

Grade 2 Mathematics *Standards of Learning* - 2023 Overview of Revisions

This overview includes a summary of the content embedded in five content strands.

Number and Number Sense: *Flexibility with composing and decomposing base 10 numbers and understanding the structure to build relationships among numbers allows us to quantify, measure and make decisions in life.*

- Use flexible counting strategies to determine and describe quantities up to 200
- Demonstrate an understanding of the ten-to-one relationships of the base 10 number system to represent, compare, and order whole numbers up to 999
- Use mathematical reasoning and justification to solve contextual problems that involve partitioning models into equal-sized parts (halves, fourths, eighths, thirds, and sixths)
- Solve problems that involve counting and representing money amounts up to \$2.00

Computation and Estimation: *The operations of addition and subtraction are used to represent and solve many different types of problems.*

- Recall with automaticity addition and subtraction facts within 20
- Estimate, represent, solve, and justify solutions to single-step and multistep addition and subtraction problems where addends or minuends do not exceed 100

Measurement and Geometry: *Analyzing and describing geometric objects, the relationships and structures among them, or the space that they occupy can be used to classify, quantify, measure, or count one or more attributes.*

- Reason mathematically using standard units (U.S. Customary) with appropriate tools to estimate, measure, and compare objects by length, weight, and liquid volume to the nearest whole unit
- Demonstrate an understanding of the concept of time to the nearest five minutes, using analog and digital clocks
- Identify, describe, and create plane figures (including circles, triangles, squares, and rectangles) that have at least one line of symmetry and explain its relationship with congruency
- Describe, name, compare, and contrast plane and solid figures (circles/spheres, squares/cubes, and rectangles/rectangular prisms).

Probability and Statistics: *The world can be investigated through posing questions and collecting, representing, analyzing, and interpreting data to describe and predict events and real-world phenomena.*

- Apply the data cycle (pose questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on pictographs and bar graphs

Patterns, Functions, and Algebra: *Relationships can be described, and generalizations can be made using patterns and relations.*

- Describe, extend, create, and transfer growing (increasing) patterns using various representations

Comparison of Grade 2 Mathematics *Standards of Learning* – 2016 to 2023

2016 <i>Standards of Learning</i> Essential Knowledge and Skills (EKS) Number and Number Sense	2023 <i>Standards of Learning</i> Knowledge and Skills (KS) Number and Number Sense (NS)
<p>2.1 The student will</p> <p>a) read, write, and identify the place and value of each digit in a three-digit numeral, with and without models;</p> <p>c) compare and order whole numbers between 0 and 999; and</p> <ul style="list-style-type: none"> ● Demonstrate understanding of the ten-to-one relationships among ones, tens, and hundreds, using manipulatives. (a) ● Write numerals, using a model or pictorial representation (i.e., a picture of base-10 blocks). (a) ● Read three-digit numbers when shown a numeral, a model of the number, or a pictorial representation of the number. (a) ● Identify and write the place (ones, tens, hundreds) of each digit in a three-digit numeral. (a) ● Determine the value of each digit in a three-digit numeral (e.g., in 352, the 5 represents 5 tens and its value is 50). (a) ● Use models to represent numbers in multiple ways, according to place value (e.g., 256 can be 1 hundred, 14 tens, and 16 ones, 25 tens and 6 ones, etc.). (a) ● Compare two numbers between 0 and 999 represented with concrete objects, pictorially or symbolically, using the symbols ($>$, $<$, or $=$) and the words greater than, less than or equal to. (c) ● Order three whole numbers between 0 and 999 represented with concrete objects, pictorially, or symbolically from least to greatest and greatest to least. (c) 	<p>2.NS.2 The student will demonstrate an understanding of the ten-to-one relationships of the base 10 number system to represent, compare, and order whole numbers up to 999.</p> <ul style="list-style-type: none"> a) Write the three-digit whole number represented by a given model (e.g., concrete objects, pictures of base 10 blocks). b) Read, write, and represent three-digit numbers in standard form, expanded form, and word form, using concrete or pictorial representations. c) Apply patterns within the base 10 system to determine and communicate, orally and in written form, the place (ones, tens, hundreds) and value of each digit in a three-digit whole number (e.g., in 352, the 5 represents 5 tens and its value is 50). d) Investigate and explain the ten-to-one relationships among ones, tens, and hundreds, using models. e) Compose and decompose whole numbers up to 200 by making connections between a variety of models (e.g., base 10 blocks, place value cards, presented orally, in expanded or standard form) and counting strategies (e.g., 156 can be 1 hundred, 5 tens, 6 ones; 1 hundred, 4 tens, 16 ones; 15 tens, 6 ones). f) Plot and justify the position of a given number up to 100 on a number line with pre-marked benchmarks of 1s, 2s, 5s, 10s, or 25s. g) Compare two whole numbers, each 999 or less, represented concretely, pictorially, or symbolically, using words (greater

