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Grade 4 – Mathematics

Current TEKS	Revised TEKS (2012)	Supporting Information	Notes
<p>(a) Introduction. (1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 4 are comparing and ordering fractions and decimals, applying multiplication and division, and developing ideas related to congruence and symmetry</p>	<p>(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.</p>	<p>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.</p>	
<p>(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 connected 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 they 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 predictions and solve problems.</p>	<p>(a) Introduction. (4) The primary focal areas in Grade 4 are use of operations, fractions, and decimals and describing and analyzing geometry and measurement. 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 represent points on a number line that correspond to a given fraction or terminating decimal. In algebraic reasoning, students will represent and solve multi-step problems involving the four operations with whole numbers with expressions and equations and generate and analyze patterns. In geometry and measurement, students will classify two-dimensional figures, measure angles, and convert units of measure. In data analysis students will represent and interpret data.</p>	<p>The 2012 paragraph that highlights more specifics about grade 4 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.</p> <p>The 2012 paragraph has been updated to align to the 2012 grade 4 mathematics TEKS.</p> <p>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 <i>Texas Response to Curriculum Focal Points [TXRCFP]</i>. “[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).</p> <p>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 <i>TXRCFP</i> list related grade-level TEKS.</p>	

Current TEKS	Revised TEKS (2012)	Supporting Information	Notes
<p>(a) Introduction. (3) Throughout mathematics in Grades 3-5, students develop numerical fluency with conceptual understand and computational accuracy. Students in Grades 3-4 use knowledge of the bas-ten place value system to compose and decompose numbers in order to solve problems requiring precision, estimation, and reasonableness. By the end of Grade 4, 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.</p>	<p>(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 4 are expected to perform their work without the use of calculators.</p>	<p>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 I.</p> <p>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.</p> <p>To be mathematically proficient, students must develop conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition (National Research Council, 2001, p. 116).</p> <p>"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).</p> <p>"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).</p> <p>Procedural fluency and conceptual understanding weave together to develop mathematical proficiency.</p>	

Grade 4 – Mathematics

Current TEKS	Revised TEKS (2012)	Supporting Information	Notes
<p>(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.</p>	<p>(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. Students will select appropriate tools, such as real objects, manipulatives, algorithms, paper and pencil, and technology, or techniques, such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Communication of mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, computer programs, and language will be emphasized. Students will create and use representations to organize, record, and communicate mathematical ideas. Students will explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p>	<p>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.</p> <p>The language of this 2012 introductory paragraph is very similar to the Mathematical Process Standard strand within the Revised TEKS (2012).</p> <p>This 2012 introductory paragraph includes generalization and abstraction with the text from (1)(C).</p> <p>This 2012 introductory paragraph includes computer programs with the text from (1)(D).</p> <p>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).</p>	
	<p>(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.</p>	<p>The State Board of Education approved the retention of some "such as" statements within the TEKS where needed for clarification of content.</p>	

Grade 4 – Mathematics

Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(1)(A) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals.</p> <p>The student is expected to use place value to read, write, compare, and order whole numbers through 999,999,999.</p>	<p>4(2)(B) The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals.</p> <hr/> <p>4(2)(C) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols >, <, or =.</p>	<p>The current SE was separated into two SEs within the Revised TEKS (2012).</p> <p>The phrase “use place value to read, write” has been replaced with “represent. . . using expanded notation and numerals.”</p> <p>The revised SE 4(2)(B) reflects the representing of whole numbers through 1,000,000,000 and decimals to the hundredths.</p> <hr/> <p>The current SE was separated into two SEs within the Revised TEKS (2012).</p> <p>Specificity regarding notation has been included with the inclusion of the symbols >, <, or =.</p>	
<p>4(1)(B) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals.</p> <p>The student is expected to use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete objects and pictorial models.</p>	<p>4(2)(B) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals.</p> <hr/> <p>4(2)(E) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to represent decimals, including tenths and hundredths, using concrete and visual models and money.</p>	<p>The current SE was separated into three SEs within the Revised TEKS (2012).</p> <p>The phrase “use place value to read, write” has been replaced with “represent. . . using expanded notation and numerals.” For example, in the number 3.94, the 3 is in the ones place is 3; the 9 in the tenths place is 0.9; and the 4 in the hundredths place is 0.04; and 3.94 is the sum of 3 ones, 9 tenths, and 4 hundredths.</p> <p>The revised SE 4(2)(B) reflects the representing of whole numbers through 1,000,000,000 and decimals to the hundredths.</p>	
		<p>The revised SE separates the representations of decimals, including tenths and hundredths, from other skills with decimals. It represents a facet of current SE 4(1)(B).</p> <p>Students are not expected to represent decimals smaller than hundredths.</p>	

