

Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Ratios, Rates, and Percents	Operations with Fractions and Multi-Digit Numbers	Rational Numbers	Expressions and One-Step Equations	Area, Surface Area, and Volume	Statistics
<p>Topic A: Ratios</p> <p>Lesson 1: Jars of Jelly Beans</p> <ul style="list-style-type: none"> Use multiplicative reasoning to estimate the solution to a real-world problem. <p>6.RP.A.3, MP3, 6.Mod1.AD3</p> <p>Lesson 2: Introduction to Ratios</p> <ul style="list-style-type: none"> Write ratios that relate two quantities as an ordered pair of numbers. Use ratio language to compare two quantities. <p>6.RP.A.1, MP2, 6.Mod1.AD1</p> <p>Lesson 3: Ratios and Tape Diagrams</p> <ul style="list-style-type: none"> Write multiple ratios to describe the same situation. Represent ratios with tape diagrams. <p>6.RP.A.1, 6.RP.A.3, MP6, 6.Mod1.AD1, 6.Mod1.AD3</p> <p>Lesson 4: Exploring Ratios by Making Batches</p> <ul style="list-style-type: none"> Create ratios by making batches of different quantities. Use tape diagrams to determine unknown quantities in ratios. 	<p>Topic A: Factors, Multiples, and Divisibility</p> <p>Lesson 1: Factors and Multiples</p> <ul style="list-style-type: none"> Use visual models to determine common factors and common multiples of pairs of numbers. <p>6.NS.B.4, MP8, 6.Mod2.AD12, 6.Mod2.AD13</p> <p>Lesson 2: Divisibility</p> <ul style="list-style-type: none"> Determine whether numbers are divisible by other numbers. <p>6.NS.B.4, MP3, 6.Mod2.AD12, 6.Mod2.AD13</p> <p>Lesson 3: The Greatest Common Factor</p> <ul style="list-style-type: none"> Determine the greatest common factor of two whole numbers less than or equal to 100. <p>6.NS.B.4, MP7, 6.Mod2.AD12</p> <p>Lesson 4: The Least Common Multiple</p> <ul style="list-style-type: none"> Find the least common multiple of two whole numbers less than or equal to 12. <p>6.NS.B.4, MP6, 6.Mod2.AD13</p>	<p>Topic A: Integers and Rational Numbers</p> <p>Lesson 1: Positive and Negative Numbers</p> <ul style="list-style-type: none"> Represent quantities in real-world situations by using positive and negative numbers. Plot positive numbers, negative numbers, and 0 on horizontal and vertical number lines. <p>6.NS.C.5, MP2, 6.Mod3.AD1</p> <p>Lesson 2: Integers</p> <ul style="list-style-type: none"> Plot integers and their opposites on horizontal and vertical number lines and identify 0 as its own opposite. Identify the opposite of the opposite of a number. <p>6.NS.C.6.a, MP7, 6.Mod3.AD2, 6.Mod3.AD3</p> <p>Lesson 3: Rational Numbers</p> <ul style="list-style-type: none"> Plot rational numbers on horizontal and vertical number lines. Identify the locations of rational numbers plotted on horizontal and vertical number lines. 	<p>Topic A: Numerical Expressions</p> <p>Lesson 1: Expressions with Addition and Subtraction</p> <ul style="list-style-type: none"> Evaluate expressions with addition and subtraction. <p>6.EE.A.1, MP6, 6.Mod4.AD3</p> <p>Lesson 2: Expressions with Multiplication and Division</p> <ul style="list-style-type: none"> Evaluate expressions with multiplication and division. <p>6.EE.A.1, MP7, 6.Mod4.AD3</p> <p>Lesson 3: Exploring Exponents</p> <ul style="list-style-type: none"> Write numerical expressions by using exponential notation. <p>6.EE.A.1, MP3, 6.Mod4.AD3</p> <p>Lesson 4: Evaluating Expressions with Exponents</p> <ul style="list-style-type: none"> Evaluate numerical expressions written in exponential notation. <p>6.EE.A.1, MP7, 6.Mod4.AD3</p>	<p>Topic A: Areas of Polygons</p> <p>Lesson 1: The Area of a Parallelogram</p> <ul style="list-style-type: none"> Compose parallelograms into rectangles to derive the formula for the area of a parallelogram. Compute the area of a parallelogram by using the formula $A = bh$. <p>6.EE.A.2.c, 6.G.A.1, MP8, 6.Mod4.AD6, 6.Mod5.AD1</p> <p>Lesson 2: The Area of a Right Triangle</p> <ul style="list-style-type: none"> Compose two identical right triangles into a rectangle to derive the formula for the area of a right triangle. Compute the area of a right triangle by using the formula $A = \frac{1}{2}bh$. <p>6.EE.B.7, 6.G.A.1, MP3, 6.Mod4.AD13, 6.Mod5.AD1, 6.Mod5.AD2</p> <p>Lesson 3: The Area of a Triangle</p> <ul style="list-style-type: none"> Compose two identical triangles into a parallelogram to derive the formula for the area of a triangle. Compute the area of any triangle by using the formula $A = \frac{1}{2}bh$. 	<p>Topic A: Understanding Distributions</p> <p>Lesson 1: Posing Statistical Questions</p> <ul style="list-style-type: none"> Identify and write statistical questions. Identify the types of data that can be collected to answer a statistical question. <p>6.SP.A.1, 6.SP.B.5.b, MP6, 6.Mod6.AD1, 6.Mod6.AD6</p> <p>Lesson 2: Describing a Data Distribution</p> <ul style="list-style-type: none"> Given a dot plot, describe the center, spread, and other characteristics of the data distribution. <p>6.SP.A.2, 6.SP.B.5.a, MP2, 6.Mod6.AD2, 6.Mod6.AD5</p> <p>Lesson 3: Creating a Dot Plot</p> <ul style="list-style-type: none"> Create a dot plot and describe a data distribution. <p>6.SP.A.2, 6.SP.B.4, MP1, 6.Mod6.AD2, 6.Mod6.AD4</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

Module 2

Module 3

Module 4

Module 5

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

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

Module 2

Module 3

Module 4

Module 5

Module 6



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Module 1 Ratios and Proportional Relationships	Module 2 Operations with Rational Numbers	Module 3 Expressions, Equations, and Inequalities	Module 4 Geometry	Module 5 Percent and Applications of Percent	Module 6 Probability and Populations
<p>Topic A: Understanding Proportional Relationships</p> <p>Lesson 1: An Experiment with Ratios and Rates</p> <ul style="list-style-type: none"> Compare different relationships in situations by using ratio and rate reasoning. <p>7.RP.A.1, 7.RP.A.2.a, MP8, 7.Mod1.AD1, 7.Mod1.AD2</p> <p>Lesson 2: Exploring Tables of Proportional Relationships</p> <ul style="list-style-type: none"> Identify proportional relationships represented in tables by calculating constant unit rates. <p>7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.c, MP2, 7.Mod1.AD1, 7.Mod1.AD2, 7.Mod1.AD4</p> <p>Lesson 3: Identifying Proportional Relationships in Tables</p> <ul style="list-style-type: none"> Analyze tables to identify proportional relationships. Determine the unit rate associated with a ratio of fractions by evaluating a complex fraction. 	<p>Topic A: Adding Rational Numbers</p> <p>Lesson 1: Combining Opposites</p> <ul style="list-style-type: none"> Represent positive and negative numbers on a number line. Recognize that opposite integers sum to zero. <p>7.NS.A.1.a, 7.NS.A.1.b, MP8, 7.Mod2.AD2, 7.Mod2.AD4</p> <p>Lesson 2: Adding Integers</p> <ul style="list-style-type: none"> Write addition expressions involving integers. Add integers by using a model. <p>7.NS.A.1.b, MP8, 7.Mod2.AD3</p> <p>Lesson 3: Adding Integers Efficiently</p> <ul style="list-style-type: none"> Describe a number and its opposite as additive inverses because they sum to zero. Evaluate addition expressions with two or more addends. <p>7.NS.A.1.b, MP8, 7.Mod2.AD3, 7.Mod2.AD4, 7.Mod2.AD5</p> <p>Lesson 4: KAKOOMA®</p>	<p>Topic A: Equivalent Expressions</p> <p>Lesson 1: Equivalent Expressions</p> <ul style="list-style-type: none"> Generate equivalent expressions by using properties of operations. <p>7.EE.A.1, MP3, 7.Mod3.AD1</p> <p>Lesson 2: The Distributive Property and the Tabular Model</p> <ul style="list-style-type: none"> Generate equivalent expressions containing rational numbers by using the tabular model to represent the distributive property. <p>7.EE.A.1, 7.EE.A.2, MP3, 7.Mod3.AD1, 7.Mod3.AD2</p> <p>Lesson 3: The Distributive Property and Combining Like Terms</p> <ul style="list-style-type: none"> Generate equivalent expressions by applying the distributive property to combine like terms. <p>7.EE.A.1, MP6, 7.Mod3.AD1</p> <p>Lesson 4: Adding and Subtracting Expressions</p>	<p>Topic A: Constructing Geometric Figures</p> <p>Lesson 1: Sketching, Drawing, and Constructing Geometric Figures</p> <ul style="list-style-type: none"> Construct geometric figures with given conditions. Construct geometric figures by using technology. <p>7.G.A.2, MP5, 7.Mod4.AD1</p> <p>Lesson 2: Constructing Parallelograms and Other Quadrilaterals</p> <ul style="list-style-type: none"> Construct parallelograms and other quadrilaterals, given conditions. <p>7.G.A.2, MP6, 7.Mod4.AD1</p> <p>Lesson 3: Side Lengths of a Triangle</p> <ul style="list-style-type: none"> Determine whether a triangle with three given side lengths exists. Determine the relationship between the sum of two side lengths of a triangle and its third side length. <p>7.G.A.2, MP2, 7.Mod4.AD1, 7.Mod4.AD2</p>	<p>Topic A: Proportion and Percent</p> <p>Lesson 1: Proportionality and Scale Factor</p> <ul style="list-style-type: none"> Identify the scale factor of cross sections. <p>7.G.A.1, 7.RP.A.2.c, MP8, 7.Mod5.AD2, 7.Mod5.AD7</p> <p>Lesson 2: Racing of Percents</p> <ul style="list-style-type: none"> Identify proportional relationships and write the constant of proportionality as a percent. Identify percent as a rate per 100. <p>7.RP, 7.RP.A.3, MP7, 7.Mod5.AD1, 7.Mod5.AD3</p> <p>Lesson 3: Percent as a Rate per 100</p> <ul style="list-style-type: none"> Interpret percent as a rate per 100 when solving percent problems. <p>7.RP.A.3, MP5, 7.Mod5.AD3</p> <p>Lesson 4: Proportion and Percent</p> <ul style="list-style-type: none"> Solve percent problems by using equations in the forms $y = kx$ and $\frac{a}{b} = \frac{c}{d}$. <p>7.RP.A.2.c, 7.RP.A.3, MP3, 7.Mod5.AD2, 7.Mod5.AD3</p>	<p>Topic A: Calculating and Interpreting Probabilities</p> <p>Lesson 1: What Is Probability?</p> <ul style="list-style-type: none"> Find a number between 0 and 1 that represents the likelihood that an event will occur. <p>7.SP.C.5, MP2, 7.Mod6.AD5</p> <p>Lesson 2: Empirical Probability</p> <ul style="list-style-type: none"> Calculate empirical probabilities by collecting data from a chance experiment. <p>7.SP.C.6, MP6, 7.Mod6.AD6</p> <p>Lesson 3: Outcomes of Chance Experiments</p> <ul style="list-style-type: none"> Determine the sample space for chance experiments. Given a description of a chance experiment and an event, determine for which outcomes in the sample space the event will occur. <p>7.SP.C.6, MP2, 7.Mod6.AD6</p> <p>Lesson 4: Theoretical Probability</p> <ul style="list-style-type: none"> Calculate theoretical probabilities of events for chance experiments that have equally likely outcomes. <p>7.SP.C.7.a, MP6, 7.Mod6.AD8</p>

