

Grade 3

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

Strand: Number

General Learning Outcome: Develop number sense.

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.*

3.N.1. Say the number sequence between any two given numbers forward and backward

- from 0 to 1000 by
 - 10s or 100s, using any starting point
 - 5s, using starting points that are multiples of 5
 - 25s, using starting points that are multiples of 25
 - from 0 to 100 by
 - 3s, using starting points that are multiples of 3
 - 4s, using starting points that are multiples of 4
- [C, CN, ME]

- Extend a skip-counting sequence by 10s or 100s, forward and backward, using a given starting point.
- Extend a skip-counting sequence by 5s, forward and backward, starting at a given multiple of 5.
- Extend a skip-counting sequence by 25s, forward and backward, starting at a given multiple of 25.
- Extend a given skip-counting sequence by 3s, forward, starting at a given multiple of 3.
- Extend a given skip-counting sequence by 4s, starting at a given multiple of 4.
- Identify and correct errors and omissions in a skip-counting sequence.
- Determine the value of a set of coins (nickels, dimes, quarters, loonies) by using skip-counting.
- Identify and explain the skip-counting pattern for a number sequence.

3.N.2. Represent and describe numbers to 1000, concretely, pictorially, and symbolically.
[C, CN, V]

- Read a 3-digit numeral without using the word “and” (e.g., 321 is three hundred twenty-one, NOT three hundred AND twenty-one).
- Read a number word (0 to 1000).
- Represent a number as an expression (e.g., $300 - 44$ for 256 or $20 + 236$).
- Represent a number using manipulatives, such as base-10 materials.
- Represent a number pictorially.
- Write number words for multiples of ten to 90.
- Write number words for multiples of a hundred to 900.
- Determine compatible number pairs for 100.

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Strand: Number (<i>continued</i>)		General Learning Outcome: Develop number sense.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.N.3.	Compare and order numbers to 1000. [CN, R, V]	- Place a set of numbers in ascending or descending order, and verify the result by using a hundred chart (e.g., a one hundred chart, a two hundred chart, a three hundred chart, a number line, or by making references to place value). - Create as many different 3-digit numerals as possible, given three different digits. Place the numbers in ascending or descending order. - Identify errors in an ordered sequence. - Identify missing numbers in parts of a hundred chart. - Identify errors in a hundred chart.
3.N.4.	Estimate quantities less than 1000 using referents. [ME, PS, R, V]	- Estimate the number of groups of ten in a quantity using 10 as a referent (known quantity). - Estimate the number of groups of a hundred in a quantity using 100 as a referent. - Estimate a quantity by comparing it to a referent. - Select an estimate for a quantity by choosing among three possible choices. - Select and justify a referent for determining an estimate for a quantity.
3.N.5.	Illustrate, concretely and pictorially, the meaning of place value for numerals to 1000. [C, CN, R, V]	- Record in more than one way the number represented by proportional and non-proportional concrete materials. - Represent a number in different ways using proportional and non-proportional concrete materials, and explain how they are equivalent (e.g., 351 can be represented as three 100s, five 10s and one 1, or as two 100s, fifteen 10s, and one 1, or as three 100s, four 10s, and eleven 1s). - Explain, and show with counters, the meaning of each digit for a 3-digit numeral with all digits the same (e.g., for the numeral 222, the first digit represents two hundreds [two hundred counters] the second digit represents two tens [twenty counters], and the third digit represents two ones [two counters]).

