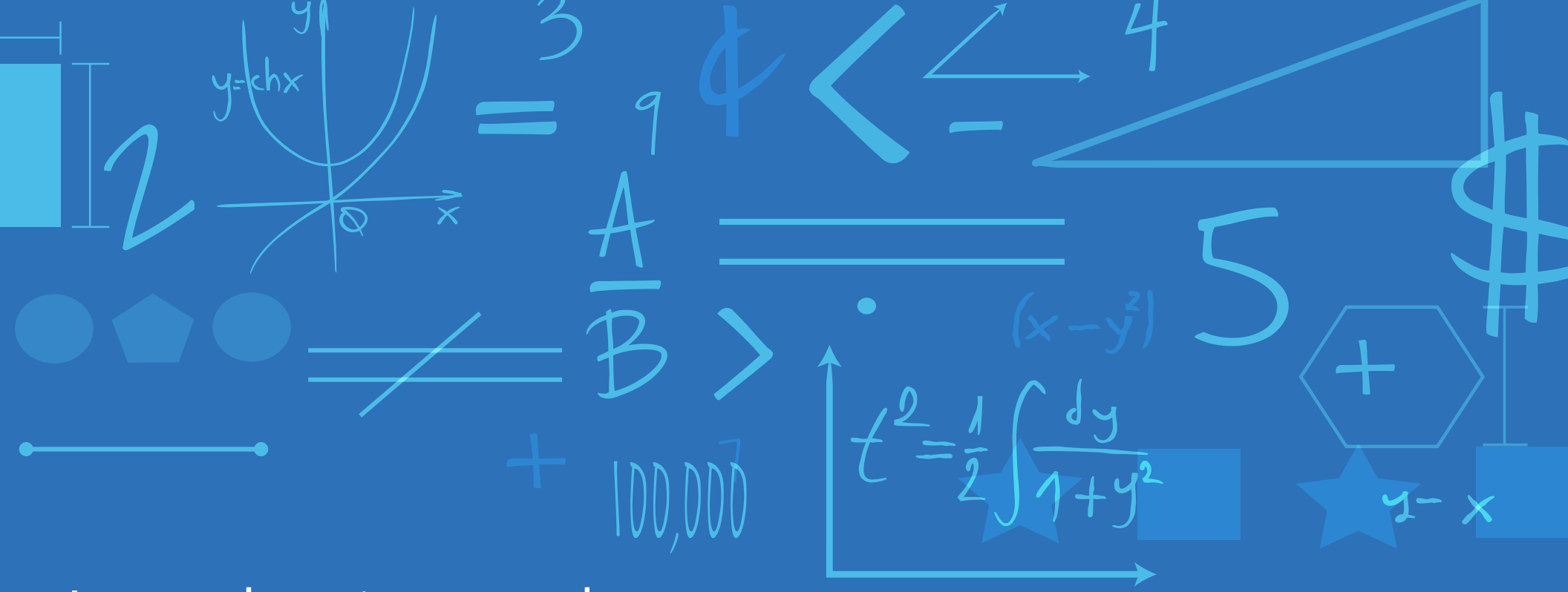

Introduction to the

Revised Mathematics TEKS

SIDE-BY-SIDE TEKS COMPARISON
GRADE 5

TEA™
TEXAS EDUCATION AGENCY

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
(a) Introduction. (1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 5 are comparing and contrasting lengths, areas, and volumes of two- or three-dimensional geometric figures; representing and interpreting data in graphs, charts, and tables; and applying whole number operations in a variety of contexts.	(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 CCRS. A focus on mathematical fluency and solid understanding allows for rich exploration of the primary focal points.	
(a) Introduction. (2) Throughout mathematics in Grades 3-5, students build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry and spatial reasoning; measurement; and probability and statistics. Students use algorithms for addition, subtractions, multiplication, and division as generalizations connect to concrete experiences; and they concretely develop basic concepts of fractions and decimals. Students use appropriate language and organizational structures such as tables and charts to represent and communicate relationships, make predictions, and solve problems. Students select and use formal language to describe their reasoning as the identify, compare, and classify two- or three-dimensional geometric figures; and they use numbers, standard units, and measurement tools to describe and compare objects, make estimates, and solve application problems. Students organize data, choose an appropriate method to display the data, and interpret the data to make decisions and predication and solve problems.	(a) Introduction. (4)The primary focal areas in Grade 5 are solving problems involving all four operations with positive rational numbers, determine and generate formulas and solutions to expressions, and extending measurement to area and volume. These focal areas are supported throughout the mathematical strands of number and operations, algebraic reasoning, geometry and measurement, and data analysis. In Grades 3-5 the number set is limited to positive rational numbers. In number and operations, students will apply place value and identify part-to-whole relationships and equivalence. In algebraic reasoning, students will represent and solve problems with expressions and equations, build foundations of functions through patterning, identify prime and composite numbers, and use the order of operations. In geometry and measurement, students will classify two-dimensional figures, connect geometric attributes to the measures of three-dimensional figures, use units of measure, and represent location using a coordinate plane. In data analysis, students will represent and interpret data.	The 2012 paragraph that highlights more specifics about grade 5 mathematics content follows paragraphs about the mathematical process standards and mathematical fluency. This supports the notion that the TEKS are expected to be learned in a way that integrates the mathematical process standards to develop fluency. The 2012 paragraph has been updated to align to the 2012 grade 5 mathematics TEKS. The 2012 paragraph highlights focal areas or topics that receive emphasis in this grade level. These are different from focal points which are part of the *Texas Response to Curriculum Focal Points [TXRCFP]*. "[A] curriculum focal point is not a single TEKS statement; a curriculum focal point is a mathematical idea or theme that is developed through appropriate arrangements of TEKS statements at that grade level that lead into a connected grouping of TEKS at the next grade level" (TEA, 2010, p. 5). The focal areas are found within the focal points. The focal points may represent a subset of a focal area, or a focal area may represent a subset of a focal point. The focal points within the *TXRCFP* list related grade-level TEKS.	

