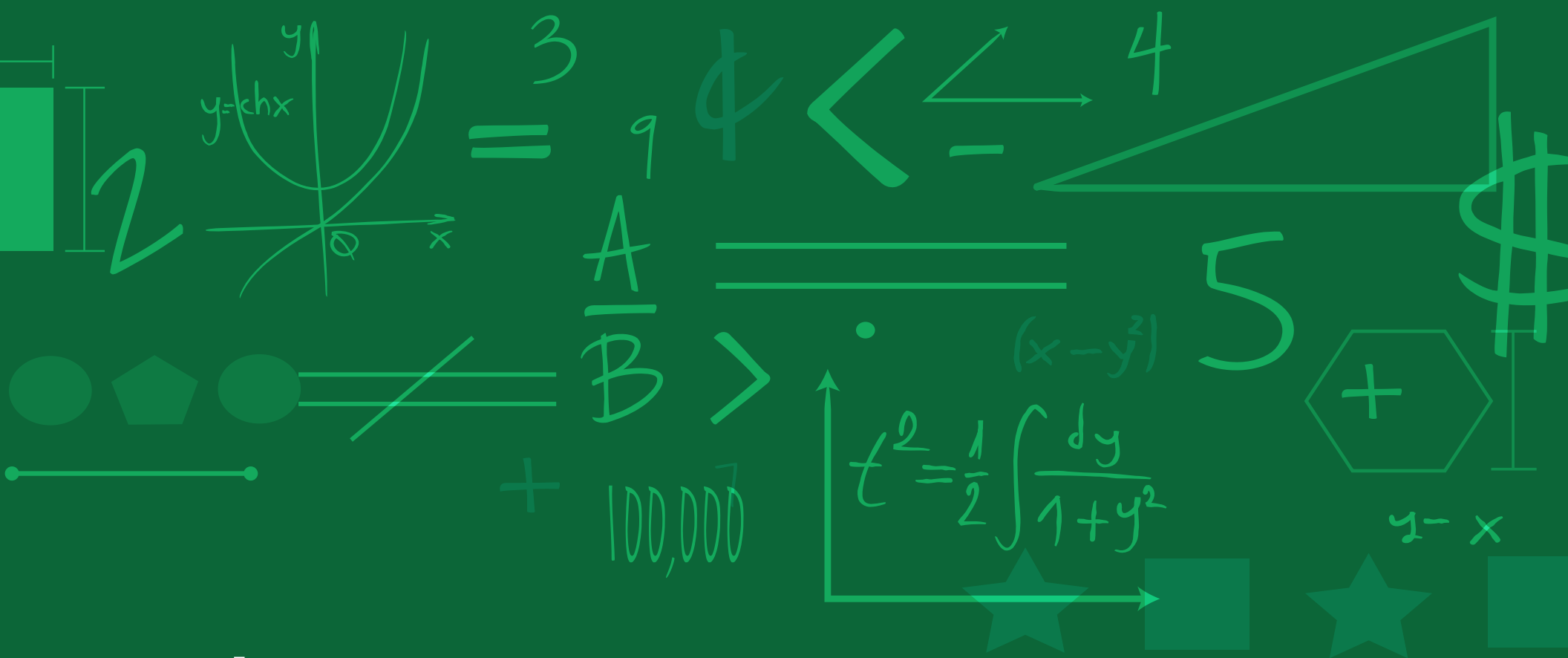

Mathematics TEKS
SUPPORTING INFORMATION

GRADE 6

Texas Education Agency

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Grade 6 – Mathematics

TEKS	Supporting Information
(a) Introduction. (1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.	The definition of a well-balanced mathematics curriculum has expanded to include the Texas College and Career Readiness Standards (CCRS). A focus on mathematical fluency and solid understanding allows for rich exploration of the primary focal points.
(a) Introduction. (2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	This paragraph occurs second in the TEKS to highlight the continued emphasis on process skills that are now included from Kindergarten through high school mathematics. This introductory paragraph includes generalization and abstraction with the text from (1)(C). This introductory paragraph includes computer programs with the text from (1)(D). This introductory paragraph states, "Students will use mathematical relationships to generate solutions and make connections and predictions" instead of incorporating the text from (1)(E).
(a) Introduction. (3) The primary focal areas in Grade 6 are number and operations; proportionality; expressions, equations, and relationships; and measurement and data. Students use concepts, algorithms, and properties of rational numbers to explore mathematical relationships and to describe increasingly complex situations. Students use concepts of proportionality to explore, develop, and communicate mathematical relationships. Students use algebraic thinking to describe how a change in one quantity in a relationship results in a change in the other. Students connect verbal, numeric, graphic, and symbolic representations of relationships, including equations and inequalities. Students use geometric properties and relationships, as well as spatial reasoning, to model and analyze situations and solve problems. Students communicate information about geometric figures or situations by quantifying attributes, generalize procedures from measurement experiences, and use the procedures to solve problems. Students use appropriate statistics, representations of data, and reasoning to draw conclusions, evaluate arguments, and make recommendations. While the use of all types of technology is important, the emphasis on algebra readiness skills necessitates the implementation of graphing technology.	This paragraph highlights specifics about grade 6 mathematics content and follows the paragraph about the mathematical process standards. This supports the notion that the TEKS should be learned in a way that integrates the mathematical process standards in an effort to develop fluency.
(a) Introduction. (4) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.	The State Board of Education approved the retention of some "such as" statements within the TEKS for clarification of content. The phrases "including" and "such as" should not be considered as limiting factors for the student expectations (SEs) in which they reside.

Additional Resources are available online, including

Interactive Mathematics Glossary

Vertical Alignment Charts

Texas Response to the Curriculum Focal Points, Revised 2013

Texas Mathematics Resource Page

TEKS: Mathematical Process Standards.	Supporting Information
6(1)(A) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to apply mathematics to problems arising in everyday life, society, and the workplace.**	This SE emphasizes application. The opportunities for application have been consolidated into three areas: everyday life, society, and the workplace. This SE, when paired with a content SE, allows for increased rigor through connections outside the discipline.
6(1)(B) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.**	This SE describes the traditional problem-solving process used in mathematics and science. Students are expected to use this process in a grade-appropriate manner when solving problems that can be considered difficult relative to mathematical maturity.
6(1)(C) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.**	The phrase "as appropriate" is included in the TEKS. This implies that students are assessing which tool(s) to apply rather than trying only one or all accessible tools.
