Bluebonnet Learning

Secondary Mathematics

EDITION 1

Grade 6

Scope and Sequence
150-Day Pacing

Acknowledgment

Thank you to all the Texas educators and stakeholders who supported the review process and provided feedback. These materials are the result of the work of numerous individuals, and we are deeply grateful for their contributions.

Notice

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1 Composing and Decomposing

Module Pacing: 26 Days

TOPIC 1: Factors and Multiples

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 1A, 1.C, 1.E, 1.G, 1.H, 2.C, 2.D, 2.I, 3.B, 3.D, 3.E, 3.F, 4.C, 4.E, 4.F, 4.G, 4.H

Topic Pacing: 12 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
	Introduction to the Problem-Solving Model and Learning Resources	Students reflect on learning a new skill and the variety of ways they learn. The problem-solving model, TEKS mathematical process standards, and the Academic Glossary help students complete a problem-solving activity. Students reflect on and summarize the problem-solving process. Since the intent of this lesson is to introduce the problem-solving model and review the TEKS mathematical process standards, the focus is on process, not content. Students will need access to the Academic Glossary, Problem-Solving Model Graphic Organizer, Problem-Solving Questions to Ask, and TEKS Mathematical Process Standards, which are located in the Course Guide. These materials should always be available tostudents throughout the course.	• Create a classroom of collaboration and establish the learning process as a partnership between you and your students. • Communicate continuously with students about the objectives of the lesson to encourage self-monitoring of their learning. • The problem-solving model involves noticing patterns and formulating questions, organizing information and representing this information using appropriate mathematical notation, analyzing mathematical representations and using them to make predictions, and then testing predictions, predicting, and sharing the results. • The TEKS mathematical process standards describe the ways in which students are expected to engage in content. • The Academic Glossary is a resource that helps students think, reason, and communicate their ideas.	6.7D	0
1	Writing Equivalent Expressions Using the Distributive Property	Students divide area models in different ways to see that the sum of the areas of the smaller regions equals the area of the whole model. They then rewrite the product of two factors as a factor times the sum of two or more terms, leading to the formalization of the distributive property.	• The area of a rectangle is the product of its length and width. • You can illustrate the distributive property using an area model of a rectangle with side lengths ***a*** and (***b*** + ***c***). • The *distributive property* states that for any numbers a, b, and c, $a(b + c) = ab + ac$. • You can rewrite equivalent expressions using properties.	**6.7D** **6.8D**	1
2	Identifying Common Factors and Common Multiples	Students construct rectangles with given areas and relate their dimensions to factors and common factors. They create prime factorizations to determine the greatest common factor (GCF) and least common multiple (LCM) of two numbers. Students examine the rows and columns of an area model to identify multiples and the LCM. They describe the relationship between the product, GCF, and LCM.	• Prime factorization is a method to determine common factors and common multiples of two numbers. • The *greatest common factor (GCF)* of two numbers is the largest factor shared by the two numbers. • The *least common multiple (LCM)* of two numbers is the smallest non-zero multiple shared by the two numbers. • The commutative and distributive properties are properties used to generate equivalent expressions. • If two numbers a and b are relatively prime, then the GCF$(a, b) = 1$ and the LCM$(a, b) = ab$.	**6.7A** **6.7D** **6.8D**	2
3	Dividing a Whole into Fractional Parts	Students create strip diagrams for unit fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{12}$, and $\frac{1}{16}$. They identify equivalent fractions by aligning the strip diagrams on the fold lines and then complete a graphic organizer to represent all the equivalent fractions represented by the strip diagrams. Students conclude that the numerator and denominator of equivalent fractions are multiples of the original unit fractions.	• Strip diagrams are used to compare fractions with different denominators. • A *unit fraction* is a fraction that has a numerator of 1 and a denominator that is a positive integer. • *Equivalent fractions* are fractions that represent the same part-to-whole relationship. • Equivalent fractions are fractions generated by multiplying both the numerator and denominator by the same factor.	6.4F 6.5C	1

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
4	Benchmark Fractions	Students translate their understanding of strip diagrams to number lines. They use the benchmark fractions 0, $\frac{1}{2}$, and 1 to estimate the value of fractions, write fractions that are close to these benchmarks, and estimate sums. Students solve a problem which involves comparing fractions that represent shaded parts of figures.	• *Benchmark fractions* are common fractions used to estimate the value of fractions such as 0, $\frac{1}{2}$, and 1. • A fraction is close to 0 when the numerator is very small compared to the denominator. • A fraction is close to $\frac{1}{2}$ when the numerator is about half the size of the denominator. • A fraction is close to 1 when the numerator is very close in size to the denominator.	**6.2D** 6.4F	1
5	Multiplying Fractions	Students review the area model for multiplication and apply it to multiplying mixed numbers. They analyze two methods for multiplying mixed numbers and then use these methods to answer questions in the context of a real-world scenario.	• Area models can be used to illustrate the multiplication of two fractions, which is essentially the same as taking a part of a part. • An area model representing the multiplication of two mixed numbers can be tiled with fractional unit squares to express the product as a fraction greater than 1. • The product of two fractions represented by an area model is the same as the product of the fractions calculated using the standard algorithm.	6.3B **6.3E**	**1**
6	Fraction by Fraction Division	Students connect multiplication to division by writing fraction fact families for area models. They then use strip diagrams and number line models to investigate the division of fractions by fractions. Students use these models to develop an algorithm for rewriting division sentences as multiplication sentences. They apply the algorithm to solve problems involving fractions and mixed numbers.	• Area models and fact families can be used to illustrate the quotients of fractions. • The *reciprocal* or *multiplicative inverse* of a number $\frac{a}{b}$ is the number $\frac{b}{a}$, where a and b are nonzero numbers. • To calculate the quotient of two fractions, multiply the dividend by the reciprocal of the divisor. • There are other algorithms to divide fractions, such as dividing across in special cases and using complex fractions as a form of 1.	6.2E 6.3A **6.3E**	**2**
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					3

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TOPIC 2: Shapes and Solids

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 1.A, 1.C, 1.E, 1.F, 2.C, 2.E, 2.I, 3.B, 4.C, 4.F, 5.B, 5.F

Topic Pacing: 9 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Constructing Triangles Given Sides	Students use patty paper, pasta, and construction tools to explore the information required to create no triangles, unique triangles, or multiple triangles when given two or three possible side lengths. They learn that an infinite number of triangles can be made from only two side lengths. They also learn that unique triangles are formed when provided with three segments that are sufficiently long in relation to each other. Students should note that when all the measures of a triangle are the same as another triangle, even though they are in different orientations, the provided information creates a unique triangle. Students then summarize their knowledge of the conditions that form 0, 1, or multiple triangles.	• Constructing a triangle given the length of two sides does not result in the construction of a unique triangle. • Constructing a triangle given the length of three segments, such that the sum of two segment lengths is greater than the third length, results in the construction of a unique triangle.	6.8A	**1**

