

Grade 2

<b>[C]</b> Communication	<b>[PS]</b> Problem Solving
<b>[CN]</b> Connections	<b>[R]</b> Reasoning
<b>[ME]</b> Mental Mathematics and Estimation	<b>[T]</b> Technology
	<b>[V]</b> Visualization

<b>Strand:</b> Number	<b>General Learning Outcome:</b> Develop number sense.
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<b>Specific Learning Outcomes</b> <i>It is expected that students will:</i>	<b>Achievement Indicators</b> <i>The following set of indicators <b>may</b> be used to determine whether students have met the corresponding specific outcome.</i>
<p>2.N.1. Say the number sequence from 0 to 100 by</p> <ul style="list-style-type: none"> <li>■ 2s, 5s, and 10s, forward and backward, using starting points that are multiples of 2, 5, and 10 respectively</li> <li>■ 10s using starting points from 1 to 9</li> <li>■ 2s starting from 1</li> </ul> <p>[C, CN, ME, R]</p>	<ul style="list-style-type: none"> <li>■ Extend a skip-counting sequence by 2s, 5s, or 10s forward and backward.</li> <li>■ Skip-count by 10s, given any number from 1 to 9 as a starting point.</li> <li>■ Count by 2s starting from 1 or from any odd number.</li> <li>■ Identify and correct errors and omissions in a skip-counting sequence.</li> <li>■ Count a sum of money with pennies, nickels, or dimes (to 100¢).</li> <li>■ Count quantity using groups of 2s, 5s, or 10s and counting on.</li> </ul>
<p>2.N.2. Demonstrate if a number (up to 100) is even or odd.</p> <p>[C, CN, PS, R]</p>	<ul style="list-style-type: none"> <li>■ Determine if a number is even or odd by using concrete materials or pictorial representations.</li> <li>■ Identify even and odd numbers in a sequence, such as in a hundred chart.</li> <li>■ Sort a set of numbers into even and odd.</li> </ul>
<p>2.N.3. Describe order or relative position using ordinal numbers.</p> <p>[C, CN, R]</p>	<ul style="list-style-type: none"> <li>■ Indicate the position of an object in a sequence by using ordinal numbers.</li> <li>■ Compare the relative position of an object in two different sequences.</li> </ul>
<p>2.N.4. Represent and describe numbers to 100, concretely, pictorially, and symbolically.</p> <p>[C, CN, V]</p>	<ul style="list-style-type: none"> <li>■ Represent a number using concrete materials, such as ten frames and base-10 materials.</li> <li>■ Represent a number using coins (pennies, nickels, dimes, and quarters).</li> <li>■ Represent a number using tallies.</li> <li>■ Represent a number pictorially.</li> <li>■ Represent a number using expressions (e.g., <math>24 + 6</math>, <math>15 + 15</math>, <math>40 - 10</math>).</li> <li>■ Read a number (0–100) in symbolic or word form.</li> <li>■ Record a number (0–20) in words.</li> <li>■ Determine compatible number pairs for 20 or 50.</li> </ul>

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<b>Strand:</b> Number <i>(continued)</i>	<b>General Learning Outcome:</b> Develop number sense.
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**Specific Learning Outcomes**  
*It is expected that students will:*

**Achievement Indicators**  
*The following set of indicators **may** be used to determine whether students have met the corresponding specific outcome.*

