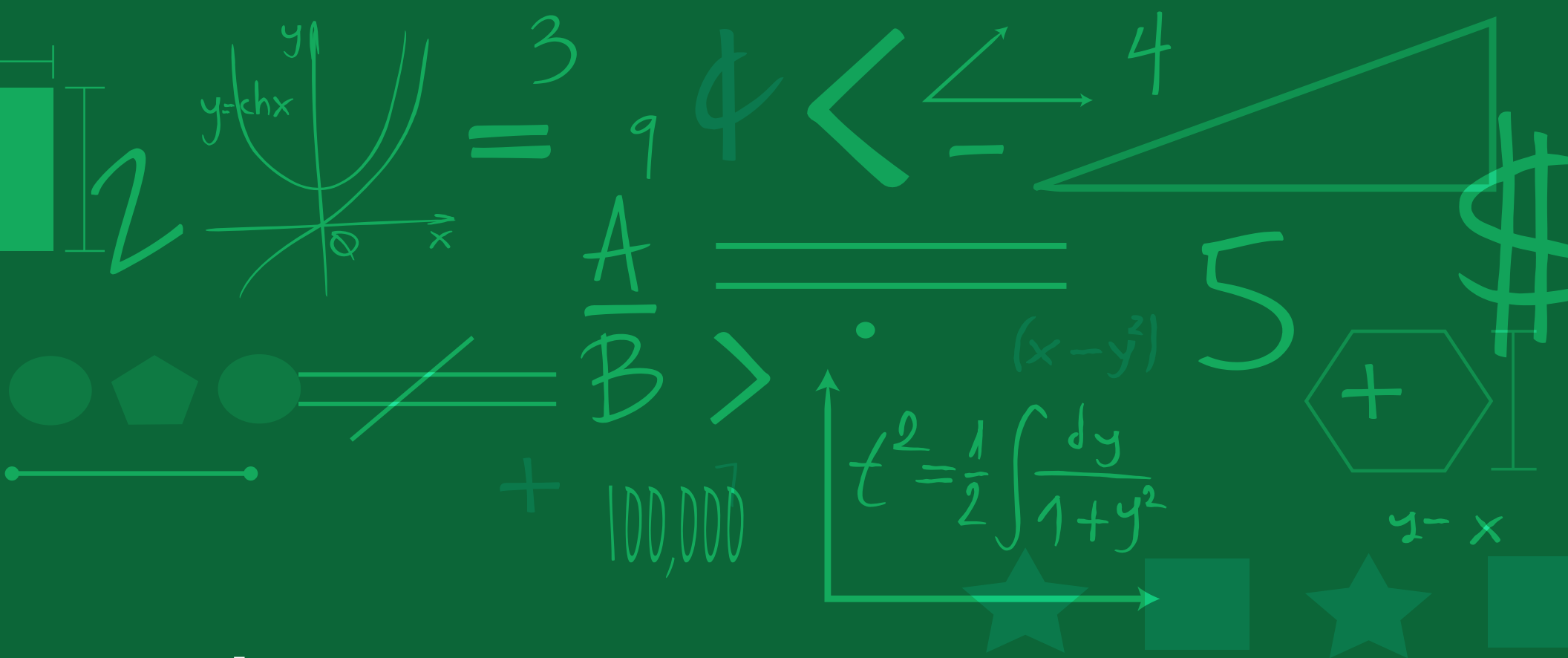


Mathematics TEKS
SUPPORTING INFORMATION

GRADE 2

Texas Education Agency

TEKS	Supporting Information
(a) Introduction. (1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on computational thinking, mathematical fluency, and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they	The definition of a well-balanced mathematics curriculum has expanded to include the Texas College and Career Readiness Standards (CCRS). A focus on mathematical fluency and solid understanding allows for rich exploration of the primary focal points.
(a) Introduction. (2) The process standards describe ways in which students are expected to engage in the content. The placement of the process standards at the beginning of the knowledge and skills listed for each grade and course is intentional. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively in daily life. The process standards are integrated at every grade level and course. When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	This paragraph occurs second in the TEKS to highlight the continued emphasis on process skills that are now included from kindergarten through high school mathematics. This introductory paragraph includes generalization and abstraction with the text from (1)(C). This 2012 introductory paragraph includes computer programs with the text from (1)(D). This introductory paragraph states, "Students will use mathematical relationships to generate solutions and make connections and predictions" instead of incorporating the text from (1)(E).
(a) Introduction. (3) 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 2 are expected to perform their work without the use of calculators.	The TEKS 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. Automaticity refers to the rapid recall of facts and vocabulary. For example, we would expect a third-grade student to recall rapidly the sum of 5 and 3 or to identify rapidly a closed figure with 3 sides and 3 vertices. 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.