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Number and Number Sense</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Number and Number Sense (NS)</p>
	<p>than, less than, or equal to) and symbols ($>$, $<$, or $=$). Justify reasoning orally, in writing, or with a model.</p> <p>h) Order up to three whole numbers, each 999 or less, represented concretely, pictorially, or symbolically from least to greatest and greatest to least.</p>
<p>2.1 The student will b) identify the number that is 10 more, 10 less, 100 more, and 100 less than a given number up to 999;</p> <ul style="list-style-type: none"> ● Use place value understanding to identify the number that is 10 more, 10 less, 100 more, or 100 less than a given number, up to 999. (b) 	<p>[Deleted]</p>
<p>2.1 The student will d) round two-digit numbers to the nearest ten.</p> <ul style="list-style-type: none"> ● Round two-digit numbers to the nearest ten. (d) 	<p>[Included in 2.CE.1]</p>
<p>2.2 The student will a) count forward by twos, fives, and tens to 120, starting at various multiples of 2, 5, or 10; b) count backward by tens from 120; and c) use objects to determine whether a number is even or odd.</p> <ul style="list-style-type: none"> ● Determine patterns created by counting by twos, fives, and tens to 120 on number charts. (a) 	<p>2.NS.1 The student will utilize flexible counting strategies to determine and describe quantities up to 200.</p> <p>a) Represent forward counting patterns when counting by groups of 2 up to at least 50, starting at various multiples of 2 and using a variety of tools (e.g., objects, number lines, hundreds charts).</p> <p>b) Represent forward counting patterns created when counting by groups of 5s, 10s, and 25s starting at various multiples up to at least 200 using a variety of tools (e.g., objects, number lines, hundreds charts).</p>

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Number and Number Sense</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Number and Number Sense (NS)</p>
<ul style="list-style-type: none"> ● Describe patterns in skip counting and use those patterns to predict the next number in the counting sequence. (a) ● Skip count by twos, fives, and tens to 120 from various multiples of 2, 5 or 10, using manipulatives, a hundred chart, mental mathematics, a calculator, and/or paper and pencil. (a) ● Skip count by two to 120 starting from any multiple of 2. (a) ● Skip count by five to 120 starting at any multiple of 5. (a) ● Skip count by 10 to 120 starting at any multiple of 10. (a) ● Count backward by 10 from 120. (b) ● Use objects to determine whether a number is even or odd (e.g., dividing collections of objects into two equal groups or pairing objects). (c) 	<ul style="list-style-type: none"> c) Describe and use patterns in skip counting by multiples of 2 (to at least 50), and multiples of 5, 10, and 25 (to at least 200) to justify the next number in the counting sequence. d) Represent forward counting patterns when counting by groups of 100 up to at least 1,000 starting at 0 using a variety of tools (e.g., objects, number lines, calculators, one thousand charts). e) Represent backward counting patterns when counting by groups of 10 from 200 or less using a variety of tools including objects, number lines, calculators, and hundreds charts. f) Describe and use patterns in skip counting backwards by 10s (from at least 200) to justify the next number in the counting sequence. g) Choose a reasonable estimate up to 1,000 when given a contextual problem (e.g., What would be the best estimate for the number of students in our school – 5, 50, or 500?). h) Represent even numbers (up to 50) with concrete objects, using two equal groups or two equal addends. i) Represent odd numbers (up to 50) with concrete objects, using two equal groups with one leftover or two equal addends plus 1. j) Determine whether a number (up to 50) is even or odd using concrete objects and justify reasoning (e.g., dividing collections of objects into two equal groups, pairing objects).
<p>2.3 The student will</p> <ul style="list-style-type: none"> a) count and identify the ordinal positions first through twentieth, using an ordered set of objects; and b) write the ordinal numbers 1st through 20th. 	<p>[Deleted; Ordinal numbers to 10th remain in Grade 1]</p>