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
2	Triangle Sum Theorem	Students explore and justify the relationships between angles and sides in a triangle. They establish the *Triangle Sum Theorem* and use the theorem as they explore the relationship between interior angle measures and the side lengths of triangles. They then practice applying the theorem.	• The *Triangle Sum Theorem states* that the sum of the measures of the interior angles of a triangle is 180°. • The longest side of a triangle lies opposite the largest interior angle. • The shortest side of a triangle lies opposite the smallest interior angle.	6.8A	1
3	Area of Triangles and Quadrilaterals	Students use previously known area formulas and the principle of area conservation to investigate the areas of parallelograms, triangles, and trapezoids. They use this knowledge to develop formulas for the areas of these shapes, practice calculating areas, and solve area-related problems. Students learn that the choice of base or height does not affect the area of the shape.	• The formula for the area of a rectangle is $A = \ell w$, where A is the area of the rectangle, ℓ is the length of the rectangle, and w is the width of the rectangle. • The formula for the area of a parallelogram is $A = bh$, where A is the area of the parallelogram, b is the length of the base of the parallelogram, and h is the height of the parallelogram. • The formula for the area of a triangle is $A = \frac{1}{2}bh$, where A is the area of the triangle, b is the length of the base of the triangle, and h is the height of the triangle. • The formula for the area of a trapezoid is $A = \frac{1}{2}h(b^1 + b^2)$, where A is the area of the trapezoid, h is the height of the trapezoid, and b^1 and b^2 are bases of the trapezoid.	6.8B 6.8C **6.8D**	2
4	Volume of Rectangular Prisms	In this lesson, students recall that they can calculate the volume of rectangular prisms using $V = \ell wh$ and $V = Bh$. They connect the formulas through the context of building a backyard barbecue. Students then practice solving real-world problems.	• *Volume* is the amount of space occupied by an object. • The formula for the volume of a cube is $V = \ell \cdot w \cdot h$, where ℓ is the length, w is the width, and h is the height, or $V = B \cdot h$, where B is the area of the base and h is the height.	6.8C **6.8D**	2
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					2

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TOPIC 3: Decimals

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1F, 6.1G

ELPS: 1.D, 2.E, 3.D, 4.A, 4.B, 4.F, 5.A, 5.F, 5.G

Topic Pacing: 5 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Plotting, Comparing, and Ordering Rational Numbers	In this lesson, students investigate place value by using a human number line to plot decimal values. They plot given decimals on a number line and identify other decimals that lie between them. Students create a rule to compare decimals and apply their rule in context. They use a number line to compare decimals and fractions.	• A decimal is a number written in a system based on multiples of 10 and is another way to represent parts of a whole. • You can plot any decimal value on a number line by determining between which two known values it lies. • There is always a value between any two points on a number line. • When comparing two decimal values, rewrite them so that they have the same number of decimal places. • When comparing a fraction and a decimal, consider their placements on a number line.	6.2C **6.2D**	**1**

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
2	Multiplying Decimals	In this lesson, students use an area model on a hundredths grid to represent the multiplication of two decimals less than one. They use estimation to reason about the placement of the decimal point in multiplication problems and then analyze patterns to develop the algorithm for multiplying decimals. Students solve area and volume problems that require multiplying, adding, and subtracting decimals.	• An area model using a hundredths grid can represent the product of two decimals less than one. • Use estimation to determine if the product of two decimal factors is reasonable. • When multiplying decimals, the number of decimal places in the product is equal to the sum of the decimal places in the factors. • You can use the standard algorithms for decimal addition, subtraction, and multiplication to solve real-world problems.	**6.3E** **6.8D**	1
3	Dividing Decimals	In this lesson, students use the standard algorithm for long division with whole numbers. They demonstrate how the algorithm works for decimal dividends by relating it to a model and make sense of why the algorithm is modified to accommodate decimal divisors. Students solve area and volume problems requiring decimal division.	• The long division algorithm is based on an organized estimation process to determine the quotient. • When you have a decimal divisor, multiply it by a power of ten to convert it to a whole number. Then, multiply the dividend by the same power of ten. Because you multiplied both the dividend and divisor by the same power of ten, the quotient will be the same as the quotient of the original problem. • You can use the standard algorithms for whole number and decimal division to solve real-world problems. • Use estimation to determine whether the quotient of a division problem is reasonable.	**6.3E** **6.8D**	1
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					1

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2 Relating Quantities

Module Pacing: 36 Days

TOPIC 1: Ratios and Rates

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1G

ELPS: 1.C, 1.E, 2.A, 2.C, 2.D, 2.G, 2.H, 3.B, 3.D, 3.E, 4.C, 4.F, 4.J, 4.K, 5.E, 5.F

Topic Pacing: 18 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Introduction to Ratio and Ratio Reasoning	Students differentiate between additive and multiplicative reasoning in preparation for the study of ratios. The term *ratio* is defined as a multiplicative comparison between two quantities that may contain the same or different units. Students compare quantities using part-to-part and part-to-whole ratios. They write ratios in words, colon notation, and fractional form. They identify fractions and percents as special types of part-to-whole ratios.	• The term ratio is defined as a multiplicative comparison between two quantities that may contain the same or different units • Ratios can be expressed using words, with a colon, or in fractional form. • A ratio can represent part-to-whole or part-to-part relationships. • Fractions and percents are special types of part-to-whole ratios.	6.4A 6.4C 6.4E	2
2	Comparing Ratios and Rates to Solve Problems	Students are introduced to the term *rate*. Students explore ratios and rates in different real-world situations. They decide which of two or more ratios or rates in each situation is greater using qualitative and quantitative reasoning. Students compare part-to-part and part-to-whole ratios represented pictorially, verbally, and numerically. The focus in this lesson is on reasoning rather than computation.	• A ratio is a multiplicative comparison between two quantities that may contain the same or different units. • Qualitative comparisons are made in the absence of numeric values. • A *rate* is a special type of ratio that compares two quantities measured with different units.	**6.4B** 6.4C	2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
3	Determining Equivalent Ratios and Rates	Students are introduced to formal strategies to determine equivalent ratios and rates, including pictures, strip diagrams, scaling up/down, and double number lines. They solve a variety of real-world problems using these strategies to create equivalent equations. An example of scaling up ratios is provided, and students use the example to answer questions in various contexts. The definitions of *scaling up*, *scaling down*, and *scale factor* are provided. Students then determine equivalent ratios by either scaling up or scaling down both parts of the ratio by a scale factor. A *double number line* is introduced. They use double number lines to represent the proportional relationship between two quantities and solve for unknown quantities.	• Models are used to represent ratio and rate relationships and to solve real-world problems. • A ratio is a multiplicative comparison between two quantities that may contain the same or different units. • A rate is a comparison by division between two quantities that have different units. • When two rates or ratios are equal to each other, they can be written as a proportion. • A *proportion* is an equation that states two ratios or rates are equal. • When writing a proportion, the numbers representing the same quantity must be placed in both numerators or in both denominators. The unit of measurement must be consistent among the ratios or rates. • *Scaling up* means to multiply both parts of a ratio/rate by the same scale factor greater than 1, or divide both parts of a ratio/rate by the same scale factor less than 1. • *Scaling down* means to divide both parts of a ratio/rate by the same factor greater than 1, or multiply both parts of a ratio/rate by the same scale factor less than 1. • A *double number line* is a model that is made up of two number lines used to represent the equivalence of two related numbers. The intervals on each number line maintain the same ratio/rate.	**6.4B** 6.4C 6.4E 6.5A 6.5C	3
4	Using Tables to Represent Equivalent Ratios and Rates	Students use tables in different ways to determine equivalent ratios and rates. They multiply or divide existing ratios and rates by a common factor to determine equivalent ratios, in a table, just as they did in scaling. Students learn that existing relationships in a ratio table or rate table can be added to form new equivalent ratios and rates. They then complete equivalent ratio and rate tables for different proportional situations.	• Ratios and rates are used to represent proportional relationships in the real world. • Equivalent ratios and rates are generated within the context of a situation using addition, subtraction, multiplication, and division.	**6.4B** 6.4D 6.5A	2
5	Graphs of Ratios and Rates	Students investigate rectangles with a common ratio of side lengths and those with a constant difference in side lengths. They graph the dimensions of the rectangles on a coordinate plane and conclude that equivalent ratios represented on the coordinate plane form a straight line that passes through the origin. Students analyze a rate that is represented using a table, double number line, and coordinate plane. The models are connected and used to solve real-world problems.	• Equivalent ratios and rates can be represented by tables, double number lines, and on coordinate planes. • A ratio or rate $\frac{y}{x}$ is plotted as the ordered pair (x, y). • Equivalent ratios and rates represented on the coordinate plane form a straight line that passes through the origin.	6.4C 6.4E 6.5A **6.6C**	2
6	Using and Comparing Ratio and Rate Representations	Graphs and double number lines of real-life situations are given. Students interpret the points on the graphs in terms of the problem situation. They determine unknown ratios and rates using either a specified strategy or the strategy of their choice. Students also contrast representations of additive and multiplicative relationships. Students then create a graphic organizer to show how equivalent ratios can be modeled through four representations: scale up/scale down, tables, double number lines, and graphs.	• Equivalent ratios represented by tables, double number lines, and on coordinate planes can be used to solve real-world and mathematical problems. • Equivalent ratios represented on the coordinate plane form a straight line that passes through the origin.	6.4A 6.5A **6.6C**	3
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					**3**