Grade 4 – Mathematics

Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>● 4(1)(B) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals.</p> <p>The student is expected to use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete objects and pictorial models.</p>	<p>4(2)(F) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to compare and order decimals using concrete and visual models to the hundredths.</p>	<p>The revised SE separates the comparing and ordering of decimals to the hundredths using concrete and visual models from other skills with decimals. It represents a part of current SE 4(1)(B).</p> <p>Students are not expected to use the symbols $>$, $<$, or $=$ with these comparisons.</p>	
<p>— 4(2)(A) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects.</p> <p>The student is expected to use concrete objects and pictorial models to generate equivalent fractions.</p>		<p>The content of this SE was moved to grade 3: <i>Number and operations</i> 3(3)(F)</p>	
<p>— 4(2)(B) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects.</p> <p>The student is expected to model fraction quantities greater than one using concrete objects and pictorial models.</p>		<p>This skill is not stated explicitly within the Revised TEKS (2012).</p>	
<p>— 4(2)(C) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects.</p> <p>The student is expected to compare and order fractions using concrete objects and pictorial models.</p>		<p>The comparing of two fractions having the same numerator or denominator using objects and pictorial models has moved to grade 3: <i>Number and operations</i> 3(3)(H)</p>	
<p>+ 4(3)(A) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$.</p>		<p>When paired with revised SE 4(1)(D), students may represent a/b as a sum of fractions $1/b$ using concrete and pictorial models, which includes improper fractions when $a > b$.</p>	

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Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>+</p>	<p>4(3)(D) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$.</p>	<p>The revised SE adds specificity to the number of fractions a student compares.</p> <p>When paired with revised SE 4(1)(D), students may compare fractions using concrete and pictorial models.</p> <p>The revised SE builds on revised SE 3(3)(H) where students compare two fractions having the same numerator or denominator.</p>	
<p>○</p> <p>4(2)(D) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects.</p> <p>The student is expected to relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.</p>	<p>4(2)(G) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to relate decimals to fractions that name tenths and hundredths.</p>	<p>Students continue to relate decimals to fractions that name tenths and hundredths.</p> <p>When paired with revised SE 4(1)(D), students may relate decimals to fractions that name tenths and hundredths using concrete and pictorial models.</p> <p>The explicit use of concrete objects and pictorial models when relating decimals to fractions has been removed from the Revised TEKS (2012).</p>	
<p>●+</p> <p>4(3)(A) Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals.</p> <p>The student is expected to use addition and subtraction to solve problems involving whole numbers.</p>	<p>4(4)(A) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to add and subtract whole numbers</p>	<p>The Revised TEKS (2012) clarifies the addition and subtraction of whole numbers with the use of the standard algorithm.</p> <p>The revised SE is extended to include the addition and subtraction of decimals to the hundredths place using the standard algorithm. Problems may include both whole numbers and decimal values.</p> <p>When paired with revised SE 4(1)(D), the expectation is that students add decimals to the hundredths using concrete and pictorial models.</p>	
<p>—</p> <p>4(3)(B) Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals.</p> <p>The student is expected to add and subtract decimals to the hundredths place using concrete objects and pictorial models.</p>	<p>and decimals to the hundredths place using the standard algorithm.</p>	<p>The explicit use of concrete objects and pictorial models when adding and subtracting decimals has been removed from the Revised TEKS (2012).</p>	

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

Grade 4 – Mathematics

Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(4)(A) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>●+ The student is expected to model factors and products using arrays and area models.</p>	<p>4(4)(C) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15.</p>	<p>The revised SE adds specificity by stating that the factors may be 2 two-digit numbers and that perfect squares through 15x15 are included.</p> <p>The revised SE added equations as representations for the product of 2 two-digit numbers. A student may be expected to describe an array or an area model with an equation that includes the factors as lengths and the product as the area.</p> <p>This SE complements the development of area formulas in revised SE 4(5)(C) and 4(5)(D).</p>	
<p>4(4)(B) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>● The student is expected to represent multiplication and division situations in picture, word, and number form.</p>	<p>4(4)(C) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15.</p>	<p>The revised SE adds specificity to the picture forms as “arrays” and “area models” and the number form as “equations.” It also adds specificity to the multiplication situations with “the product of 2 two-digit numbers.”</p> <p>When paired with revised SE 4(1)(A), the expectation is that students apply this skill in a problem arising in everyday life, society, and the workplace.</p> <p>When paired with revised SE 4(1)(G), students may be expected to explain situations in word form.</p>	
<p>4(4)(B) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>● The student is expected to represent multiplication and division situations in picture, word, and number form.</p>	<p>4(4)(E) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations.</p>	<p>The revised SE adds specificity to the picture forms as “arrays” and “area models” and the number form as “equations.” It also adds specificity to the division situations as they have “up to a four-digit whole number divided by a one-digit whole number.”</p> <p>When paired with revised SE 4(1)(A), the expectation is that students apply this skill in a problem arising in everyday life, society, and the workplace.</p> <p>When paired with revised SE 4(1)(G), the expectation is that students explain situations in word form.</p>	