(a) Introduction. (4) The primary focal areas in Grade 2 are making comparisons within the base-10 place value system, solving problems with addition and subtraction within 1,000, and building foundations for multiplication. (A) Students develop an understanding of the base-10 place value system and place value concepts. The students' understanding of base-10 place value includes ideas of counting in units and multiples of thousands, hundreds, tens, and ones and a grasp of number relationships, which students demonstrate in a variety of ways. (B) Students identify situations in which addition and subtraction are useful to solve problems. Students develop a variety of strategies to use efficient, accurate, and generalizable methods to add and subtract multi-digit whole numbers. (C) Students use the relationship between skip counting and equal groups of objects to represent the addition or subtraction of equivalent sets, which builds a strong foundation for multiplication and division.	This paragraph highlights more specifics about grade 2 mathematics content and follows paragraphs about the mathematical process standards and mathematical fluency. This supports the notion that the TEKS should be learned in a way that integrates the mathematical process standards in an effort to develop fluency. This paragraph highlights focal areas or topics that receive emphasis at 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.
(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 approved the retention of some "such as" statements within the TEKS where needed for clarification of content. The phrases "including" and "such as" should not be considered as limiting factors for the student expectations (SEs) in which they reside.

Additional Resources are available online including

[Interactive Mathematics Glossary]

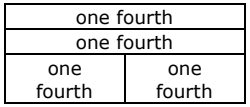
[Vertical Alignment Charts]

[Texas Response to the Curriculum Focal Points, Revised 2013]

[Texas Mathematics Resource Page]

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

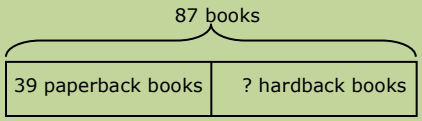
TEKS: Number and Operations.	Supporting Information
2(2)(A) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones.**	Specificity for representations is included with the use of concrete and pictorial models to compose and decompose numbers. Specificity is included with "sum of so many thousands, hundreds, tens, and ones." It may include decomposing 787 into 7 hundreds, 8 tens, and 7 ones. It may also include decomposing 787 into the sum of 500, 200, 50, 30, and 7 to prepare for work with compatible numbers when adding whole numbers with fluency. Students are expected to compose and decompose numbers up to 1,200. Students are expected to use pictorial models in addition to concrete models.
2(2)(B) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to use standard, word, and expanded forms to represent numbers up to 1,200.**	Specificity is included for what is to be represented (read, written, and described): "standard, word, and expanded forms" to indicate place value. Students are expected to represent numbers up to 1,200. Standard form: 787 / 605 Word form: Seven hundred eighty-seven / Six hundred five Expanded form: 700 + 80 + 7 / 600 + 5
2(2)(C) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to generate a number that is greater than or less than a given whole number up to 1,200.**	This SE extends K(2)(F), where students are expected to generate a number that is one more or one less than another number up to 20 and 1(5)(C), where students are expected to determine the number that is 10 more and 10 less than a given number up to 120.
2(2)(D) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols (>, <, or =).**	Students are expected to compare and order numbers up to 1,200. Comparative language includes greater than, less than, and equal to.
2(2)(E) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to locate the position of a given whole number on an open number line.**	This SE extends 1(2)(F) where students are expected to order whole numbers up to 120 using place value. An open number line is a representation that can show the magnitude of numbers and the place-value relationships between numbers when locating a given whole number.
2(2)(F) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. **The student is expected to name the whole number that corresponds to a specific point on a number line.**	This SE and 2(9)(C) are introductory skills that build to the various number line skills in grade 3, including 3(2)(C), where students represent a number on a number line between two multiples of 10; 100; 1,000; and 10,000, 3(3)(B), where students determine corresponding fractions on a number line, and 3(3)(F), where students represent equivalent fractions.