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Strand: Number (<i>continued</i>)		General Learning Outcome: Develop number sense.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.N.6.	Describe and apply mental mathematics strategies for adding two 2-digit numerals, such as ■ adding from left to right ■ taking one addend to the nearest multiple of ten and then compensating ■ using doubles [C, ME, PS, R, V]	■ Add two 2-digit numerals using a mental mathematics strategy, and explain or model the strategy. ■ Explain how to use the “adding from left to right” strategy (e.g., to determine the sum of $23 + 46$, think $20 + 40$ and $3 + 6$). ■ Explain how to use the “taking one addend to the nearest multiple of ten” strategy (e.g., to determine the sum of $28 + 47$, think $30 + 47 - 2$ or $50 + 28 - 3$). ■ Explain how to use the “using doubles” strategy (e.g., to determine the sum of $24 + 26$, think $25 + 25$; to determine the sum of $25 + 26$, think $25 + 25 + 1$ or doubles plus 1). ■ Apply a mental mathematics strategy for adding two 2-digit numerals.
3.N.7.	Describe and apply mental mathematics strategies for subtracting two 2-digit numerals, such as ■ taking the subtrahend to the nearest multiple of ten and then compensating ■ thinking of addition ■ using doubles [C, ME, PS, R, V]	■ Subtract two 2-digit numerals using a mental mathematics strategy, and explain or model the strategy. ■ Explain how to use the “taking the subtrahend to the nearest multiple of ten” and then compensating strategy (e.g., to determine the difference of $48 - 19$, think $48 - 20 + 1$). ■ Explain how to use the “thinking of addition” strategy (e.g., to determine the difference of $62 - 45$, think $45 + 5$, then $50 + 12$, and then $5 + 12$). ■ Explain how to use the “using doubles” strategy (e.g., to determine the difference of $24 - 12$, think $12 + 12$). ■ Apply a mental mathematics strategy for subtracting two 2-digit numerals.
3.N.8.	Apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem-solving context. [C, ME, PS, R]	■ Estimate the solution for a story problem involving the sum of two 2-digit numerals (e.g., to estimate the sum of $43 + 56$, use $40 + 50$; the sum is close to 90). ■ Estimate the solution for a story problem involving the difference of two 2-digit numerals (e.g., to estimate the difference of $56 - 23$, use $50 - 20$; the difference is close to 30).

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Strand:
Number (*continued*)

General Learning Outcome:
Develop number sense.

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.*

- 3.N.9. Demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1-, 2-, and 3-digit numerals) by
- using personal strategies for adding and subtracting with and without the support of manipulatives
 - creating and solving problems in contexts that involve addition and subtraction of numbers concretely, pictorially, and symbolically.
- [C, CN, ME, PS, R]

- Model the addition of two or more numbers using concrete or visual representations, and record the process symbolically.
- Model the subtraction of two numbers using concrete or visual representations, and record the process symbolically.
- Create an addition or subtraction story problem for a solution.
- Determine the sum of two numbers using a personal strategy (e.g., for $326 + 48$, record $300 + 60 + 14$).
- Determine the difference of two numbers using a personal strategy (e.g., for $127 - 38$, record $38 + 2 + 80 + 7$ or $127 - 20 - 10 - 8$).
- Solve a problem involving the sum or difference of two numbers.

- 3.N.10. Apply mental math strategies to determine addition facts and related subtraction facts to 18 ($9 + 9$).
- [C, CN, ME, R, V]

Recall of addition and related subtraction facts to 18 is expected by the end of Grade 3.

- Describe a mental mathematics strategy that could be used to determine a given basic fact, such as
 - doubles (e.g., for $6 + 8$, think $7 + 7$)
 - doubles plus one (e.g., for $6 + 7$, think $6 + 6 + 1$)
 - doubles take away one (e.g., for $6 + 7$, think $7 + 7 - 1$)
 - doubles plus two (e.g., for $6 + 8$, think $6 + 6 + 2$)
 - doubles take away two (e.g., for $6 + 8$, think $8 + 8 - 2$)
 - making 10 (e.g., for $6 + 8$, think $6 + 4 + 4$ or $8 + 2 + 4$)
 - commutative property (e.g., for $3 + 9$, think $9 + 3$)
 - addition to subtraction (e.g., for $13 - 7$, think $7 + \square = 13$)
- Provide a rule for determining answers for adding and subtracting zero.