Grade 4 – Mathematics

Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(4)(B) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>The student is expected to represent multiplication and division situations in picture, word, and number form.</p>	<p>4(5)(A) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.</p> <p>The student is expected to represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity.</p>	<p>The current SE is subsumed within the Revised SE 4(5)(A). Picture form includes strip diagrams. Number form includes equations with a letter standing for the unknown quantity.</p> <p>When paired with revised SE 4(1)(G), the expectation is that students explain situations in word form.</p>	
<p>4(4)(C) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>The student is expected to recall and apply multiplication facts through 12 x 12.</p>		<p>The recall of multiplication facts up to 10 by 10 with automaticity has moved to grade 3: <i>Number and operations</i> 3(4)(F)</p>	
<p>4(4)(D) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>The student is expected to use multiplication to solve problems (no more than two digits times two digits without technology).</p>	<p>4(4)(D) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties.</p>	<p>The revised SE adds specificity with “strategies” and “algorithms,” including the standard algorithm. Specificity with strategies is also provided: mental math, partial products, and properties of operations.</p> <p>The revised SE adds the multiplication of a four-digit number by a one-digit number.</p>	

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Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(4)(B) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>●+ The student is expected to represent multiplication and division situations in picture, word, and number form.</p> <p>4(4)(D) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>The student is expected to use multiplication to solve problems (no more than two digits times two digits without technology).</p>	<p>4(4)(H) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to solve with fluency one- and two-step problems involving multiplication and division, including interpreting remainders.</p>	<p>The revised SE adds specificity to the application of the current SEs 4(4)(D) and 4(4)(E) with "one-step and two-step problems."</p> <p>The revised SE includes the interpretation of remainders when dividing. This skill is in the current SE 5(3)(C).</p> <p>The revised SE includes fluency with these types of problems.</p>	
<p>4(4)(E) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers.</p> <p>●+ The student is expected to use division to solve problems (no more than one-digit divisors and three-digit dividends without technology).</p>	<p>4(4)(F) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor.</p>	<p>The revised SE adds specificity with strategies and algorithms, including the standard algorithm. Strategies may include mental math, partial products, and properties of operations.</p> <p>The revised SE adds the division of a four-digit dividend by a one-digit number.</p>	
<p>4(5)(A) Number, operation and quantitative reasoning. The student estimates to determine reasonable results.</p> <p>●+ The student is expected to round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations.</p>	<p>4(2)(D) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to round whole numbers to a given place value through the hundred thousands place.</p>	<p>The phrase "to a given place value through the hundred thousands place" is more precise than "to the nearest ten, hundred, or thousand."</p> <p>The revised SE extends the place value for rounding from the thousands place to the hundred thousands place.</p>	

Grade 4 – Mathematics

Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(5)(B) Number, operation and quantitative reasoning. The student estimates to determine reasonable results.</p> <p>●+ The student is expected to use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems.</p>	<p>4(4)(G) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to round to the nearest 10, 100, or 1,000 or use compatible numbers, to estimate solutions involving whole numbers.</p>	<p>The revised SE adds specificity for rounding to be to the nearest 10, 100, or 1,000.</p> <p>The revised SE includes addition and subtraction as well as multiplication and division.</p>	
<p>+ </p>	<p>4(2)(A) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left.</p>	<p>The place-value positions address whole numbers through 1,000,000,000 and decimals to the hundredths.</p>	
<p>+ </p>	<p>4(3)(B) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations.</p>	<p>This SE builds on revised SE 4(3)(A) that requires students to describe fractions as a sum of unit fractions, such as $5/2 = 1/2 + 1/2 + 1/2 + 1/2 + 1/2$.</p> <p>In this SE, students are expected to also express $5/2 = 3/2 + 2/2$; $5/2 = 1/2 + 4/2$; $5/2 = 2/2 + 2/2 + 1/2$; and $2 \frac{1}{2} = 1 + 1 + 1/2$.</p> <p>Students are expected to use concrete models such as fraction strips or fractions bars and pictorial models such as strip diagrams and to record the appropriate number sentences.</p>	