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TOPIC 2: Percents

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1G

ELPS: 3.B, 3.D, 3.E, 3.F, 4.C, 4.F, 4.K, 5.F

Topic Pacing: 8 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Percent, Fraction, and Decimal Equivalence	Students learn about the relationships between percents, fractions, and decimals. In the first activity, students analyze the results of a survey of one hundred students. They complete a table by writing the ratio, fraction, and decimal equivalences for each result. Students use hundredths grids to model the result, and they then write the percent equivalence. They are reminded that percents are special types of part-to-whole ratios. A *percent* is described as a fraction in which the denominator is 100 and the % symbol represents the phrase "out of 100." Students write numbers in equivalent forms to represent real-world problems and use number lines to indicate the equivalent fraction, decimal, and percent represented by the markers on the number line. They analyze reasoning about combining ratios into an overall percent. They then play a percentage match game to identify equivalent representations. A chart is provided in the summary to highlight common fraction, decimal, and percent equivalents.	• Percent is a part-to-whole ratio with a whole of 100. The symbol "%" means "out of 100." • The hundredths grid can be used to represent a fraction, decimal, or percent. • To write a fraction as a percent, scale up or down to an equivalent fraction with a denominator of 100, when possible. • To write a fraction as a percent, divide the numerator by the denominator and move the decimal in the quotient two places to the right.	6.2C 6.4E 6.4F **6.4G** 6.5C	**1**
2	Using Estimation and Benchmark Percents	Students begin the lesson building fluency with ordering fractions, decimals, and percents. They then estimate the percent of cylinders, circles, and squares that are partially shaded. Students write estimates as fractions, decimals, and percents. *Benchmark percents* are introduced to help students mentally estimate the value of a percent. They then use technology to investigate the values of 1% and 10% of several numbers. Students write rules about moving the decimal two places to the left to determine 1% of any number and moving the decimal one place to the left to determine 10%. Various scenarios are presented in which students are asked to estimate and calculate percents.	• Percent is a fraction in which the denominator is 100. The symbol "%" means "out of 100." • A *benchmark percent* is a percent that is commonly used, such as 1%, 5%, 10%, 25%, 50%, and 100%. • Calculating 1% of any number is the same as moving the decimal point two places to the left. • Calculating 10% of any number is the same as moving the decimal point one place to the left. • Benchmark percents can be used to perform mental estimation and calculation of percents.	**6.2D** 6.4E 6.4F **6.4G**	2
3	Determining the Part and the Whole in Percent Problems	Percent problems involve three quantities: the part, the whole, and the percent. In this lesson, students solve for the percent, given the part and the whole, solve for the whole, given the percent and the part, and solve for the part, given the percent and the whole. They set up a proportion where the percent, when known, is written as a fraction with a denominator of 100. They then determine the unknown using multiplication.	• Percent problems involve three quantities: the part, the whole, and the percent. • When calculating the whole, given the percent and the part, write the percent as a fraction with a denominator of 100 and set it equal to the part over *x*. Then, solve for *x*. • When calculating the part, given the whole and the percent, write the percent as a fraction with a denominator of 100 and set it equal to *x* over the whole. Then, solve for *x*.	**6.3E** **6.4G** **6.5B**	2
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

TOPIC 3: Unit Rates and Conversions

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1E, 6.1F, 6.1G

ELPS: 1.A, 2.C, 3.B, 3.I, 3.J, 4.C, 5.E, 5.F

Topic Pacing: 10 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Using Ratio Reasoning to Convert Units	Students deepen their understanding of converting units of measurement through the use of ratio reasoning and strategies for determining equivalent ratios. The term *convert* is defined, and students use approximate conversion rates to estimate measurement conversions before engaging with formal methods of converting. Converting among units of measurement in the same system is recast in terms of conversion ratios, which can also be called conversion rates. Students use ratio reasoning and strategies to *convert* within the U.S. customary system and the metric system. Students use double number lines, ratio tables, and scaling up and down to convert units of measurement. They analyze Worked Examples of the different strategies. For scaling up and down, students explain why one conversion ratio is more appropriate than the other. Finally, students are introduced to unit analysis as a strategy for converting between units of measurement. They practice using unit analysis in problems about distance, money, and area. Students also use multiple conversions to convert to a desired unit. They make choices about which strategy to use when converting between units of measurement.	• When a smaller unit of measure is converted to a larger unit of measure, the larger unit of measure has fewer units. • When a larger unit of measure is converted to a smaller unit of measure, the smaller unit of measure has more units. • All of the strategies used to determine equivalent ratios (double number lines, ratio tables, scaling up and down) can be used to convert between units. • Unit analysis is a strategy for converting units that ensures the correct calculations and units in the final result.	**6.4H**	2
2	Introduction to Unit Rates	Unit rates are introduced. Students utilize models to estimate unit rates two different ways. They compare the different methods and conclude that both methods lead to correct solutions. Students write unit rates that compare the same quantities in two different ways. They then use proportional reasoning with unit rates to determine the best buy. Students compute unit rates to make comparisons about gas mileage, loaves of bread per person at a dinner, the speed of runners, baking times, cafeteria milk sales, and the speed of buses. Finally, they complete problems about constant speeds and determine multiple numbers of various items.	• A rate is a ratio in which the two quantities being compared are measured in different units. • A *unit rate* is a comparison of two measurements in which the denominator has a value of one unit. • Unit rates along with proportional reasoning are used to calculate best buys • Unit rates are used to make comparisons involving rates.	**6.4B** 6.4D	3
3	Multiple Representations of Unit Rates	Students use what they know about unit rates to further develop flexible thinking and problem solving with unit rates in different situations using a variety of representations, including tables and graphs. The lesson begins with students investigating a speedometer as a double number line. Students then reason with unit rates in various mathematical and real-world situations, including measuring the diagonals of a Golden Rhombus and investigating the speed of the Duquesne Incline. Finally, students demonstrate their learning by creating a situation of their own to represent the graph of equivalent rates.	• Equivalent rates can be represented through tables, double number lines, and on coordinate planes. • Points on a straight line that pass through the origin describe equivalent rates. • Unit rates are helpful when making comparisons.	6.4D 6.5A	**1**
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					3