<p>7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.c, MP8, 7.Mod1.AD1, 7.Mod1.AD2, 7.Mod1.AD4</p> <p>Lesson 4: Exploring Graphs of Proportional Relationships</p> <ul style="list-style-type: none"> Identify proportional relationships represented as graphs. Interpret and makes sense of the point $(0, 0)$ in context. <p>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</p> <p>Lesson 5: Analyzing Graphs of Proportional Relationships</p> <ul style="list-style-type: none"> 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. <p>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</p> <p>Lesson 6: Identifying Proportional Relationships in Written Descriptions</p> <ul style="list-style-type: none"> Determine whether a written description represents a proportional relationship. <p>7.RP.A.2.a, 7.RP.A.2.b, MP2, 7.Mod1.AD2, 7.Mod1.AD3</p> <hr/> <p>Topic B: Working with Proportional Relationships</p> <p>Lesson 7: Handstand Sprint</p>	<ul style="list-style-type: none"> Add integers to solve and create puzzles. <p>7.NS.A.1.d, MP1, 7.Mod2.AD8</p> <p>Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient</p> <ul style="list-style-type: none"> Add rational numbers by decomposing them. <p>7.NS.A.1.b, 7.NS.A.1.d, MP3, 7.Mod2.AD3, 7.Mod2.AD8</p> <p>Lesson 6: Adding Rational Numbers</p> <ul style="list-style-type: none"> Fluently add rational numbers. <p>7.NS.A.1.b, 7.NS.A.1.d, MP5, 7.Mod2.AD3, 7.Mod2.AD8</p> <hr/> <p>Topic B: Subtracting Rational Numbers</p> <p>Lesson 7: What Subtraction Means</p> <ul style="list-style-type: none"> 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. <p>7.NS.A.1.c, MP7, 7.Mod2.AD7</p> <p>Lesson 8: Subtracting Integers, Part 1</p> <ul style="list-style-type: none"> Use expressions, number lines, and patterns to model contextual problems involving subtraction. Write subtraction expressions as equivalent addition expressions. <p>7.NS.A.1.b, 7.NS.A.1.c, MP2, 7.Mod2.AD5, 7.Mod2.AD6</p> <p>Lesson 9: Subtracting Integers, Part 2</p> <ul style="list-style-type: none"> Express subtraction of a number as addition of its opposite. 	<ul style="list-style-type: none"> Generate equivalent expressions by using properties of operations to add and subtract expressions. <p>7.EE.A.1, 7.EE.A.2, MP7, 7.Mod3.AD1, 7.Mod3.AD2</p> <p>Lesson 5: Factoring Expressions</p> <ul style="list-style-type: none"> Generate equivalent expressions by using the distributive property to factor. <p>7.EE.A.1, 7.EE.A.2, MP2, 7.Mod3.AD1, 7.Mod3.AD2</p> <p>Lesson 6: Comparing Expressions</p> <ul style="list-style-type: none"> Use properties of operations to determine whether expressions are equivalent. <p>7.EE.A.1, 7.EE.A.2, MP7, 7.Mod3.AD1, 7.Mod3.AD2</p> <hr/> <p>Topic B: Unknown Angle Measurements</p> <p>Lesson 7: Angle Relationships and Unknown Angle Measures</p> <ul style="list-style-type: none"> Identify and describe angle relationships given in diagrams. Write and solve equations that use angle relationships to find unknown angle measures. <p>7.G.B.5, 7.EE.B.4.a, MP5, 7.Mod3.AD8, 7.Mod3.AD12</p> <p>Lesson 8: Strategies to Determine Unknown Angle Measures</p> <ul style="list-style-type: none"> Identify and describe angle relationships given in diagrams. Write and solve two-step equations that use angle relationships to find unknown angle measures. <p>7.G.B.5, 7.EE.B.4.a, MP6, 7.Mod3.AD8, 7.Mod3.AD12</p>	<p>Lesson 4: Angles of a Triangle</p> <ul style="list-style-type: none"> Determine whether a triangle can be formed with two given angle measures. <p>7.G.A.2, MP3, 7.Mod4.AD1 7.Mod4.AD2</p> <p>Lesson 5: Constructing Quadrilaterals and Triangles</p> <ul style="list-style-type: none"> 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. <p>7.G.A.2, MP8, 7.Mod4.AD1, 7.Mod4.AD2</p> <hr/> <p>Topic B: Constructing Triangles</p> <p>Lesson 6: Unique Triangles</p> <ul style="list-style-type: none"> 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. <p>7.G.A.2, MP3, 7.Mod4.AD1, 7.Mod4.AD2</p> <p>Lesson 7: Two Angles and One Side</p> <ul style="list-style-type: none"> 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. <p>7.G.A.2, MP3, 7.Mod4.AD1, 7.Mod4.AD2</p>	<p>Lesson 5: Common Denominators or Common Numerators</p> <ul style="list-style-type: none"> Solve percent problems by using strategies that involve finding common denominators or common numerators to solve proportions. <p>7.RP.A.2.c, 7.RP.A.3, MP5, 7.Mod5.AD2, 7.Mod5.AD3</p> <hr/> <p>Topic B: Part of 100</p> <p>Lesson 6: Finding Commission</p> <ul style="list-style-type: none"> Apply percents in the real-world context of commission. <p>7.RP.A.3, MP1, 7.Mod5.AD3, 7.Mod5.AD4</p> <p>Lesson 7: Finding Discounts</p> <ul style="list-style-type: none"> Apply percents in the real-world context of discounts. <p>7.RP, 7.RP.A.3, MP1, 7.Mod5.AD1, 7.Mod5.AD3, 7.Mod5.AD4</p> <p>Lesson 8: Determining Fees</p> <ul style="list-style-type: none"> Apply percents in the real-world context of fees. <p>7.RP.A.3, MP3, 7.Mod5.AD3, 7.Mod5.AD4</p> <p>Lesson 9: Tax as a Fee</p> <ul style="list-style-type: none"> Apply percents in the real-world context of taxes. <p>7.RP.A.3, MP1, 7.Mod5.AD3, 7.Mod5.AD4</p> <hr/> <p>Topic C: More or Less Than 100%</p> <p>Lesson 10: Percent Increase</p>	<p>Lesson 5: Multistage Experiments</p> <ul style="list-style-type: none"> Use tree diagrams to organize and represent the outcomes in the sample space of a multistage experiment. <p>7.SP.C.8.a, 7.SP.C.8.b, MP7, 7.Mod6.AD10</p> <p>Lesson 6: Outcomes That Are Not Equally Likely</p> <ul style="list-style-type: none"> Calculate probabilities of events for chance experiments that do not have equally likely outcomes. <p>7.SP.C.6, MP7, 7.Mod6.AD6</p> <hr/> <p>Topic B: Estimating Probabilities</p> <p>Lesson 7: The Law of Large Numbers</p> <ul style="list-style-type: none"> Use empirical probability to estimate theoretical probability. Compare probabilities from a theoretical model to observed relative frequencies. <p>7.SP.C.7, 7.SP.C.7.a, 7.SP.C.7.b, MP8, 7.Mod6.AD7, 7.Mod6.AD8, 7.Mod6.AD9</p> <p>Lesson 8: Picking Blue</p> <ul style="list-style-type: none"> Use empirical probabilities to create a probability model. <p>7.SP.C.6, 7.SP.C.7.b, MP2, 7.Mod6.AD6, 7.Mod6.AD9</p> <p>Lesson 9: Probability Simulations</p> <ul style="list-style-type: none"> Use a simulation to generate empirical probabilities for events. <p>7.SP.C.8.c, MP1, 7.Mod6.AD11</p> <p>Lesson 10: Simulations with Random Number Tables</p> <ul style="list-style-type: none"> Conduct simulations with a random number table.
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<ul style="list-style-type: none"> Model a situation by using a proportional relationship to solve a problem. <p>7.RP.A.3, MP4, MP5, 7.Mod1.AD6</p> <p>Lesson 8: Relating Representations of Proportional Relationships</p> <ul style="list-style-type: none"> 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. <p>7.RP.A.2.b, 7.RP.A.2.c, MP7, 7.Mod1.AD3, 7.Mod1.AD4</p> <p>Lesson 9: Comparing Proportional Relationships</p> <ul style="list-style-type: none"> 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 $(1, r)$. <p>7.RP.A.2.b, 7.RP.A.2.d, MP7, 7.Mod1.AD3, 7.Mod1.AD5</p> <p>Lesson 10: Applying Proportional Reasoning</p> <ul style="list-style-type: none"> Represent proportional relationships as equations. Solve problems by applying proportional reasoning. <p>7.RP.A.2.c, 7.RP.A.3, MP2, 7.Mod1.AD4, 7.Mod1.AD6</p> <p>Lesson 11: Constant Rates</p> <ul style="list-style-type: none"> Represent rate problems as proportional relationships with equations. Solve rate problems. 	<ul style="list-style-type: none"> Subtract integers by using equivalent addition expressions. <p>7.NS.A.1.c, 7.NS.A.1.d, MP8, 7.Mod2.AD6, 7.Mod2.AD8</p> <p>Lesson 10: Subtracting Rational Numbers, Part 1</p> <ul style="list-style-type: none"> Evaluate expressions involving subtraction of rational numbers. Use properties of operations to make a simpler expression. <p>7.NS.A.1.c, 7.NS.A.1.d, MP7, 7.Mod2.AD6, 7.Mod2.AD8</p> <p>Lesson 11: Subtracting Rational Numbers, Part 2</p> <ul style="list-style-type: none"> Subtract rational numbers by writing equivalent addition expressions and evaluating them. Use properties of operations to make a simpler expression. <p>7.NS.A.1.c, 7.NS.A.1.d, MP1, 7.Mod2.AD6, 7.Mod2.AD8</p> <p>Lesson 12: The Integer Game</p> <ul style="list-style-type: none"> Apply strategies of integer addition and subtraction. Recognize when opposites combine to make zero. <p>7.NS.A.1.a, 7.NS.A.1.d, MP6, 7.Mod2.AD2, 7.Mod2.AD8</p> <hr/> <p>Topic C: Multiplying Rational Numbers</p> <p>Lesson 13: Understanding Multiples of Negative Numbers</p> <ul style="list-style-type: none"> Interpret multiplication as repeated addition by using the distributive property. Informally verify that multiplying two numbers with opposite signs results in a negative product. 	