Content that is deleted by 2012 TEKS | Content that remains or is clarified in 2012 TEKS (●Stay) (●+ Addition) (⭘ Deletion) | Content that is new in 2012 TEKS

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
(a) Introduction. (3) Throughout mathematics in Grades 3-5, students develop numerical fluency with conceptual understand and computational accuracy. Students in Grades 3-5 use knowledge of the base-ten place value system to compose and decompose numbers in order to solve problems requiring precision, estimation, and reasonableness. By the end of Grade 5, students know basic addition, subtraction, multiplication, and division facts and are using them to work flexibly, efficiently, and accurately with numbers during addition, subtraction, multiplication, and division computation.	(a) Introduction. (3) For students to become fluent in mathematics students must develop a robust sense of number. The National Research Council's report, "Adding It Up," defines procedural fluency as "skill in carrying out procedures flexibly, accurately, efficiently and appropriately." As students develop procedural fluency, they must also realize that true problem solving may take time, effort, and perseverance. Students in Grade 5 are expected to perform their work without the use of calculators.	The Revised TEKS (2012) include the use of the words "automaticity," "fluency"/"fluently," and "proficiency" with references to standard algorithms. Attention is being given to these descriptors to indicate benchmark levels of skill to inform intervention efforts at each grade level. These benchmark levels are aligned to national recommendations for the development of algebra readiness for enrollment in Algebra in the ninth grade. Automaticity refers to the rapid recall of facts and vocabulary. For example, we would expect a fifth-grade student to recall rapidly the sum of 5 and 3 or to identify rapidly a closed figure with 3 sides and 3 angles. To be mathematically proficient, students must develop conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition (National Research Council, 2001, p. 116). "Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently" (National Research Council, 2001, p. 121). "Students need to see that procedures can be developed that will solve entire classes of problems, not just individual problems" (National Research Council, 2001, p. 121). Procedural fluency and conceptual understanding weave together to develop mathematical proficiency.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
(a) Introduction. (4) Problem solving, language and communication, connections within and outside mathematics, and formal and informal reasoning underlie all content areas in mathematics. Throughout mathematics in Grades 3-5, students use these processes together with technology and other mathematical tools such as manipulative materials to develop conceptual understanding and solve problems as they do mathematics.	(a) Introduction. (2) 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 2012 paragraph occurs second in the Revised TEKS (2012) instead of fourth as in the current TEKS. This highlights the continued emphasis on process skills that now continue from Kindergarten through high school mathematics. The language of this 2012 introductory paragraph is very similar to the Mathematical Process Standard strand within the Revised TEKS (2012). This 2012 introductory paragraph includes generalization and abstraction with the text from (1)(C). This 2012 introductory paragraph includes computer programs with the text from (1)(D). This 2012 introductory paragraph states, “students will use mathematical relationships to generate solutions and make connections and predictions.” instead of the text from (1)(E).	
	(a) Introduction. (5) 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 where needed for clarification of content.	

	Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
–	5(1)(A) **Number, operation, and quantitative reasoning.** The student uses place value to represent whole numbers and decimals. **The student is expected to use place value to read, write, compare, and order whole numbers through the 999,999,999,999.**		The content of this SE was moved to grade 4: *Number and operations* 4(2)(B) 4(2)(C)	
●	5(1)(B) **Number, operation, and quantitative reasoning.** The student uses place value to represent whole numbers and decimals. **The student is expected to use place value to read, write, compare, and order decimals through the thousandths place.**	5(2)(A) **Number and operations.** The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. **The student is expected to represent the value of the digit in decimals through the thousandths using expanded notation and numerals.**	The current SE was separated into two SEs within the Revised TEKS (2012). The phrase "use place value to read, write" has been replaced with "represent. . . .using expanded notation and numerals."	
		5(2)(B) **Number and operations.** The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. **The student is expected to compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =.**	The current SE was separated into two SEs within the Revised TEKS (2012). Specificity regarding notation has been included with the inclusion of the symbols >, <, or =.	
–	5(2)(A) **Number, operation, and quantitative reasoning.** The student uses fractions in problem-solving situations. **The student is expected to generate a fraction equivalent to a given fraction such as 1/2 or 3/6 or 4/12 and 1/3.**		This content of this SE was moved to grade 3 and grade 4: *Number and operations* 3(3)(F) 3(3)(G) 4(3)(C)	
–	5(2)(B) **Number, operation, and quantitative reasoning.** The student uses fractions in problem-solving situations. **The student is expected to generate a mixed number equivalent to a given improper fraction or generate an improper fraction equivalent to a given mixed number.**		The content of this SE was moved to grade 4: *Number and operations* 4(3)(B) 4(3)(C)	

Content that is deleted by 2012 TEKS | Content that remains or is clarified in 2012 TEKS (●Stay) (●+ Addition) (⭘ Deletion) | Content that is new in 2012 TEKS

	Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
–	5(2)(C) **Number, operation, and quantitative reasoning.** The student uses fractions in problem-solving situations. **The student is expected to compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators.**		The content of this SE was moved to grade 4: *Number and operations* *4(3)(D)*	
–	5(2)(D) **Number, operation, and quantitative reasoning.** The student uses fractions in problem-solving situations. **The student is expected to use models to relate decimals to fractions that name tenths, hundredths, and thousandths.**		The content of this SE for tenths and hundredths was moved to grade 4: *Number and operations* *4(2)(G)* The content of this SE for thousandths is not included in the Revised TEKS (2012).	
●+	5(3)(A) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. **The student is expected to use addition and subtraction to solve problems involving whole numbers and decimals.**	5(3)(K) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to add and subtract positive rational numbers fluently.**	The addition and subtraction of positive rational numbers includes the addition and subtraction of whole numbers and decimals. When paired with revised SE 5(1)(A), students are still expected to solve problems. The revised SE includes the addition and subtraction of fractions. The revised SE represents the current 6(2)(B). Rational numbers include decimals and fractions. Within a problem situation, students may be asked to add 0.4 and 2/5. When paired with revised SE 5(1)(A), students are expected to solve problems. The intent of this SE is not a sole focus on the computation. Within the Revised TEKS (2012), fluency with fraction and decimal addition and subtraction occurs in grade 5. The word “fluently” as been added. “Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently” (National Research Council, 2001, p. 121).	

	Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
●+	5(3)(B) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. **The student is expected to use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology).**	5(3)(B) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to multiply with fluency a three-digit number by a two-digit number using the standard algorithm.**	The introductory paragraph (a)(3) communicates the following: "Students in grade 5 are expected to perform their work without the use of calculators." When paired with revised SE 5(1)(A), the expectation is that students still solve problems. Greater specificity has been provided with the inclusion of the phrase "using the standard algorithm." Work with the standard algorithm builds on the work from grade 4 with mental math, partial products, and the commutative, associative, and distributive properties for revised SE 4(4)(D).	
			The phrase "with fluency" has been added. "Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently" (National Research Council, 2001, p. 121)	
●+	5(3)(C) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. **The student is expected to use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology), including interpreting the remainder within a given context.**	5(3)(C) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm.**	The introductory paragraph (a)(3) communicates: Students in grade 5 are expected to perform their work without the use of calculators. When paired with revised SE 5(1)(A), students are still expected to solve problems. Greater specificity has been provided with the inclusion of the phrase, "using strategies and the standard algorithm."	
			The application of strategies and the standard algorithm extends to include four-digit dividends. Students are expected to solve with proficiency. Procedural fluency and conceptual understanding weave together to develop mathematical proficiency along with strategic competence, adaptive reasoning, and productive disposition (National Research Council, 2001). Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently (National Research Council, 2001, p. 121).	
			The interpretation of remainders has moved to grade 4: *Number and operations.* *4.4H*	

	Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
–	5(3)(D) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. **The student is expected to identify common factors of a set of whole numbers.**		With 5(1)(F), this SE is subsumed into any mathematics where this skill is needed. It represents an aspect of fluency as well. When a student looks at 15, 25, and 30, s/he is expected to consider that 5 is a common factor for each of these whole numbers.	
–	5(3)(E) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. **The student is expected to model situations using addition and/or subtraction involving fractions with like denominators using concrete objects, pictures, words, and numbers.**		The content of this SE was moved to grade 4: *Number and operations* *4(3)(E)*	
●	5(4)(A) **Number, operation, and quantitative reasoning.** The student estimates to determine reasonable results. **The student is expected to use strategies including rounding and compatible numbers to estimate solutions to addition, subtraction, multiplication, and division problems.**	5(3)(A) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division.**	The word "problems" from the current SE was been clarified with "mathematical and real-world problems." The phrase "estimate solutions" has been rephrased as "estimate to determine solutions." The specificity with strategies has been removed; however, these strategies are still relevant. Strategies may include front-end estimation (one keeps the first digit of the number and changes all remaining digits to zero), compatible numbers (with values that lend themselves to mental calculations), rounding up or down to the nearest specified place value, and/or compensation (one adjusts estimates to draw closer to an exact calculation). This SE includes estimation with whole numbers, fractions, and decimals.	
		5(2)(C) **Number and operations.** The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. **The student is expected to round decimals to tenths or hundredths.**	The revised SE takes the mention of rounding from the current SE and provides specificity rounding with decimals. Because the work with decimals in the Revised TEKS (2012) extends to the thousandths place, students are expected to round decimals to the tenths or hundredths.	

Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(3)(D) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models.**	The revised SE represents a subset of the current 7(2)(A). The limitation of products to the hundredths constrains the values with which students are asked to work in grade 5. When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation.	
+	5(3)(E) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to solve for products of decimals to hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers.**	The revised SE represents a subset of the current 7(2)(B). Place-value understandings would include estimating factors and products to determine reasonable placement of the decimal in a product. Properties of operations would include thinking with the distributive property. For example, if students are asked to determine the total price of 12 books if each book is $4.50, students might think of this as $4.50(10+2) and determine that $4.50(10) is $45 and that doubling yields $9. $45 and $9 would yield a solution of $54. The intention is for students to develop flexible thinking with numbers using properties of operations. When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Within the Revised TEKS (2012), fluency with decimal multiplication occurs in grade 6.	
+	5(3)(F) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to represent quotients of decimals to hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models.**	The revised SE represents a subset of the current 7(2)(A). The limitation of quotients to the hundredths constrains the values with which students are asked to work in grade 5. When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation.	

Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(3)(G) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm.**	The revised SE represents a subset of the current 7(2)(B). Strategies would include mental math, place value, partial products, and properties of operations. The intention is for students to develop flexible thinking with numbers. When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Within the Revised TEKS (2012), fluency with decimal division occurs in grade 6. These division skills support development of computational skills needed for students' work with division and rates in grade 6 science.	
+	5(3)(H) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations**.	The revised SE represents a subset of the current 6(2)(A). When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Specificity has been added regarding the accuracy of the mathematics. The equivalent values should be used to describe the same whole. Within the Revised TEKS (2012), fluency with fraction and decimal addition and subtraction occurs in grade 5. "Procedural fluency refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently" (National Research Council, 2001, p. 121). Pictorial models may include strip diagrams.	

Old TEKS – Number, Operation, and Quantitative Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(3)(I) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models.**	The revised SE represents a subset of the current 7(2)(A). When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Specificity has been added regarding the accuracy of the mathematics. The equivalent values should be used to describe the same whole. Within the Revised TEKS (2012), fluency with fraction multiplication occurs in grade 6.	
+	5(3)(J) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models.**	The revised SE represents a subset of the current 7(2)(A). When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Within the Revised TEKS (2012), fluency with fraction division occurs in grade 6. A unit fraction is a fraction with a numerator of 1. Students first see unit fractions in grade 3 with revised SE 3(3)(C).	
+	5(3)(L) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. **The student is expected to divide whole numbers by unit fractions and unit fractions by whole numbers.**	The revised SE represents a subset of the current 7(2)(B). When paired with revised SE 5(1)(A), the expectation is that students solve problems. The intent of this SE is not a sole focus on the computation. Within the Revised TEKS (2012), fluency with fraction division occurs in grade 6.	

