unit, each major fund, and the aggregate remaining fund information of Thomas A. Edison Charter School [a component unit of the State of Delaware], as of and for the year ended June 30, 2022, and the related notes to the financial statements, which collectively comprise Thomas A. Edison Charter School's basic financial statements, and have issued our report thereon dated October 21, 2022.

**Internal Control Over Financial Reporting**

In planning and performing our audit of the financial statements, we considered Thomas A. Edison Charter School's internal control over financial reporting [internal control] to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of Thomas A. Edison Charter School's internal control. Accordingly, we do not express an opinion on the effectiveness of Thomas A. Edison Charter School's internal control.

A *deficiency* in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the School's financial statements will not be prevented or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

**Compliance and Other Matters**

As part of obtaining reasonable assurance about whether Thomas A. Edison Charter School's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

To Members of the School Board  
Thomas A. Edison Charter School

**Purpose of This Report**

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the result of that testing, and not to provide an opinion on the effectiveness of Thomas A. Edison Charter School's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Thomas A. Edison Charter School's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

*Whisman Giordano & Associates, LLC*

Newark, Delaware  
October 21, 2022



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**Report of Independent Auditor  
on Compliance for Each Major Program  
and on Internal Control Over Compliance  
and Schedule of Expenditures of Federal Awards  
Required by the Uniform Guidance**

Members of the School Board  
Thomas A. Edison Charter School  
Wilmington, Delaware

**Report on Compliance for Each Major Federal Program**

***Opinion on Each Major Federal Program***

We have audited Thomas A. Edison Charter School's compliance with types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on Thomas A. Edison Charter School's major federal program for the year ended June 30, 2022. Thomas A. Edison Charter School's major federal program is identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, Thomas A. Edison Charter School complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on its major federal program for the year ended June 30, 2022.

***Basis for Opinion on Each Major Federal Program***

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America (GAAS); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States (*Government Auditing Standards*); and the audit requirements of Title 2 U.S. Code of Federal Regulations Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditor's Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of Thomas A. Edison Charter School and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for its major federal program. Our audit does not provide a legal determination of Thomas A. Edison Charter School's compliance with the compliance requirements referred to above.

***Responsibilities of Management for Compliance***

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules, and provisions of contracts or grant agreements applicable to Thomas A. Edison Charter School's federal programs.

### **Auditor's Responsibilities for the Audit of Compliance**

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on Thomas A. Edison Charter School's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material, if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about Thomas A. Edison Charter School's compliance with the requirements of its major federal program as a whole.

In performing an audit in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding Thomas A. Edison Charter School's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.
- Obtain an understanding of Thomas A. Edison Charter School's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of Thomas A. Edison Charter School's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and weaknesses in internal control over compliance that we identified during the audit.

### **Report on Internal Control Over Compliance**

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, it is not suitable for any other purpose.

Members of the School Board  
Thomas A. Edison Charter School

**Report of Schedule of Expenditures of Federal Awards Required by the Uniform Guidance**

We have audited the financial statements of the governmental activities, the discretely presented component unit, each major fund, and the aggregate remaining fund information of Thomas A. Edison Charter School, as of and for the year ended June 30, 2022, and the related notes to the financial statements, which collectively comprise Thomas A. Edison Charter School's basic financial statements. We issued our report thereon dated October 21, 2022 to, which contained unmodified opinions on those financial statements. Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the basic financial statements. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by the Uniform Guidance and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.

*Whisman Giordano & Associates, LLC*

Newark, Delaware  
October 21, 2022

**THOMAS A. EDISON CHARTER SCHOOL**  
**SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS AND RELATED DISCLOSURES**  
Year Ended June 30, 2022