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Number and Number Sense</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Number and Number Sense (NS)</p>
<ul style="list-style-type: none"> ● Count an ordered set of objects, using the ordinal number words <i>first</i> through <i>twentieth</i>. (a) ● Identify the ordinal positions first through twentieth, using an ordered set of objects presented in lines or rows from <ul style="list-style-type: none"> ○ left to right; ○ right to left; ○ top to bottom; and ○ bottom to top. (a) ● Write 1st, 2nd, 3rd, through 20th in numerals. (b) 	
<p>2.4 The student will</p> <p>a) name and write fractions represented by a set, region, or length model for halves, fourths, eighths, thirds, and sixths;</p> <p>b) represent fractional parts with models and with symbols; and</p> <p>c) compare the unit fractions for halves, fourths, eighths, thirds, and sixths, with models.</p> <ul style="list-style-type: none"> ● Recognize fractions as representing equal-size parts of a whole. (a) ● Name and write fractions represented by a set model showing halves, fourths, eighths, thirds, and sixths. (a, b) ● Name and write fractions represented by a region/area model showing halves, fourths, eighths, thirds, and sixths. (a, b) ● Name and write fractions represented by a length model showing halves, fourths, eighths, thirds, and sixths. (a, b) ● Represent, with models and with symbols, fractional parts of a whole for halves, fourths, eighths, thirds, and sixths, using: <ul style="list-style-type: none"> ○ region/area models (e.g., pie pieces, pattern blocks, geoboards); 	<p>2.NS.3 The student will use mathematical reasoning and justification to solve contextual problems that involve partitioning models into equal-sized parts (halves, fourths, eighths, thirds, and sixths).</p> <ul style="list-style-type: none"> a) Model and describe fractions as representing equal-size parts of a whole. b) Describe the relationship between the number of fractional parts needed to make a whole and the size of the parts (i.e., as the whole is divided into more parts, each part becomes smaller). c) Compose the whole for a given fractional part and its value (in context) for halves, fourths, eighths, thirds, and sixths (e.g., when given $\frac{1}{4}$, determine how many pieces would be needed to make $\frac{4}{4}$). d) Using same-size fraction pieces, from a region/area model, count by unit fractions up to two wholes (e.g., zero one-fourths, one one-fourth, two one-fourths, three one-fourths, four one-fourths,

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<ul style="list-style-type: none"> o sets (e.g., chips, counters, cubes); and o length/measurement models (e.g., fraction strips or bars, rods, connecting cube trains). (b) ● Compare unit fractions for halves, fourths, eighths, thirds, and sixths), using words (greater than, less than or equal to) and symbols ($>$, $<$, $=$), with models. (c) ● Using same-size fraction pieces, from region/area models or length/measurement models, count the pieces (e.g., <i>one-fourth</i>, <i>two-fourths</i>, <i>three-fourths</i>, etc.) and compare those pieces to one whole (e.g., <i>four-fourths</i> will make one whole; <i>one-fourth</i> is less than a whole). (c) 	<p>five one-fourths; or zero-fourths, one-fourth, two-fourths, three-fourths, four-fourths, five-fourths).</p> <ul style="list-style-type: none"> e) Given a context, represent, name, and write fractional parts of a whole for halves, fourths, eighths, thirds, and sixths using: <ul style="list-style-type: none"> i) region/area models (e.g., pie pieces, pattern blocks, geoboards); ii) length models (e.g., paper fraction strips, fraction bars, rods, number lines); and iii) set models (e.g., chips, counters, cubes). f) Compare unit fractions for halves, fourths, eighths, thirds, and sixths using words (greater than, less than, or equal to) and symbols ($>$, $<$, $=$), with region/area and length models.
<p>[Moved from 2.7]</p>	<p>2.NS.4 The student will solve problems that involve counting and representing money amounts up to \$2.00.</p> <ul style="list-style-type: none"> a) Identify a quarter and its value and determine multiple ways to represent the value of a quarter using pennies, nickels, and/or dimes. b) Count by ones, fives, tens, and twenty-fives to determine the value of a collection of mixed coins and one-dollar bills whose total value is \$2.00 or less. c) Construct a set of coins and/or bills to total a given amount of money whose value is \$2.00 or less. d) Represent the value of a collection of coins and one-dollar bills (limited to \$2.00 or less) using the cent (¢) and dollar (\$) symbols and decimal point (.).