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Strand: Number (<i>continued</i>)		General Learning Outcome: Develop number sense.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.N.11.	Demonstrate an understanding of multiplication to 5×5 by ■ representing and explaining multiplication using equal grouping and arrays ■ creating and solving problems in context that involve multiplication ■ modelling multiplication using concrete and visual representations, and recording the process symbolically ■ relating multiplication to repeated addition ■ relating multiplication to division [C, CN, PS, R]	(It is intended that students show their understanding of strategies using manipulatives, pictorial representations, and/or patterns when determining products.) ■ Identify events from experience that can be described as multiplication. ■ Represent a story problem (orally, shared reading, written) using manipulatives or diagrams, and record in a number sentence. ■ Skip-count by 2s, 3s, 4s, and 5s to determine the answer to a multiplication problem represented as equal groups. ■ Represent a multiplication expression as repeated addition. ■ Represent a repeated addition as multiplication. ■ Create and illustrate a story problem for a number sentence. ■ Represent, concretely or pictorially, equal groups for a number sentence. ■ Represent a multiplication expression using an array. ■ Create an array to model the commutative property of multiplication. ■ Relate multiplication to division by using arrays and by writing related number sentences. ■ Solve a problem in context involving multiplication.
3.N.12.	Demonstrate an understanding of division by ■ representing and explaining division using equal sharing and equal grouping ■ creating and solving problems in context that involve equal sharing and equal grouping ■ modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically ■ relating division to repeated subtraction ■ relating division to multiplication (limited to division related to multiplication facts up to 5×5). [C, CN, PS, R]	(It is intended that students show their understanding of strategies using manipulatives, pictorial representations, and/or patterns when determining quotients.) ■ Identify events from experience that can be described as equal sharing. ■ Identify events from experience that can be described as equal grouping. ■ Illustrate, with counters or a diagram, a story problem involving equal sharing, presented orally or through shared reading, and solve the problem. ■ Illustrate, with counters or a diagram, a story problem involving equal grouping, presented orally or through shared reading, and solve the problem. ■ Listen to a story problem, represent the numbers using manipulatives or a sketch, and record the problem with a number sentence. ■ Create, and illustrate with counters, a story problem for a number sentence. ■ Represent a division expression as repeated subtraction. ■ Represent a repeated subtraction as a division expression. ■ Relate division to multiplication by using arrays and by writing related number sentences. ■ Solve a problem involving division.

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Strand:
Number (*continued*)

General Learning Outcome:
Develop number sense.

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.*

- 3.N.13. Demonstrate an understanding of fractions by
- explaining that a fraction represents a portion of a whole divided into equal parts
 - describing situations in which fractions are used
 - comparing fractions of the same whole with like denominators
- [C, CN, ME, R, V]

- Identify common characteristics of a set of fractions.
- Describe everyday situations where fractions are used.
- Cut or fold a whole into equal parts, or draw a whole in equal parts; demonstrate that the parts are equal and name the parts.
- Sort a set of diagrams of regions into those that represent equal parts and those that do not, and explain the sorting.
- Represent a fraction concretely or pictorially.
- Name and record the fraction represented by the shaded and non-shaded parts of a region.
- Compare fractions with the same denominator using models.
- Identify the numerator and denominator for a fraction.
- Model and explain the meaning of *numerator* and *denominator*.

Grade 3

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Strand: Patterns and Relations (Patterns)		General Learning Outcome: Use patterns to describe the world and solve problems.
Specific Learning Outcomes <i>It is expected that students will:</i>	Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>	
3.PR.1. Demonstrate an understanding of increasing patterns by ■ describing ■ extending ■ comparing ■ creating patterns using manipulatives, diagrams, and numbers (to 1000). [C, CN, PS, R, V]	■ Describe an increasing pattern by stating a pattern rule that includes the starting point and a description of how the pattern continues. ■ Identify the pattern rule of an increasing pattern, and extend the pattern for the next three terms. ■ Identify and explain errors in an increasing pattern. ■ Identify and describe various increasing patterns found on a hundred chart, such as horizontal, vertical, and diagonal patterns. ■ Compare numeric patterns of counting by 2s, 3s, 4s, 5s, 10s, 25s, and 100s. ■ Create a concrete, pictorial, or symbolic representation of an increasing pattern for a pattern rule. ■ Create a concrete, pictorial, or symbolic increasing pattern, and describe the pattern rule. ■ Solve a problem using increasing patterns. ■ Identify and describe increasing patterns in the environment. ■ Identify and apply a pattern rule to determine missing elements for a pattern. ■ Describe the strategy used to determine missing elements in an increasing pattern.	