6(1)(D) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.**	Communication includes the implications of mathematical ideas and reasoning. The list of representations is summarized with "multiple representations" with specificity added for symbols, graphs, and diagrams.
6(1)(E) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to create and use representations to organize, record, and communicate mathematical ideas.**	The use of representations includes organizing and recording mathematical ideas in addition to communicating ideas. As students use and create representations, it is implied that they will evaluate the effectiveness of their representations to ensure that they are communicating mathematical ideas clearly. Students are expected to use appropriate mathematical vocabulary and phrasing when communicating mathematical ideas.
6(1)(F) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.**	The TEKS allow for additional means to analyze relationships and to form connections with mathematical ideas beyond forming conjectures about generalizations and sets of examples and non-examples. Students are expected to form conjectures based on patterns or sets of examples and non-examples.
6(1)(G) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. **The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.**	The TEKS expect students to validate their conclusions with displays, explanations, and justifications. The conclusions should focus on mathematical ideas and arguments. Displays may include diagrams, visual aids, written work, etc. The intention is to make one's work visible to others so that explanations and justifications may be shared in written or oral form. Precise mathematical language is expected. For example, students would use "natural numbers" instead of "counting numbers" when referring to the numbers {1, 2, 3, 4, 5 . . .}.

TEKS: Number and Operations.	Supporting Information
6(2)(A) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. **The student is expected to classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers.**	A Venn diagram is an applicable visual representation as the SE focuses on classification of numbers. As there is no unified definition for these terms, the natural numbers will be taken to mean {1, 2, 3 . . .}, and the whole numbers will be taken to mean {0, 1, 2, 3 . . .}.
6(2)(B) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. **The student is expected to identify a number, its opposite, and its absolute value.**	This SE may be used to introduce the concept of integers with the identification of a number, its opposite, and its absolute value. When 6(2)(B) is paired with 6(1)(A), students may be expected to apply the skill of identifying integers in everyday life. The SE includes the use of the absolute value symbol and the formal mathematics vocabulary as students identify a number and its opposite as being the same distance from zero, or having the same absolute value. The term "opposite" refers to the additive inverse of a number.
6(2)(C) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. **The student is expected to locate, compare, and order integers and rational numbers using a number line.**	Comparing and ordering of rational numbers includes integers and negative rational numbers. The SE includes the number line as a tool for locating, comparing, and ordering integers and rational numbers.
6(2)(D) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. **The student is expected to order a set of rational numbers arising from mathematical and real-world contexts.**	The SE continues the ordering of rational numbers. The SE extends the ordering of rational numbers to include integers and negative rational numbers.
6(2)(E) **Number and operations.** The student applies mathematical process standards to represent and use rational numbers in a variety of forms. **The student is expected to extend representations for division to include fraction notation such as *a/b* represents the same number as *a* ÷ *b* where *b* ≠ 0.**	Students have seen fraction notation with whole number values when writing expressions and equations. This SE includes the understanding that one can divide the numerator of a fraction by its denominator to yield a decimal equivalent. This extends the notion that $^4/_4 = 1$, $^5/_4 = 1^1/_4$ or 1.25, $^6/_4 = 1^2/_4$ or 1.5, etc. to thinking about $^1/_4$ as 0.25 using the standard algorithm for division to yield the same result as converting $^1/_4$ into a fraction with a denominator of 100.