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

3 Moving Beyond Positive Quantities

Module Pacing: 22 Days

TOPIC 1: Signed Numbers and the Four Quadrants

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 2.D, 2.I, 3.C, 3.D, 3.F, 4.C, 4.F, 4.G

Topic Pacing: 9 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Introduction to Negative Numbers	Students extend their knowledge of number to the negatives by building on prior knowledge of ordering positive rational numbers and plotting them on a number line. Students learn that *opposite* on a number line means to reflect over the origin. They also learn that the negative sign is used as notation for opposites. Students explain the meaning of 0, positive numbers, and negative numbers in a variety of contexts.	• Positive and negative numbers describe quantities having opposite directions or values. • Positive and negative numbers are used in real-world situations. • Zero has different meanings in different real-world situations.	6.2C **6.2D**	2
2	Absolute Value	Students formalize the idea that opposites are the same distance from zero and call this distance the absolute value of a number. Students continually revisit the meaning of absolute value, focusing on distance from 0. Students evaluate absolute value statements and compare numbers using absolute values. Students solve problems using absolute value statements.	• The distance from zero is the *absolute value*, or magnitude, of a rational number. • Absolute values are used to describe real-world situations. • Absolute value equations are used to compute distance on a number line.	6.2B	**1**
3	Rational Number System	Students formally classify numbers as rational numbers and understand that all numbers they have studied so far are subsets of the rational numbers. Students sort and classify numbers. They investigate the density of rational numbers by locating rational numbers between other rational numbers.	• *Rational numbers* are the set of numbers that can be written as $\frac{a}{b}$, where a and b are integers and b does not equal 0. • The set of rational numbers includes the sets of integers, whole numbers, and natural numbers. • Given two rational numbers, there exists an infinite number of rational numbers between those numbers.	6.2A 6.2C	2
4	Extending the Coordinate Plane	Students build from working with rational numbers, including integers, fractions, and decimals on a number line to rational numbers on a coordinate plane. They identify the four quadrants, identify points, and make generalizations about points located in given quadrants. Students determine distances between two points that have a common coordinate.	• The coordinate plane is used to plot ordered pairs of rational numbers. • The coordinate plane has 4 *quadrants* that are named with Roman numerals. • The relationship between two ordered pairs differing only by signs is a reflection across one or both axes. • Absolute value equations are used to determine the distance between two points that share an x-coordinate or a y-coordinate.	**6.2B** **6.11A**	**1**
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

*Bold TEKS = Readiness Standard

TOPIC 2: Operating with Integers

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 1.A, 1.D, 1.G, 2.G, 2.H, 3.B, 3.C, 3.E, 3.F, 4.G, 5.E

Topic Pacing: 13 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Using Models to Understand Integer Addition	A math football game is used to model the sum of positive and negative integers. Rules for the game and a game board are provided. Students use number cubes to generate the integers. They then take that same information and write integer equations.	• A model can be used to represent the sum of a positive and negative integer, two negative integers, or two positive integers. • Information from a model can be rewritten as an equation.	6.3C	1
2	Adding Integers, Part I	A number line is used to model the sum of two integers. Students begin the lesson by walking a number line on the floor of the classroom. Through a series of activities, students notice patterns for adding integers. After the kinesthetic activity, students examine a Worked Example and then practice calculating sums of positive and negative numbers using a number line model. Questions focus students on the distance an integer is from 0 on the number line, or the absolute value of the integer, to anticipate writing a rule for the sum of two integers having different signs. Students demonstrate their understanding of the patterns by writing informal rules for adding integers. Finally, they use a number line model to determine unknown values in equations.	• On a number line, when adding a positive integer, move to the right. • On a number line, when adding a negative integer, move to the left. • When adding two positive integers, the sign of the sum is always positive. • When adding two negative integers, the sign of the sum is always negative. • When adding a positive and a negative integer, the sign of the sum is the sign of the number that is the greatest distance from zero on the number line.	6.3C **6.3D**	2
3	Adding Integers, Part II	Through a series of activities with two-color counters, students develop rules for adding integers. Students determine that to have a sum of zero, two integers must have opposite signs but the same absolute value. Examples of modeling the sum of two integers with opposite signs using two-color counters are provided. The counters are paired together, one positive counter with one negative counter, until no possible pairs remain. The resulting counters determine the sum of the integers. Several models are given, and students write a number sentence to represent each model. Students critique reasoning about using the two-color counters to model adding integers. They draw models for given number sentences and create number sentences for given models. They create a graphic organizer to represent the sum of additive inverses using a variety of representations.	• Opposite quantities in real-life situations combine to make 0. • Two numbers with the sum of zero are called *additive inverses*. • When two integers have the same sign and are added together, the sign of the sum is the sign of both integers. • When two integers have opposite signs and are added together, the integers are subtracted and the sign of the sum has the sign of the integer with the greater absolute value.	6.3C **6.3D**	2
4	Subtracting Integers	Number lines and two-color counters are used to model subtraction of signed numbers. Through a series of activities, students will develop rules for subtracting integers. As in the lesson on adding signed numbers, the number line method is used to model the difference between two integers. Students then learn how to use zero pairs when performing subtraction using the two-color counter method. Students analyze real-world situations that require calculating the distance between two signed numbers. They build on what they already know about absolute value to determine the distance.	• Subtraction of integers can be modeled using a number line and two-color counters. • Subtracting two negative integers is similar to adding two integers with opposite signs. • Subtracting a positive integer from a positive integer is similar to adding two integers with opposite signs. • Subtracting a positive integer from a negative integer is similar to adding two negative integers. • Subtracting two integers is the same as adding the opposite of the subtrahend, the number you are subtracting.	6.3C **6.3D**	**2**