<p>2.N.5. Compare and order numbers up to 100. [C, CN, R, V]</p>	<ul style="list-style-type: none"> <li>■ Order a set of numbers in ascending or descending order, and verify the result using a hundred chart, number line, ten frames, or by making reference to place value.</li> <li>■ Identify errors in an ordered sequence.</li> <li>■ Identify missing numbers in a hundred chart.</li> <li>■ Identify errors in a hundred chart.</li> </ul>
<p>2.N.6. Estimate quantities to 100 using referents. [C, ME, PS, R]</p>	<ul style="list-style-type: none"> <li>■ Estimate a quantity by comparing it to a referent (known quantity).</li> <li>■ Estimate the number of groups of 10 in a quantity using 10 as a referent.</li> <li>■ Select between two possible estimates for a quantity, and explain the choice.</li> </ul>
<p>2.N.7. Illustrate, concretely and pictorially, the meaning of place value for numbers to 100. [C, CN, R, V]</p>	<ul style="list-style-type: none"> <li>■ Explain and show with counters the meaning of each digit for a 2-digit numeral with both digits the same (e.g., for the numeral 22, the first digit represents two tens [twenty counters] and the second digit represents two ones [two counters]).</li> <li>■ Count the number of objects in a set using groups of 10s and 1s, and record the result as a 2-digit numeral under the headings of 10s and 1s.</li> <li>■ Describe a 2-digit numeral in at least two ways (e.g., 24 as two tens and four ones, twenty and four, two groups of ten and four left over, and twenty-four ones).</li> <li>■ Illustrate using 10 frames and diagrams that a numeral consists of a certain number of groups of 10 and a certain number of 1s.</li> <li>■ Illustrate using proportional base-10 materials that a numeral consists of a certain number of tens and a certain number of ones.</li> <li>■ Explain why the value of a digit depends on its placement within a numeral.</li> </ul>

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<b>Strand:</b> Number <i>(continued)</i>	<b>General Learning Outcome:</b> Develop number sense.
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<b>Specific Learning Outcomes</b> <i>It is expected that students will:</i>	<b>Achievement Indicators</b> <i>The following set of indicators <b>may</b> be used to determine whether students have met the corresponding specific outcome.</i>
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<p>2.N.8. Demonstrate and explain the effect of adding zero to or subtracting zero from any number. [C, R]</p>	<ul style="list-style-type: none"> <li>■ Add zero to a number and explain why the sum is the same as the addend.</li> <li>■ Subtract zero from a number and explain why the difference is the same as the number.</li> </ul>
<p>2.N.9. Demonstrate an understanding of addition (limited to 1- and 2-digit numerals) with answers to 100 and the corresponding subtraction by</p> <ul style="list-style-type: none"> <li>■ using personal strategies for adding and subtracting with and without the support of manipulatives</li> <li>■ creating and solving problems that involve addition and subtraction</li> <li>■ explaining that the order in which numbers are added does not affect the sum</li> <li>■ explaining that the order in which numbers are subtracted may affect the difference</li> </ul> <p>[C, CN, ME, PS, R, V]</p>	<ul style="list-style-type: none"> <li>■ Model addition and subtraction using concrete materials or visual representations, and record the process symbolically.</li> <li>■ Create an addition or a subtraction number sentence and a story problem for a solution.</li> <li>■ Solve a problem involving a missing addend, and describe the strategy used.</li> <li>■ Solve a problem involving a missing minuend or subtrahend, and describe the strategy used.</li> <li>■ Match a number sentence to a missing addend problem.</li> <li>■ Match a number sentence to a missing subtrahend or minuend problem.</li> <li>■ Add a set of numbers in two different ways, and explain that the sum is the same (e.g., <math>2 + 5 + 3 + 8 = 2 + 3 + 5 + 8</math> or <math>5 + 3 + 8 + 2</math>).</li> </ul>

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**Strand:**  
Number (*continued*)

**General Learning Outcome:**  
Develop number sense.

**Specific Learning Outcomes**

*It is expected that students will:*

**Achievement Indicators**

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2.N.10. Apply mental mathematics strategies, including

- using doubles
- making 10
- using one more, one less
- using two more, two less
- building on a known double
- using addition for subtraction

to develop recall of basic addition facts to 18 and related subtraction facts.

[C, CN, ME, R, V]

Recall of facts to 10, doubles to 9 + 9, and related subtraction facts is expected by the end of Grade 2.

