

# Mathematics 3

*Foundational Outcomes*

## Website References

Website references contained within this document are provided solely as a convenience and do not constitute an endorsement by the Department of Education of the content, policies, or products of the referenced website. The department does not control the referenced websites and subsequent links, and is not responsible for the accuracy, legality, or content of those websites. Referenced website content may change without notice.

Regional Education Centres and educators are required under the Department's Public School Programs Network Access and Use Policy to preview and evaluate sites before recommending them for student use. If an outdated or inappropriate site is found, please report it to <curriculum@novascotia.ca>.

© Crown copyright, Province of Nova Scotia, 2020

Prepared by the Department of Education and Early Childhood Development

This is the most recent version of the current curriculum materials as used by teachers in Nova Scotia.

The contents of this publication may be reproduced in part provided the intended use is for non-commercial purposes and full acknowledgment is given to the Nova Scotia Department of Education.

## Outcomes Framework Grade 3 (2020-21)

In September 2020, teachers will be working hard to create a space that is safe and welcoming for all learners no matter the location of their “classroom”. The first weeks will still be a time to establish a sense of community, engage learners in rich interactive experiences to promote critical thinking and create opportunities for collaboration and discussion. This is an opportune time to develop a culture and a climate for mathematics learning, conducive to collaboration, risk taking and inquiry.

The **Foundational Outcomes** identified in this document represent outcomes determined to be relevant for future learning in mathematics. Decisions about foundational outcomes were made in consultation with teachers, provincial mathematics team, Board and Regional Centre staff. The foundational outcomes are meant to guide teachers in making decisions about creating learning experiences that will prepare and engage their learners in a responsive way. However, a teacher’s professional judgment remains the most important guide to effectively responding to the needs of their learners.

Colour coding has been used to identify outcomes and indicators as foundational (**green**), optional (**orange**) or non-foundational (**red**) for the 2020-2021 school year.

**NO1:** Students will be expected to say the number sequence forward and backward by:

-1s through transitions to 1000

-2s, 5s, 10s, or 100s, using any starting point to 1000

-3s, using starting points that are multiples of 3 up to 100

-4s, using starting points that are multiples of 4 up to 100

-25s, using starting points that are multiples of 25 up to 200.

**Performance Indicators:**

N01.01 Extend the number sequence by 1s, particularly through transition from decade to decade and century to century.

N01.02: Extend a given skip counting sequence by 2s, 5s, 10s, or 100s, forward and backward, using a given starting point.

N01.03: Extend a given skip counting sequence by 3s, forward and backward, starting at a given multiple of 3 up to 100.

N01.04: Extend a given skip counting sequence by 4s, forward and backward, starting at a given multiple of 4 up to 100.

N01.05: Extend a given skip counting sequence by 25s, forward and backward, starting at a given multiple of 25 up to 200.

N01.06: Identify and correct errors and omissions in a given skip counting sequence.

N01.07: Determine the value of a given set of coins (nickels, dimes, quarters, and loonies) by using skip counting.

N01.08: Identify and explain the skip counting pattern for a given number sequence.

**NO2:** Students will be expected to represent and partition numbers to 1000.

**Performance Indicators:** all indicators

**N03:** Students will be expected to compare and order numbers up to 1000.

**Performance Indicators:**

N03.01: Place a given set of numbers in ascending or descending order and verify the result using a number chart or other models.

N03.02: Create as many different 3-digit numerals as possible, given three different digits. Place the numbers in ascending or descending order.

N03.03: Identify errors in a given ordered sequence.

N03.04: Identify missing numbers in parts of a given number chart and on a number line.

N03.05: Identify errors in a given number chart and on a number line.

N03.06: Place numbers on a number line containing benchmark numbers for the purpose of comparison.

N03.07: Compare numbers based on a variety of methods, and record the comparison using words and symbols ( $=$ ,  $>$  and  $<$ ).

**N04:** Students will be expected to estimate quantities less than 1000 using referents.

**Performance Indicators:**

N04.01: Estimate the number of groups of ten in a given quantity using 10 as a referent (known quantity).

N04.02: Estimate the number of groups of a hundred in a given quantity using 100 as a referent.

N04.03: Estimate a given quantity by comparing it to a referent.

N04.04: Select an estimate for a given quantity by choosing among three possible choices.

N04.05: Select and justify a referent for determining an estimate for a given quantity.

**N05:** Students will be expected to illustrate, concretely and pictorially, the meaning of place value for numerals to 1000.

**Performance Indicators: all indicators**

**N06:** Students will be expected to describe and apply mental mathematics strategies for adding two 2-digit numerals.

**Performance Indicators:**

N06.01: Explain mental mathematics strategies that could be used to determine a sum.