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
5	Multiplying and Dividing Integers	Two-color counters and number lines are used to model the product of two integers. Through a series of activities, students develop rules to determine the sign of a product or quotient of two integers. They conclude that multiplying or dividing two positive integers or two negative integers always results in a positive product or quotient, and that multiplying or dividing a positive integer by a negative integer always results in a negative product or quotient. Questions focus students on the sign of a product resulting from the multiplication of two positive integers, two negative integers, and one positive and one negative integer. Students apply this knowledge to determine the sign of the product that results from multiplying three or more integers.	• Multiplication of integers can be modeled using a number line or two-color counters. • The product that results from multiplying two positive integers is always positive. • The product that results from multiplying two negative integers is always positive. • The product that results from multiplying a negative integer and a positive integer is always negative. • The product that results from multiplying an odd number of negative integers is always negative. • The product that results from multiplying an even number of negative integers is always positive. • Division and multiplication are inverse operations.	6.3C **6.3D**	2
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					**3**

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

4 Determining Unknown Quantities

Module Pacing: 48 Days

TOPIC 1: Expressions

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 1.B, 1.C, 1.G, 2.D, 2.G, 2.I, 3.D, 3.F, 4.A, 4.C, 4.G

Topic Pacing: 12 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Evaluating Numeric Expressions	Students write and simplify numeric expressions. The terms *power*, *base*, and *exponent* are revisited, and the terms *perfect square*, *perfect cube*, and *order of operations* are introduced and defined. Students create numeric expressions to represent geometric models and draw geometric models to represent numeric expressions. Students learn that an expression represents a relationship between quantities, rather than a recipe to perform operations on values. Students apply the order of operations and prime factorization to evaluate and rewrite numeric expressions.	• A numeric expression is a mathematical phrase containing numbers. • To simplify a numeric expression means to calculate an expression to get a single value. • Parentheses are symbols used to group numbers and operations, and they are used to change the normal order in which operations are performed. • The *order of operations* is a set of rules that ensures the same result every time an expression is simplified. 1. Simplify expressions inside parentheses or grouping symbols, such as ( ) or [ ]. 2. Simplify terms with exponents. 3. Multiply and divide from left to right. 4. Add and subtract from left to right.	**6.3D** **6.7A**	2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

150-Day Pacing

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
2	Introduction to Algebraic Expressions	Students write algebraic expressions and evaluate numeric expressions. They practice writing algebraic expressions for mathematical word sentences and then reverse the process. Students decompose given algebraic expressions by stating the number of terms in each algebraic expression and listing the terms. Students conclude the lesson by evaluating algebraic expressions individually and in table form. Finally, they practice composing algebraic expressions from verbal phrases written with mathematical terminology.	• A *variable* is a letter or symbol used to represent quantities. • An *algebraic expression* is a mathematical phrase involving at least one variable and sometimes numbers and operation symbols. • Situations can be expressed using algebraic expressions. • A numerical *coefficient* is a number, or quantity, that is multiplied by a variable in an algebraic expression. • When a variable does not have a coefficient, it is understood to be 1. • A constant is a number, or quantity, that does not change its value. • To evaluate an algebraic expression, substitute the given values for the variables and then apply the order of operations to the numerical expression.	**6.3D** 6.7B	2
3	Equivalent Expressions	Students consider a situation about packing two suitcases for a camping trip and then combining the contents of the suitcases to model the need to combine like terms in algebraic expressions. Students model and simplify algebraic expressions first by using algebra tiles to make sense of combining like terms and then by using the rules and properties. Algebra tiles are then used as a method to make sense of the distributive property. Students rewrite expressions using the distributive property, the order of operations, and combining like terms. Then, students use algebra tiles to apply the distributive property to division problems. Finally, students rewrite expressions as a product of two factors.	• Algebra tiles are a helpful tool to make sense of rewriting algebraic expressions. • *Like terms* are two or more terms that have the same variable raised to the same power. • The *distributive property* states that if a, b, and c are any real numbers, then $a(b + c) = ab + ac$. Because subtraction is a special form of addition and division is a special form of multiplication, the distributive property can also be expressed as $a(b - c) = ab - ac$, $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$, and $\frac{a-b}{c} = \frac{a}{c} - \frac{b}{c}$. • An algebraic expression can be written as the product of two factors by applying the distributive property.	6.7C **6.7D**	2
4	Verifying Equivalent Expressions	Students begin by reviewing the properties of numbers and operations that they have formally or informally studied in the past. This allows students to use properties as they rewrite algebraic expressions in equivalent forms. Students analyze pairs of expressions. They use properties, graphs, and algebra tiles to show that the expressions are or are not equivalent. This opens the discussion that one non-example is necessary to disprove a claim, while an infinite number of examples are necessary to prove a claim.	• The commutative properties of addition and multiplication state that the order in which you add or multiply two or more numbers does not affect the sum or the product. • The associative properties of addition and multiplication state that changing the grouping of the terms in an addition or multiplication problem does not change the sum or product. • The distributive property states that if a, b, and c are any real numbers, $a(b + c) = ab + ac$. Because subtraction is a special form of addition and division is a special form of multiplication, the distributive property can also be expressed as $a(b - c) = ab - ac$, $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$, and $\frac{a-b}{c} = \frac{a}{c} - \frac{b}{c}$. • Two algebraic expressions are *equivalent expressions* if, when the same value is substituted for the variable into each expression, the results are equal. • Two algebraic expressions can be proven to be equivalent by: (1) using the properties of numbers and operations to simplify them until they are written the exact same way. (2) graphing each expression on the same graph to determine if their graphs are the same; and (3) modeling each expression with algebra tiles, to determine if they have the same number of each type of tile.	6.7C **6.7D**	2
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					3

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

TOPIC 2: Equations and Inequalities

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1D, 6.1E, 6.1F, 6.1G
ELPS: 2.C, 2.E, 2.F, 3.B, 3.D, 4.A, 4.B, 4.D, 4.F, 4.G, 4.J, 5.A, 5.B, 5.C, 5.E, 5.G