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Current TEKS – Number, Operation, and Quantitative Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
+	<p>4(3)(C) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to determine if two given fractions are equivalent using a variety of methods.</p>	<p>Methods may include concrete models such as fraction strips and fraction bars and pictorial models such as strip diagrams. Methods also include numeric approaches. Students are expected to use methods that prove that the multiplicative relationship between the numerators is the same as the multiplicative relationship between the denominators or prove that the multiplicative relationship between the numerator and denominator in each fraction is the same. For example, $\frac{3}{4}$ and $\frac{9}{12}$, are equivalent because each fourth is separated into 3 equal parts to make $\frac{9}{12}$ and $\frac{6}{8}$ and $\frac{9}{12}$ are equivalent because they both simplify to $\frac{3}{4}$. Methods may also include multiplying by a fraction equivalent to one.</p> <p>With the current SE 4(2)(A), students are expected to generate equivalent fractions rather than verify equivalence.</p>	
+	<p>4(3)(E) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations.</p>	<p>This SE is coming to grade 4 from the current grade 5 SE 5(3)(E).</p> <p>Objects that build to the number line include fraction strips and fraction bars and other linear fraction models. Pictorial models include sketches of the linear fraction models and strip diagrams.</p> <p>Properties of operations with the addition and subtraction of fractions with equal denominators connects to the decomposing of fractions included in revised SE 4(3)(B). For example, $\frac{7}{8} + \frac{6}{8}$ could be thought of as $\frac{7}{8} + (\frac{1}{8} + \frac{5}{8}) = (\frac{7}{8} + \frac{1}{8}) + \frac{5}{8} = \frac{8}{8} + \frac{5}{8} = 1 \frac{5}{8}$.</p>	
+	<p>4(3)(F) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to evaluate the reasonableness of sums and differences of fractions using benchmark fractions 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1, referring to the same whole.</p>	<p>For example, when estimating $\frac{7}{8} + \frac{6}{8}$, one might estimate $\frac{7}{8}$ as 1 and $\frac{6}{8}$ as $\frac{1}{2}$ since the estimate for $\frac{7}{8}$ is a bit larger than $\frac{7}{8}$. The estimated sum would be $1 \frac{1}{2}$.</p>	

Grade 4 – Mathematics

Current TEKS – Patterns, Relationships, and Algebraic Thinking Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(6)(A) Patterns, relationships, and algebraic thinking. The student uses patterns in multiplication and division.</p> <p>The student is expected to use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$).</p>		<p>The content of this SE was moved to grade 3: <i>Number and operations</i> 3(6)(A)</p>	
<p>4(6)(B) Patterns, relationships, and algebraic thinking. The student uses patterns in multiplication and division.</p> <p>The student is expected to use patterns to multiply by 10 and 100.</p>	<p>4(4)(B) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.</p> <p>The student is expected to determine products of a number and 10 or 100 using properties of operations and place value understandings.</p>	<p>Specificity has been added related to patterns. Students are to use properties of operations and place-value understandings to multiply a number by 10 or 100.</p> <p>Because place value in grade 4 extends from the hundredths to the one billions place, students may be expected to determine the product of a pair of numbers such as 4,000 and 10. The product is 10 times larger than 4,000, so the place value of the 4 increases from 1,000 to 10,000. When multiplying numbers such as 324 and 10, a student is expected to use the properties of operations and place value. Multiplying 324 by 10 means that each value from expanded notation is being multiplied by 10, so $10(324) = 10(300 + 20 + 4)$ $= 10(300) + 10(20) + 10(4) = 3000 + 200 + 40 = 3240$. Students are not expected to use the standard algorithm to determine the result of multiplying a number by 10 or 100.</p> <p>With its emphasis on properties of operations and place value, the revised SE was moved to the Number and operations strand. The Revised SE is connected to 4(2)(A).</p>	

Current TEKS – Patterns, Relationships, and Algebraic Thinking Strand	Revised TEKS (2012)	Supporting Information	Notes															
<p>4(7)(A) Patterns, relationships, and algebraic thinking. The student uses organizational structures to analyze and describe patterns and relationships.</p> <p>The student is expected to describe the relationship between two sets of related data such as ordered pairs in a table.</p>	<p>4(5)(B) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.</p> <p>The student is expected to represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence.</p>	<p>Specificity has been added regarding the “two sets of related data such as ordered pairs in a table” with an “input-output table.” The “input” is the position in the sequence. The “output” is the value in the position. For example, the sequence 4, 8, 12, 16, . . . can be listed in table format where the “input” is the position of the value in the sequence. The first position has a value of four, the second position has a value of 8, etc.</p> <table border="1" data-bbox="1083 477 1503 618"> <thead> <tr> <th>Input, Position</th> <th>Numerical Expression</th> <th>Output, Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>4x1</td> <td>4</td> </tr> <tr> <td>2</td> <td>4x2</td> <td>8</td> </tr> <tr> <td>3</td> <td>4x3</td> <td>12</td> </tr> <tr> <td>4</td> <td>4x4</td> <td>16</td> </tr> </tbody> </table> <p>The output is four times the input. The value of the position is four times the position number.</p> <p>A problem might ask for the value of the 23rd position for this relationship. Students would be expected to determine that the input is 23, the numerical expression is 4x23, and the output is 92.</p> <p>Students are expected to work with problems that reflect the addition or subtraction of a whole number to the input or the multiplication or division of the input by a whole number. The values used with multiplication and division should align to revised SEs 4(4)(D) and 4(4)(F). The “rule” or the description of the operation that is applied to the input should be given to the students.</p> <p>Students are not expected to represent relationships that use more than one operation.</p>	Input, Position	Numerical Expression	Output, Value	1	4x1	4	2	4x2	8	3	4x3	12	4	4x4	16	
Input, Position	Numerical Expression	Output, Value																
1	4x1	4																
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4	4x4	16																