<p>Lesson 9: Solving Equations to Determine Unknown Angle Measures</p> <ul style="list-style-type: none"> Identify and describe angle relationships given in diagrams. Write and solve two-step equations that use angle relationships to find unknown angle measures. <p>7.EE.A.2, 7.EE.B.3, MP7, 7.Mod3.AD2, 7.Mod3.AD3</p> <p>Lesson 10: Problem Solving with Unknown Angle Measures</p> <ul style="list-style-type: none"> Solve multi-step problems to determine unknown angle measures by using all known angle relationships. <p>7.EE.B.3, 7.G.B.5, MP1, 7.Mod3.AD3, 7.Mod3.AD12</p> <hr/> <p>Topic C: Solving Equations</p> <p>Lesson 11: Dominoes and Dominoes</p> <ul style="list-style-type: none"> Compare different ways of solving a problem. Use equations as mathematical models to estimate the number of dominoes in a tower. <p>7.EE.B.3, 7.EE.B.4, MP1, MP4, 7.Mod3.AD3, 7.Mod3.AD4, 7.Mod3.AD5</p> <p>Lesson 12: Solving Problem Algebraically and Arithmetically</p> <ul style="list-style-type: none"> 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. 	<p>Lesson 8: Two Sides and One Angle</p> <ul style="list-style-type: none"> 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. <p>7.G.A.2, MP8, 7.Mod4.AD1, 7.Mod4.AD2</p> <hr/> <p>Topic C: Circumference and Area of Circles</p> <p>Lesson 9: Constructing a Circle</p> <ul style="list-style-type: none"> Define and construct circles given a radius or a diameter. <p>7.G.A.2, MP6, 7.Mod4.AD1</p> <p>Lesson 10: The Outside of a Circle</p> <ul style="list-style-type: none"> 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. <p>7.G.B.4, MP8, 7.Mod4.AD4</p> <p>Lesson 11: The Inside of a Circle</p> <ul style="list-style-type: none"> Estimate the area of a circle. <p>7.G.B.4, MP7, 7.Mod4.AD4</p> <p>Lesson 12: Exploring the Area and Circumference of a Circle</p> <ul style="list-style-type: none"> Model and describe the relationship between the circumference and the area of a circle. <p>7.G.B.4, MP7, 7.Mod4.AD4, 7.Mod4.AD5</p>	<ul style="list-style-type: none"> Solve percent problems in a real-world context that involves percent increase. <p>7.RP.A.3, 7.EE.A.2, MP2, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6</p> <p>Lesson 11: Percent Decrease</p> <ul style="list-style-type: none"> Solve percent problems in a real-world context that involves percent decrease. <p>7.RP.A.3, 7.EE.A.2, MP2, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6</p> <p>Lesson 12: More Discounts</p> <ul style="list-style-type: none"> Use equations to solve percent problems that involve the real-world context of discounts. <p>7.RP.A.3, 7.EE.A.2, MP6, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6</p> <p>Lesson 13: What Is the Best Deal?</p> <ul style="list-style-type: none"> Use equations to calculate multiple discounts and discounted prices. <p>7.RP.A.3, MP1, MP2, 7.Mod5.AD4</p> <p>Lesson 14: Scale Factor—Percent Increase and Decrease</p> <ul style="list-style-type: none"> 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. <p>7.RP, 7.EE.A.2, 7.G.A.1, MP1, 7.Mod5.AD1, 7.Mod5.AD6, 7.Mod5.AD7</p> <hr/> <p>Topic D: Applications of Percent</p>	<p>7.SP.C.8.c, MP5, 7.Mod6.AD11</p> <hr/> <p>Topic C: Random Sampling</p> <p>Lesson 11: Populations and Samples</p> <ul style="list-style-type: none"> Distinguish populations and their characteristics from samples and their statistics. <p>7.SP.A.1, MP6, 7.Mod6.AD1</p> <p>Lesson 12: Selecting a Sample</p> <ul style="list-style-type: none"> Take a random sample from a population. Describe the importance of a random sample in drawing conclusions about a population. <p>7.SP.A.1, MP2, 7.Mod6.AD1</p> <p>Lesson 13: Variability Between Samples</p> <ul style="list-style-type: none"> Observe the variability between different random samples taken from the same population. <p>7.SP.A.1, 7.SP.A.2, MP6, 7.Mod6.AD1, 7.Mod6.AD2</p> <p>Lesson 14: Sampling Variability When Estimating a Population Mean</p> <ul style="list-style-type: none"> Describe sampling variability in the context of estimating a population mean. Use data from a random sample to estimate a population mean. <p>7.SP.A.1, 7.SP.A.2, MP2, 7.Mod6.AD1, 7.Mod6.AD2</p> <p>Lesson 15: Sampling Variability and the Effect of Sample Size</p> <ul style="list-style-type: none"> Observe that increasing the sample size decreases the sampling variability of the sample mean. <p>7.SP.A.2, MP1, 7.Mod6.AD2</p>
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<p>7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP1, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6</p> <p>Lesson 12: Multi-Step Ratio Problems, Part 1</p> <ul style="list-style-type: none"> Solve multi-step ratio problems by using proportional reasoning. <p>7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP7, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6</p> <p>Lesson 13: Multi-Step Ratio Problems, Part 2</p> <ul style="list-style-type: none"> Solve multi-step ratio problems by using proportional reasoning. <p>7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP5, 7.Mod1.AD3, 7.Mod1.AD4, 7.Mod1.AD6</p> <hr/> <p>Topic C: Scale Drawings and Proportional Relationships</p> <p>Lesson 14: Extreme Bicycles</p> <ul style="list-style-type: none"> Compare objects of different sizes by using proportional reasoning. <p>7.RP.A.2.a, MP1, MP5, 7.Mod1.AD2</p> <p>Lesson 15: Scale Drawings</p> <ul style="list-style-type: none"> 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. <p>7.GA.1, MP7, 7.Mod1.AD7</p> <p>Lesson 16: Using a Scale Factor</p> <ul style="list-style-type: none"> Determine whether a scale factor produces an enlargement or a reduction. 	<p>7.NS.A.2.a, 7.NS.A.2.c, MP2, 7.Mod2.AD9, 7.Mod2.AD12</p> <p>Lesson 14: Understanding the Product of Two Negative Numbers</p> <ul style="list-style-type: none"> Informally verify that multiplying two numbers with the same sign results in a positive product. Predict the sign of a product with multiple factors. <p>7.NS.A.2.a, 7.NS.A.2.c, MP3, 7.Mod2.AD9, 7.Mod2.AD11, 7.Mod2.AD12</p> <p>Lesson 15: Multiplying Rational Numbers</p> <ul style="list-style-type: none"> Extend knowledge of multiplying integers to multiply rational numbers. <p>7.NS.A.2.a, 7.NS.A.2.c, MP7, 7.Mod2.AD9, 7.Mod2.AD12</p> <p>Lesson 16: Exponential Expressions with Rational Numbers</p> <ul style="list-style-type: none"> Extend knowledge of multiplying integers to multiply rational numbers in all forms. Evaluate exponential expressions containing rational bases. <p>7.NS.A.2.a, 7.NS.A.2.c, MP6, 7.Mod2.AD9, 7.Mod2.AD12</p> <hr/> <p>Topic D: Dividing Rational Numbers</p> <p>Lesson 17: Understanding Negative Dividends</p> <ul style="list-style-type: none"> Model division and recognize limitations of the models when dividing integers. <p>7.NS.A.2.c, MP7, 7.Mod2.AD12</p>	<p>7.EE.B.4, 7.EE.B.4.a, MP2, 7.Mod3.AD5, 7.Mod3.AD7, 7.Mod3.AD8</p> <p>Lesson 13: Solving Equations—Puzzles</p> <ul style="list-style-type: none"> 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. <p>7.EE.B.4, 7.EE.B.4.a, MP7, 7.Mod3.AD5, 7.Mod3.AD7</p> <p>Lesson 14: Solving Equations—Scavenger Hunt</p> <ul style="list-style-type: none"> Solve equations of the forms $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. <p>7.EE.B.4.a, MP7, 7.Mod3.AD7</p> <p>Lesson 15: Solving Equations Fluently</p> <ul style="list-style-type: none"> Fluently solve equations of the forms $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. <p>7.EE.B.4.a, MP1, 7.Mod3.AD7</p> <p>Lesson 16: Using Equations to Solve Rate Problems</p> <ul style="list-style-type: none"> 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. <p>7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a, MP2, 7.Mod3.AD3, 7.Mod3.AD5, 7.Mod3.AD8</p> <p>Lesson 17: Using Equations to Solve Problems</p> <ul style="list-style-type: none"> Write and solve equations in the form $\frac{a}{b} = \frac{c}{d}$, where either a, b, c, or d is 	<p>Lesson 13: Finding Areas of Circular Regions</p> <ul style="list-style-type: none"> Solve problems by using the formula for the area of a circle. Model and describe the relationship between the areas of circles and the areas of semicircular and quarter-circular regions. <p>7.G.B.4, MP7, 7.Mod4.AD4, 7.Mod4.AD5</p> <p>Lesson 14: Composite Figures with Circular Regions</p> <ul style="list-style-type: none"> Solve problems involving area and perimeter of composite figures. <p>7.G.B.4, 7.G.B.6, MP7, 7.Mod4.AD4, 7.Mod4.AD6</p> <p>Lesson 15: Watering a Lawn</p> <ul style="list-style-type: none"> Model a situation by using rectangular, circular, semicircular, and quarter-circular regions and calculate area to solve problems. <p>7.G.B.4, MP1, MP4, 7.Mod4.AD4</p> <hr/> <p>Topic D: Area and Surface Area</p> <p>Lesson 16: Solving Area Problems by Composition and Decomposition</p> <ul style="list-style-type: none"> Calculate the area of composite figures in real-world and mathematical problems by using composition and decomposition. <p>7.G.B.6, MP1, 7.Mod4.AD6</p> <p>Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms</p> <ul style="list-style-type: none"> Calculate the surface area of right rectangular and right triangular prisms. 	