- Ten and some more

- Tens and some more

- Quick addition

- Addition facts to 10 applied to multiples of 10

- Addition on the hundred chart

- Adding on
- Make ten
- Compensation
- Compatible numbers

N06.02: Use and describe a personal strategy for determining a sum.

N06.03: Determine a sum of two 2-digit numerals efficiently, using mental mathematics strategies.

**N07:** Students will be expected to describe and apply mental mathematics strategies for subtracting two 2-digit numerals.

**Performance Indicators:**

N07.01: Explain mental mathematics strategies that could be used to determine a difference.

-Facts with minuends of 10 or less applied to multiples of 10

-Quick subtraction

-Subtraction on the hundred chart

-Compensation

-Back through ten

N07.02: Use and describe a personal strategy for determining a difference.

N07.03: Determine a difference of two 2-digit numerals efficiently, using mental mathematics strategies

**N08:** Students will be expected to apply estimation strategies to predict sums and differences of 1-, 2-, and 3-digit numerals in a problem-solving context.

**Performance Indicators:**

N08.01: Explain estimation strategies that could be used to determine an approximate sum or difference.

N08.02: Use and describe a strategy for determining an estimate.

N08.03: Estimate the solution for a given story problem involving the sum or difference of up to two 3-digit numerals.

**N09:** Students will be expected to demonstrate an understanding of addition and subtraction of numbers (limited to 1-, 2-, and 3-digit numerals) with answers to 1000 by:

-using personal strategies for adding and subtracting with and without the support of manipulatives

-creating and solving problems in context that involve addition and subtraction of numbers concretely, pictorially, and symbolically

**Performance Indicators:**

N09.01: Model the addition of two or more given numbers using concrete or visual representations and record the process symbolically.

N09.02: Model the subtraction of two given numbers using concrete or visual representations and record the process symbolically.

**N09.03:** Create an addition or subtraction story problem for a given solution.

N09.04: Determine the sum of two given numbers using a personal strategy, e.g., for  $326 + 48$ , record  $300 + 60 + 14$ .

N09.05: Determine the difference of two given numbers using a personal strategy, e.g., for  $127 - 38$ , record  $2 + 80 +$  or  $127 - 20 - 10 - 8$ .

N09.06: Solve a given problem involving the sum or difference of two given numbers.

**N10:** Students will be expected to apply mental mathematics strategies and number properties to develop quick recall of basic addition facts to 18 and related basic subtraction facts.

**Performance Indicators:** all indicators

**N11:** Students will be expected to demonstrate an understanding of multiplication to  $5 \times 5$  by

- representing and explaining multiplication using equal grouping and arrays

- creating and solving problems in context that involves multiplication

- modelling multiplication using concrete and visual representations and recording the process symbolically

- relating multiplication to repeated addition

- relating multiplication to division

**Performance Indicators:**

N11.01: Identify events from experience that can be described as multiplication.

N11.02: Represent a given story problem (orally, shared reading, written) using manipulatives or diagrams and record in a number sentence.

N11.03: Represent a given multiplication expression as repeated addition.

N11.04: Represent a given repeated addition as multiplication.

**N11.05:** Create and illustrate a story problem for a given number sentence and/or expression.

N11.06: Represent, concretely or pictorially, equal groups for a given number sentence.

N11.07: Represent a given multiplication expression using an array.

**N11.08:** Create an array to model the commutative property of multiplication.

N11.09: Relate multiplication to division by using arrays and writing related number sentences.

**N11.10:** Solve a given problem in context involving multiplication.

**N12:** Students will be expected to 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  $5 \times 5$ .)

**Performance Indicators:**

N12.01: Identify events from experience that can be described as equal sharing.  
N12.02: Identify events from experience that can be described as equal grouping.  
N12.03: Illustrate, with counters or a diagram, a given story problem involving equal sharing, presented orally or through shared reading, and solve the problem.  
N12.04: Illustrate, with counters or a diagram, a given story problem involving equal grouping, presented orally or through shared reading, and solve the problem.  
N12.05: Listen to a story problem, represent the numbers using manipulatives or a diagram and record the problem with a number sentence and/or expression.  
N12.06: Create and illustrate with counters, a story problem for a given number sentence and/or expression.  
N12.07: Represent a given division sentence and/or expression as repeated subtraction.  
N12.08: Represent a given repeated subtraction as a division sentence.  
N12.09: Relate division to multiplication by using arrays and writing related number sentences.  
N12.10: Solve a given problem involving division.