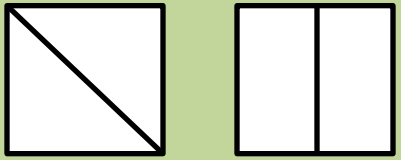
TEKS: Number and Operations.	Supporting Information
2(3)(A) **Number and operations.** The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. **The student is expected to partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words.**	Students are to partition objects in addition to using previously partitioned objects. Objects may be one- or two- dimensional in form, such as strips, lines, regular polygons, or circles. Emphasis should be on the naming of fractions with words rather than using the fraction notation of *a*/*b*. The words may include names such as "one half" or "three fourths." Students are not expected to note the relationship between the number of fourths that equal one half, etc.
2(3)(B) **Number and operations.** The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. **The student is expected to explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part.**	When paired with 2(1)(A) or 2(1)(G), students may be expected to explain this foundational fraction concept in a real-life situation. For example, Juan asked for one half of the teacher's block of clay. Callie asked for one eighth of the clay. Who is receiving the greater amount of clay? Why?
2(3)(C) **Number and operations.** The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. **The student is expected to use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole.**	Counting may include a sequence of fractional names such as "one fourth," "two fourths," "three fourths," "four fourths," "five fourths," or "one and one fourth." Using a sentence such as "four fourths equals one whole" would indicate recognition of how many parts it takes to equal one whole. The rule for hyphenation: If a fraction modifies another word, such as "two-thirds majority," then it should be hyphenated. If not, as in the paragraph above, then do not hyphenate. The relation of this concept should conform to appropriate grade 2 English Language Arts and Reading standards.
2(3)(D) **Number and operations.** The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. **The student is expected to identify examples and non-examples of halves, fourths, and eighths.**	Non-examples allow students to justify their thinking related to halves, fourths, and eighths. To build a foundation for 3(6)(E), examples of halves, fourths, and eighths may be shown to have equal areas but do not have congruent parts. 

TEKS: Number and Operations.	Supporting Information
2(4)(A) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. **The student is expected to recall basic facts to add and subtract within 20 with automaticity.**	The level of skill with "automaticity" requires quick recall of basic facts within 20 with speed and accuracy at an unconscious level. Automaticity is part of procedural fluency and, as such, should not be overly emphasized as an isolated skill. Automaticity with basic addition and subtraction facts allows students to explore richer applications of addition and subtraction. This SE states "within 20," so expressions such as 18-16 would fit. When paired with 2(1)(A), students may be expected to apply these basic facts. This SE builds on 1(5)(A) where students are expected to apply basic fact strategies to add and subtract within 20. Basic addition facts include all possible pairs of addends chosen from 1 to 10 including 10 + 10.
2(4)(B) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. **The student is expected to add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations.**	The limitations of this SE do not constrain the work with addition and subtraction in other SEs. Given the problem 24 + 55 + 36 + 45, students may decompose the addends based on place value, regroup, and combine using mental math. (20 + 50 + 30 + 40) + (4 + 6) + (5 + 5) 140 + 10 + 10 160 Students may also use compatible numbers. (24 + 36) + (55 + 45) 60 + 100 160
2(4)(C) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. **The student is expected to solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms.**	The SE includes the addition and subtraction of three-digit numbers. Strategies may include properties of operations. For example, 432 + 241 may be thought of as (400 + 200) + (30 + 40) + (2 + 1) 600 + 70 + 3 673 This strategy may be considered an algorithm other than the standard algorithm. This SE builds on 1(3)(B) where students use objects and pictorial models to solve word problems. Fluency with this skill occurs in grade 3, [3(4)(A)], where students solve one-step and two-step problems in addition and subtraction.
2(4)(D) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. **The student is expected to generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.**	This SE includes the addition and subtraction of three-digit numbers. Students must be provided with a mathematical number sentence in order to generate and then solve their problem situations. To build on 2(7)(C), the unknown may be any one of the terms. This SE builds on 1(3)(B) and 1(3)(F), where students use objects and pictorial models to solve word problems and students generate and solve problem situations when given a number sentence involving addition or subtraction of numbers within 20 respectively.

TEKS: Number and Operations.	Supporting Information
2(5)(A) **Number and operations.** The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions. **The student is expected to determine the value of a collection of coins up to one dollar.**	This SE builds on K(4)(A) and 1(4)(A),(B), and (C).
2(5)(B) **Number and operations.** The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions. **The student is expected to use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.**	Students are expected to use the notation for money rather than describe the use of that notation. To describe a set of coins with 4 dimes and 6 pennies, a student may write 46¢ or $0.46. Please note that it is incorrect to use 0.46¢ as it describes 46/100 of 1¢.