<p>Lesson 15: Tips and Taxes</p> <ul style="list-style-type: none"> Calculate percent increases such as tax and tip. Calculate the total from the subtotal, tax, and tip. <p>7.RP.A.3, 7.EE.A.2, MP7, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6</p> <p>Lesson 16: Markups and Discounts</p> <ul style="list-style-type: none"> Determine retail prices by using markups. Determine discounted prices by using discounts. <p>7.RP.A.3, 7.EE.A.2, MP7, 7.Mod5.AD4, 7.Mod5.AD5, 7.Mod5.AD6</p> <p>Lesson 17: Simple Interest and Proportionality</p> <ul style="list-style-type: none"> Calculate simple interest given principal, time, and interest rate. <p>7.RP.A.3, MP7, 7.Mod5.AD4</p> <p>Lesson 18: Simple Interest—Solving for Unknown Values</p> <ul style="list-style-type: none"> Calculate simple interest, principal, time, and interest rate. <p>7.RP.A.3, MP8, 7.Mod5.AD4</p> <p>Lesson 19: Applying Percent Error</p> <ul style="list-style-type: none"> Use absolute error to define percent error. Apply percent error to real-world contexts. <p>7.RP.A.3, MP2, 7.Mod5.AD4</p> <hr/> <p>Topic E: Problems Involving Percent</p> <p>Lesson 20: Making Money, Day 1</p>	<p>Lesson 16: Sampling Variability When Estimating a Population Proportion</p> <ul style="list-style-type: none"> Observe that increasing the sample size decreases the sampling variability of the sample proportion. <p>7.SP.A.2, MP6, 7.Mod6.AD2</p> <hr/> <p>Topic D: Comparing Populations</p> <p>Lesson 17: Comparing Sample Means</p> <ul style="list-style-type: none"> Determine whether there is convincing evidence to conclude that two population means differ based on sample estimates. <p>7.SP.B.3, 7.SP.B.4, MP3, 7.Mod6.AD3, 7.Mod6.AD4</p> <p>Lesson 18: Comparing Population Means</p> <ul style="list-style-type: none"> Express the difference in sample means as a multiple of a measure of variability. <p>7.SP.B.3, 7.SP.B.4, MP7, 7.Mod6.AD3, 7.Mod6.AD4</p> <p>Lesson 19: Memory Games</p> <ul style="list-style-type: none"> Make conclusions about a difference in population means by using sample means and mean absolute deviations. <p>7.SP.B.3, 7.SP.B.4, MP4, 7.Mod6.AD3, 7.Mod6.AD4</p>
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<ul style="list-style-type: none"> • 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 <p>Lesson 17: Finding Actual Distances from a Scale Drawing</p> <ul style="list-style-type: none"> • 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 <p>Lesson 18: Relating Areas of Scale Drawings</p> <ul style="list-style-type: none"> • 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 <p>Lesson 19: Scale and Scale Factors</p> <ul style="list-style-type: none"> • 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 <p>Lesson 20: Creating Multiple Scale Drawings</p> <ul style="list-style-type: none"> • 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 	<p>Lesson 18: Understanding Negative Divisors</p> <ul style="list-style-type: none"> • 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 <p>Lesson 19: Rational Numbers as Decimals, Part 1</p> <ul style="list-style-type: none"> • 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 <p>Lesson 20: Rational Numbers as Decimals, Part 2</p> <ul style="list-style-type: none"> • 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 <p>Lesson 21: Comparing and Ordering Rational Numbers</p> <ul style="list-style-type: none"> • 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 <p>Lesson 22: Multiplication and Division Expressions</p> <ul style="list-style-type: none"> • Calculate quotients of rational numbers, including non-integer rational numbers. 	<p>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</p> <hr/> <p>Topic D: Inequalities</p> <p>Lesson 18: Understanding Inequalities and Their Solutions</p> <ul style="list-style-type: none"> • 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 <p>Lesson 19: Using Equations to Solve Inequalities</p> <ul style="list-style-type: none"> • 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 <p>Lesson 20: Preserving and Reversing</p> <ul style="list-style-type: none"> • 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, <p>Lesson 21: Solving Two-Step Inequalities</p> <ul style="list-style-type: none"> • Write and solve inequalities to represent context problems and 	<p>7.G.B.6, MP6, 7.Mod4.AD7</p> <p>Lesson 18: Surface Area of Right Prisms</p> <ul style="list-style-type: none"> • 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 <p>Lesson 19: Surface Area of Cylinders (Optional)</p> <ul style="list-style-type: none"> • Calculate the surface area of right circular cylinders. MP8 <p>Lesson 20: Surface Area of Right Pyramids</p> <ul style="list-style-type: none"> • Calculate the surface area of right pyramids. 7.G.B.6, MP6, 7.Mod4.AD7 <p>Lesson 21: Surface Area of Other Solids</p> <ul style="list-style-type: none"> • Calculate the surface area of solids composed of right prisms and right pyramids. 7.G.B.6, MP6, 7.Mod4.AD7 <hr/> <p>Topic E: Cross Sections and Volume</p> <p>Lesson 22: Understanding Planes and Cross Sections</p> <ul style="list-style-type: none"> • 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 <p>Lesson 23: Cross Section Scavenger Hunt</p>	<ul style="list-style-type: none"> • Model and solve a real-world problem involving percent. 7.RP.A.3, MP4, 7.Mod5.AD4 <p>Lesson 21: Making Money, Day 2</p> <ul style="list-style-type: none"> • Model and solve a real-world problem involving percent. 7.RP.A.3, MP1, 7.Mod5.AD4 <p>Lesson 22: Making Mixtures</p> <ul style="list-style-type: none"> • Develop and compare mixtures made from percents of two or more liquids. 7.RP.A.3, MP7, 7.Mod5.AD4 <p>Lesson 23: Percents of Percents</p> <ul style="list-style-type: none"> • 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 <p>Lesson 24: Counting Problems</p> <ul style="list-style-type: none"> • Solve counting problems related to computing percent. 7.RP, MP6, 7.Mod5.AD1 	
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	<ul style="list-style-type: none"> Write expressions with division as equivalent expressions with multiplication by using multiplicative inverses. <p>7.NS.A.2.c, MP7, 7.Mod2.AD12</p> <hr/> <p>Topic E: Numerical Expressions with Rational Numbers</p> <p>Lesson 23: Properties of Operations with Rational Numbers</p> <ul style="list-style-type: none"> Evaluate expressions involving rational numbers by applying properties of operations. <p>7.NS.A, MP7, 7.Mod2.AD1</p> <p>Lesson 24: Order of Operations with Rational Numbers</p> <ul style="list-style-type: none"> Evaluate expressions containing exponents. Use the order of operations to evaluate numerical expressions containing rational numbers. <p>7.NS.A, 7.NS.A.2.c, MP6, 7.Mod2.AD1, 7.Mod2.AD12</p> <p>Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1</p> <ul style="list-style-type: none"> Write numerical expressions given mathematical and real-world contexts. Evaluate expressions and interpret their value in context. <p>7.NS.A.3, 7.EE.B.3, MP2, 7.Mod2.AD15</p> <p>Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2</p>	<p>identify restrictions to their solution sets.</p> <p>7.EE.B.4, 7.EE.B.4.b, MP2, 7.Mod3.AD6, 7.Mod3.AD9, 7.Mod3.AD11</p> <p>Lesson 22: Solving Problems Involving Inequalities</p> <ul style="list-style-type: none"> 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. <p>7.EE.B.4, 7.EE.B.4.b, MP6, 7.Mod3.AD6, 7.Mod3.AD9, 7.Mod3.AD11</p> <p>Lesson 23: Inequalities vs. Equations</p> <ul style="list-style-type: none"> 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. <p>7.EE.B.4, 7.EE.B.4.b, MP2, 7.Mod3.AD5, 7.Mod3.AD6, 7.Mod3.AD11</p> <p>■</p>	<ul style="list-style-type: none"> Explore cross sections formed when a right prism or a right pyramid is cut by a plane at an angle other than 90° to the base. <p>7.G.A.3 MP7, 7.Mod4.AD3</p> <p>Lesson 24: Volume of Prisms</p> <ul style="list-style-type: none"> Determine a formula for finding the volume of any right prism. Find the volume of a right prism. <p>7.G.B.6, MP7, 7.Mod4.AD7</p> <p>Lesson 25: Volume of Composite Solids</p> <ul style="list-style-type: none"> Find the volume of composite solids. <p>7.G.B.6, MP7, 7.Mod4.AD7</p> <p>Lesson 26: Designing a Fish Tank</p> <ul style="list-style-type: none"> Model real-world problems involving surface area and volume. <p>7.G.B.6, MP4, 7.Mod4.AD7</p> <p>■</p>		
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Module 1