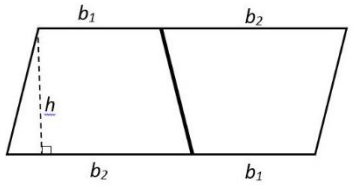
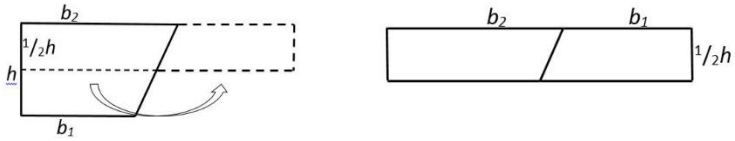
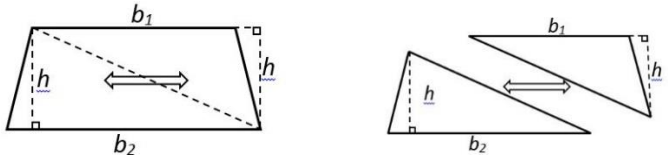
TEKS: Number and Operations.	Supporting Information
6(3)(A) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. **The student is expected to recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values.**	This SE builds to 6(3)(E) by laying a foundation for algorithms for fraction multiplication and division.
6(3)(B) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. **The student is expected to determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one.**	This SE builds to 6(3)(E) and supports the combination of fluent computation in 6(3)(E) and estimation in 6(1)(C). Students may be asked to compare the factors and the related product.
6(3)(C) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. **The student is expected to represent integer operations with concrete models and connect the actions with the models to standardized algorithms.**	This SE introduces students to operations with negative numbers and is associated with 6(3)(D).
6(3)(D) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. **The student is expected to add, subtract, multiply, and divide integers fluently.**	This SE introduces students to operations with negative numbers and is associated with 6(3)(C).
6(3)(E) **Number and operations.** The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions. **The student is expected to multiply and divide positive rational numbers fluently.**	Students continue to work with multiplication and division of rational numbers. Ratios and rates are related to rational number concepts. The SE 6(3)(E) expects students to multiply and divide positive fractions and decimal values fluently. The foundation for this fluency begins in grade 5 with 5(3)(D), 5(3)(E), 5(3)(F), 5(3)(G), 5(3)(I), 5(3)(J), and 5(3)(L).