TEKS: Number and Operations.	Supporting Information
2(6)(A) **Number and operations.** The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares. **The student is expected to model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined.**	Given multiplication situations, students are expected to model and describe the situation. For example: There are 3 rows of chairs in the library. Each row has 5 chairs. How many chairs are in the library? 1 • • • • • 2 • • • • • 3 • • • • • Three rows of 5 chairs represents 15 chairs. Students may also be expected to create multiplication situations. This SE lays the foundation for the development and mastery of multiplication facts in 3(4)(D), where students determine the total number of objects in equal-sized groups; (E), where students represent the multiplication facts using pictorial representation or repeated addition; and (F), where students are expected to recall facts to multiply up to 10 by 10 and recall the corresponding division facts.
2(6)(B) **Number and operations.** The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares. **The student is expected to model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets.**	Given division situations, students are expected to model and describe the situations. For example: There are 24 chairs in Ms. Garcia's room. She separated the chairs equally into 4 rows. How many chairs did she place in each row? 1 • • • • • • 2 • • • • • • 3 • • • • • • 4 • • • • • • 24 chairs separated into 4 rows represents 6 chairs in each row. Students may also be expected to create division situations. This lays the foundation for the development and mastery of division facts in 3(4)(F), (H), and (J).

TEKS: Algebraic Reasoning.	Supporting Information
2(7)(A) **Algebraic reasoning.** The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. **The student is expected to determine whether a number up to 40 is even or odd using pairings of objects to represent the number.**	This SE provides a foundation for 3(4)(I), where students are expected to determine if a number is odd or even using divisibility rules.
2(7)(B) **Algebraic reasoning.** The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. **The student is expected to use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200.**	This SE provides a foundation for 2(2)(D). This SE also builds upon 1(5)(C), where students use relationships to determine the number that is 10 more and 10 less than a given number up to 120.
2(7)(C) **Algebraic reasoning.** The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. **The student is expected to represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.**	When paired with 2(1)(C) and 2(1)(D), the students are expected to represent problems with objects, manipulatives, diagrams, language, and number. Students may be expected to solve problems using number sense, mental math, and algorithms based on place value and properties of operations. For example: Jasmine has 87 books. She has some paperback books and 39 hardback books. How many paperback books does Jasmine have? Represent: 87 = □ + 39  Solve: 87 = 40 + 40 + 7 = 39 + 1 + 40 + 7 (48) This SE builds on 1(3)(B), where students use objects and pictorial models to solve word problems.

TEKS: Geometry and Measurement.	Supporting Information
2(8)(A) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. **The student is expected to create two-dimensional shapes based on given attributes, including number of sides and vertices.**	Students are expected to create shapes based on given attributes such as a triangle when given the attributes of exactly 3 sides and exactly 3 vertices. This SE builds on 1(6)(C), where students are expected to create two-dimensional figures.
2(8)(B) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. **The student is expected to classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language.**	Formal geometric language includes terms such as "vertex," "edge," and "face." Students are expected to classify solids. The comparison of similarities and differences among solids supports classification and sorting. This SE builds on the kindergarten skill K(6)(E), where students are expected to classify and sort two- and three-dimensional figures and builds to 3(6)(A), where students are expected to classify and sort two- and three-dimensional figures using formal geometric language. As "including" is not meant to be limiting, pyramids and other types of prisms are examples of solids that may be included with this SE.
2(8)(C) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. **The student is expected to classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices.**	Students are expected to classify polygons. The comparison of similarities and differences among polygons supports classification. Classifying a polygon includes naming the polygon, such as a 10-sided polygon as a decagon. Unusual numbers of sides such as 7, 9, or 11 are usually know as 7-gon, 9-gon, or 11-gon as opposed to heptagon, nonagon, or hendecagon respectively. This SE builds on 1(6)(A), where students are expected to classify two-dimensional figures and builds 3(6)(A), where students classify and sort two-and three-dimensional figures using formal geometric language.
2(8)(D) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. **The student is expected to compose two-dimensional shapes and three-dimensional solids with given properties or attributes.**	Students are expected to compose 2-D shapes and 3-D solids such as building a rectangle out of square-inch tiles or building a rectangular prism out of unit cubes. Students are expected to compose shapes when given properties. For example: Compose a figure with 6 sides and 6 vertices using 2 shapes. This SE builds on 1(6)(F), where students are expected to compose two-dimensional shapes.
2(8)(E) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. **The student is expected to decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.**	Examples of how a student might decompose a 2-D shape have been provided.  In grade 2, the focus on decomposing shapes complements the work with fractional parts of a whole in 2(3)(A), (B), and (D).