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Computation and Estimation</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Computation and Estimation (CE)</p>
<p>2.5 The student will</p> <p>a) recognize and use the relationships between addition and subtraction to solve single-step practical problems, with whole numbers to 20; and</p> <p>b) demonstrate fluency with addition and subtraction within 20.</p> <ul style="list-style-type: none"> ● Recognize and use the relationship between addition and subtraction to solve single-step practical problems, with whole numbers to 20. (a) ● Determine the missing number in an equation (number sentence) (e.g., $3 + \underline{\quad} = 5$ or $\underline{\quad} + 2 = 5$; $5 - \underline{\quad} = 3$ or $5 - 2 = \underline{\quad}$). (a) ● Write the related facts for a given addition or subtraction fact (e.g., given $3 + 4 = 7$, write $7 - 4 = 3$ and $7 - 3 = 4$). (a) ● Demonstrate fluency with addition and subtraction within 20. (b) 	<p>2.CE.1 The student will recall with automaticity addition and subtraction facts within 20 and estimate, represent, solve, and justify solutions to single-step and multistep problems, including those in context, using addition and subtraction with whole numbers where addends or minuends do not exceed 100.</p> <ul style="list-style-type: none"> a) Apply strategies, (e.g., rounding to the nearest 10, compatible numbers, other number relationships), to estimate a solution for single-step addition or subtraction problems, including those in context, where addends and minuends do not exceed 100. b) Apply strategies, (e.g., the use of concrete and pictorial models, place value, properties of addition, the relationship between addition and subtraction) to determine the sum or difference of two whole numbers where addends or minuends do not exceed 100. c) Represent, solve, and justify solutions to single-step and multistep contextual problems (e.g., join, separate, part-part-whole, comparison) involving addition or subtraction of whole numbers where addends or minuends do not exceed 100. d) Demonstrate fluency with addition and subtraction within 20 by applying reasoning strategies (e.g., doubles, near doubles, make-a-ten, compensations, inverse relationships). e) Recall with automaticity addition and subtraction facts within 20.

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Computation and Estimation</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Computation and Estimation (CE)</p>
	<p>f) Use patterns, models, and strategies to make generalizations about the algebraic properties for fluency (e.g., $4 + 3$ is equal to $3 + 4$; $0 + 8 = 8$).</p> <p>g) Determine the missing number in an equation (number sentence) through modeling and justification with addition and subtraction within 20 (e.g., $3 + _ = 5$ or $_ + 2 = 5$; $5 - _ = 3$ or $5 - 2 = _$).</p> <p>h) Use inverse relationships to write all related facts connected to a given addition or subtraction fact model within 20 (e.g., given a model for $3 + 4 = 7$, write $4 + 3 = 7$, $7 - 4 = 3$, and $7 - 3 = 4$).</p> <p>i) Describe the not equal symbol (\neq) as representing a relationship where expressions on either side of the not equal symbol represent different values and justify reasoning.</p> <p>j) Represent and justify the relationship between values and expressions as equal or not equal using appropriate models and/or symbols (e.g., $9 + 24 = 10 + 23$; $45 - 9 = 46 - 10$; $15 + 16 \neq 31 + 15$).</p>
<p>2.6 The student will</p> <p>a) estimate sums and differences;</p> <p>b) determine sums and differences, using various methods; and</p> <p>c) create and solve single-step and two-step practical problems involving addition and subtraction.</p> <ul style="list-style-type: none"> ● Estimate the sum of two whole numbers whose sum is 99 or less and recognize whether the estimation is reasonable (e.g., $27 + 41$ is about 70, because 27 is about 30 and 41 is about 40, and $30 + 40$ is 70). (a) 	<p>[Included in 2.CE.1]</p>

<p align="center">2016 Standards of Learning Essential Knowledge and Skills (EKS) Computation and Estimation</p>	<p align="center">2023 Standards of Learning Knowledge and Skills (KS) Computation and Estimation (CE)</p>
<ul style="list-style-type: none"> ● Estimate the difference between two whole numbers each 99 or less and recognize whether the estimate is reasonable. (a) ● Determine the sum of two whole numbers whose sum is 99 or less, using various methods. (b) ● Determine the difference of two whole numbers each 99 or less, using various methods. (b) ● Create and solve single-step practical problems involving addition or subtraction. (c) ● Create and solve two-step practical problems involving addition, subtraction, or both addition and subtraction. (c) 	

<p align="center">2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry</p>	<p align="center">2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)</p>
<p>2.7 The student will</p> <p>a) count and compare a collection of pennies, nickels, dimes, and quarters whose total value is \$2.00 or less; and</p> <p>b) use the cent symbol, dollar symbol, and decimal point to write a value of money.</p> <ul style="list-style-type: none"> ● Determine the value of a collection of coins and one-dollar bills whose total value is \$2.00 or less. (a) ● Count by ones, fives, tens, and twenty-fives to determine the value of a collection of coins whose total value is \$2.00 or less. (a) 	<p>[Included in 2.NS.4]</p>