Topic Pacing: 17 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	**Reasoning with Equal Expressions**	Students learn that an equation is a mathematical sentence created by equating two expressions. They create equations from a list of expressions and determine the solutions to their equations using substitution. Students learn that equations may have one solution, no solution, or infinite solutions. Students use properties of equality to write equations that have the same solution as a given equation. They identify the zero property of multiplication, the identity property of multiplication, and the identity property of addition. students are introduced to algebraic inequalities by analyzing their graphs and solution sets, including inequalities of the form $x > c$ and $x < c$. Students write inequalities represented on a number line and graph the solution sets of other algebraic inequalities. Then, they consider how many solutions an inequality may have.	• A *solution* to an equation is any value for a variable that makes the equation true. • The properties of equality state that when the same operation is performed on both sides of the equation, equality is maintained. • The *graph of an inequality* in one variable is the set of all points on a number line that make the inequality true. • The *solution set of an inequality* is the set of all points that make the inequality true.	**6.3D** 6.7B **6.7D** 6.9A 6.9B 6.10B	3
2	**Solving One-Step Addition Equations**	Students use bar models to solve a variety of one-step addition equations. They analyze Worked Examples and solution strategies to develop an understanding of using bar models to solve addition equations. The term *inverse operations* is defined. Students use properties of arithmetic and algebra to solve addition equations without using models. They eventually use the subtraction property of equality to solve a variety of addition equations where the solutions also include integers. Finally, students summarize how to solve and check one-step addition equations.	• A *one-step equation* is an equation that can be solved using only one operation. • A *solution to an equation* is any value for a variable that makes the equation true. • To solve an equation, you must isolate the variable by performing *inverse operations*. • The properties of equality state that when you perform the same operation on both sides of an equation, equality is maintained.	**6.3D** **6.10A** 6.10B	**1**
3	**Solving One-Step Multiplication Equations**	Students reason about and solve a variety of one-step multiplication equations of the form $px = q$, where p, x, and q are non-negative rational numbers. They first analyze Worked Examples and create bar models to understand the structure of equations in this form and reason about their solutions to the problems they represent. Through composition and decomposition to isolate the variable using bar models, students are primed to formalize their strategies using inverse operations and the properties of equality. Students then solve multiplication equations without using models and provide justification for their solution strategies. Finally, students analyze a set of equations and determine the most efficient solution strategy based on the form of the multiplication equation.	• A solution to an equation is any value for a variable that makes the equation true. • A one-step equation is an equation that can be solved using only one operation. • To solve an equation, you must isolate the variable using properties of equality. • The properties of equality state that when you perform the same operation on both sides of an equation, equality is maintained.	6.9A **6.10A** 6.10B	**2**
4	**Solving Equations to Solve Problems**	Students solve a variety of real-world and mathematical problems that can be modeled by one-step equations. They are introduced to literal equations and use the skills learned in the previous lessons to solve them. Students are then presented with a set of direct statement problems as a way to introduce a mathematical structure (defining variables, writing an equation, solving the equation, and interpreting the solution) to solve real-world problems. This activity is followed by a set of problems that are not as straightforward in nature, which require the use of area formulas, the volume formula for a rectangular prism, and angle sums.	• A mathematical framework can be used to solve real-world problems. • Variables can be used to represent quantities in expressions describing real-world values. • Equations can be used to model relationships between variables. • To solve an equation, you must isolate the variable by performing inverse operations.	6.8C **6.8D** 6.9A 6.9C **6.10A**	2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
5	Solving Inequalities with Inverse Operations	Students solve inequalities and graph the solutions on number lines. They use empirical examples to informally state the properties of inequalities. Students solve a variety of one-step inequalities. Attention is also given to verifying the solution to an inequality. Finally, students write their own real-world scenarios given three inequality statements.	• An *inequality* is any mathematical sentence that has an inequality symbol such as $>$, $<$, $\geq$, or $\leq$. • The graph of an inequality with one variable is the set of all points on a number line that make the inequality true. • The *solution set* of an inequality is the set of all points that make the inequality true. • The inequality symbol remains the same when adding, subtracting, multiplying, or dividing an inequality by a positive number. • The inequality symbol reverses when multiplying or dividing an inequality by a negative number.	6.9A 6.9B 6.9C **6.10A** 6.10B	3
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					5

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

TOPIC 3: Graphing Quantitative Relationships

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G

ELPS: 1.A, 1.C, 1.D, 1.E, 2.C, 2.D, 2.G, 2.H, 3.D, 4.A, 4.C, 4.D, 4.G, 4.K, 5.E

Topic Pacing: 11 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Independent and Dependent Variables	Students create scenarios to match numberless graphs in which the axes are labeled. They then cut out graphs and match them with the appropriate scenario. Students will then label the axes and analyze the graphs based on their prior knowledge, including ratio relationships and using inequality statements to represent constraints in problem situations. They determine how one quantity depends on another using scenarios, equations, and graphs. Finally, students then identify independent and dependent quantities and represent those quantities using variables. They write an equation, complete a table of values, and create a graph to model the situation.	• Graphical representations are used to solve problems. • Graphs represent the relationships between independent and dependent quantities. • When one quantity is determined by another in the problem situation, it is said to be the *dependent quantity.* The *variable* representing the dependent quantity is the *dependent variable.* • When one quantity is not determined by another in the problem situation, it is said to be the *independent quantity.* The variable representing the independent quantity is the *independent variable.* • The independent variable is located on the x-axis, and the dependent variable is located on the y-axis. • When writing an equation, it can be helpful to isolate the dependent variable to more clearly see the relationship between quantities.	6.6A **6.6C**	2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
2	Using Graphs to Solve Problems	Students determine unknown values for a scenario and use the values to write a one-step multiplication equation to represent the scenario. They then analyze the graph of the equation, interpreting ordered pairs on the graph and determining the unit rate. Students use the graph to determine the value of an independent quantity using a horizontal line graphed at the value of the dependent variable. They then answer a variety of questions about the scenario; some answers are single solutions and some include a range of values (inequality statements). Given a scenario, students analyze the graph of the scenario and write an equation to represent the scenario. Students then must decide when to use the graph and when to use the equation to answer a variety of questions about the scenario. Finally, students compare equations and graphs that represent additive and multiplicative relationships. Students write equations for the graphs and explain how to use a graph to solve one-step equations.	• Multiple representations, such as words, tables, equations, and graphs are used to solve problems of the form $y = x + b$ and $y = kx$ for cases in which y, x, and b are all non-negative rational numbers. • A solution to an equation is any value for a variable that makes the equation true. • A solution to an equation represented on a graph is any point on the line. • An inequality of the form $x > c$ or $x < c$ can be used to represent constraints when solving a real-world problem.	6.6A 6.6B **6.6C**	1
3	Multiple Representations of Equations	In this lesson, students analyze equations in a variety of different forms—represented in tables, graphs, in word problems, and as algebraic equations. They solve problems using these multiple representations of equations. Students continue to explore discrete and continuous quantities.	• Multiple representations, such as words, tables, equations, and graphs are used to solve problems. • Graphs can be characterized as being continuous or discrete based upon the scenario they model and the units of the independent and dependent variables.	6.6A 6.6B **6.6C**	2
4	Relating Distance, Rate, and Time	Students analyze and solve problems about competing in triathlons to investigate the relationship between distance, rate, and time. In each activity, students analyze the rate for a specific segment of the triathlon. Each activity begins with either a graph, table, or given rate. Students recognize that the equation $d = rt$, where d represents the distance traveled, r represents the rate of the distance traveled to the time, and t represents the time, was used in each activity. They summarize the relationship between distance, rate, and time, and they use the equation to solve a variety of real-world problems.	• Graphical representations are used to solve problems. • Multiple representations, such as words, tables, equations, and graphs are used to solve problems of the form $y = kx$ for cases in which y, k, and x are all non-negative rational numbers. • The equation $d = rt$, where d represents the distance traveled, r represents the rate of the distanced traveled to the time, and t represents the time, can be used to solve a variety of real-world problems.	6.5A 6.6A 6.6B **6.6C**	**1**
5	Problem Solving on the Coordinate Plane	Students apply their knowledge of plotting and interpreting rational numbers on the coordinate plane, creating tables of values, and writing and solving equations to solve a variety of problems. They model real-life situations, analyze data, and select which representation to use for specific problems.	• Multiple representations, such as situations written in words, equations, tables, and graphs can be used to solve problems. • Graphs can be used to interpret data and analyze changes in data. • There are advantages and disadvantages to using different mathematical tools to solve problems.	6.6A **6.6C** **6.11A**	1
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					3