Module 2

Module 3

Module 4

Module 5

Module

	<ul style="list-style-type: none">• Write and evaluate numerical expressions and interpret their value in context. <p>7.NS.A.3, 7.EE.B.3, MP4, 7.Mod2.AD15</p> <p>■</p>				
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Module 1 Scientific Notation, Exponents, and Irrational Numbers	Module 2 Rigid Motions and Congruent Figures	Module 3 Dilations and Similar Figures	Module 4 Linear Equations in One and Two Variables	Module 5 Systems of Linear Equations	Module 6 Functions and Bivariate Statistics
<p>Topic A: Introduction to Scientific Notation</p> <p>Lesson 1: Large and Small Positive Numbers</p> <ul style="list-style-type: none"> Write very large and very small numbers in a form that uses exponents to prepare students for scientific notation. Approximate very large and very small quantities. <p>8.EE.A.3, MP2, 8.Mod1.AD8</p> <p>Lesson 2: Comparing Large Numbers</p> <ul style="list-style-type: none"> Write numbers as a single digit times a power of 10 in exponential form to approximate quantities. Compare large and small positive numbers by using <i>times as much as</i> language. <p>8.EE.A.3, 8.EE.A.4, MP7, 8.Mod1.AD9, 8.Mod1.AD11, 8.Mod1.AD12</p> <p>Lesson 3: Time to Be More Precise—Scientific Notation</p> <ul style="list-style-type: none"> Write numbers given in standard form in scientific notation. <p>8.EE.A.3, MP3, 8.Mod1.AD8</p>	<p>Topic A: Rigid Motions and Their Properties</p> <p>Lesson 1: Motions of the Plane</p> <ul style="list-style-type: none"> Informally describe how to map a figure to its image. Demonstrate that the distance between two points stays the same under rigid motions. <p>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP5, 8.Mod2.AD1</p> <p>Lesson 2: Translations</p> <ul style="list-style-type: none"> Apply translations to the plane. Identify the basic properties of translations. <p>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP6, 8.Mod2.AD1</p> <p>Lesson 3: Reflections</p> <ul style="list-style-type: none"> Apply reflections to the plane. Identify the basic properties of reflections. <p>8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP8, 8.Mod2.AD1</p> <p>Lesson 4: Translations and Reflections on the Coordinate Plane</p>	<p>Topic A: Dilations</p> <p>Lesson 1: Exploring Dilations</p> <ul style="list-style-type: none"> Informally describe the effects of dilations. Classify a dilation as a transformation that is not a rigid motion. <p>8.G.A.3, MP8, 8.Mod3.AD2</p> <p>Lesson 2: Enlargements</p> <ul style="list-style-type: none"> Apply a dilation with a whole-number scale factor greater than 1. Describe the effects of a dilation with a whole-number scale factor greater than 1. <p>8.G.A.3, MP6, 8.Mod3.AD2</p> <p>Lesson 3: Reductions and More Enlargements</p> <ul style="list-style-type: none"> Apply a dilation with a scale factor greater than 0. Describe the effects of a dilation with a scale factor greater than 0. <p>8.G.A.3, MP8, 8.Mod3.AD2</p> <hr/> <p>Topic B: Properties of Dilations</p>	<p>Topic A: Linear Equations in One Variable</p> <p>Lesson 1: Equations</p> <ul style="list-style-type: none"> Analyze an equation to make sense of how to solve it. Identify whether an equation is a linear equation. <p>8.EE.C.7.b, MP7, 8.Mod4.AD11</p> <p>Lesson 2: Solving Linear Equations</p> <ul style="list-style-type: none"> Identify the properties of equality. Solve multi-step linear equations in one variable with variables on both sides of the equations. <p>8.EE.C.7, 8.EE.C.7.b, MP6, 8.Mod4.AD9, 8.Mod4.AD11</p> <p>Lesson 3: Solving Linear Equations with Rational Coefficients</p> <ul style="list-style-type: none"> Solve multi-step linear equations in one variable with rational coefficients. <p>8.EE.C.7, 8.EE.C.7.b, MP7, 8.Mod4.AD9, 8.Mod4.AD11</p> <p>Lesson 4: Using Linear Equations to Solve Problems</p> <ul style="list-style-type: none"> Define variables and write equations that represent a given situation. 	<p>Topic A: Solving Systems of Linear Equations Graphically</p> <p>Lesson 1: Solving Problems with Equations and Their Graphs</p> <ul style="list-style-type: none"> Formulate a problem from a context. Apply different mathematical tools to model, analyze, and answer a real-world question. <p>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</p> <p>Lesson 2: Introduction to Systems of Linear Equations</p> <ul style="list-style-type: none"> Graph a system of linear equations to identify the solution. Recognize that the ordered pair representing the intersection point of the lines is the solution to the system of linear equations. <p>8.EE.C.8.a, MP6, 8.Mod5.AD1</p> <p>Lesson 3: Identifying Solutions</p> <ul style="list-style-type: none"> Recognize that a system of linear equations that represents parallel lines has no solution. Analyze a system of linear equations to determine whether a solution exists. 	<p>Topic A: Functions</p> <p>Lesson 1: Motion and Speed</p> <ul style="list-style-type: none"> Calculate the average speed of linear and nonlinear motion. Understand that a function is a special type of rule. <p>8.F.A.1, MP8, 8.Mod6.AD1</p> <p>Lesson 2: Definition of a Function</p> <ul style="list-style-type: none"> Determine that a function is a rule that assigns to each input one and only one output. Identify functions that can be represented by an equation and those that cannot. <p>8.F.A.1, MP2, 8.Mod6.AD1</p> <p>Lesson 3: Linear Functions and Proportionality</p> <ul style="list-style-type: none"> Write equations that represent linear functions. Determine what inputs make sense in the context of a linear function. <p>8.F.A.3, MP2, 8.Mod6.AD3</p> <p>Lesson 4: More Examples of Functions</p> <ul style="list-style-type: none"> Determine that not all functions have numerical inputs and outputs.

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° .

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

Topic E: Irrational Numbers

Lesson 21: Approximating Values of Roots and π^2

- Approximate values of square roots, cube roots, and π^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

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

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

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



Module 1 Rational and Irrational Numbers	Module 2 One- and Two-Variable Equations	Module 3 Two-Dimensional Geometry	Module 4 Graphs of Linear Equations and Systems of Linear Equations	Module 5 Functions and Three-Dimensional Geometry	Module 6 Probability and Statistics
<p>Topic A: Add and Subtract Rational Numbers</p> <p>Lesson 1: Adding Integers and Rational Numbers</p> <ul style="list-style-type: none"> Recognize that opposite integers sum to 0. Use number lines and strategies to add rational numbers. <p>7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.c, 7.NS.A. 3, MP2, 7–8.Mod1.AD1, 7–8.Mod1.AD3</p> <p>Lesson 2: KAKOOMA[®] with Rational Numbers</p> <ul style="list-style-type: none"> Use estimation and the properties of operations to add rational numbers. Add rational number to solve and create puzzles. <p>7.NS.A.1.d, 7.NS.A.2.c, MP1, 7–8.Mod1.AD1</p> <p>Lesson 3: Finding Distances to Find Differences</p> <ul style="list-style-type: none"> Show that the distance between two integers on a number line is the absolute value of their difference. 	<p>Topic A: Solving One-Variable Equations and Inequalities</p> <p>Lesson 1: Finding Unknown Angle Measures</p> <ul style="list-style-type: none"> Use angle relationships to determine unknown angle measures. Write and solve equations that use angle relationships to find unknown angle measures. <p>7.G.B.5, MP7, 7–8.Mod2.AD14</p> <p>Lesson 2: Using Equivalent Expressions to Solve Equations</p> <ul style="list-style-type: none"> Generate equivalent expressions by using the properties of operations to add, subtract, factor, and expand linear expressions. Solve equations of the forms $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific integers. <p>7.EE.A.1, 7.EE.A.2, 7.G.B.5, MP1, 7–8.Mod2.AD8, 7–8.Mod2.AD9, 7–8.Mod2.AD14</p> <p>Lesson 3: Solving Equations</p> <ul style="list-style-type: none"> Write and solve equations of the forms $px + q = r$ and $p(x + q) = r$, 	<p>Topic A: Triangles and Circles</p> <p>Lesson 1: Sketching and Constructing Geometric Figures</p> <ul style="list-style-type: none"> Construct geometric figures with given conditions. Determine the relationship between the sum of two side lengths of a triangle and the third side length. <p>7.G.A.2, MP5, 7–8.Mod3.AD3, 7–8.Mod3.AD4</p> <p>Lesson 2: Conditions of Unique Triangles</p> <ul style="list-style-type: none"> Construct triangles with given conditions. Determine which sets of conditions guarantee a unique triangle. <p>7.G.A.2, MP3, 7–8.Mod3.AD3, 7–8.Mod3.AD4</p> <p>Lesson 3: Exploring and Constructing Circles</p> <ul style="list-style-type: none"> Define and construct circles given a radius or diameter. Define pi and use it to determine the circumference of a circle. 	<p>Topic A: Graphs of Linear Equations in Two Variables</p> <p>Lesson 1: Solutions to Linear Equations in Two Variables</p> <ul style="list-style-type: none"> Find solutions to linear equations in two variables. Graph the solutions in the coordinate plane. <p>8.EE.B, MP8, 7–8.Mod4.AD1</p> <p>Lesson 2: The Graph of a Linear Equation in Two Variables</p> <ul style="list-style-type: none"> Identify that the graph of a linear equation of the form $Ax + By = C$ is a line. <p>8.EE.B, MP6, 7–8.Mod4.AD1</p> <p>Lesson 3: Lines with Special Characteristics</p> <ul style="list-style-type: none"> Graph linear equations of the form $Ax = C$ and $By = C$ where A and B are nonzero. <p>8.EE.B, MP8, 7–8.Mod4.AD1</p>	<p>Topic A: Functions</p> <p>Lesson 1: Motion and Speed</p> <ul style="list-style-type: none"> Calculate the average speed of linear and nonlinear motion. Understand that a function is a special type of rule. <p>8.F.A.1, MP8, 7–8.Mod5.AD5</p> <p>Lesson 2: Definition of a Function</p> <ul style="list-style-type: none"> Determine that a function is a rule that assigns to each input one and only one output. Identify functions that can be represented by an equation and those that cannot. <p>8.F.A.1, MP2, 7–8.Mod5.AD5</p> <p>Lesson 3: Linear Functions and Proportionality</p> <ul style="list-style-type: none"> Write equations that represent linear functions. Determine what inputs make sense in the context of a linear function. <p>8.F.A.3, MP2, 7–8.Mod5.AD7</p> <p>Lesson 4: More Examples of Functions</p> <ul style="list-style-type: none"> Determine that not all functions have numerical inputs and outputs. 	<p>Topic A: Calculating and Interpreting Probabilities</p> <p>Lesson 1: What Is Probability?</p> <ul style="list-style-type: none"> Find a number between 0 and 1 that represents the likelihood that an event will occur. Calculate the empirical probability of an event by collecting data from a chance experiment. <p>7.SP.C.5, 7.SP.C.6, MP2, 7–8.Mod6.AD5, 7–8.Mod6.AD6</p> <p>Lesson 2: Outcomes of Chance Experiments</p> <ul style="list-style-type: none"> Determine the sample space for a chance experiment. Given a description of a chance experiment and an event, determine for which outcomes in the sample space the event will occur. <p>7.SP.C.6, MP2, 7–8.Mod6.AD6</p> <p>Lesson 3: Theoretical Probability</p> <ul style="list-style-type: none"> Calculate theoretical probabilities of events for chance experiments that have equally likely outcomes. <p>7.SP.C.7.a, MP6, 7–8.Mod6.AD8</p>