	Old TEKS – Patterns, Relationships, and Algebraic Thinking Strand	Current TEKS (2012)	Supporting Information	Notes
◎+	5(5)(A) **Patterns, relationships, and algebraic thinking.** The student makes generalizations based on observed patterns and relationships. **The student is expected to describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams.**	5(4)(D) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to recognize the difference between additive and multiplicative numerical patterns given in a table or graph.**	The revised SE adds specificity about the relationship between sets of data. The focus is on additive versus multiplicative patterns. The relationships are of form $y=x+a$ (additive) or $y=ax$ (multiplicative) where x is the input value and y is the output value. This SE is related to revised SE 5(4)(C) where students generate a pattern given an additive or multiplicative rule and its graph. This SE is related to revised SE 5(8)(C) where students graph the relationships found in input-output tables.	
			The representations of lists, charts, and diagrams have been removed.	
			The graphical representation has been added. However, graphing in the first quadrant will be the relevant skill for these relationships. While new to algebraic reasoning, this skill is not new to grade 5.	
●	5(5)(B) **Patterns, relationships, and algebraic thinking.** The student makes generalizations based on observed patterns and relationships. **The student is expected to identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs.**	5(4)(A) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to identify prime and composite numbers.**	When paired with revised SE 5(1)(C), the expectation is that students might use real (concrete) objects to identify prime and composite numbers. When paired with revised SE 5(1)(D), students might use pictorial models as a representation to identify prime and composite numbers. When paired with revised SE 5(1)(F), the expectation is that students might analyze factor pairs to connect the notions of prime and composite to defining characteristics of factors using patterns in factor pairs.	

	Old TEKS – Patterns, Relationships, and Algebraic Thinking Strand	Current TEKS (2012)	Supporting Information	Notes
●	5(6) **Patterns, relationships, and algebraic thinking.** The student describes relationships mathematically. **The student is expected to select from and use diagrams and equations such as y = 5 + 3 to represent meaningful problem situations.**	5(4)(B) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.**	The phrase "meaningful problem situations" has been clarified with "multistep problems involving the four operations with whole numbers." When paired with revised SE 5(1)(D), the expectation is that students might use diagrams, such as strip diagrams, to represent the known and unknown quantities in a multistep problem. The phrase from the current SE "such as $y=5+3$" has been clarified with "equations with a letter standing for the unknown quantity." The letter standing for the unknown quantity may be any part of the equation. Solving problems is in the current SEs 5(3)(A), 5(3)(B), 5(3)(C), and 5(3)(D).	
+		5(4)(C) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to generate a numerical pattern when given a rule in the form *y = ax* or *y = x + a* and graph.**	This revised SE is added to provide clarity for which types of patterns align to grade 5 expectations.	
+		5(4)(E) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to describe the meaning of parentheses and brackets in a numeric expression.**	The revised SE represents a subset of the current 6(2)(E). This SE supports revised SE 5(4)(F). Students are expected to describe which operations are included within a set of parentheses and/or brackets and that operations within these parentheses and/or brackets should be completed to simplify to a value for use in the remainder of a numeric expression. Students are expected to describe the relationship between numbers and operations separated by parentheses and brackets. For example, 4(14+5) is 4 times as large as (14+5). When coupled with 5(4)(F), the expectation is that students describe the meaning of parentheses and brackets up to two levels of grouping.	

Old TEKS – Patterns, Relationships, and Algebraic Thinking Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(4)(F) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to simplify numerical expressions that do not involve exponents, including up to two levels of grouping.**	The revised SE represents a subset of the current SE 6(2)(E) as the number of levels of grouping is limited to two levels. An example of two levels of grouping is (3+7)/(5-3). Students are expected to use the order of operations to simplify numerical expressions. Because fluency with addition and subtraction of positive rational numbers is expected within the Revised TEKS (2012), expressions may include fractional values when adding or subtracting.	

	Old TEKS – Geometry and Spatial Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
O+	5(7)**Geometry and spatial reasoning.** The student generates geometric definitions using critical attributes. **The student is expected to identify essential attributes including parallel, perpendicular, and congruent parts of two- and three-dimensional geometric figures.**	5(5) **Geometry and measurement.** The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. **The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.**	The revised SE focuses on classification by attributes and properties. This subsumes the current SE 5(7)(A) with respect to two-dimensional figures. An attribute is a characteristic or component of a geometric figure. The attributes of a square include side lengths and angle measures. The attributes combine to form the properties of a square: 4 right angles, 4 congruent sides, 2 sets of parallel sides.	
			The revised SE clarifies the purpose of identifying essential attributes: classification within a hierarchy of set and subsets. For example, all rectangles have the property that opposite sides are parallel; therefore, every rectangle is a parallelogram. The revised SE specifies the use of graphic organizers as a classification tool.	
			The identification of the essential attributes of three-dimensional figures has moved to grade 3: *Geometry and measurement* *3(6)(A)*	
–	5(8)(A) **Geometry and spatial reasoning.** The student models transformations. **The student is expected to sketch the results of translations, rotations, and reflections on a Quadrant I coordinate grid.**		The content of this SE was moved to grade 8: *Two-dimensional shapes* *8(10)(A)*	
–	5(8)(B) **Geometry and spatial reasoning.** The student models transformations. **The student is expected to identify the transformation that generates one figure from the other when given two congruent figures on a Quadrant I coordinate grid.**		The content of this SE was moved to grade 8: *Two-dimensional shapes* *8(10)(A)*	