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TOPIC 4: Financial Literacy: Accounts, Credit, and Careers

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1G

ELPS: 1.A, 1.C, 1.D, 1.E, 1.G, 2.C, 2.G, 2.I, 3.G, 4.C, 4.I, 4.K, 5.E, 5.F

Topic Pacing: 8 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Checking Accounts	Students are exposed to a checking account. They analyze the components of a check and write checks. They interact with a checkbook register by completing the balance column. The basics of reconciling a bank statement are introduced by comparing a portion of a checkbook register to a portion of a bank statement. The terms *account balance*, *deposit*, *withdrawal*, *debit*, and *transfer* are defined. The concept of an overdraft is explained and an example is provided. Students then discover the costs and possible earnings involved in having a checking account. They compare checking accounts and debit card use based upon the monthly fees, APY, required minimum average balance, and other usage fees to decide which account would be most appropriate.	• A *checking account* allows customers to safely store money in the bank and write checks against the money that they deposit. • A *statement* is a monthly summary of the account balance on the checking account, including all transactions that occur during a given time period. It allows the customer to check their records against the bank's records. • A customer may have to pay money to have a checking account. The bank may charge a monthly fee just to have the account. Sometimes, customers are required to keep a minimum amount of money in their account at all times. Some banks charge fees for using a debit card at another institution's ATM. All banks charge a fee for overdrafts. • A customer may earn money by having a checking account. Some banks offer an *Annual Percentage Yield* (APY); this is a small percentage of interest based upon the customer's account balance.	6.14A 6.14C	1
2	Debit Cards vs. Credit Cards	Students compare and contrast the key characteristics of debit cards and credit cards. They practice methods for understanding provided characteristics, and they must determine whether each characteristic applies to debit cards, credit cards, or both. They investigate credit cards in more depth as they deal with the financial advantages of rewards programs and the financial disadvantages of annual fees and interest rates. Students use mathematics to see the increased cost of paying using credit cards over time. Students are introduced to the concepts of interest and interest rate. They investigate what happens when you pay only the minimum payment on your credit card balance. Students then determine the interest paid each month for given scenarios. Finally, they give advice to a customer who is looking to pay off his credit card. The lesson ends with students again completing an activity in which they choose a debit card, credit card, or both, but this time, they are given situations rather than characteristics, and they must apply their knowledge of the different types of cards. They also create situations of their own that apply to debit cards and credit cards. Then, students have a discussion of the advantages and disadvantages of both debit cards and credit cards.	• *Debit cards* are issued by the bank when a customer opens a checking account. When a customer buys an item using a debit card, the money is taken directly from their checking account. The amount of money the customer can spend is limited to the balance in their checking account. • *Credit cards* are issued by a company when a customer applies to a financial/credit card company. When a customer buys an item using a credit card, they can make the purchase whether they currently have the money for it or not. The credit card company then bills the customer allowing them to pay over time. The amount of money the customer can spend is based upon the limit the credit card company provides. • There are advantages to having a credit card. A customer can make a purchase without having the money available. Credit card companies offer rewards programs for using their cards. Also, for security purposes, the customer must sign each time they use the card. If the card is lost or stolen and used fraudulently, the customer is not responsible to pay for that illegal use of the card. • There are disadvantages to having a credit card. A customer might make purchases they cannot afford. The credit card companies may charge an annual fee to have the card, and all credit card companies charge interest on any bill not paid in full at the end of each month. • There are advantages to having a debit card. A customer can make a purchase just as if they were paying with cash, but they do not have to carry cash with them. Also, because the customer must have the funds available to make the purchase, there are limits to their ability to overspend. • There is a disadvantage to using a debit card. For security purposes, the customer must enter a personal identification number (PIN) each time they use the card. However, if the card is lost or stolen and used fraudulently, the customer may not be able to recover the funds lost.	6.14A 6.14B	1

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

GRADE 6: SCOPE & SEQUENCE

150-Day Pacing

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
3	**Understanding Credit Reports**	Students learn what a credit report is and why the credit score listed in the report is important. The credit score determines: (1) if the person qualifies for a loan, (2) the amount of money they can borrow, and (3) the interest rate for the loan. Students research what is included in a credit report and how long the information is retained. They discuss the range of credit scores, the importance of a good credit score and a positive credit history, and how to maintain a good credit score. Students interact with a circle graph to see what factors have the most impact on a credit score. They estimate the percent of each factor from the circle graph, rather than solving for the percents mathematically. They apply this information by ranking statements about a person's credit report, connecting the data from the statements to a factor that affects a credit score, and then ranking the statements according to their importance in determining a credit score. The lesson concludes with a brief discussion of how to earn a good credit score and the importance of having a positive credit report.	• A *credit report* is a detailed listing of an individual's *credit history*, along with a credit score. • A *credit score* is a number used by lenders to rate how likely a person is to repay their debts. The credit score determines: (1) if the person qualifies for a loan, (2) the amount of money they can borrow, and (3) the interest rate for the loan. • It is important for individuals to have and maintain a good credit score, so that they can qualify for loans for a reasonable amount of money at a low interest rate. • A good credit score is obtained by paying bills on time and avoiding having too much debt.	6.14D 6.14E 6.14F	1
4	**Career Exploration**	This lesson addresses career choice primarily from an educational and financial perspective. The first activity in the lesson helps students come to the understanding that the more education or training a person receives, the greater their earning potential. Different post-secondary education degrees are defined, and a table comparing the financial benefits of having each of the degrees is provided. Students apply the information in the table and their knowledge of percents to compare incomes of jobs requiring different levels of education. Students further investigate the finances of a career choice by taking into account both the earning potential of having an increased level of education, and the cost of student loans to acquire that level of education. They are given personal scenarios and calculate the individual's total earnings over a period of years.	• The more education or training that you receive, the greater your earning potential. • When considering the finances of a career choice, one must take into account earning potential of having an increased level of education, the cost to acquire that level of education, and the total long-term earnings.	6.14G 6.14H	1
5	**Paying for College**	In this lesson, *Tuition* is defined, and the methods to fund tuition, such as personal savings, grants, scholarships, and work-study programs are explained. Students are given personal scenarios that include the cost of tuition, financial aid, scholarships, work-study opportunities, and grants. They use mathematics to determine the amount of the given financial aid packages as well as how each package offsets the cost of tuition to make financial decisions. Next, the difference in tuition costs for a private school and a public school are explained as well as the financial benefit for attending a school in-state. Students use mathematics to make comparisons of college tuition based upon in-state and out-of-state rates.	• *Tuition* is one of the many factors to consider when selecting an appropriate post-secondary school. • Students pay for college tuition in a variety of ways, including personal savings, *grants*, *scholarships*, *work-study programs*, and/or student loans. • Once a student is accepted into a post secondary institution, the institution proposes a financial aid package. The financial aid package includes a combination of scholarships, grants and/or work-study programs that the student can use to offset the cost of tuition. • The financial aid package may not cover the entire cost of tuition, so the student is responsible to pay the remaining portion of the tuition through savings, student loans, and funds from a part-time job. The student can also pursue additional scholarship opportunities on their own.	6.14G	1
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					2