TEKS: Proportionality.	Supporting Information
6(4)(A) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to compare two rules verbally, numerically, graphically, and symbolically in the form of *y = ax* or *y = x + a* in order to differentiate between additive and multiplicative relationships.**	The algebraic representations should be in the form $y = ax$ or $y = x + a$. The SE 6(4)(A) is a building block for 7(7)(A), 8(5)(B), and 8(5)(I). Students are expected to graph these relationships. Students are expected to compare two rules to differentiate between additive and multiplicative representations. This is a building block for work with proportional and non-proportional situations in grades 7 and 8.
6(4)(B) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates.**	The description of the proportional situations includes prediction in situations with missing values and comparisons that involve ratios and rates. Quantitative reasoning focuses on the relationships between and within equivalent ratios. When given two ratios a/b and e/f, qualitative reasoning involves considering $a/b = c$ and $e/f = g$ and how qualitative changes in a or b and e or f affect c and g and how these qualitative changes affect comparisons of c and g. For example, the ratio of lemon juice to water for Maria's lemonade is 3 T of lemon juice to 3 cups of water. The simplified $c = 1$ describes how "lemony" her lemonade is. The ratio $e/f = {}^{4}/_{4}$ describes the ratio of lemon juice (4 T) to water (1 qt or 4 C) for Mark's lemonade. The simplified $g = 1$ describes how "lemony" his lemonade is. If Maria's and Mark's lemonades have the same amount of "lemony" flavor, what happens if Maria adds lemons? What if she adds lemons and water?
6(4)(C) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to give examples of ratios as multiplicative comparisons of two quantities describing the same attribute.**	This SE lays the groundwork for proportional reasoning elsewhere in grades 6 and 7. This SE specifies the comparison of the same attribute for two different objects, sets, or other quantities such as length, mass, etc.
6(4)(D) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients.**	This SE specifies that the comparison of the different attributes may be for a single object, set, or situation. This SE may be used as building block to unit rates elsewhere in grade 6 and the rate of change in grade 7.
6(4)(E) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to represent ratios and percents with concrete models, fractions, and decimals.**	Percents may be represented by improper fractions or mixed numbers when comparing parts to the whole. Ratios may be represented by improper fractions when comparing parts to the whole or the comparison of two mixed numbers or a mixed number to one.
6(4)(F) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers.**	Specificity includes percent benchmarks and models.
6(4)(G) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money.**	Ideas related to percent have been grouped together under the Proportionality strand. When the SE is paired with the 6(1)(A), the expectation is that students order numbers arising from mathematical and real-world contexts, including those involving money.
6(4)(H) **Proportionality.** The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. **The student is expected to convert units within a measurement system, including the use of proportions and unit rates.**	The focus is on the use of proportions, equivalent ratios, and unit rates. Multiple conversions may be used, such as converting cups to pints to quarts to gallons. Districts may decide to use this SE to introduce dimensional analysis. The measurement systems are the customary and metric systems.

TEKS: Proportionality.	Supporting Information
6(5)(A) **Proportionality.** The student applies mathematical process standards to solve problems involving proportional relationships. **The student is expected to represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions.**	This SE focuses on proportional relationships. Specificity includes scale factors. Students are expected to graph these relationships. Ratios may be represented as percents to reinforce the skills under this knowledge and skill statement. This extends the ideas in 6(4)(E).
6(5)(B) **Proportionality.** The student applies mathematical process standards to solve problems involving proportional relationships. **The student is expected to solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models.**	Concrete and pictorial models include strip diagrams. The parts and the percents are less than the whole. For example, a student may determine the amount of tax for a given item. However, the student would not be expected to determine the pre-tax price of an item given the sales tax rate and the post-tax price. Additionally students may be asked to determine both the amount of discount and the sales price. This SE builds to percent increase and percent decrease in 7(4)(D).
6(5)(C) **Proportionality.** The student applies mathematical process standards to solve problems involving proportional relationships. **The student is expected to use equivalent fractions, decimals, and percents to show equal parts of the same whole.**	The equivalent values should be used to describe the same whole. The equivalent values may be greater than one.

TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(6)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to use multiple representations to describe algebraic relationships. **The student is expected to identify independent and dependent quantities from tables and graphs.**	This SE extends 5(8)(C), which includes an input-output table, which implies independent and dependent quantities. The tables and graphs may be labeled with the related quantities.
6(6)(B) **Expressions, equations and relationships.** The student applies mathematical process standards to use multiple representations to describe algebraic relationships. **The student is expected to write an equation that represents the relationship between independent and dependent quantities from a table.**	The SE extends 5(8)(C) with an equation from an input-output table. The linear relationships will be represented with a table of paired values.
6(6)(C) **Expressions, equations and relationships.** The student applies mathematical process standards to use multiple representations to describe algebraic relationships. **The student is expected to represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$.**	This SE builds on 6(4)(A) and is a building block for 7(7)(A), 8(5)(B), and 8(5)(I). Students are expected to graph these relationships. This SE focuses upon two-variable equations. One-variable equations are the subject of 6(9)(C).