	Old TEKS – Geometry and Spatial Reasoning Strand	Current TEKS (2012)	Supporting Information	Notes
	5(9)**Geometry and spatial reasoning.** The student recognizes the connection between ordered pairs of numbers and locations of points on a plane. **The student is expected to locate and name points on a coordinate grid using ordered pairs of whole numbers.**	5(8)(A) **Geometry and measurement.** The student applies mathematical process standards to identify locations on a coordinate plane. **The student is expected to describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*-coordinate, the first number in an ordered pair, indicates movement parallel to the *x*-axis starting at the origin, and the *y*-coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin.**	The revised SE adds specificity to what was implicit within the current 5(9)(A): that students are expected to understand the structure of the coordinate plane. Students are only expected to graph ordered pairs in the first quadrant.	
●+		5(8)(B) **Geometry and measurement.** The student applies mathematical process standards to identify locations on a coordinate plane. **The student is expected to describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane.**	When the current 5(9)(A) is coupled with the current 5(15)(A), the expectation is that students describe the process of graphing. The revised SE makes this explicit.	
		5(8)(C) **Geometry and measurement.** The student applies mathematical process standards to identify locations on a coordinate plane. **The student is expected to graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.**	The revised SE condenses "locate and name points on a coordinate plane using ordered pairs of whole numbers" to "graph ordered pairs." Students may be expected to graph points with fractional values because of work in grade 4 on the number line with revised SE 4(3)(G): Represent fractions and decimals to the tenths or hundredths as distances from zero on a number line. The fractional values may be between grid lines or represented by grid lines. The graphing in the revised SE is related to revised SE 5(4)(C) and 5(4)(D) which is the reason for including "real-world problems" and "including those generated by number patterns or found in an input-output table."	

	Old TEKS: Measurement Strand	Current TEKS (2012)	Supporting Information	Notes
●	5(10)(A) **Measurement.** The student applies measurement concepts involving length (including perimeter), area, capacity/volume, and weight/mass to solve problems. **The student is expected to perform simple conversions within same measurement system (SI (metric) or customary).**	5(7) **Geometry and measurement.** The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. **The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.**	The revised SE removes the word simple. Specificity has been added by providing the purpose for performing conversions. The conversions should serve the purpose of solving a problem. Performing conversions will still be required to solve problems. These conversions could include decimal values with metric units or fractional values with customary units that align to the Number and Operations strand.	
		5(4)(G) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (*V = l* x *w* x *h, V = s* x *s* x *s, and V = Bh*).**	The revised SE adds specificity to models with concrete objects and pictorial models. Volume is specifically tied to rectangular prisms and three formulas have been stated within the SE. Perimeter and area of rectangles, including squares, has moved to grade 4: *Algebraic reasoning* *4(5)(C)*	
○	5(10)(B) **Measurement.** The student applies measurement concepts involving length (including perimeter), area, capacity/volume, and weight/mass to solve problems. **The student is expected to connect models for perimeter, area, and volume with their respective formulas.**	5(6)(A) **Geometry and measurement.** The student applies mathematical process standards to understand, recognize, and quantify volume. **The student is expected to recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (*n* cubic units) needed to fill it with no gaps or overlaps if possible.**	The revised SE adds specificity regarding what it means to "connect models. . . .with their respective formulas."	
		5(6)(B) **Geometry and measurement.** The student applies mathematical process standards to understand, recognize, and quantify volume. **The student is expected to determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.**	The revised SE adds specificity regarding what it means to "connect models. . . .with their respective formulas." The formula *V=Bh* is introduced with this SE.	