- Explain the mental mathematics strategy that could be used to determine an addition or subtraction fact, such as
  - using doubles (e.g., for  $4 + 6$ , think  $5 + 5$ )
  - using doubles plus one (e.g., for  $4 + 5$ , think  $4 + 4 + 1$ )
  - using doubles take away one (e.g., for  $4 + 5$ , think  $5 + 5 - 1$ )
  - using doubles plus two (e.g., for  $4 + 6$ , think  $4 + 4 + 2$ )
  - using doubles take away two (e.g., for  $4 + 6$ , think  $6 + 6 - 2$ )
  - making 10 (e.g., for  $7 + 5$ , think  $7 + 3 + 2$ )
  - building on a known double (e.g.,  $6 + 6 = 12$ , so  $6 + 7 = 12 + 1 = 13$ )
  - using addition for subtraction (e.g., for  $7 - 3$ , think  $3 + ? = 7$ )
- Use and describe a personal strategy for determining a sum to 18 and the corresponding subtraction.

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<b>Strand:</b> Patterns and Relations (Patterns)	<b>General Learning Outcome:</b> Use patterns to describe the world and solve problems.
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<p>2.PR.1. Predict an element in a repeating pattern using a variety of strategies. [C, CN, PS, R, V]</p>	<ul style="list-style-type: none"> <li>■ Identify the core of a repeating pattern.</li> <li>■ Describe and extend a pattern with two attributes.</li> <li>■ Explain the rule used to create a repeating non-numerical pattern.</li> <li>■ Predict an element in a repeating pattern using a variety of strategies.</li> <li>■ Predict an element of a repeating pattern, and extend the pattern to verify the prediction.</li> </ul>
<p>2.PR.2. Demonstrate an understanding of increasing patterns by</p> <ul style="list-style-type: none"> <li>■ describing</li> <li>■ reproducing</li> <li>■ extending</li> <li>■ creating</li> </ul> <p>patterns using manipulatives, diagrams, sounds, and actions (numbers to 100). [C, CN, PS, R, V]</p>	<ul style="list-style-type: none"> <li>■ Identify and describe increasing patterns in a variety of contexts (e.g., hundred chart, number line, addition tables, calendar, a tiling pattern, or drawings).</li> <li>■ Represent an increasing pattern concretely and pictorially.</li> <li>■ Identify errors in an increasing pattern.</li> <li>■ Explain the rule used to create an increasing pattern.</li> <li>■ Create an increasing pattern and explain the pattern rule.</li> <li>■ Represent an increasing pattern using another mode (e.g., colour to shape).</li> <li>■ Solve a problem using increasing patterns.</li> <li>■ Identify and describe increasing patterns in the environment (e.g., house/room numbers, flower petals, book pages, calendar, pine cones, leap years).</li> <li>■ Determine missing elements in a concrete, pictorial, or symbolic increasing pattern, and explain the reasoning.</li> </ul>

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<b>Strand:</b> Patterns and Relations (Variables and Equations)	<b>General Learning Outcome:</b> Represent algebraic expressions in multiple ways.
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**Specific Learning Outcomes**

*It is expected that students will:*

**Achievement Indicators**

*The following set of indicators **may** be used to determine whether students have met the corresponding specific outcome.*

<p>2.PR.3. Demonstrate and explain the meaning of equality and inequality by using manipulatives and diagrams (0 to 100). [C, CN, R, V]</p>	<ul style="list-style-type: none"> <li>■ Determine whether two quantities of the same object (same shape and mass) are equal by using a balance scale.</li> <li>■ Construct and draw two unequal sets using the same object (same shape and mass), and explain the reasoning.</li> <li>■ Demonstrate how to change two sets, equal in number, to create inequality.</li> <li>■ Choose from three or more sets the one that does not have a quantity equal to the others, and explain why.</li> </ul>
<p>2.PR.4. Record equalities and inequalities symbolically using the equal symbol or the not-equal symbol. [C, CN, R, V]</p>	<ul style="list-style-type: none"> <li>■ Determine whether two sides of a number sentence are equal (=) or not equal (≠). Write the appropriate symbol and justify the answer.</li> <li>■ Model equalities using a variety of concrete representations, and record.</li> <li>■ Model inequalities using a variety of concrete representations, and record symbolically.</li> </ul>