Module 1

- Evaluate integer subtraction expressions by finding the unknown addends in related addition equations.
7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.c, 7.NS.A.3, MP7, 7–8.Mod1.AD1, 7–8.Mod1.AD4

Lesson 4: Subtracting Integers

- Express subtraction of an integer as addition of its opposite.
- Subtract integers by using equivalent addition expressions.

7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.c, 7.NS.A.3, MP8, 7–8.Mod1.AD1, 7–8.Mod1.AD3

Lesson 5: Subtracting Rational Numbers

- Evaluate expressions involving subtraction of rational numbers.
- Subtract rational numbers by using equivalent addition expressions.
7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.c, 7.NS.A.3, MP7, 7–8.Mod1.AD1, 7–8.Mod1.AD2, 7–8.Mod1.AD3

Topic B: Multiply and Divide Rational Numbers

Lesson 6: Multiplying Integers and Rational Numbers

- Use repeated addition and the properties of operations to determine the product of a negative number and a positive number.
- Informally verify that the product of two negative numbers is a positive number.
7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.c, 7.NS.A.3, MP8,

Module 2

where p , q , and r are rational numbers.

7.EE.B.4, 7.EE.B.4.a, 8.EE.C.7.b, MP2, 7–8.Mod2.AD11, 7–8.Mod2.AD17

Lesson 4: Using Equations to Solve Inequalities

- Solve inequalities and graph their solution sets on a number line.
7.EE.B.4, 7.EE.B.4.b, MP8, 7–8.Mod2.AD12, 7–8.Mod2.AD13

Lesson 5: Solving Problems Involving Equations and Inequalities

- Solve inequalities and identify restrictions to their solution sets.
- Solve real-world problems by using equations and inequalities.
7.EE.B.4, 7.EE.B.4.a, 7.EE.B.4.b, 8.EE.C.7.b, MP6, 7–8.Mod2.AD11, 7–8.Mod2.AD12, 7–8.Mod2.AD17

Lesson 6: Expressing Repeating Decimals as Fractions

- Use equations to write the fraction form of any repeating decimal.
7.EE.B.4.a, 8.NS.A.1, 8.EE.C.7.b, MP8, 7–8.Mod2.AD15, 7–8.Mod2.AD17

Topic B: Multi-Step Equations and Their Solutions

Lesson 7: Solving Multi-Step Equations

- Solve multi-step equations in one variable with a variable on both sides of the equations.
- Identify whether an equation is a linear equation.

Module 3

7.G.A.2, 7.G.B.4, MP8, 7–8.Mod3.AD3, 7–8.Mod3.AD5

Lesson 4: Area and Circumference of a Circle

- Estimate the area of a circle.
- Model and describe the relationship between the circumference and the area of a circle.

7.G.B.4, MP7, 7–8.Mod3.AD5, 7–8.Mod3.AD6

Lesson 5: Area and Circumference of Circular Regions

- Model and describe the relationship between the areas of circles and the areas of semicircular and quarter-circular regions.
- Solve problems by using the formulas for the area and the circumference of a circle.

7.G.B.4, MP1, 7–8.Mod3.AD5, 7–8.Mod3.AD6

Lesson 6: Watering a Lawn (Optional)

- Model a situation by using rectangular, circular, semicircular, and quarter-circular regions and calculate area to solve problems.
7.G.B.4, MP1, MP4, 7–8.Mod3.AD5

Topic B: Rigid Motions and Congruence

Lesson 7: Motions of the Plane

- Informally describe how to map a figure to its image.
- Demonstrate that the distance between two points stays the same under rigid motions.

Module 4

Lesson 4: Comparing Proportional Relationships

- Use unit rates to compare the steepness of lines representing proportional relationships.
- Compare proportional relationships represented in different ways.

8.EE.B.5, MP2, 7–8.Mod4.AD3

Topic B: Slope and Equation of a Line

Lesson 5: 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.B.5, 8.EE.B.6, MP6, 7–8.Mod4.AD2, 7–8.Mod4.AD4

Lesson 6: Slopes of Rising Lines and Falling Lines

- Find slopes of rising lines and falling lines by using slope triangles.
- Graph a line given the slope and a point on the line.

8.EE.B.6, MP8, 7–8.Mod4.AD4

Lesson 7: 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, 7–8.Mod4.AD4

Module 5

- Determine what inputs make sense for a variety of functions.

8.F.A.1, MP7, 7–8.Mod5.AD5

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, 7–8.Mod5.AD5

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.B.4, MP2, 7–8.Mod5.AD7, 7–8.Mod5.AD8, 7–8.Mod5.AD9

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.B.4, MP2, 7–8.Mod5.AD6, 7–8.Mod5.AD8, 7–8.Mod5.AD9

Lesson 8: Comparing Functions

- Compare two functions represented in different ways.

8.F.A.2, MP5, 7–8.Mod5.AD6

Module 6

Lesson 4: 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, 7–8.Mod6.AD10

Lesson 5: 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, 7–8.Mod6.AD6

Topic B: Estimating Probabilities

Lesson 6: 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, 7–8.Mod6.AD7, 7–8.Mod6.AD8, 7–8.Mod6.AD9

Lesson 7: Picking Blue

- Use empirical probabilities to create a probability model.

7.SP.C.6, 7.SP.C.7.b, MP2, 7–8.Mod6.AD6, 7–8.Mod6.AD9

Lesson 8: Probability Simulations

- Use a simulation to generate empirical probabilities for events.

7.SP.C.8.c, MP1, 7–8.Mod6.AD11

Lesson 9: Simulations with Random Number Tables

- Conduct simulations with a random number table.

7.SP.C.8.c, MP5, 7–8.Mod6.AD11

Module 1

7–8.Mod1.AD1, 7–8.Mod1.AD3, 7–8.Mod1.AD5

Lesson 7: Exponential Expressions and Relating Multiplication to Division

- Evaluate exponential expressions that include rational numbers.
 - Write division expressions as unknown factor equations to determine the value of the quotients.
- 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.c, MP3, 7–8.Mod1.AD1, 7–8.Mod1.AD5

Lesson 8: Dividing Integers and Rational Numbers

- Write rational numbers as quotients of integers.
 - Divide rational numbers given in different forms.
- 7.NS.A.1.a, 7.NS.A.1.b, 7.NS.A.1.c, 7.NS.A.1.d, 7.NS.A.2.a, 7.NS.A.2.b, 7.NS.A.2.c, 7.NS.A.3, MP2, 7–8.Mod1.AD1, 7–8.Mod1.AD2, 7–8.Mod1.AD3

Lesson 9: Decimal Expansions of Rational Numbers

- Determine whether the decimal form of a rational number is a terminating decimal or a repeating decimal by analyzing the factors of the denominator.
 - Write rational numbers as either terminating decimals or repeating decimals.
- 7.NS.A.1.d, 7.NS.A.2.c, 7.NS.A.2.d, 8.NS.A.1, MP6, 7–8.Mod1.AD1, 7–8.Mod1.AD6, 7–8.Mod1.AD7

Module 2

7.EE.B.4.a, 7.G.B.5, 8.EE.C.7.b, MP6, 7–8.Mod2.AD14, 7–8.Mod2.AD17

Lesson 8: Solving Equations with Rational Coefficients

- Solve multi-step equations in one variable with rational coefficients.
- 7.EE.B.4, 7.EE.B.4.a, 8.EE.C.7.a, 8.EE.C.7.b, MP7, 7–8.Mod2.AD11, 7–8.Mod2.AD16, 7–8.Mod2.AD17

Lesson 9: Linear Equations with More Than One Solution

- Determine 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.
- 7.EE.B.4.a, 8.EE.C.7.a, 8.EE.C.7.b, MP7, 7–8.Mod2.AD16, 7–8.Mod2.AD17

Lesson 10: Another Possible Number of Solutions

- Determine that linear equations in one variable with no solution are equivalent to the equation $a = b$, where a and b are different numbers.
 - Write linear equations that have only one solution, infinitely many solutions, or no solution.
- 7.EE.B.4.a, 8.EE.C.7.a, 8.EE.C.7.b, MP7, 7–8.Mod2.AD16, 7–8.Mod2.AD17

Lesson 11: Using Linear Equations to Solve Real-World Problems

- Solve real-world problems by using linear equations in one variable.
- 7.EE.B.3, 7.EE.B.4, 7.EE.B.4.a, 8.EE.C.7.b, MP2, 7–8.Mod2.AD10, 7–8.Mod2.AD11, 7–8.Mod2.AD17

Module 3

8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP5, 7–8.Mod3.AD7

Lesson 8: Translations, Reflections, and Rotations

- Apply translations, reflections, and rotations to the plane.
 - Identify the basic properties of the rigid motions.
- 8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, MP8, 7–8.Mod3.AD7