	Old TEKS: Measurement Strand	Current TEKS (2012)	Supporting Information	Notes
●+	5(10)(C) **Measurement.** The student applies measurement concepts involving length (including perimeter), area, capacity/volume, and weight/mass to solve problems. **The student is expected to select and use appropriate units and formulas to measure length, perimeter, area, and volume.**	5(4)(H) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. **The student is expected to represent and solve problems related to perimeter and/or area and related to volume.**	Students are expected to determine perimeter of polygons, area of rectangles and composite figures formed by rectangles, and volume of rectangular prisms. "Use appropriate. . . .formulas" is stated more appropriately as "represent and solve." Students may still be expected to measure lengths to determine perimeter, area, and volume if the problem requires it. Because fluency with the addition and subtraction of positive rational numbers is expected within the Revised TEKS (2012), lengths may reflect fractional measures with perimeter.	
–	5(11)(A) **Measurement.** The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius). **The student is expected to solve problems involving changes in temperature.**		The content of this SE is addressed in the science TEKS. However, temperature changes may serve as a context with connections to 5(1)(A). Any reading of a thermometer to solve a problem would align to science TEKS.	
–	5(11)(B) **Measurement.** The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius). **The student is expected to solve problems involving elapsed time.**		The content of this SE was moved to grade 3 and grade 4: *Geometry and measurement* *3(7)(C)* *Geometry and measurement* *4(8)(C)*	

	Old TEKS: Probability and Statistics Strand	Current TEKS (2012)	Supporting Information	Notes
–	5(12)(A) **Probability and statistics.** The student describes and predicts the results of a probability experiment. **The student is expected to use fractions to describe the results of an experiment.**		The content of this SE was moved to grade 7: *Proportionality* *7(6)(C)*	
–	5(12)(B) **Probability and statistics.** The student describes and predicts the results of a probability experiment. **The student is expected to use experimental results to make predictions.**		The content of this SE was moved to grade 7: *Proportionality* *7(6)(C)*	
–	5(12)(C) **Probability and statistics.** The student describes and predicts the results of a probability experiment. **The student is expected list all possible outcomes of a probability experiment such as tossing a coin.**		The content of this SE was moved to grade 7: *Proportionality* *7(6)(A)*	
–	5(13)(A) **Probability and statistics.** The student solves problems by collecting, organizing, displaying, and interpreting sets of data. **The student is expected to use tables of related number pairs to make line graphs.**		Line graphs do not appear in the Revised TEKS (2012). Student are expected to use the related number pairs from tables to graph the data as coordinate points in Quadrant I in revised SE 5(4)(C) and 5(4)(D).	
–	5(13)(B) **Probability and statistics.** The student solves problems by collecting, organizing, displaying, and interpreting sets of data. **The student is expected to describe characteristics of data presented in tables and graphs including median, mode, and range.**		The content of this SE was moved to grade 6. *Measurement and data* *6(12)(B)* *6(12)(C)* *6(12)(D)*	
–	5(13)(C) **Probability and statistics.** The student solves problems by collecting, organizing, displaying, and interpreting sets of data. **The student is expected to graph a given set of data using an appropriate graphical representation such as a picture or line graph.**		Picture graphs or pictographs are used through grade 3. Line graphs do not appear in the Revised TEKS (2012).	

Old TEKS: Probability and Statistics Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(9)(A) **Data analysis.** The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. **The student is expected to represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots.**	Data may be in the form of whole numbers, decimals, and/or fractions. A bar graph may be used to represent frequencies of an item, a category, a number, or a range of numbers. The horizontal axis is labeled with the item, category, number, or range of numbers being counted. The vertical axis is labeled with appropriate frequencies. The length of the bar represents the frequency of the items, categories, numbers, or range of numbers being counted. This SE limits the representation of data using a bar graph to categorical data. Students begin work with bar graphs in grade 1. A dot plot may be used to represent frequencies. A number line may be used for counts related to numbers. A line labeled with categories may be used as well if the context requires. Dots are recorded vertically above the number line to indicate frequencies. Dots may represent one count or multiple counts if so noted. Students begin work with dot plots in grade 3. A stem and leaf plot organizes data in numerical order according to place value. The stem represents the place values preceding the last digit. The leaves represent the last digits. The leaves provide the frequency counts for the range of numbers included in that row of the stem and leaf plot. Stem | Leaves 7 | 1 1 2 3 4 4 8 | 2 3 9 | 4 4 4 7 8 10 | 0 Students begin work with stem and leaf plots in grade 4.	
+	5(9)(B) **Data analysis.** The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. **The student is expected to represent discrete paired data on a scatter plot.**	A scatter plot graphs two sets of data as corresponding numbers represented as ordered pairs. A scatter plot is comparable to a Quadrant I graph with paired data as ordered pairs. This complements the revised SE 5(8)(C).	