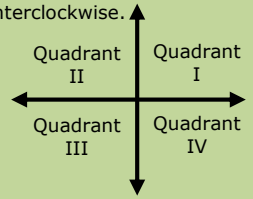
TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(7)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization.**	"Generate equivalent numerical expressions" is synonymous to "simplify." For example, $\|2 - 5\| + 3 = 3 + 3$. Students are expected to understand that each step in the simplifying process generates an equivalent expression. Exponents may only be whole numbers. Bases, however, have no limitation.
6(7)(B) **Expressions, equations, and relationships.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to distinguish between expressions and equations verbally, numerically, and algebraically.**	Students have previously been exposed to the terms "expressions" and "equations." This student expectation makes the distinction explicit. Verbally, students are expected to explain that equations are sentences that state that two things are equal. An expression is a phrase that represents a single number. If an equation contains an unknown, it may be proven true or false by replacing the unknown with a number. If an expression contains a variable, the expression may represent different numbers depending on the value assigned to the variable. An equation includes an equal sign.
6(7)(C) **Expressions, equations, and relationships.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations.**	For this SE, expressions may be entirely numeric or a mixture of numbers and one variable. The order of operations and properties of operations may be applied to determine if the two expressions are equivalent. This SE may include the combining of like terms.
6(7)(D) **Expressions, equations, and relationships.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.**	For this SE, expressions may be entirely numeric or a mixture of numbers and one variable.

TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(8)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle.**	Students may be expected to write and solve one-step equations.
6(8)(B) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes.**	Specificity is included regarding the development of formulas. Three possible techniques that model the area formula for a trapezoid are shown below. I. Use two congruent trapezoids to form a parallelogram. This parallelogram has area of $(b_1 + b_2)h$, so the area of one trapezoid would be $\frac{1}{2}(b_1 + b_2)h$.  II. Divide the trapezoid with a line segment parallel to both bases and halfway between each. Rotate one of these pieces to form a parallelogram with a length of $b_1 + b_2$ and a width of $\frac{1}{2}h$. As such the area of the parallelogram and hence the trapezoid would be $\frac{1}{2}(b_1 + b_2)h$.  III. Divide the trapezoid using a diagonal to form two triangles. The area of one triangle would be $\frac{1}{2}b_1h$, and the area of the second triangle would be $\frac{1}{2}b_2h$, so the area of the trapezoid would be $\frac{1}{2}b_1h + \frac{1}{2}b_2h = \frac{1}{2}(b_1 + b_2)h$.  Other techniques may exist.

TEKS: Expressions, equations, and relationships.	Supporting Information
6(8)(C) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.**	When this SE is paired with 6(1)(D) and 6(1)(G), students may use tables to generate equations as appropriate to the problem. The dimensions may be positive rational numbers.
6(8)(D) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.**	Dimensions may be positive rational numbers.

TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(9)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to represent situations. **The student is expected to write one-variable, one-step equations and inequalities to represent constraints or conditions within problems.**	Problems may come from everyday life, society, and the workplace, including the application of mathematical concepts such as measurement. Equations and inequalities may include integers and positive rational number coefficients and constants. This SE connects to 6(10)(A) and 6(10)(B). This SE is a building block for one-variable, two-step equations and inequalities with 7(10)(A). The SE includes inequalities. Constraints or conditions may be indicated by words such as "minimum" or "maximum." Students may need to determine if the value in the solution is part of the solution set or not.
6(9)(B) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to represent situations. **The student is expected to represent solutions for one-variable, one-step equations and inequalities on number lines.**	This SE is a building block for one-variable, two-step equations and inequalities in 7(10)(B). Students may need to determine if the value in the solution is part of the solution set or not.
6(9)(C) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to represent situations. **The student is expected to write corresponding real-world problems given one-variable, one-step equations or inequalities.**	This SE is a building block for writing corresponding real-world problems given one-variable, two-step equations and inequalities in 7(10)(C). The SE includes inequalities.

TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(10)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to solve problems. **The student is expected to model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts.**	Equations and inequalities may include integers and positive rational number coefficients and constants. This SE is a building block for one-variable, two-step equations and inequalities with 7(11)(A) as well as 7(11)(C) and may include concepts developed in 6(8)(A) and 4(7)(E) as contexts. Geometric concepts may include complementary and supplementary angles.
6(10)(B) **Expressions, equations, and relationships.** The student applies mathematical process standards to use equations and inequalities to solve problems. **The student is expected to determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.**	This SE makes explicit the meaning of a solution to an equation or an inequality. This SE is a building block for one-variable, two-step equations and inequalities in 7(11)(B). Students may need to determine if the value in the solution is part of the solution set or not.

TEKS: Measurement and Data.	Supporting Information
6(11) **Measurement and data.** The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. **The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.**	Students will graph ordered pairs of rational numbers. The SE 6(11) extends to graphing ordered pairs of rational numbers in all four quadrants from 5(8)(C). The quadrants may be numbered beginning with I, which includes positive *x* and *y*-values (see 5(8)(C)), and are numbered counterclockwise. 