**N13:** Students will be expected to demonstrate an understanding of fractions by:  
-explaining that a fraction represents a part of a whole  
-describing situations in which fractions are used  
-comparing fractions of the same whole with like denominators

**Performance Indicators:** all indicators

**PR01:** Students will be expected to demonstrate an understanding of increasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions.

**Performance Indicators:** all indicators

**PR02:** Students will be expected to demonstrate an understanding of decreasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions.

**Performance Indicators:** all indicators

**PR03:** Students will be expected to solve one-step addition and subtraction equations involving symbols representing an unknown number.

**Performance Indicators:** all indicators

**M01:** Students will be expected to relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years).

**Performance Indicators:**

M01.01: 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.

M01.02: Identify activities that can or cannot be accomplished in minutes, hours, days, weeks, months, and years.

M01.03: Provide personal referents for minutes and hours.

M01.04: Select and use a standard unit of measure, such as minutes, hours, days, weeks, and months to measure the passage of time and explain the choice.

**M02:** Students will be expected to relate the number of seconds to a minute, the numbers of minutes to an hour, the numbers of hours to a day, and the number of days to a month in a problem-solving context.

**Performance Indicators:**

M02.01: Determine the number of days in any given month using a calendar.

M02.02: Solve a given problem involving the number of seconds in a minute, the number of minutes in an hour, the number of hours in a day, or the number of days in a given month.

M02.03: Create a calendar that includes days of the week, dates, and personal events.

**M03:** Students will be expected to demonstrate an understanding of measuring length (cm, m) by

- selecting and justifying referents for the units centimetre or metre (cm, m)
- modelling and describing the relationship between the units centimetre or metre (cm, m)
- estimating length using referents
- measuring and recording length, width, and height

**Performance Indicators: all indicators**

**M04:** Students will be expected to demonstrate an understanding of measuring mass (g, kg) by

- selecting and justifying referents for the units gram and kilogram (g, kg)
- modelling and describing the relationship between the units gram and kilogram (g, kg)
- estimating mass using referents
- measuring and recording mass

**Performance Indicators:**

M04.01: Provide a personal referent for one gram and explain the choice.

M04.02: Provide a personal referent for one kilogram and explain the choice.

M04.03: Match a given standard unit to a given referent.

M04.04: Explain the relationship between 1000 grams and 1 kilogram using a model.

M04.05: Estimate the mass of a given object using personal referents.

M04.06: Measure, using a balance scale, and record the mass of given everyday objects using the units gram (g) and kilogram (kg).

M04.07: Provide examples of 3-D objects that have a mass of approximately 1 g, 100 g, and 1 kg.  
M04.08: Determine the mass of two given similar objects with different masses and explain the results.  
M04.09: Determine the mass of an object, change its shape, re-measure its mass and explain the results.

**M05:** Students will be expected to demonstrate an understanding of perimeter of regular, irregular, and composite shapes by  
-estimating perimeter using referents for centimetre or metre (cm, m)  
-measuring and recording perimeter (cm, m)  
-create different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter

**Performance Indicators:**

M05.01: Measure and record the perimeter of a given regular shape and explain the strategy used.  
M05.02: Measure and record the perimeter of a given irregular or composite shape and explain the strategy used.  
M05.03: Construct a shape for a given perimeter (cm, m).  
M05.04: Construct or draw more than one shape for the same given perimeter.  
M05.05: Estimate the perimeter of a given shape (cm, m) using personal referents.

**G01:** Students will be expected to describe 3-D objects according to the shape of the faces and the number of edges and vertices.

**Performance Indicators:**

G01.01: Identify the faces, edges, and vertices of given 3-D objects, including spheres, cones, cylinders, pyramids, cubes and other prisms.  
G01.02: Identify the shape of the faces of a given 3-D object.  
G01.03: Determine the number of faces, edges, and vertices of a given 3-D object.  
G01.04: Sort a given set of 3-D objects according to the number of faces, edges, or vertices.

**G02:** Students will be expected to name, describe, compare, create, and sort regular and irregular polygons, including triangles, quadrilaterals, pentagons, hexagons, and octagons according to the number of sides.

**Performance Indicators: all indicators**

**SP01:** Students will be expected to collect first-hand data and organize it using tally marks, line plots, charts, and lists to answer questions.

**Performance Indicators: all indicators**

**SP02:** Students will be expected to **construct, label, and** interpret bar graphs to solve problems.

**Performance Indicators:**

SP02.01: Determine the common attributes, title, and axes of bar graphs by comparing bar graphs in a given set.

SP02.02: **Create bar graphs from a given set of data including labelling the title and axes.**

SP02.03: Draw conclusions from a given bar graph to solve problems.

SP02.04: Solve problems by **constructing and** interpreting a bar graph.