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)</p>
<ul style="list-style-type: none"> ● Compare the values of two sets of coins and one-dollar bills (each set having a total value of \$2.00 or less), using the terms <i>greater than</i>, <i>less than</i>, or <i>equal to</i>. (a) ● Use the cent (¢) and dollar (\$) symbols and decimal point (.) to write a value of money which is \$2.00 or less. (b) 	
<p>2.8 The student will estimate and measure a) length to the nearest inch; and b) weight to the nearest pound.</p> <ul style="list-style-type: none"> ● Identify a ruler as an instrument to measure length. (a) ● Estimate and then measure the length of various line segments and objects to the nearest inch using a ruler. (a) ● Identify different types of scales as instruments to measure weight. (b) ● Estimate and then measure the weight of objects to the nearest pound using a scale. (b) 	<p>2.MG.1 The student will reason mathematically using standard units (U.S. Customary) with appropriate tools to estimate, measure, and compare objects by length, weight, and liquid volume to the nearest whole unit.</p> <ul style="list-style-type: none"> a) Explain the purpose of various measurement tools and how to use them appropriately by: <ul style="list-style-type: none"> i) identifying a ruler as an instrument to measure length; ii) identifying different types of scales as instruments to measure weight; and iii) identifying different types of measuring cups as instruments to measure liquid volume. b) Use U.S. Customary units to estimate, measure, and compare the two for reasonableness: <ul style="list-style-type: none"> i) the length of an object to the nearest inch, using a ruler; ii) the weight of an object to the nearest pound, using a scale; and iii) the liquid volume of a container to the nearest cup, using a measuring cup.

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)</p>
<p>2.9 The student will tell time and write time to the nearest five minutes, using analog and digital clocks.</p> <ul style="list-style-type: none"> ● Show, tell, and write time to the nearest five minutes, using an analog and digital clock. ● Match a written time (e.g., 4:20, 10:05, 1:50) to a time shown on a clock face to the nearest five minutes. ● Match the time (to the nearest minutes) shown on a clock face to a written time. 	<p>2.MG.2 The student will demonstrate an understanding of the concept of time to the nearest five minutes, using analog and digital clocks.</p> <ol style="list-style-type: none"> a) Identify the number of minutes in an hour (60 minutes) and the number of hours in a day (24 hours). b) Determine the unit of time (minutes, hours, days, or weeks) that is most appropriate when measuring a given activity or context and explain reasoning (e.g., Would you measure the time it takes to brush your teeth in minutes or hours?). c) Show, tell, and write time to the nearest five minutes, using analog and digital clocks. d) Match a written time (e.g., 1:35, 6:20, 9:05) to the time shown on an analog clock to the nearest five minutes.
<p>2.10 The student will</p> <ol style="list-style-type: none"> a) determine past and future days of the week; and b) identify specific days and dates on a given calendar. <ul style="list-style-type: none"> ● Determine the day that is a specific number of days or weeks in the past or in the future from a given date, using a calendar. (a) ● Identify specific days and dates (e.g., What is the third Monday in a given month? What day of the week is May 11?). (b) 	<p>[Included in Kindergarten and Grade 1]</p>

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)</p>
<p>2.11 The student will read temperature to the nearest 10 degrees.</p> <ul style="list-style-type: none"> ● Identify different types of thermometers as instruments used to measure temperature. ● Read temperature in Fahrenheit to the nearest ten degrees on thermometers (real world, physical model, and pictorial representations). 	<p>[Deleted; included in Grade 2 Science]</p>
<p>2.12 The student will</p> <p>a) Draw a line of symmetry in a figure; and</p> <p>b) Identify and create figures with at least one line of symmetry.</p> <ul style="list-style-type: none"> ● Draw a line of symmetry in a figure. (a) ● Determine a line of symmetry that results in two figures that have the same size and shape and explain reasoning. (a, b) ● Identify figures with at least one line of symmetry, using various concrete materials (e.g., mirrors, paper folding, pattern blocks). (b) ● Determine a line of symmetry that results in two figures that have the same size and shape and explain reasoning. (a, b) ● Create figures with at least one line of symmetry using various concrete materials. (b) 	<p>2.MG.3 The student will identify, describe, and create plane figures (including circles, triangles, squares, and rectangles) that have at least one line of symmetry and explain its relationship with congruency.</p> <ul style="list-style-type: none"> a) Explore a figure using a variety of tools (e.g., paper folding, geoboards, drawings) to show and justify a line of symmetry, if one exists. b) Create figures with at least one line of symmetry using various concrete and pictorial representations. c) Describe the two resulting figures formed by a line of symmetry as being congruent (having the same shape and size).

