Program of Learning Assessment for Nova Scotia (PLANS)
Nova Scotia Assessment: Mathematics in Grade 4

This assessment will be administered on two days in the fall of the school year for 90 minutes each morning.

Each day of this assessment deals with the conceptual knowledge students are expected to have acquired by the end of grade 3. Students will have the opportunity to demonstrate and apply their understanding of the foundational mathematical ideas, operations, and relationships they have been studying in the mathematics program.

This assessment includes
- tasks embedded in a context that will sometimes require mental mathematics skills to solve
- tasks presented in a selected-response format
- tasks designed to assess students' ability to solve problems
- tasks requiring different levels of cognitive demands to solve, thereby providing more information about student performance on knowledge, application, and analysis questions

Mathematics in Grade 4: Curriculum Connections

The Curriculum is organized into five strands: Number (N), Patterns and Relations (PR), Measurement (M), Geometry (G), and Statistics and Probability (SP). Some strands are further subdivided into sub-strands. There is one general outcome (GCO) per sub-strand. GCOs are overarching statements about what students are expected to learn in each strand/sub-strand. The general curriculum outcome for each strand/sub-strand is the same throughout the grades P–6. The outcomes being assessed are based on the new curriculum, *Mathematics P-3*, which was implemented in 2013. Students will require knowledge of previously learned concepts to complete the assessment.

Elements of the following curriculum outcomes that can be measured on large-scale assessments will be included on the Nova Scotia Assessment: Mathematics/Mathématiques in Grade 4.

General Curriculum Outcomes for Mathematics
Number (N)
Number GCO: Students will be expected to demonstrate number sense.
Patterns and Relations (PR)
Patterns GCO: Students will be expected to use patterns to describe the world and solve problems.
Variables and Equations GCO: Students will be expected to represent algebraic expressions in multiple ways.
Measurement (M)
Measurement GCO: Students will be expected to use direct and indirect measure to solve problems.
Geometry (G)
3-D Objects and 2-D Shapes GCO: Students will be expected to describe the characteristics of 3-D objects and 2-D shapes and analyze the relationship among them.
Transformations GCO: Students will be expected to describe and analyze position and motion of objects and shapes.
Statistics and Probability (SP)
Data Analysis GCO: Students will be expected to collect, display, and analyze data to solve problems.
Chance and Uncertainty GCO: Students will be expected to use experimental or theoretical probabilities to represent and solve problems involving uncertainty.

Cognitive levels

Cognitive levels of questions require a student to complete tasks that require fact, procedural, and conceptual knowledge, as well as strategic reasoning.

- Knowledge questions may require students to recall or recognize information, names, definitions, or the steps in a procedure.
- Application/comprehension questions may require students to make connections, represent a situation in more than one way (translating between representations), or solve contextual problems.
- Analysis questions may require students to go beyond comprehension and application to higher order thinking skills, such as generalizations and non-routine problem-solving.

Mathematics in Grade 4: Table of Specifications

A table of specifications is derived from an analysis of the curriculum and provides a framework for the components and percentages of the assessment. The assessment reflects these approximate percentages for General Curriculum Outcomes (GCOs) and cognitive levels.

Strand	Percentage*
Number (N)	50–60
Patterns and Relations (PR)	10–20
Measurement (M)	10–20
Geometry (G)	10–20
Statistics and Probability (SP)	5–10

Cognitive Level	Percentage*
Knowledge	20–30
Application	50–60
Analysis	10–20

* Percentages are approximate