Grade 4 – Mathematics

Current TEKS – Geometry and Spatial Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>●+ 4(8)(A) Geometry and spatial reasoning. The student identifies and describes attributes of geometric figures using formal geometric language.</p> <p>The student is expected to identify and describe right, acute, and obtuse angles.</p>	<p>4(6)(C) Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties.</p> <p>The student is expected to apply knowledge of right angles to identify acute, right, and obtuse triangles.</p>	<p>Specificity has been added regarding students should identify and describe right, acute, and obtuse angles.</p> <p>Students are expected to use a right angle, a 90° angle, as a benchmark to identify acute, right, and obtuse angles.</p> <p>The revised SE extends the identification of angles to the use of angles to identify triangles. Triangles are named by their largest angle.</p>	
<p>●+ 4(8)(B) Geometry and spatial reasoning. The student identifies and describes attributes of geometric figures using formal geometric language.</p> <p>The student is expected to identify and describe parallel and intersecting (including perpendicular) lines using concrete objects and pictorial models.</p>	<p>4(6)(A) Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties.</p> <p>The student is expected to identify points, lines, line segments, rays, angles, and perpendicular and parallel lines.</p>	<p>Students are expected to identify parallel and perpendicular lines.</p> <p>When paired with 4(1)(D), the expectation is that students describe these figures using concrete and pictorial models.</p> <p>The revised SE includes points, lines, line segments, rays, and angles.</p> <p>When paired with 4(1)(D), the expectation is that students describe these figures using concrete and pictorial models.</p>	
<p>○ 4(8)(C) Geometry and spatial reasoning. The student identifies and describes attributes of geometric figures using formal geometric language.</p> <p>The student is expected to use essential attributes to define two- and three-dimensional geometric figures.</p>	<p>4(6)(D) Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties.</p> <p>The student is expected to classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.</p>	<p>Specificity has been added to “essential attributes” with “based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.”</p> <p>Classification is part of defining the essential attributes of a geometric figure. Students are expected to classify all 4-sided figures with opposite sides parallel and four right angles from adjacent sides that are perpendicular as rectangles.</p> <p>The classification by sets and subsets is in grade 5 with revised SE 5(5)(A).</p> <p>The defining of 3-d figures using essential attributes has moved to grade 3: <i>Geometry and measurement.</i> 3(6)(A)</p>	

Grade 4 – Mathematics

Current TEKS – Geometry and Spatial Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(9)(A) Geometry and spatial reasoning. The student connects transformations to congruence and symmetry.</p> <p>— The student is expected to demonstrate translations, reflections, and rotations using concrete models.</p>		<p>The content of this SE was moved to grade 8: <i>Two-dimensional shapes</i> 8(10)(A)</p>	
<p>4(9)(B) Geometry and spatial reasoning. The student connects transformations to congruence and symmetry.</p> <p>— The student is expected to use translations, reflections, and rotations to verify that two shapes are congruent.</p>		<p>The content of this SE was moved to grade 8: <i>Two-dimensional shapes</i> 8(10)(B)</p>	
<p>4(9)(C) Geometry and spatial reasoning. The student connects transformations to congruence and symmetry.</p> <p>● The student is expected to use reflections to verify that a shape has symmetry.</p>	<p>4(6)(B) Geometry and measurement. The student applies mathematical process standards to analyze geometric attributes in order to develop generalizations about their properties.</p> <p>The student is expected to identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure.</p>	<p>To verify symmetry with a reflection, one must first identify the line(s) of symmetry. The revised SE address the identification of the lines of symmetry.</p> <p>When paired with 4(1)(E) and 4(1)(F), the expectation is that students use the line(s) of symmetry as line(s) of reflection to verify the placement of the line of symmetry.</p>	
<p>4(10)(A) Geometry and spatial reasoning. The student recognizes the connection between numbers and their properties and points on a line.</p> <p>●+ The student is expected to locate and name points on a number line using whole numbers, fractions such as halves and fourths, and decimals such as tenths.</p>	<p>4(2)(H) Number and operations. The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value.</p> <p>The student is expected to determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.</p>	<p>The revised SE rephrases “locate and name points” as “determine the corresponding decimal . . . to a specified point.”</p> <p>Students are expected to determine the corresponding decimal point to the hundredths place on a number line.</p> <p>The location and naming of whole numbers on a number line has moved to grade 2: <i>Number and operations</i> 2(2)(E) 2(2)(F)</p>	
	<p>4(3)(G) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems.</p> <p>The student is expected to represent fractions and decimals to the tenths or hundredths as distances from zero on a number line.</p>	<p>The fractions that may be represented are fractions a/b, where a and b are whole numbers and $b > 0$, including when $a > b$. This aligns to revised SE 4(3)(A).</p>	