Lesson 9: Rigid Motions on the Coordinate Plane

- Apply translations, reflections, and rotations on the coordinate plane.
 - Use coordinates to describe the location of an image under a translation, reflection, or rotation.
- 8.G.A.1, 8.G.A.1.a, 8.G.A.1.b, 8.G.A.1.c, 8.G.A.3, MP6, 7–8.Mod3.AD7, 7–8.Mod3.AD10

Lesson 10: Sequencing the Rigid Motions

- Apply and describe sequences of rigid motions.
 - 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, 7–8.Mod3.AD7, 7–8.Mod3.AD8, 7–8.Mod3.AD9

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, MP6, 7–8.Mod3.AD8, 7–8.Mod3.AD9

Module 4

Lesson 8: 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, 7–8.Mod4.AD1, 7–8.Mod4.AD5

Lesson 9: 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, 7–8.Mod4.AD1

Lesson 10: 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, 7–8.Mod4.AD1

Topic C: Solving Systems of Linear Equations

Lesson 11: Introduction to Systems of Linear Equations

- Graph a system of linear equations to identify the solution.
 - Recognize that the ordered pair representing the intersection point of the lines is the solution to the system of linear equations.
- 8.EE.C.8.a, 8.EE.C.8.b, MP6, 7–8.Mod4.AD6, 7–8.Mod4.AD8

Module 5

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, 7–8.Mod5.AD10, 7–8.Mod5.AD11

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 an equation or a graph.
- 8.F.A.3, 8.F.B.5, MP3, 7–8.Mod5.AD7, 7–8.Mod5.AD10, 7–8.Mod5.AD11

Topic C: Surface Area and Cross Sections

Lesson 11: Surface Areas of Prisms and Pyramids

- Determine an efficient strategy for finding the surface area of right prisms by finding the sum of the areas of the lateral faces and bases.
 - Calculate the surface areas of right prisms, right pyramids, and solids composed of right prisms and right pyramids.
- 7.G.B.6, MP6, 7–8.Mod5.AD2

Lesson 12: Surface Area of Cylinders (Optional)

- Calculate the surface area of right circular cylinders.
- MP8

Module 6

Topic C: Random Sampling

Lesson 10: Populations and Samples

- Distinguish populations and their characteristics from samples and their statistics.
- 7.SP.A.1, MP6, 7–8.Mod6.AD1

Lesson 11: 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, 7–8.Mod6.AD1

Lesson 12: 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, 7–8.Mod6.AD1, 7–8.Mod6.AD2

Lesson 13: 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, 7–8.Mod6.AD2

Lesson 14: 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, 7–8.Mod6.AD2

Module 1

Topic C: Properties of Exponents and Scientific Notation

Lesson 10: Large and Small Positive Numbers

- Approximate very large and very small positive numbers and write them as a single digit times a power of 10 or as a single digit times a unit fraction with a denominator written as a power of 10.
- Compare large and small positive numbers by using *times as much as* language.

8.EE.A.3, MP2, 7–8.Mod1.AD13, 7–8.Mod1.AD14

Lesson 11: Products of Exponential Expressions with Positive Whole-Number Exponents

- Apply the product of powers with like bases property to write equivalent expressions given an expression of the form $x^m \cdot x^n$.

8.EE.A.1, MP8, 7–8.Mod1.AD10

Lesson 12: More Properties of Exponents

- Apply properties of exponents, including raising powers to powers, raising products to powers, and raising quotients to powers.

8.EE.A.1, MP8, 7–8.Mod1.AD10

Lesson 13: Making Sense of Integer Exponents

- Confirm that the definition of the exponent of 0 upholds the properties of exponents.
- Apply the definition of a negative exponent to write equivalent expressions.

8.EE.A.1, MP6, 7–8.Mod1.AD10

Module 2

Topic C: From Ratio Relationships to Proportional Relationships

Lesson 12: An Experiment with Ratios and Rates (Optional)

- Compare different relationships in situations by using ratio and rate reasoning.

7.RP.A.1, 7.RP.A.2.a, MP8, 7–8.Mod2.AD1, 7–8.Mod2.AD2

Lesson 13: Exploring Tables of Proportional Relationships

- Identify proportional relationships represented in tables by calculating constant unit rates.
- Write equations to represent proportional relationships and use them to determine unknown values.

7.RP.A.1, 7.RP.A.2.a, 7.RP.A.2.c, MP2, 7–8.Mod2.AD1, 7–8.Mod2.AD2, 7–8.Mod2.AD4

Lesson 14: Exploring Graphs of Proportional Relationships

- Identify proportional relationships represented as graphs.
- Interpret and make sense of the points $(0, 0)$ and $(1, r)$ in context.

7.RP.A.2.a, 7.RP.A.2.b, 7.RP.A.2.d, MP7, 7–8.Mod2.AD2, 7–8.Mod2.AD3, 7–8.Mod2.AD5

Lesson 15: Relating Representations of Proportional Relationships

- Determine whether a written description represents a proportional relationship.
- Compare proportional relationships.

Module 3

Topic C: Applications of Congruence

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, 7–8.Mod3.AD8, 7–8.Mod3.AD9, 7–8.Mod3.AD15**

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° .
- Use informal arguments to conclude that lines cut by a transversal are parallel when corresponding angles are congruent.

8.G.A.5, MP3, 7–8.Mod3.AD14, 7–8.Mod3.AD15

Lesson 14: 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, 7–8.Mod3.AD14, 7–8.Mod3.AD15

Lesson 15: Proving the Pythagorean Theorem

- Explain a proof of the Pythagorean theorem.
- 8.G.B.6, MP3, 7–8.Mod3.AD17**

Module 4

Lesson 12: Identifying Solutions

- Recognize that a system of linear equations that represents parallel lines has no solution.
 - Analyze a system of linear equations to determine whether a solution exists.
- 8.EE.B, 8.EE.C.8.a, 8.EE.C.8.b, MP7, 7–8.Mod4.AD1, 7–8.Mod4.AD6, 7–8.Mod4.AD9**

Lesson 13: 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, 7–8.Mod4.AD6, 7–8.Mod4.AD8, 7–8.Mod4.AD9**

Lesson 14: 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, 7–8.Mod4.AD7**

Lesson 15: 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.b, MP1, 7–8.Mod4.AD7, 7–8.Mod4.AD9**

Module 5

Lesson 13: 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, 7–8.Mod5.AD1**

Lesson 14: 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° to the base.
- 7.G.A.3, MP7, 7–8.Mod5.AD1**

Lesson 15: Proportionality and Scale Factor of Cross Sections

- Identify the scale factor of cross sections.
 - Express scale factor as a percent.
- 7.G.A.3, MP8, 7–8.Mod5.AD1**

Topic D: Volume

Lesson 16: Volume of Prisms

- Develop and use the formula for finding the volume of any right prism.
- 7.G.B.6, 8.G.C.9, MP7, 7–8.Mod5.AD3**

Lesson 17: Volume of Cylinders

- Develop and use the formula for the volume of a cylinder.
 - Find volumes of oblique cylinders and prisms.
- 7.G.B.6, 8.G.C.9, MP8, 7–8.Mod5.AD3**

Lesson 18: Designing a Fish Tank

- Model real-world problems involving surface area and volume.
- 7.G.B.6, 8.G.C.9, MP4, 7–8.Mod5.AD2, 7–8.Mod5.AD3**

Module 6

Topic D: Comparing Populations

Lesson 15: 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, 7–8.Mod6.AD3, 7–8.Mod6.AD4**

Lesson 16: 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, 7–8.Mod6.AD3, 7–8.Mod6.AD4**

Lesson 17: 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, 7–8.Mod6.AD3, 7–8.Mod6.AD4**

Topic E: Bivariate Numerical Data

Lesson 18: 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, 7–8.Mod6.AD12**

Lesson 19: Patterns in Scatter Plots

- Identify and describe patterns of association between two variables represented in scatter plots.

Module 1

Lesson 14: Writing Very Large and Very Small Numbers in Scientific Notation

- Write numbers given in standard form in scientific notation.
- Order numbers written in scientific notation.

8.EE.A.3, MP3, 7–8.Mod1.AD13

Lesson 15: Operations with Numbers Written in Scientific Notation

- Interpret numbers displayed in scientific notation on digital devices.
- Operate with numbers written in standard form and in scientific notation.

8.EE.A.3, 8.EE.A.4, MP6, 7–8.Mod1.AD14, 7–8.Mod1.AD15, 7–8.Mod1.AD17

Lesson 16: Applications with Numbers Written in Scientific Notation

- Choose appropriate units of measurement and convert units of measurement with numbers written in standard form and in scientific notation.
- Operate with numbers written in scientific notation in real-world situations.

8.EE.A.3, 8.EE.A.4, MP1, 7–8.Mod1.AD14, 7–8.Mod1.AD15, 7–8.Mod1.AD16

Lesson 17: Get to the Point

- Model a situation by operating with numbers in scientific notation.

8.EE.A.3, 8.EE.A.4, MP4, MP5, 7–8.Mod1.AD14, 7–8.Mod1.AD15, 7–8.Mod1.AD16

Module 2

7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.2.d, MP2, 7–8.Mod2.AD3, 7–8.Mod2.AD4, 7–8.Mod2.AD5

Lesson 16: Applying Proportional Reasoning

- Represent rate problems as proportional relationships with equations.
- Solve problems by applying proportional reasoning.

7.RP.A.2.b, 7.RP.A.2.c, 7.RP.A.3, MP2, 7–8.Mod2.AD3, 7–8.Mod2.AD4, 7–8.Mod2.AD6

Lesson 17: Using Proportional Reasoning to Solve Multi-Step Problems

- Solve multi-step ratio problems by using proportional reasoning.

7.RP.A.2.c, 7.RP.A.3, 7.EE.B.3, MP5, 7–8.Mod2.AD4, 7–8.Mod2.AD6, 7–8.Mod2.AD10

Lesson 18: Handstand Sprint

- Model a situation by using a proportional relationship to solve a problem.