Federal Grantor/ Pass-Through Grantor Project Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Federal Expenditures
<b>U.S. DEPARTMENT OF AGRICULTURE</b>			
Passed through State of Delaware, Department of Education [DOE]: Pandemic EBT Administrative Costs (ESSER III - Bus Driver Rentention)	<b>10.649</b>	ESSER III FSF-40820	4,050
<b>TOTAL U.S. DEPARTMENT OF AGRICULTURE</b>			<u>\$ 4,050</u>
<b>U.S. DEPARTMENT OF EDUCATION</b>			
Passed through State of Delaware, Department of Education [DOE]: Title I Grants to Local Educational Agencies	<b>84.010</b>	Title I FSF-40554	\$ 492,119
Special Education Grants to States	<b>84.027</b>	IDEA FSF-40564	203,557
Special Education Grants to States	<b>84.027</b>	FSF-40565	1,568
21st Century Community Learning Centers	<b>84.287</b>	21st Century FSF-40240	280,415
Supporting Effective Instruction State Grants	<b>84.367</b>	TITLE II FSF-40114	110,348
Student Support and Academic Enrichment Program	<b>84.424</b>	TITLE IV FSF-40532	58,079
Elementary and Secondary School Emergency Relief (ARP ESSER) Fund [1]	<b>84.425D</b>	ESSER FSF-40730	967,543
Governor's Emergency Education Relief (GEER) Fund [1]	<b>84.425C</b>	GEER FSF-40768	25,139
<b>TOTAL U.S. DEPARTMENT OF EDUCATION</b>			<u>\$ 2,138,768</u>
<b>TOTAL EXPENDITURES OF FEDERAL AWARDS</b>			<u>\$ 2,142,818</u>

[1] - Indicates Education Stabilization Fund (ESF) Cluster

**NOTE 1 - BASIS OF PRESENTATION**

The accompanying schedule of expenditures of federal awards [the Schedule] includes the federal award activity of Thomas A. Edison Charter School under programs of the federal government for the year ended June 30, 2022. The information in this Schedule is presented in accordance with the requirements of Title 2 U.S. Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards [Uniform Guidance]. Because the Schedule represents only a selected portion of the operation of Thomas A. Edison Charter School, it is not intended to and does not present the financial position, change in net assets, or cash flows of Thomas A. Edison Charter School.

**NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

Expenditures reported on this Schedule are reflected on the modified accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. Thomas A. Edison Charter School has elected to use the 10 percent de minimis indirect cost rate allowed under the Uniform Guidance.



**SECTION I - SUMMARY OF AUDITOR'S RESULTS**

**Financial Statements**

Type of auditor's report issued [*unmodified, modified, adverse, or disclaimer*].

unmodified

Internal control over financial reporting:

-Material weakness(es) identified?

       yes        x   no

-Significant deficiency(ies) identified?

       yes        x   none reported

Noncompliance material to financial statements noted?

       yes        x   no

**Federal Awards**

Internal control over major programs:

-Material weakness(es) identified?

       yes        x   no

-Significant deficiency(ies) identified?

       yes        x   none reported

Type of auditor's report issued on compliance for major programs [*unmodified, modified, adverse, or disclaimer*].

unmodified

Any audit findings disclosed that are required to be reported in accordance with the Uniform Guidance?

       yes        x   no

Identification of major programs:

CFDA Number	Name of Federal Program or Cluster
84.425D	Elementary and Secondary School Emergency Relief (ARP ESSER) Fund
84.425C	Governor's Emergency Education Relief (GEER) Fund

Dollar threshold used to distinguish between type A and type B programs:

\$750,000

Auditee qualified as low-risk auditee?

  x   yes             no

**SECTION II - FINDINGS-FINANCIAL STATEMENT AUDIT**

None reported.

**SECTION III - FINDINGS AND QUESTIONED COSTS-MAJOR FEDERAL AWARD PROGRAM AUDIT**

None reported.

**THOMAS A. EDISON CHARTER SCHOOL**  
SCHEDULE OF PRIOR AUDIT FINDINGS AND QUESTIONED COSTS  
Year Ended June 30, 2022

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**SECTION II - FINDINGS-FINANCIAL STATEMENT AUDIT**

None reported or outstanding.

**SECTION III - FINDINGS AND QUESTIONED COSTS-MAJOR FEDERAL AWARD PROGRAM AUDIT**

None reported or outstanding.