Grade 4 – Mathematics

Current TEKS – Geometry and Spatial Reasoning Strand	Revised TEKS (2012)	Supporting Information	Notes
+	<p>4(7)(A) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.</p> <p>The student is expected to illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is “cut out” by the rays of the angle. Angle measures are limited to whole numbers.</p>	<p>The content of this SE comes from grade 6: <i>Measurement</i> 6(8)(C)</p>	
+	<p>4(7)(B) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.</p> <p>The student is expected to illustrate degrees as the units used to measure an angle, where 1/360 of any circle is one degree and an angle that “cuts” $n/360$ out of any circle whose center is at the angle’s vertex has a measure of n degrees. Angle measures are limited to whole numbers.</p>	<p>The content of this SE comes from grade 6: <i>Measurement</i> 6(8)(C)</p>	
+	<p>4(7)(C) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.</p> <p>The student is expected to determine the approximate measures of angles in degrees to the nearest whole number using a protractor.</p>	<p>The content of this SE comes from grade 6: <i>Measurement</i> 6(8)(C)</p>	
+	<p>4(7)(D) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.</p> <p>The student is expected to draw an angle with a given measure.</p>	<p>The content of this SE comes from grade 6: <i>Measurement</i> 6(8)(C)</p>	
+	<p>4(7)(E) Geometry and measurement. The student applies mathematical process standards to solve problems involving angles less than or equal to 180 degrees.</p> <p>The student is expected to determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures.</p>	<p>The content of this SE comes from grade 6: <i>Measurement</i> 6(8)(C)</p> <p>The two non-overlapping angles include complementary and supplementary angles.</p>	

Current TEKS – Measurement Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(11)(A) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student is expected to use measurement tools to measure capacity/volume and weight/mass.</p>	<p>4(8)(C) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement.</p> <p>The student is expected to solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate.</p>	<p>Specificity has been added for capacity to be measures of liquid volume.</p> <p>The use of measurement tools and estimation in the current SE was been subsumed within 4(1)(C) where students are expected to select tools and techniques as appropriate to solve problems.</p> <p>The revised SE includes problems that include intervals of time and money.</p> <p>Multiplication or division problems that deal with money are limited to amounts expressed as cents or dollars with no decimal values as decimal multiplication and division is in the Revised TEKS (2012) for grade 5.</p> <p>The revised SE does not include problems related to weight.</p>	
<p>+</p> <p>The student is expected to estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units SI (metric) and customary.</p>	<p>4(5)(C) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.</p> <p>The student is expected to use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square (4s) and the area of a rectangle ($l \times w$).</p>	<p>Specificity has been added for determining perimeter and area to include using models to determine formulas.</p>	
	<p>4(5)(D) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations.</p> <p>The student is expected to solve problems related to perimeter and area of rectangles where dimensions are whole numbers.</p>	<p>Specificity for the dimensions of rectangles has been added. Dimensions should be whole numbers.</p>	

Current TEKS – Measurement Strand	Revised TEKS (2012)	Supporting Information	Notes										
<p>4(11)(B) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass.</p> <p>●+ The student is expected to perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system.</p>	<p>4(8)(A) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement.</p> <p>The student is expected to identify relative sizes of measurement units within the customary and metric systems.</p> <p>4(8)(B) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement.</p> <p>The student is expected to convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table.</p>	<p>When paired with 4(1)(C), the expectation is that students use tools, such as rulers, to solve problems related to identifying relative sizes of measurement units.</p> <p>In the revised SE, measurement units include units of length, capacity, and weight within the customary system.</p> <p>In the revised SE, measurement units include units of length, capacity, and mass within the metric system.</p> <p>Within the revised SE, the conversions will be "one-step" conversions from a smaller unit to a larger unit or from a larger unit to a smaller unit when students are provided other equivalent measures represented in a table as shown in the example below.</p> <p>Equivalent measures are shown in the table below.</p> <table border="1" data-bbox="1157 672 1436 813"> <thead> <tr> <th>Number of feet</th> <th>Number of inches</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>24</td> </tr> <tr> <td>3</td> <td>36</td> </tr> <tr> <td>4</td> <td>48</td> </tr> <tr> <td>6</td> <td>72</td> </tr> </tbody> </table> <p>Based on the information in the table, how many inches are in 7 feet?</p> <p>The revised SE includes metric units.</p>	Number of feet	Number of inches	2	24	3	36	4	48	6	72	
Number of feet	Number of inches												
2	24												
3	36												
4	48												
6	72												
<p>4(11)(C) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student is expected to use measurement tools to measure capacity/volume and weight/mass.</p> <p>— The student is expected to use concrete models of standard cubic units to measure volume.</p>		<p>The content of this SE was moved to grade 5: <i>Geometry and measurement</i> 5(6)(A) 5(6)(B)</p>											