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Measurement and Geometry</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Measurement and Geometry (MG)</p>
<p>2.13 The student will identify, describe, compare, and contrast plane and solid figures (circles/spheres, squares/cubes, and rectangles/rectangular prisms).</p> <ul style="list-style-type: none"> ● Determine similarities and differences between related plane and solid figures (circles/spheres, squares/cubes, rectangles/rectangular prisms), using models and cutouts. ● Trace faces of solid figures (cubes and rectangular prisms) to create the set of plane figures related to the solid figure. ● Identify and describe plane figures (circles, squares, and rectangles), according to their characteristics (number of sides, vertices, and angles). Squares and rectangles have four right angles. ● Identify and describe solid figures (spheres, cubes, and rectangular prisms), according to the shape of their faces, number of edges, and number of vertices, using models. ● Compare and contrast plane and solid figures (circles/spheres, squares/cubes, and rectangles/rectangular prisms) according to their characteristics (number and shape of their faces, edges, vertices, and angles). 	<p>2.MG.4 The student will describe, name, compare, and contrast plane and solid figures (circles/spheres, squares/cubes, and rectangles/rectangular prisms).</p> <ol style="list-style-type: none"> a) Trace faces of solid figures (cubes and rectangular prisms) to create the set of plane figures related to the solid figure. b) Compare and contrast models and nets (cutouts) of cubes and rectangular prisms (e.g., number and shapes of faces, edges, vertices). c) Given a concrete or pictorial model, name and describe the solid figure (sphere, cube, and rectangular prism) by its characteristics (e.g., number of edges, number of vertices, shapes of faces). d) Compare and contrast plane and solid figures (circles/spheres, squares/cubes, and rectangles/rectangular prisms) according to their characteristics (e.g., number and shapes of their faces, edges, vertices).

<p align="center">2016 Standards of Learning Essential Knowledge and Skills (EKS) Probability and Statistics</p>	<p align="center">2023 Standards of Learning Knowledge and Skills (KS) Probability and Statistics (PS)</p>
<p>2.14 The student will use data from probability experiments to predict outcomes when the experiment is repeated.</p> <ul style="list-style-type: none"> ● Conduct probability experiments using multicolored spinners, colored tiles, or number cubes and use the data from the experiments to predict outcomes if the experiment is repeated. ● Record the results of probability experiments, using tables, charts, and tally marks. ● Interpret the results of probability experiments. ● Predict which of two events is more or less likely to occur if an experiment is repeated. 	<p>[Deleted]</p>
<p>2.15 The student will</p> <p>a) collect, organize, and represent data in pictographs and bar graphs; and</p> <p>b) read and interpret data represented in pictographs and bar graphs</p> <ul style="list-style-type: none"> ● Collect and organize data using various forms of data collection (e.g., lists, tables, objects, pictures, symbols, tally marks, charts). Data points, collected by students, should be limited to 16 or fewer for no more than four categories. (a) ● Represent data in pictographs and bar graphs (limited to 16 or fewer data points for no more than four categories). (a) ● Read and interpret data represented in pictographs and bar graphs with up to 25 data points for no more than six categories (represented horizontally or vertically). State orally and in writing (at least one statement) that includes one or more of the following: 	<p>2.PS.1 The student will apply the data cycle (pose questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on pictographs and bar graphs.</p> <ul style="list-style-type: none"> a) Pose questions, given a predetermined context, that require the collection of data (limited to 25 or fewer data points for no more than six categories). b) Determine the data needed to answer a posed question and collect the data using various methods (e.g., voting; creating lists, tables, or charts; tallying). c) Organize and represent a data set using a pictograph where each symbol represents up to 2 data points. Determine and use a key to assist in the analysis of the data.

<p align="center">2016 Standards of Learning Essential Knowledge and Skills (EKS) Probability and Statistics</p>	<p align="center">2023 Standards of Learning Knowledge and Skills (KS) Probability and Statistics (PS)</p>
<ul style="list-style-type: none"> o describes the categories of data and the data as a whole (e.g., adding together all data points will equal the total number of responses); o identifies parts of the data that have special characteristics; including categories with the greatest, the least, or the same; o uses the data to make comparisons; and o makes predictions and generalizations. (b) 	<ul style="list-style-type: none"> d) Organize and represent a data set using a bar graph with a title and labeled axes (limited to 25 or fewer data points for up to six categories, and limit increments of scale to multiples of 1 or 2). e) Analyze data represented in pictographs and bar graphs and communicate results: <ul style="list-style-type: none"> i) ask and answer questions about the data represented in pictographs and bar graphs (e.g., total number of data points represented, how many in each category, how many more or less are in one category than another). Pictograph keys will be limited to symbols representing 1, 2, 5, or 10 pieces of data and bar graphs will be limited to scales with increments in multiples of 1, 2, 5, or 10; and ii) draw conclusions about the data and make predictions based on the data.