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	<b>[V]</b> Visualization

<b>Strand:</b> Shape and Space (Measurement)	<b>General Learning Outcome:</b> Use direct or indirect measurement to solve problems.
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<b>Specific Learning Outcomes</b> <i>It is expected that students will:</i>	<b>Achievement Indicators</b> <i>The following set of indicators <b>may</b> be used to determine whether students have met the corresponding specific outcome.</i>
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<p>2.SS.1. Relate the number of days to a week and the number of months to a year in a problem-solving context. [C, CN, PS, R]</p>	<ul style="list-style-type: none"> <li>■ Read a date on a calendar.</li> <li>■ Name and order the days of the week.</li> <li>■ Identify the day of the week and the month of the year for an identified calendar date.</li> <li>■ State that there are seven days in a week and twelve months in a year.</li> <li>■ Determine whether a set of days is more or less than a week.</li> <li>■ Identify yesterday's/tomorrow's date.</li> <li>■ Identify the month that comes before and the month that comes after a given month.</li> <li>■ Name and order the months of the year.</li> <li>■ Solve a problem involving time that is limited to the number of days in a week and the number of months in a year.</li> </ul>
<p>2.SS.2. Relate the size of a unit of measure to the number of units (limited to non-standard units) used to measure length and mass (weight). [C, CN, ME, R, V]</p>	<ul style="list-style-type: none"> <li>■ Explain why one of two non-standard units may be a better choice for measuring the length of an object.</li> <li>■ Explain why one of two non-standard units may be a better choice for measuring the mass of an object.</li> <li>■ Select a non-standard unit for measuring the length or mass of an object, and explain why it was chosen.</li> <li>■ Estimate the number of non-standard units needed for a measurement task.</li> <li>■ Explain why the number of units of a measurement will vary depending upon the unit of measure used.</li> </ul>
<p>2.SS.3. Compare and order objects by length, height, distance around, and mass (weight) using non-standard units, and make statements of comparison. [C, CN, ME, R, V]</p>	<ul style="list-style-type: none"> <li>■ Estimate, measure, and record the length, height, distance around, or mass (weight) of an object using non-standard units.</li> <li>■ Compare and order the measure of two or more objects in ascending or descending order, and explain the method of ordering.</li> </ul>

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	<b>[V]</b> Visualization

<b>Strand:</b> Shape and Space (Measurement) <i>(continued)</i>	<b>General Learning Outcome:</b> Use direct or indirect measurement to solve problems.
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**Specific Learning Outcomes**

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<p>2.SS.4. Measure length to the nearest non-standard unit by</p> <ul style="list-style-type: none"> <li>■ using multiple copies of a unit</li> <li>■ using a single copy of a unit (iteration process)</li> </ul> <p>[C, ME, R, V]</p>	<ul style="list-style-type: none"> <li>■ Explain why overlapping or leaving gaps does not result in accurate measures.</li> <li>■ Count the number of non-standard units required to measure the length of an object using a single copy or multiple copies of the same unit of measure.</li> <li>■ Estimate and measure an object using multiple copies of a non-standard unit and using a single copy of the same unit many times, and explain the results.</li> <li>■ Estimate and measure, using non-standard units, a length that is not a straight line.</li> <li>■ Create different rulers, using non-standard units of measure, and use these rulers to measure length.</li> </ul>
<p>2.SS.5. Demonstrate that changing the orientation of an object does not alter the measurements of its attributes.</p> <p>[C, R, V]</p>	<ul style="list-style-type: none"> <li>■ Measure an object, change the orientation, re-measure, and explain the results.</li> </ul>