Grade 4 – Mathematics

Current TEKS – Measurement Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>— 4(11)(D) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass.</p> <p>The student is expected to estimate volume in cubic units.</p>		<p>The content of this SE was moved to grade 5: <i>Geometry and measurement</i> 5(6)(A) 5(6)(B)</p>	
<p>— 4(11)(E) Measurement. The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass.</p> <p>The student is expected to explain the difference between weight and mass.</p>		<p>This skill is not included within the Revised TEKS (2012).</p>	
<p>— 4(12)(A) Measurement. The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</p> <p>The student is expected to use a thermometer to measure temperature and changes in temperature.</p>		<p>This skill is not included within the Revised TEKS (2012).</p>	
<p>●+ 4(12)(B) Measurement. The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</p> <p>The student is expected to use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time.</p>	<p>4(8)(C) Geometry and measurement. The student applies mathematical process standards to select appropriate customary and metric units, strategies, and tools to solve problems involving measurement.</p> <p>The student is expected to solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate.</p>	<p>When paired with 4(1)(C), the expectation is that students use tools, such as a clock with gears or a stopwatch, to solve problems related to intervals of time.</p> <p>Students are expected to solve problems involving intervals of time, or elapsed time, without tools.</p>	

Grade 4 – Mathematics

Current TEKS – Probability and Statistics Strand	Revised TEKS (2012)	Supporting Information	Notes																																	
<p>4(13)(A) Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data.</p> <p>— The student is expected to use concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation.</p>		<p>This skill is not included within the Revised TEKS (2012).</p>																																		
<p>4(13)(B) Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data.</p> <p>— The student is expected to interpret bar graphs.</p>		<p>The content of this SE was moved to grade 3: <i>Data analysis</i> 3(8)(A) 3(8)(B)</p>																																		
<p>+</p>	<p>4(9)(A) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.</p> <p>The student is expected to represent data on a frequency table, dot plot or stem-and-leaf plot marked with whole numbers and fractions.</p>	<p>In the Revised TEKS (2012), the use of stem and leaf plots begins in grade 4. Data may be in the form of whole numbers and/or fractions.</p> <p>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.</p> <p>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.</p> <table border="1" data-bbox="1119 1182 1459 1295"> <thead> <tr> <th>Stem</th> <th colspan="4">Leaves</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>1</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>4</td> </tr> <tr> <td>8</td> <td>2</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>4</td> <td>4</td> <td>4</td> <td>7</td> <td>8</td> <td></td> </tr> <tr> <td>10</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Students begin work with stem and leaf plots in grade 4.</p>	Stem	Leaves				7	1	1	2	3	4	4	8	2	3					9	4	4	4	7	8		10	0						
Stem	Leaves																																			
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10	0																																			

Grade 4 – Mathematics

Current TEKS – Probability and Statistics Strand	Revised TEKS (2012)	Supporting Information	Notes
+	<p>4(9)(B) Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.</p> <p>The student is expected to solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem and leaf plot.</p>	<p>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.</p> <p>Students begin work with dot plots in grade 3 with the Revised TEKS (2012).</p> <p>Students begin work with stem and leaf plots in grade 4 with the Revised TEKS (2012).</p>	

