New K-6 curriculum

Mathematics

Overview

Mathematics is a powerful tool used every day to solve real-life problems. A focus on numeracy skills provides students with a solid foundation of mathematical knowledge. Numeracy skills support real-life pursuits, including telling time, using and managing money, following instructions, finding an address, and reading a schedule. Through mathematics, students develop logical thinking skills that support effective decision making in a variety of situations. Experiences with mathematics help students develop appreciation for the patterns and relationships that describe multiple aspects of the world and its future possibilities.

Studying and mastering mathematics can lead to jobs in computer science, construction, artificial intelligence, teaching, engineering, and many other fields.

From draft to new curriculum – content update summary

What we heard

We listened to all feedback from classroom piloting and engagement activities and heard these common concerns across all draft K-6 subjects:

- Load
  - some content is too heavy within a subject, grade, or learning outcome
- Age-inappropriateness
  - some knowledge, understandings, and skill/procedures need to be better aligned with students' developmental level in a specific grade
  - more pre-requisite learning is needed in some grades to support the knowledge, understandings, and skills/procedures
- Wording clarity
  - clearer expectations and verb choice are needed in some content for students to achieve learning outcomes
  - clearer descriptions are needed for some knowledge, understandings, or skills/procedures
- First Nations, Métis, and Inuit content
  - additional content is needed to support First Nations, Métis, and Inuit perspectives
  - some content needs to represent First Nations, Métis, and Inuit perspectives and contributions more authentically

The feedback on draft K-6 mathematics indicated that some content on fractions, operations, measurement, prime factorization, percentages, place value and inequality needed to be updated and strengthened.

What we updated

In April 2022, we finalized new K-6 mathematics curriculum by updating the draft curriculum from March 2021. In addition to making changes that reflect engagement and piloting feedback, we also aligned the new curriculum with top-performing jurisdictions, both within Canada and internationally, as well as those with knowledge-rich curriculums.

We made the following content updates:

- **Load:** Refined examples and redistributed content across multiple grades while considering age-appropriateness.
- **Age-appropriateness:** Shifted content between K-6 grades or into grades 7-12.
- **Wording clarity:** Analyzed and aligned verbs in learning outcomes to Bloom's Taxonomy to ensure the higher-level verbs are used in all K-6 grades, and/or edited for clear and correct language use.
- **First Nations, Métis, and Inuit content:** Made updates based on feedback from stakeholder groups and jurisdictional scans.
- **Fractions:** Shifted content to either earlier or later within K-6 grades to provide an age-appropriate knowledge sequence with time for mastering foundational understandings. Learning outcomes, knowledge, understandings, skills and procedures were added to support foundational understanding of fractions in grades 5 and 6.
- **Fraction operations:** Shifted addition/subtraction from grade 3 and 4 to grade 5 and grade 6, as well as shifting multiplication/division out of K-6 to provide an age-appropriate knowledge sequence with time for mastering foundational understandings.
- **Negative operations:** Shifted most operations with negative numbers out of K-6, reducing load and providing more time for mastering age-appropriate knowledge and skills.
- **Addition, subtraction, multiplication, and division operations:** Included multiple interpretations of each operation and added the knowledge, understanding, skills and procedures for number composition, early algebraic thinking, and strategies to develop number sense and build a stronger learning sequence from grade to grade.
- **Measurement with Canadian units:** Revised knowledge, understanding, skills and procedures that were not connected to learning outcomes and measurement was also enhanced by introducing angles in grade 3 rather than grade 4 to better align with the geometric properties in grade 3.
- **Factorization:** Shifted most content from grade 4 to grade 6 and added factors, multiples, divisibility into new learning outcomes in grades 4 to 6 to provide a clear learning progression with assessable learning outcomes.
- **Percentages, ratio, and rates:** Shifted percentages from grade 5 to grade 4 to align with hundredths in decimals and fractions, and shifted ratios from grade 6 to grade 5 to create a learning sequence with percentages and rates, which are introduced in grade 6.
- **Place value:** Added knowledge, understanding, skills and procedures in grade 2.
- **Inequality:** Included inequality throughout K-6.

Current and new curriculum comparison

The following list shows how elements in the current K-6 mathematics curriculum, updated in 2016, compare to the new curriculum. The comparisons provide examples and do not represent all the changes that were made.

	Current curriculum (2016) Examples	**New curriculum (April 2022) Examples**
Spatial reasoning	• A limited focus on spatial reasoning is provided in earlier grades.	• More focus on spatial reasoning is provided at earlier grades to help students understand measurement and geometry concepts at a younger age.
Fractions	• Students start learning fractions in Grade 3.	• Students learn fractions in Grade 1 to build a strong foundation for understanding proportions.
Number facts	• Students are expected to recall number facts.	• Students are expected to learn, recall, and apply number facts so they can add, subtract, multiply, and divide more efficiently in various situations.

Operations	• Students do not have to use a particular method to add, subtract, multiply, or divide. • Students are expected to add, subtract, multiply, and divide with whole numbers and decimals.	• There are clear expectations for students to use standard algorithms to add, subtract, multiply, or divide so there are consistent, reliable processes to find answers. • Students are expected to add, subtract, multiply, and divide with whole numbers and decimals, and to add and subtract fractions.
Financial literacy	• Students are not required to learn about money and financial concepts.	• Students work with money concepts in mathematics to support financial literacy skills learned in physical education and wellness.

Snapshot by grade

In new K-6 mathematics curriculum, students will learn about numbers and operations, measurement, geometry, algebra, and statistics.

Kindergarten

- Count and represent quantities within 10.
- Recognize 2-D and 3-D shapes in the environment.
- Compare objects by length, area, weight, and capacity.
- Order a sequence of events according to time.

Grade 1

- Recall addition number facts to a sum of 20 and related subtraction facts.
- Identify and sort 2-D and 3-D shapes.
- Order objects according to length, area, and capacity.
- Identify cycles of time from nature and calendars.

Grade 2

- Add and subtract numbers within 100.
- Sort shapes and describe the sorting rule.
- Measure length in centimetres.
- Describe durations of time in days, weeks, months, or years.
- Collect and graph data.

Grade 3

- Add and subtract numbers within 1,000 using standard procedures (algorithms).
- Recall multiplication number facts to 10 x 10 and related division facts.
- Recognize parallel, perpendicular, and equal sides in 2-D shapes.
- Measure length using metric units.
- Tell time using analog and digital clocks.

Grade 4

- Add and subtract numbers within 10,000 including decimal numbers, using standard procedures (algorithms).
- Multiply and divide three-digit natural numbers by one-digit natural numbers, using standard procedures (algorithms).
- Classify quadrilaterals and triangles using angle and side measurements.
- Measure and calculate the area of rectangles.
- Represent and interpret data in various graphs.

Grade 5

- Add and subtract numbers within 1,000,000 including decimal numbers, using standard procedures (algorithms).
- Multiply three-digit natural numbers by two-digit natural numbers, using standard procedures (algorithms).
- Add and subtract fractions with common denominators.
- Write and evaluate algebraic expressions.
- Classify shapes using symmetry.
- Calculate the area and perimeter of rectangles.

Grade 6

- Add, subtract, multiply, and divide using standard procedures (algorithms) to solve problems.
- Multiply fractions by natural numbers.
- Calculate area and volume.
- Solve algebraic equations.
- Collect, graph, and interpret data.