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[C] Communication	[PS] Problem Solving
[CN] Connections	[R] Reasoning
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Strand:
Patterns and Relations (Patterns) *(continued)*

General Learning Outcome:
Use patterns to describe the world and solve problems.

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.*

- 3.PR.2. Demonstrate an understanding of decreasing patterns by
- describing
 - extending
 - comparing
 - creating
- patterns using manipulatives, diagrams, and numbers (starting from 1000 or less).
[C, CN, PS, R, V]

- Describe a decreasing pattern by stating a pattern rule that includes the starting point and a description of how the pattern continues.
- Identify the pattern rule of a decreasing pattern, and extend the pattern for the next three terms.
- Identify and explain errors in a decreasing pattern.
- Identify and describe various decreasing patterns found on a hundred chart, such as horizontal, vertical, and diagonal patterns.
- Compare decreasing numeric patterns of counting backward by 2s, 3s, 4s, 5s, 10s, 25s, and 100s.
- Create a concrete, pictorial, or symbolic decreasing pattern for a pattern rule.
- Create a concrete, pictorial, or symbolic decreasing pattern, and describe the pattern rule.
- Solve a problem using decreasing patterns.
- Identify and describe decreasing patterns in the environment.
- Identify and apply a pattern rule to determine missing elements for a pattern.
- Describe the strategy used to determine missing elements in a decreasing pattern.

Grade 3

[C] Communication	[PS] Problem Solving
[CN] Connections	[R] Reasoning
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Strand: Patterns and Relations (Variables and Equations)		General Learning Outcome: Represent algebraic expressions in multiple ways.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.PR.3. Solve one-step addition and subtraction equations involving symbols representing an unknown number. [C, CN, PS, R, V]		■ Explain the purpose of the symbol, such as a triangle or a circle, in an addition or a subtraction equation with one unknown. ■ Create an addition or subtraction equation with one unknown to represent a combination or separation action. ■ Provide an alternative symbol for the unknown in an addition or subtraction equation. ■ Solve an addition or subtraction equation that represents combining or separating actions with one unknown, using manipulatives. ■ Solve an addition or subtraction equation with one unknown using a variety of strategies including guess and test. ■ Explain why the unknown in an addition or subtraction equation has only one value.

Grade 3

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Strand: Shape and Space (Measurement)		General Learning Outcome: Use direct or indirect measurement to solve problems.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.SS.1.	Relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years). [CN, ME, R]	■ Select and use a non-standard unit of measure, such as television shows or pendulum swings, to measure the passage of time, and explain the choice. ■ Identify activities that can or cannot be accomplished in minutes, hours, days, months, and years. ■ Provide personal referents for minutes and hours.
3.SS.2.	Relate the number of seconds to a minute, the number of minutes to an hour, and the number of days to a month in a problem-solving context. [C, CN, PS, R, V]	■ Determine the number of days in any month using a calendar. ■ Solve a problem involving the number of minutes in an hour or the number of days in a given month. ■ Create a calendar that includes days of the week, dates, and events.
3.SS.3.	Demonstrate an understanding of measuring length (cm, m) by ■ selecting and justifying referents for the units cm and m ■ modelling and describing the relationship between the units cm and m ■ estimating length using referents ■ measuring and recording length, width, and height [C, CN, ME, PS, R, V]	■ Provide a personal referent for one centimetre and explain the choice. ■ Provide a personal referent for one metre and explain the choice. ■ Match a standard unit to a referent. ■ Show that 100 centimetres is equivalent to 1 metre by using concrete materials. ■ Estimate the length of an object using personal referents. ■ Determine and record the length or width of a 2-D shape. ■ Determine and record the length, width, or height of a 3-D object. ■ Draw a line segment of a given length using a ruler. ■ Sketch a line segment of a given length without using a ruler.