7.RP.A.2.c, 7.RP.A.3, 7.EE.B.3, MP4, MP5, 7–8.Mod2.AD4, 7–8.Mod2.AD6, 7–8.Mod2.AD10

Topic D: Percents and Proportional Relationships

Lesson 19: Proportional Reasoning and Percents

- Identify percent as a rate per 100.
- Solve percent problems by using equations of the forms $y = kx$ and $\frac{a}{b} = \frac{c}{d}$.

Module 3

Lesson 16: Proving the Converse of the Pythagorean Theorem

- Explain a proof of the converse of the Pythagorean theorem and use the converse to determine whether a triangle is a right triangle.
- Use the Pythagorean theorem to determine unknown side lengths of right triangles.

8.G.B.6, 8.G.B.7, MP3, 7–8.Mod3.AD17, 7–8.Mod3.AD18

Lesson 17: Applications of the Pythagorean Theorem

- Find the distance between two points in the coordinate plane by using the Pythagorean theorem.
- Apply the Pythagorean theorem to solve real-world and mathematical problems.

8.G.B.7, 8.G.B.8, MP7, 7–8.Mod3.AD18, 7–8.Mod3.AD19

Topic D: Scale Drawings and Dilations

Lesson 18: Scale Drawings

- Determine whether a scale factor produces an enlargement or a reduction in related figures.
- Create a scale drawing by using the proportional relationship that exists between corresponding distances.

7.G.A.1, MP8, 7–8.Mod3.AD1, 7–8.Mod3.AD2

Lesson 19: Finding Actual Distances from a Scale Drawing

- Use a scale factor to find unknown lengths of a scale drawing or of the original figure.

7.G.A.1, MP6, 7–8.Mod3.AD1

Module 4

Lesson 16: 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, 7–8.Mod4.AD6, 7–8.Mod4.AD7, 7–8.Mod4.AD9

Topic D: Writing and Solving Systems of Linear Equations

Lesson 17: 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, 7–8.Mod4.AD7, 7–8.Mod4.AD10

Lesson 18: 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, 7–8.Mod4.AD7, 7–8.Mod4.AD10

Lesson 19: 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, MP1, 7–8.Mod4.AD6, 7–8.Mod4.AD7, 7–8.Mod4.AD8

Module 5

Lesson 19: Volumes of Pyramids and Cones

- Develop and use the formulas for the volume of a pyramid and the volume of a cone.
- Solve problems involving volumes of pyramids and cones.

7.G.B.6, 8.G.B.7, 8.G.C.9, MP6, 7–8.Mod5.AD3, 7–8.Mod5.AD4

Lesson 20: Volume of Spheres

- Develop and use the formula for the volume of a sphere.
- Solve problems involving volumes of cylinders, cones, and spheres.

7.G.B.6, 8.G.C.9, MP6, 7–8.Mod5.AD3

Lesson 21: Volume of Composite Solids

- Find the volume of composite solids.

7.G.B.6, 8.G.C.9, MP1, 7–8.Mod5.AD3

Lesson 22: Volumes of Truncated Cones and Pyramids (Optional)

- Understand that a truncated cone or pyramid is the solid obtained by removing a portion of a cone or pyramid that includes the apex.
- Solve problems involving volumes of truncated cones and pyramids.

7.G.B.6, 8.G.C.9, MP1, 7–8.Mod5.AD3

Lesson 23: Applications of Volume

- Use functions to solve problems involving volumes of cylinders, cones, and spheres.

7.G.B.6, 8.G.C.9, 8.F.B.4, MP1, 7–8.Mod5.AD3, 7–8.Mod5.AD8

Module 6

- Identify and describe outliers and clusters in context.

8.SP.A.1, MP2, 7–8.Mod6.AD12

Lesson 20: Informally Fitting a Line to Data

- Informally fit a line to data displayed in a scatter plot.
- Determine an equation of a line informally fit to data and interpret the slope and y -intercept in context.
- Make predictions based on the graph of a line fit to data.

8.SP.A.2, 8.SP.A.3, MP3, 7–8.Mod6.AD13, 7–8.Mod6.AD14

Lesson 21: 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, 7–8.Mod6.AD13, 7–8.Mod6.AD14

Topic F: Bivariate Categorical Data

Lesson 22: Bivariate Categorical Data

- Construct and interpret a two-way table summarizing a bivariate categorical data set.

8.SP.A.4, MP7, 7–8.Mod6.AD15

Lesson 23: Association in Bivariate Categorical Data

- Determine whether there is evidence of an association between categorical variables that have two possible values.

Module 1

Topic D: Rational and Irrational Numbers

Lesson 18: 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, MP8, 7–8.Mod1.AD11, 7–8.Mod1.AD12

Lesson 19: The Pythagorean Theorem

- Describe the Pythagorean theorem and the conditions required to use it.
- Apply the Pythagorean theorem to determine the length of a hypotenuse.

8.EE.A.2, 8.G.B.7, MP6, 7–8.Mod1.AD11, 7–8.Mod1.AD12, 7–8.Mod1.AD18

Lesson 20: Using the Pythagorean Theorem

- Use square root notation to express lengths that are not rational and place them on a number line.
- Approximate the value of square roots by using whole-number benchmarks.

7.NS.A.2.d, 8.NS.A.1, 8.EE.A.2, MP8, 7–8.Mod1.AD7, 7–8.Mod1.AD11, 7–8.Mod1.AD12

Lesson 21: Approximating Values of Roots

- Approximate values of square roots and cube roots.

8.NS.A.2, 8.EE.A.2, MP8, 7–8.Mod1.AD8, 7–8.Mod1.AD9, 7–8.Mod1.AD12

Module 2

7.RP.A.2.a, 7.RP.A.2.c, 7.RP.A.3, MP7, 7–8.Mod2.AD2, 7–8.Mod2.AD4, 7–8.Mod2.AD7

Lesson 20: Commissions, Fees, and Taxes

- Apply percents in the real-world contexts of commissions, fees, and taxes.

7.RP.A.3, MP2, 7–8.Mod2.AD6, 7–8.Mod2.AD7

Lesson 21: Discount, Markup, Sales Tax, and Tip

- Apply percents in the real-world contexts of discounts, markups, sales tax, and tips.

7.RP.A.3, 7.EE.A.2, MP1, 7–8.Mod2.AD6, 7–8.Mod2.AD7, 7–8.Mod2.AD9

Lesson 22: Percent Increase and Percent Decrease

- Solve percent problems in real-world contexts that involve percent change.

7.RP.A.3, 7.EE.A.2, MP2, 7–8.Mod2.AD6, 7–8.Mod2.AD7, 7–8.Mod2.AD9

Lesson 23: What Is the Best Deal?

- Calculate multiple discounts and discounted prices.
- Calculate the total amount after tax and tip.

7.RP.A.3, 7.EE.B.3, MP1, 7–8.Mod2.AD6, 7–8.Mod2.AD7, 7–8.Mod2.AD10

Lesson 24: Simple Interest

- Calculate simple interest, principal, time, and interest rate.

7.RP.A.3, MP7, 7–8.Mod2.AD6, 7–8.Mod2.AD7

Module 3

Lesson 20: Scale and Scale Factor

- Find unknown measurements in scale drawings through the appropriate use of scales and scale factors.
- 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, MP8, 7–8.Mod3.AD1

Lesson 21: Modeling with Scale Drawings

- Determine the scale factor that relates a second scale drawing to the original figure.
- Model a situation by reproducing a scale drawing at a different scale.

7.G.A.1, MP4, 7–8.Mod3.AD1, 7–8.Mod3.AD2

Lesson 22: Dilations

- Describe dilations and the effects of dilations.
- Apply a dilation with a scale factor greater than 1 to produce an enlargement and with a scale factor greater than 0 and less than 1 to produce a reduction.

7.G.A.1, 8.G.A.3, MP6, 7–8.Mod3.AD1, 7–8.Mod3.AD11

Topic E: Similarity

Lesson 23: 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, 7–8.Mod3.AD11

Lesson 24: Figures and Dilations

- Draw images of figures under dilations with various scale factors.

8.G.A.3, MP5, 7–8.Mod3.AD11

Module 4

Lesson 20: Modeling a Real-World Problem

- Formulate a problem from a context.
- Apply different mathematical tools to model, analyze, and answer a real-world question.

8.EE.C.8.a, 8.EE.C.8.b, 8.EE.C.8.c, MP4, 7–8.Mod4.AD6, 7–8.Mod4.AD8, 7–8.Mod4.AD10



Module 5

Module 6

- Compare and contrast evidence of an association represented in two-way tables and segmented bar graphs.
- 8.SP.A.4, MP6, 7–8.Mod6.AD15, 7–8.Mod6.AD16

Lesson 24: 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, 7–8.Mod6.AD15, 7–8.Mod6.AD16



Module 1

Lesson 22: Rational and Irrational Numbers

- Classify real numbers as rational or irrational by their decimal form.
- Compare and order rational and irrational numbers.

7.NS.A.2.d, 8.NS.A.1, 8.NS.A.2, MP3, 7–8.Mod1.AD7, 7–8.Mod1.AD8, 7–8.Mod1.AD9

Lesson 23: Revisiting Equations with Square 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.

7.NS.A.2.d, 8.NS.A.1, 8.EE.A.2, MP2, 7–8.Mod1.AD7, 7–8.Mod1.AD11, 7–8.Mod1.AD12



Module 2

Lesson 25: Applying Percent Error

- Use absolute error to define percent error.
- Apply percent error to real-world contexts.

7.RP.A.3, MP2, 7–8.Mod2.AD6, 7–8.Mod2.AD7



Module 3

Lesson 25: The Shadowy Hand (Optional)

- Use a mathematical model to explain a real-world situation.
- Apply properties of dilations to make and test predictions.

8.G.A.3, MP4, 7–8.Mod3.AD11

Lesson 26: 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, 7–8.Mod3.AD10, 7–8.Mod3.AD11

Lesson 27: 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, 7–8.Mod3.AD12, 7–8.Mod3.AD13

Lesson 28: 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, 7–8.Mod3.AD12, 7–8.Mod3.AD13, 7–8.Mod3.AD16

Lesson 29: Using Similar Figures to Find Unknown Side Lengths

- Use properties of similar figures to solve real-world problems and find unknown side lengths.

8.G.A.5, 8.G.B.7, MP2, 7–8.Mod3.AD16, 7–8.Mod3.AD18



Module 4

Module 5

Module 6