Grade 4 – Mathematics

Current TEKS – Underlying Processes and Mathematical Tools Strand	Revised TEKS (2012)	Supporting Information	Notes														
<p>4(14)(A) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</p> <p>The student is expected to identify the mathematics in everyday situations.</p>	<p>4(1)(A) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>The student is expected to apply mathematics to problems arising in everyday life, society, and the workplace.</p>	<p>The focus has shifted to application.</p> <p>The opportunities for application have been consolidated into three areas: everyday life, society, and the workplace.</p> <p>This SE, when tagged to a content SE, allows for increased rigor through connections outside the discipline.</p>															
<p>4(14)(B) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</p> <p>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.</p>	<p>4(1)(B) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>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.</p>	<p>The revised SE restates and condenses 4(14)(B) and 4(14)(C).</p> <table border="1" data-bbox="1083 643 1503 1029"> <thead> <tr> <th colspan="2" data-bbox="1083 643 1503 667">Problem-Solving Model</th> </tr> <tr> <th data-bbox="1083 673 1304 711">Current TEKS</th> <th data-bbox="1312 673 1503 711">Revised TEKS (2012)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1083 717 1304 764">Understanding the problem</td> <td data-bbox="1312 717 1503 764">Analyzing given information</td> </tr> <tr> <td data-bbox="1083 771 1304 818">Making a plan</td> <td data-bbox="1312 771 1503 818">Formulating a plan or strategy</td> </tr> <tr> <td data-bbox="1083 824 1304 872">Carrying out the plan</td> <td data-bbox="1312 824 1503 872">Determining a solution</td> </tr> <tr> <td data-bbox="1083 878 1304 925"></td> <td data-bbox="1312 878 1503 925">Justifying the solution</td> </tr> <tr> <td data-bbox="1083 932 1304 1011">Evaluating the solution for reasonableness</td> <td data-bbox="1312 932 1503 1011">Evaluating the problem-solving process and the reasonableness of the solution</td> </tr> </tbody> </table>	Problem-Solving Model		Current TEKS	Revised TEKS (2012)	Understanding the problem	Analyzing given information	Making a plan	Formulating a plan or strategy	Carrying out the plan	Determining a solution		Justifying the solution	Evaluating the solution for reasonableness	Evaluating the problem-solving process and the reasonableness of the solution	
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<p>4(14)(C) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</p> <p>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.</p>	<p>4(1)(C) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>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.</p>	<p>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.</p> <p>“Paper and pencil” is now included in the list of tools that still includes real objects, manipulatives, and technology.</p>															
<p>4(14)(D) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</p> <p>The student is expected to use tools such as real objects, manipulatives, and technology to solve problems.</p>	<p>4(1)(D) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>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.</p>	<p>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.</p> <p>“Paper and pencil” is now included in the list of tools that still includes real objects, manipulatives, and technology.</p>															

Grade 4 – Mathematics

Current TEKS – Underlying Processes and Mathematical Tools Strand	Revised TEKS (2012)	Supporting Information	Notes
<p>4(15)(A) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language.</p> <p>The student is expected to explain and record observations using objects, words, pictures, numbers, and technology.</p>	<p>4(1)(D) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.</p>	<p>Communication has expanded to include reasoning and the implications of mathematical ideas and reasoning.</p> <p>The list of representations is now summarized with “multiple representations” with specificity added for symbols and diagrams.</p>	
<p>4(15)(B) Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language.</p> <p>The student is expected to relate informal language to mathematical language and symbols.</p>	<p>4(1)(E) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>The student is expected to create and use representations to organize, record, and communicate mathematical ideas.</p>	<p>The use of representations is extended to include organizing and recording mathematical ideas in addition to communicating.</p> <p>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.</p> <p>Students are expected to use appropriate mathematical vocabulary and phrasing when communicating mathematical ideas.</p>	
<p>4(16)(A) Underlying processes and mathematical tools. The student uses logical reasoning.</p> <p>The student is expected to make generalizations from patterns or sets of examples and nonexamples.</p>	<p>4(1)(F) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.</p>	<p>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.</p> <p>Students are expected to form conjectures based on patterns or sets of examples and non-examples.</p>	
<p>4(16)(B) Underlying processes and mathematical tools. The student uses logical reasoning.</p> <p>The student is expected to justify why an answer is reasonable and explain the solution process.</p>	<p>4(1)(G) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding.</p> <p>The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.</p>	<p>The Revised TEKS (2012) clarifies “validates his/her conclusions” with displays, explanations, and justifications. The conclusions should focus on mathematical ideas and arguments.</p> <p>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.</p> <p>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.</p>	

Grade 4 – Mathematics

Current TEKS	Revised TEKS (2012)	Supporting Information	Notes
+	<p>4(10)(A) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.</p> <p>The student is expected to distinguish between fixed and variable expenses.</p>		
+	<p>4(10)(B) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.</p> <p>The student is expected to calculate profit in a given situation.</p>		
+	<p>4(10)(C) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.</p> <p>The student is expected to compare the advantages and disadvantages of various savings options.</p>		
+	<p>4(10)(D) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.</p> <p>The student is expected to describe how to allocate a weekly allowance among spending, saving, including for college, and sharing.</p>		
+	<p>4(10)(E) Personal financial literacy. The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security.</p> <p>The student is expected to describe the basic purpose of financial institutions including keeping money safe, borrowing money, and lending money.</p>		