<p align="center">2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra</p>	<p align="center">2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA)</p>
<p>2.16 The student will identify, describe, create, extend, and transfer patterns found in objects, pictures, and numbers.</p> <ul style="list-style-type: none"> ● Identify a pattern as growing or repeating. ● Describe the core (the part of the sequence that repeats) of a given repeating pattern. ● Describe how a given growing pattern is changing. 	<p>2.PFA.1 The student will describe, extend, create, and transfer repeating and increasing patterns (limited to addition of whole numbers) using various representations.</p> <ul style="list-style-type: none"> a) Identify and describe repeating and increasing patterns. b) Analyze a repeating or increasing pattern and generalize the change to extend the pattern using objects, pictures, and numbers.

<p style="text-align: center;">2016 Standards of Learning Essential Knowledge and Skills (EKS) Patterns, Functions, and Algebra</p>	<p style="text-align: center;">2023 Standards of Learning Knowledge and Skills (KS) Patterns, Functions, and Algebra (PFA)</p>
<ul style="list-style-type: none"> ● Create a growing or repeating pattern, using objects, pictures, or numbers. ● Extend a given pattern, using objects, pictures, or numbers. ● Transfer a given growing or repeating pattern from one form to another using objects, pictures, or numbers. 	<ul style="list-style-type: none"> c) Create repeating and increasing patterns using various representations (e.g., objects, pictures, numbers). d) Transfer a given repeating or increasing pattern from one form to another (e.g., objects, pictures, numbers), and explain the connection between the two patterns.
<p>2.17 The student will demonstrate an understanding of equality through the use of the equal symbol and the use of the not equal symbol.</p> <ul style="list-style-type: none"> ● Identify the equal symbol ($=$) as the symbol used to indicate that the values on either side are equal. ● Identify the not equal symbol (\neq) as the symbol used to indicate that two values on either side are not equal. ● Identify values and expressions that are equal (e.g., $8 = 8$, $8 = 4 + 4$). ● Identify values and expressions that are not equal (e.g., $8 \neq 9$, $4 + 3 \neq 8$). ● Identify and use the appropriate symbol to distinguish between equal and not equal quantities (e.g., $9 + 24 = 10 + 23$; $45 - 9 = 46 - 10$; $15 + 16 \neq 31 + 15$). ● Use a model to represent the relationship of two expressions of equal value and two expressions that are not equivalent. 	<p>[Included in 2.CE.1]</p>

2023 Grade 2 Mathematics SOL – Summary of Changes

Grade 2 (2016 SOL to 2023 SOL Numbering)	Parameter Changes/Clarifications (2023 SOL)
<ul style="list-style-type: none"> ● 2.1a,c → 2.NS.2 ● 2.1b → [Deleted] ● 2.1d → 2.CE.1 ● 2.2a-c → 2.NS.1 ● 2.3a-b → [Deleted] ● 2.4a-c → 2.NS.3 ● 2.5a-b → 2.CE.1 ● 2.6a-c → 2.CE.1 ● 2.7a-b → 2.NS.4 ● 2.8a-b → 2.MG.1 ● 2.9 → 2.MG.2 ● 2.10a-b → [Deleted; included in Grade 1] ● 2.11 → [Deleted; included in Science standards] ● 2.12a-b → 2.MG.3 ● 2.13 → 2.MG.4 ● 2.14 → [Deleted] ● 2.15a-b → 2.PS.1 ● 2.16 → 2.PFA.1 ● 2.17 → 2.CE.1 	<ul style="list-style-type: none"> ● 2.NS.1a - Represent forward counting patterns with groups of 2s to 50, and groups of 5s, 10s, and 25s to 200 ● 2.NS.1c - Describe and use patterns in skip counting by multiples of 2 (to at least 50), and multiples of 5, 10, and 25 (to at least 200) to justify the next number in the counting sequence ● 2.NS.1e-f - Represent, describe, and use patterns in skip counting backwards by 10's to justify the number in the counting sequence ● 2.NS.1h - Represent/determine even/odd numbers up to 50 using concrete objects and justify reasoning ● 2.NS.3b - Describe the relationship between the number of fractional parts needed to make a whole and the size of the parts ● 2.NS.3d - Use same-size fraction pieces, count unit fractions increased from one whole to two wholes ● 2.NS.3 - Given a context, represent, name, and write fractional parts of a whole for halves, fourths, eighths, thirds, and sixths ● 2.CE.1 - <i>Create and solve</i> problems has been replaced with <i>estimate, represent, solve, and justify</i> solutions; solve addition and subtraction problems where addends or minuends do not exceed 100 (<i>previously sums to 99 or less; difference of two whole numbers each 99 or less</i>) ● 2.CE.1a - Rounding to nearest ten included as strategy to estimate a solution for addition or subtraction problems ● 2.CE.1e - ‘Demonstrate fluency within 20’ expanded to include ‘Recall with automaticity’ ● 2.CE.1f - Use patterns, models, and strategies to make generalizations about the algebraic properties for fluency