TEKS: Geometry and Measurement.	Supporting Information
2(9)(A) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to find the length of objects using concrete models for standard units of length.**	The concrete models should represent a standard unit of length such as the edges of inch tiles or centimeter cubes. This SE builds on 1(7)(B) and 1(7)(D), which describe both the process of measuring length and length itself.
2(9)(B) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object.**	A student is expected to provide a description such as "the longer the unit, the fewer needed and the shorter the unit, the more needed to measure a length."
2(9)(C) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to represent whole numbers as distances from any given location on a number line.**	This SE has added number lines as a representation of distance (length). This allows connections to linear measurement in 2(9)(D). This SE builds to several skills in grade 3, including 3(3)(A), 3(3)(F), 3(4)(E), 3(5)(A), and 3(7)(A), where students represent fractions, multiplication, and addition using the number line.
2(9)(D) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes.**	Students are expected to use standard units of length and measure to the nearest whole unit such as an inch or a foot. When paired with 2(1)(C), students should select the tool to measure the object.
2(9)(E) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to determine a solution to a problem involving length, including estimating lengths.**	This is the first introduction of estimation in the TEKS outside of the mathematical process standards.
2(9)(F) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit.**	The 2-d figure has been constrained to rectangles, which includes squares. The concrete models should be square units, and the measurement should be described using square units such as "24 square units."
2(9)(G) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. **The student is expected to read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.**	This SE builds on telling time to the nearest hour or half-hour in 1(7)(E) and provides a foundation for solving problems involving time in 3(7)(C).

TEKS: Data Analysis.	Supporting Information
2(10)(A) **Data analysis.** The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. **The student is expected to explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category.**	Students are expected to explain their construction of a pictograph or a bar graph. When paired with 2(1)(A) and (E), students may be expected to collect and sort their own data before organizing it.
2(10)(B) **Data analysis.** The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. **The student is expected to organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more.**	This SE builds upon K(8)(A) and 1(8)(A), where students collect, sort, and organize data in up to three categories using models/representations such as tally marks and T-charts. The number of categories has been constrained to four. Intervals may be one, two, five, or ten.
2(10)(C) **Data analysis.** The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. **The student is expected to write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.**	Students are now expected to write problems involving addition or subtraction using data represented within the stated graphs with the limitations of intervals of one.
2(10)(D) **Data analysis.** The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. **The student is expected to draw conclusions and make predictions from information in a graph.**	Based on 2(10)(A) and 2(10)(B), information may be represented with pictographs and bar graphs.

TEKS: Personal Financial Literacy.	Supporting Information
2(11)(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 calculate how money saved can accumulate into a larger amount over time.**	These calculations should not include interest. In general, the personal financial literacy standards should be taught using grade appropriate examples. This SE builds to 3(9)(E), where students are expected to list reasons to save and explain the benefits of a savings plan. This SE may be used to reinforce the arithmetic in Knowledge and Skills 2(4), 2(5), 2(6), and 2(7). For example, if Esmerelda saves $2 every month for 12 months, then at the beginning of the next year, Esmerelda will have $24.
2(11)(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 that saving is an alternative to spending.**	This SE builds to 3(9)(C), where students are expected to identify the costs and benefits of planned and unplanned spending decisions.
2(11)(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 distinguish between a deposit and a withdrawal.**	This SE, when paired with 2(1)(A), may introduce students to banking. This SE builds to 6(14)(A) and 6(14)(C), where students are expected to compare the features and costs of a checking account and a debit card offered by different local financial institutions and to balance a check register that includes deposits, withdrawals, and transfers.
2(11)(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 identify examples of borrowing and distinguish between responsible and irresponsible borrowing.**	These examples may include, but are not limited to an unreliable borrower or a borrower's inability to repay. In general, the personal financial literacy standards should be taught using grade appropriate examples. For example, a student has two friends who ask to borrow a quarter. One always pays people back the next day. The other only pays people back sometimes. If the student only has one quarter to loan, whom should they loan it to? This SE builds to 3(9)(D), where students are expected to explain that credit is used when wants or needs exceed the ability to pay, and that it is the borrower's responsibility to pay it back to the lender, usually with interest.
2(11)(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 identify examples of lending and use concepts of benefits and costs to evaluate lending decisions.**	Any calculations should not include interest. This SE builds to 3(9)(D).
2(11)(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 differentiate between producers and consumers and calculate the cost to produce a simple item.**	Simple items may include items such as a shirt, a pitcher of lemonade, or a class art project. This SE builds to 3(9)(A), where students are expected to explain the connection between human capital/labor and income.