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<b>Strand:</b> Shape and Space (3-D Objects and 2-D Shapes)	<b>General Learning Outcome:</b> Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.
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<b>Specific Learning Outcomes</b> <i>It is expected that students will:</i>	<b>Achievement Indicators</b> <i>The following set of indicators <b>may</b> be used to determine whether students have met the corresponding specific outcome.</i>
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2.SS.6. Sort 2-D shapes and 3-D objects using two attributes, and explain the sorting rule. [C, CN, R, V]	<ul style="list-style-type: none"> <li>■ Determine the differences between two pre-sorted sets, and explain the sorting rule.</li> <li>■ Identify and name two common attributes of items within a sorted group.</li> <li>■ Sort a set of 2-D shapes (regular and irregular) according to two attributes, and explain the sorting rule.</li> <li>■ Sort a set of 3-D objects according to two attributes, and explain the sorting rule.</li> </ul>
2.SS.7. Describe, compare, and construct 3-D objects, including <ul style="list-style-type: none"> <li>■ cubes</li> <li>■ spheres</li> <li>■ cones</li> <li>■ cylinders</li> <li>■ prisms</li> <li>■ pyramids</li> </ul> [C, CN, R, V]	<ul style="list-style-type: none"> <li>■ Sort a set of 3-D objects, and explain the sorting rule.</li> <li>■ Identify common attributes of cubes, spheres, cones, cylinders, prisms, or pyramids from sets of the same 3-D objects.</li> <li>■ Identify and describe 3-D objects with different dimensions.</li> <li>■ Identify and describe 3-D objects with different orientations.</li> <li>■ Create and describe a representation of a 3-D object using materials such as modelling clay.</li> <li>■ Identify examples of cubes, spheres, cones, cylinders, prisms, or pyramids found in the environment.</li> </ul>

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<b>Strand:</b> Shape and Space (3-D Objects and 2-D Shapes) <i>(continued)</i>	<b>General Learning Outcome:</b> Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.
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2.SS.8. Describe, compare, and construct 2-D shapes, including <ul style="list-style-type: none"> <li>■ triangles</li> <li>■ squares</li> <li>■ rectangles</li> <li>■ circles</li> </ul> [C, CN, R, V]	<ul style="list-style-type: none"> <li>■ Sort a set of 2-D shapes, and explain the sorting rule.</li> <li>■ Identify common attributes of triangles, squares, rectangles, or circles from sets of the same type of 2-D shapes.</li> <li>■ Identify 2-D shapes with different dimensions.</li> <li>■ Identify 2-D shapes with different orientations.</li> <li>■ Create a model to represent a 2-D shape.</li> <li>■ Create a pictorial representation of a 2-D shape.</li> </ul>
2.SS.9. Identify 2-D shapes as parts of 3-D objects in the environment. [C, CN, R, V]	<ul style="list-style-type: none"> <li>■ Compare and match a 2-D shape, such as a triangle, square, rectangle, or circle, to the faces of 3-D objects in the environment.</li> <li>■ Name the 2-D faces of a 3-D object.</li> </ul>

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	<b>[V]</b> Visualization

<b>Strand:</b> Statistics and Probability (Data Analysis)	<b>General Learning Outcome:</b> Collect, display, and analyze data to solve problems.
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2.SP.1. Gather and record data about self and others to answer questions. [C, CN, PS, V]	<ul style="list-style-type: none"> <li>■ Formulate a question that can be answered by gathering information about self and others.</li> <li>■ Organize data as it is collected using concrete objects, tallies, checkmarks, charts, or lists.</li> <li>■ Answer questions using collected data.</li> </ul>
2.SP.2. Construct and interpret concrete graphs and pictographs to solve problems. [C, CN, PS, R, V]	<ul style="list-style-type: none"> <li>■ Determine the common attributes of concrete graphs by comparing a set of concrete graphs.</li> <li>■ Determine the common attributes of pictographs by comparing a set of pictographs.</li> <li>■ Answer questions pertaining to a concrete graph or pictograph.</li> <li>■ Create a concrete graph to display a set of data and draw conclusions.</li> <li>■ Create a pictograph to represent a set of data using one-to-one correspondence.</li> <li>■ Solve a problem by constructing and interpreting a concrete graph or pictograph.</li> </ul>