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[C] Communication	[PS] Problem Solving
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	[V] Visualization

Strand: Shape and Space (Measurement) <i>(continued)</i>		General Learning Outcome: Use direct or indirect measurement to solve problems.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.SS.4.	Demonstrate an understanding of measuring mass (g, kg) by ■ selecting and justifying referents for the units g and kg ■ modelling and describing the relationship between the units g and kg ■ estimating mass using referents ■ measuring and recording mass [C, CN, ME, PS, R, V]	■ Provide a personal referent for one gram and explain the choice. ■ Provide a personal referent for one kilogram and explain the choice. ■ Match a standard unit to a referent. ■ Explain the relationship between 1000 grams and 1 kilogram using a model. ■ Estimate the mass of an object using personal referents. ■ Determine and record the mass of a 3-D object. ■ Measure, using a scale, and record the mass of everyday objects using the units g and kg. ■ Provide examples of 3-D objects that have a mass of approximately 1g, 100g, and 1kg. ■ Determine the mass of two similar objects with different masses, and explain the results. ■ Determine the mass of an object, change its shape, re-measure its mass, and explain the results.
3.SS.5.	Demonstrate an understanding of perimeter of regular and irregular shapes by ■ estimating perimeter using referents for centimetre or metre ■ measuring and recording perimeter (cm, m) ■ constructing different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter [C, ME, PS, R, V]	■ Measure and record the perimeter of a regular shape, and explain the strategy used. ■ Measure and record the perimeter of an irregular shape, and explain the strategy used. ■ Construct a shape for a given perimeter (cm, m). ■ Construct or draw more than one shape for the same perimeter. ■ Estimate the perimeter of a shape (cm, m) using personal referents.

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Strand: Shape and Space (3-D Objects and 2-D Shapes)		General Learning Outcome: Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.
Specific Learning Outcomes <i>It is expected that students will:</i>	Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>	
3.SS.6. Describe 3-D objects according to the shape of the faces, and the number of edges and vertices. [C, CN, PS, R, V]	- Identify the faces, edges, and vertices of a 3-D object, including cubes, spheres, cones, cylinders, pyramids, and prisms. - Identify the shape of the faces of a 3-D object. - Determine the number of faces, edges, and vertices of a 3-D object. - Construct a skeleton of a 3-D object, and describe how the skeleton relates to the 3-D object. - Sort a set of 3-D objects according to the number of faces, edges, or vertices.	
3.SS.7. Sort regular and irregular polygons, including - triangles - quadrilaterals - pentagons - hexagons - octagons according to the number of sides. [C, CN, R, V]	- Classify a set of regular and irregular polygons according to the number of sides. - Identify regular and irregular polygons having different dimensions. - Identify regular and irregular polygons having different orientations.	

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Strand: Statistics and Probability (Data Analysis)		General Learning Outcome: Collect, display, and analyze data to solve problems.
Specific Learning Outcomes <i>It is expected that students will:</i>		Achievement Indicators <i>The following set of indicators may be used to determine whether students have met the corresponding specific outcome.</i>
3.SP.1.	Collect first-hand data and organize it using ■ tally marks ■ line plots ■ charts ■ lists to answer questions. [C, CN, V]	■ Record the number of objects in a set using tally marks. ■ Determine the attributes of line plots. ■ Organize a set of data using tally marks, line plots, charts, or lists. ■ Collect and organize data using tally marks, line plots, charts, or lists. ■ Answer questions arising from a line plot, chart, or list. ■ Answer questions using collected data.
3.SP.2.	Construct, label, and interpret bar graphs to solve problems. [PS, R, V]	■ Determine the attributes of bar graphs. ■ Create bar graphs from a set of data including labelling the title and axes. ■ Draw conclusions from a bar graph to solve problems. ■ Solve problems by constructing and interpreting a bar graph.