Old TEKS: Probability and Statistics Strand	Current TEKS (2012)	Supporting Information	Notes
+	5(9)(C) **Data analysis.** The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. **The student is expected to solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.**	A frequency table shows how often an item, a number, or a range of numbers occurs. Tallies and counts are used to record frequencies. Students begin work with frequency tables in grade 3. Students begin work with dot plots in grade 3 with the Revised TEKS (2012). Students begin work with bar graphs in grade 1 with the Revised TEKS (2012). Students begin work with stem and leaf plots in grade 4 with the Revised TEKS (2012). Students begin work with scatter plots in grade 5 with the Revised TEKS (2012).	

<table>
<tr><th></th><th>Old TEKS: Underlying Processes and Mathematical Tools Strand</th><th>Current TEKS (2012)</th><th>Supporting Information</th><th>Notes</th></tr>
<tr><td>●</td><td>5(14)(A) Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.

The student is expected to identify the mathematics in everyday situations.</td><td>5(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.</td><td>The focus has shifted to application.

The opportunities for application have been consolidated into three areas: everyday life, society, and the workplace.

This SE, when tagged to a content SE, allows for increased rigor through connections outside the discipline.</td><td></td></tr>
<tr><td>●</td><td>5(14)(B) Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.

The student is expected to solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</td><td rowspan="2">5(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.</td><td rowspan="2">The revised SE restates and condenses 5(14)(B) and 5(14)(C).

Problem-Solving Model<table><tr><th>Current TEKS</th><th>Revised TEKS (2012)</th></tr><tr><td>Understanding the problem</td><td>Analyzing given information</td></tr><tr><td>Making a plan</td><td>Formulating a plan or strategy</td></tr><tr><td>Carrying out the plan</td><td>Determining a solution</td></tr><tr><td></td><td>Justifying the solution</td></tr><tr><td>Evaluating the solution for reasonableness</td><td>Evaluating the problem-solving process and the reasonableness of the solution</td></tr></table></td><td rowspan="2"></td></tr>
<tr><td>●</td><td>5(14)(C) Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.

The student is expected to select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.</td></tr>
<tr><td>●</td><td>5(14)(D) Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.

The student is expected to use tools such as real objects, manipulatives, and technology to solve problems.</td><td>5(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.</td><td>The phrase “as appropriate” has been inserted into the Revised TEKS (2012). This implies that students are assessing which tool to apply rather than trying only one or all.

“Paper and pencil” is now included in the list of tools that still includes real objects, manipulatives, and technology.</td><td></td></tr>
</table>

	Old TEKS: Underlying Processes and Mathematical Tools Strand	Current TEKS (2012)	Supporting Information	Notes
●	5(15)(A) **Underlying processes and mathematical tools.** The student communicates about Grade 5 mathematics using informal language. **The student is expected to explain and record observations using objects, words, pictures, numbers, and technology.**	5(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 has expanded to include reasoning and the implications of mathematical ideas and reasoning. The list of representations is now summarized with "multiple representations" with specificity added for symbols and diagrams.	
●	5(15)(B) **Underlying processes and mathematical tools.** The student communicates about Grade 5 mathematics using informal language. **The student is expected to relate informal language to mathematical language and symbols.**	5(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 is extended to include organizing and recording mathematical ideas in addition to communicating. 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.	
●	5(16)(A) **Underlying processes and mathematical tools.** The student uses logical reasoning. **The student is expected to make generalizations from patterns or sets of examples and nonexamples.**	5(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 Revised TEKS (2012) extends the current TEKS to allow for additional means to analyze relationships and to form connections with mathematical ideas past conjecturing and sets of examples and non-examples. Students are expected to form conjectures based on patterns or sets of examples and non-examples.	
●	5(16)(B) **Underlying processes and mathematical tools.** The student uses logical reasoning. **The student is expected to justify why an answer is reasonable and explain the solution process.**	5(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 Revised TEKS (2012) clarifies "validates his/her conclusions" with displays, explanations, and justifications. The conclusions should focus on mathematical ideas and arguments. Displays could include diagrams, visual aids, written work, etc. The intention is 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 "vertex" instead of "corner" when referring to the point at which two edges intersect on a polygon.	

Old TEKS	Current TEKS (2012)	Supporting Information	Notes
+	5(10)(A) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to define income tax, payroll tax, sales tax, and property tax.**		
+	5(10)(B) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to explain the difference between gross income and net income.**		
+	5(10)(C) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to identify the advantages and disadvantages of different methods of payment, including check, credit card, debit card, and electronic payments.**		
+	5(10)(D) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to develop a system for keeping and using financial records.**		
+	5(10)(E) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to describe actions that might be taken to balance a budget when expenses exceed income.**		
+	5(10)(F) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. **The student is expected to balance a simple budget.**		