TEKS: Measurement and Data.	Supporting Information
6(12)(A) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to analyze problems. **The student is expected to represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots.**	Students will represent data using stem-and-leaf plots. When 6(12)(A) is paired with the mathematical process standards, students are expected to select and use an appropriate representation to communicate and justify mathematical relationships. Representing and drawing conclusions with data, which includes interpreting data, are located in the following grades: • Line plots (renamed dot plots): grades 3, 4, 5 • Stem-and-leaf plots: grades 4, 5 • Frequency tables: grades 3, 4, 5 • Bar graphs: grades 2, 3, 5 • Scatterplots: grade 5 The use of histograms and box plots begins in grade 6.
6(12)(B) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to analyze problems. **The student is expected to use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution.**	While students will continue to describe the center (median and mean) and spread (range), they will do so based on a graphical representation of numeric data rather than from a list of numeric data. Students are expected to describe the shape (affected by mean, median, mode, and range) based on a graphical representation. Some descriptive words include, but are not limited to, outlier, symmetrical, clustered, skewed, and peak.
6(12)(C) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to analyze problems. **The student is expected to summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution.**	The SE 6(12)(C) focuses on numeric data and its related measures: mean, median, range, and interquartile ranges. An outlier does not describe the numerical summary, although it may alter the relationship between the mean and median as well as the relationship between the range and IQR.
6(12)(D) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to analyze problems. **The student is expected to summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution.**	The SE 6(12)(D) focuses on categorical data and its related measures: mode and relative frequencies. The focus is on the percent bar graph instead of the circle graph. This connects the use of strip diagrams to represent and solve problems related to percents with the relative frequency table. Categories can be numerical and are determined by context. For example, when measuring time, months are numeric. However, when considering how many times something occurs in each month, such as doctor visits, months may be categorical.

TEKS: Measurement and Data.	Supporting Information
6(13)(A) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to solve problems. **The student is expected to interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots.**	Representing and drawing conclusions with data, which includes interpreting data, is located in the following grades: • Line plots (renamed dot plots): grades 3, 4, 5 • Stem-and-leaf plots: grades 4, 5 • Frequency tables: grades 3, 4, 5 • Bar graphs: grades 2, 3, 5 • Scatterplots: grade 5 The use of histograms and box plots begins in grade 6.
6(13)(B) **Measurement and data.** The student applies mathematical process standards to use numerical or graphical representations to solve problems. **The student is expected to distinguish between situations that yield data with and without variability.**	Data from a single individual subject that may be or has been recorded at a single time has no variability. Once recorded, that data point becomes fixed. However, data that may be recorded at different times or days may be variable. Also, variability may occur as data is recorded at a single time from many subjects. Variability is dependent upon the given context. For example, the question "How many students are in class at 9:45 a.m. on April 23, 2013?" will be answered with a single number and hence will be without variability. However, the question "How many students are in class each day?" will be answered based on the daily attendance numbers, which may vary. This SE lays the foundation for mean absolute deviation, 8(11)(B), which is a measure of variability for quantitative data.

TEKS: Personal Financial Literacy.	Supporting Information
6(14)(A) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to compare the features and costs of a checking account and a debit card offered by different local financial institutions.**	Features may include interest and other incentives. Costs may include monthly fees, activation fees, or overdraft fees.
6(14)(B) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to distinguish between debit cards and credit cards.**	This SE builds upon 5(10)(C).
6(14)(C) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to balance a check register that includes deposits, withdrawals, and transfers.**	Transfers may be deposits or withdrawals. This SE also provides the foundation for 7(13)(C).
6(14)(D) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to explain why it is important to establish a positive credit history.**	This SE develops the background information for 8(12)(A), 8(12)(B), and 8(12)(E).
6(14)(E) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to describe the information in a credit report and how long it is retained.**	This SE develops the background information for 8(12)(A), 8(12)(B), and 8(12)(E).
6(14)(F) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to describe the value of credit reports to borrowers and to lenders.**	This SE develops the background information for 8(12)(A), 8(12)(B), and 8(12)(E).
6(14)(G) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study.**	This SE build to 8(12)(C) and 8(12)(G), which discuss saving and college planning.
6(14)(H) **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. **The student is expected to compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income.**	This SE builds upon 5(10)(B) and can be used to develop budgets as described in 7(13)(B) and 7(13)(D).