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

5 Describing Variability of Quantities

Module Pacing: 18 Days

TOPIC 1: The Statistical Process

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1G

ELPS: 1.C, 1.D, 1.E, 2.A, 2.C, 2.D, 3.H, 4.D, 5.B, 5.C, 5.D, 5.E

Topic Pacing: 10 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Understanding the Statistical Process	Students consider a variety of questions and determine which are statistical and which are not. They learn about the statistical process: formulating a question, collecting data, analyzing data, and interpreting the results. Students organize data into two types: categorical and quantitative. Then, they determine whether conducting a survey, performing an experiment, or using an observational study would be the best method to answer each question. Students then conduct a survey in their classroom, interpret bar graphs and circle graphs for categorical data, and create a bar graph or circle graph for their survey data. Given a frequency table for categorical data, students determine relative frequency. Finally, students interpret the results, stating conclusions they can make from their data displays. In subsequent lessons, students will interpret histograms and line plots for discrete quantitative data, and they interpret histograms, stem-and-leaf plots, and box plots for continuous quantitative data.	• The *statistical process* includes formulating a statistical question, collecting data, analyzing the collected data, and interpreting the data in context of the situation. • A *statistical question* is one that anticipates and accounts for variability in data. • Data can be described as being categorical or quantitative. *Categorical data* is a set of data for which each piece of data fits into exactly one of several different groups or categories. *Quantitative data* is a set for which each piece of data can be placed on a numerical scale. • Data are collected through the use of *surveys*, *observational studies*, and *experiments*. • Categorical data can be displayed in tables, bar graphs, and circle graphs.	**6.12D** 6.13B	2
2	Analyzing Numerical Data Displays	Students examine data organized in a table and interpret a graphical representation of the same data in a dot plot. They interpret another table of data and then construct a dot plot for a given data set. Students then discuss the shape of data displayed in a dot plot and identify other properties, such as clusters and gaps in graphs of data. Students examine a stem-and-leaf plot as a graphical representation of a larger data set. They interpret a table of data and create a stem-and-leaf plot for a given data set.	• *Dot plots* are a type of graph used to represent the frequency of data values using a number line. • Dot plots are used to represent quantitative data, rather than categorical data. They are best suited for a small number of data points. • Data sets have a graphical *distribution*, which can be described in terms of overall shape and pattern, as well as deviations from the pattern. • Distributions are commonly referred to as *symmetric*, *skewed left*, *skewed right*, or uniform. • Common graphical features include *clusters*, *peaks*, *gaps*, and *outliers* in the data values. Often a gap in the data is an indicator that the data include an outlier. • *Stem-and-leaf plots* are a type of graph used to represent and organize data values for a large number of quantitative data.	6.12A 6.12B **6.13A**	2
3	Using Histograms to Display Data	Students analyze a histogram. They discuss intervals and interpret information from the histogram. Students then convert information from the histogram to a frequency table and compare the two representations. The process is reversed, and students create two histograms beginning with two tables of information. For each table, they convert the information to a frequency table, and finally, to a histogram. At the end of each problem, students summarize the data from the data displays.	• Histograms and bar graphs look very similar. Bar graphs are necessary when the data is categorical. • *Histograms* are used when the data is numerical; numerical data can be represented continuously in intervals. • The intervals in a histogram must all be the same size. The width of the bar represents the interval. The height of the bar indicates the frequency of values in the interval. • Histograms and frequency tables display the same information. The histogram is a more visual representation of the information.	6.12A **6.12D** **6.13A**	2
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					3

*Bold TEKS = Readiness Standard; Bold Pacing = Reduced Number of Days

GRADE 6: SCOPE & SEQUENCE

150-Day Pacing

TOPIC 2: Numerical Summaries of Data

1 DAY PACING = 45-MINUTE SESSION

TEKS Mathematical Process Standards: 6.1A, 6.1B, 6.1E, 6.1F, 6.1G
ELPS: 1.D, 1.E, 2.B, 2.E, 2.G, 3.A, 3.D, 4.D, 4.G, 5.B, 5.E

Topic Pacing: 8 Days

Lesson	Lesson Title	Lesson Summary	Essential Ideas	TEKS*	Pacing*
1	Analyzing Data Using Measures of Center	Students analyze and interpret data using the three different measures of center: mode, median, and mean. *Mode* was defined in the previous topic, but is now placed in the context of being one of three measures of central tendency. *Median* is defined in the first activity. Students calculate each numerical value and interpret its meaning in terms of a problem situation. Next, students investigate the third measure of center, *mean*, in three different ways: by leveling off a set of data values (creating fair shares), establishing a balance point for a set of data values, and determining the sum of the data values and dividing by the number of data values. In the last activity, students are presented with a real-world problem, in which they calculate and interpret each measure of center.	• A *measure of center* for a data set summarizes all of its values with a single number. • Measures of center are numerical ways of determining where the center of data is located. • Three measures of center are mode, median, and mean. • The *mode* is the data value or values that occur most often in a data set. • The *median* is the data value in the middle of a data set that has been placed in numerical order. • The *mean* can be thought of as leveling off a set of data values, a *balance point* of a data set placed on a number line, and the sum of the data values divided by the number of data values.	6.12B **6.12C** **6.13A**	2
2	Displaying the Five-Number Summary	Students examine variability in data. They compute the range for a set of data and practice dividing data sets into quartiles. Students label and interpret the quartiles, and they identify and interpret data that has been divided into different quartiles, called the five-number summary. Students calculate the five-number summary and construct its accompanying box plot. They then construct and interpret box plots for a real-world situation.	• Measures of variability in a data set describe how spread out the data is. • *Quartiles* are values that divide a data set into four parts once the data is arranged in ascending order. • The five-number summary for a data set consists of the minimum value, the first quartile (Q1), the median (Q2), the third quartile (Q3), and the maximum value of the data set. • The *interquartile range*, or IQR, is the difference between the first and third quartiles (Q3 2 Q1). • A box plot is another way to display numerical data on a number line. It displays the five-number summary and the interquartile range.	6.12A 6.12B **6.12C** **6.13A**	2
3	Collecting, Displaying, and Analyzing Data	Students organize data into two types, categorical and quantitative. Students interpret graphs that represent all data types. They interpret bar graphs and percent bar graphs for categorical data.	• Data can be described as being categorical or quantitative. Categorical data is a set of data for which each piece of data fits into exactly one of several different groups or categories. Quantitative data is a set for which each piece of data can be placed on a numerical scale. • Categorical data can be displayed in tables, bar graphs, and percent bar graphs.	**6.12D**	1
End of Topic Assessment					1
Learning Individually with Skills Practice *Schedule these days strategically throughout the topic to support student learning.*					2

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Total Days: 150
Learning Together: 99
Learning Individually: 37
Assessments: 14

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