Grade 2 (2016 SOL to 2023 SOL Numbering)	Parameter Changes/Clarifications (2023 SOL)
	<ul style="list-style-type: none"> ● 2.CE.1i-j - ‘Identify and use’ replaced with ‘describe’ the not equal symbol (\neq) as representing a relationship where expressions on either side of the not equal symbol represent different values and ‘justify’ reasoning ● 2.MG.3c - Determine a line of symmetry that results in two figures that are <i>congruent</i> [Congruent moved from Grade 3] ● 2.PS.1 - Number of data points when creating pictographs and bar graphs increased from 16 to 25 ● 2.PFA.1a - Growing patterns (limited to increasing patterns) ● 2.PFA.1d - Transfer a given increasing pattern from one form to another and explain the connection between the two patterns

Deletions from Grade 2 (2016 SOL)	Additions to Grade 2 (2023 SOL)
<ul style="list-style-type: none"> ● 2.1b - Identify the number that is 10 more, 10 less, 100 more, and 100 less than a given number up to 999 ● 2.3 - Ordinal numbers [Ordinals to tenth remains in Grade 1] ● 2.6c - Create single-step and two-step practical problems involving addition and subtraction ● 2.7a [EKS] - Compare the value of two sets of coins/dollars to \$2.00 [Included in Grade 3] ● 2.10 - Calendar standard [Included in Grade 1] ● 2.11 - Read temperature [Included in Science standards] ● 2.13 - Identify and describe plane figures (circles, squares, and rectangles), according to their characteristics [Included in Grades K and 1] ● 2.14 - Probability 	<ul style="list-style-type: none"> ● 2.NS.1d - Represent forward counting patterns when counting by groups of 100 up to at least 1,000 ● 2.NS.1g - Choose a reasonable estimate up to 1,000 when given a contextual problem [Magnitude moved from Grade 1] ● 2.NS.2e - Compose and decompose whole numbers up to 200 by making connections between a variety of models and strategies ● 2.NS.2f - Plot and justify the position of a given number up to 100 on a number line with pre-marked benchmarks ● 2.NS.3c - Compose the whole for a given fractional part and its value for halves, fourths, eighths, thirds, and sixths ● 2.NS.4a - Identify a quarter and its value and determine multiple ways to represent the value of a quarter using pennies, nickels, and/or dimes [Identify quarter moved from Grade 1] ● 2.NS.4c - Construct a set of coins and/or bills to total a given amount of money whose value is \$2.00 or less

Deletions from Grade 2 (2016 SOL)	Additions to Grade 2 (2023 SOL)
	<ul style="list-style-type: none"> ● 2.MG.1a-b - Estimate/measure liquid volume to the nearest cup and identify different types of measuring cups as instruments to measure liquid volume ● 2.MG.2a - Identify the number of minutes in an hour (60 minutes) and the number of hours in a day (24 hours) ● 2.MG.2b - Determine the unit of time (minutes, hours, days, or weeks) that is most appropriate when measuring a given activity or context and explain reasoning ● 2.MG.4b - Compare and contrast models and nets (cutouts) of cubes and rectangular prisms (e.g., number and shapes of faces, edges, vertices) ● 2.PS.1 - Additional data analysis knowledge and skills representing the data cycle have been included (e.g., pose questions, determine data needed to answer a posed question, ask and answer questions about the data; draw conclusions)

KEY: NS = Number and Number Sense; CE = Computation and Estimation; MG = Measurement and Geometry; PS = Probability and Statistics; PFA = Patterns, Functions, and Algebra; EKS = Essential Knowledge and Skills (2016); KS = Knowledge and Skills (2023); US = Understanding the Standard