

Department of Education and Early Childhood Development

Elementary Mathematics

2020-2021 Prioritized Curriculum

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Acknowledgements

The Department of Education and Early Childhood Development of New Brunswick (EECD) gratefully acknowledges the contributions of the following educators toward the development of the Elementary Mathematics Prioritized Curriculum:

- Erin Barbour, ASD-East
- Chantale Barsalou, ASD-South
- Chantal Daley, ASD-North
- Anne Gaudet, ASD-South
- Lori Harding-Colpitts, ASD-West
- Lynn Reade, ASD-East
- Mary Anne Reynolds, ASD-West
- Carolyn Simmons, ASD-North
- Ryan Jones, EECD (Learning and Achievement)
- Yvan Pelletier, EECD (Assessment)

Background and Rationale

Due to the reduced learning time presented by school closures for COVID-19 and the uncertainty of what the 2020-2021 year will bring, the Department of Education and Early Childhood Development (EECD) is releasing a prioritized curriculum for elementary mathematics. This document provides a list of required outcomes that will frame the learning expectations for students and offer time for effective teaching practices.

A team of New Brunswick educators and Learning Specialists from EECD worked together to identify and curate a list of Required Outcomes for the 2020-2021 school year. Any outcomes that were not identified as being required were categorised as “Remaining Outcomes” (see appendix A and B) and can be set aside for future learning, included in the cross-curricular learning block, or taught if time permits.

The Required Outcomes outlined in this document have been identified as the best representation of instructional outcomes to engage learners and contribute to student readiness for mathematics learning in middle school.

Identification of the Required Outcomes is but one of the necessary elements which will support learners in the province. Teachers will also consider how to engage students in deep and meaningful ways within the framework of the new learning environments (online, blended, and/or face-to-face).

Message from EECD

The mathematics curriculum for Grades K - 5 has been reviewed with the overarching vision of the Portrait of a Learner, the recognition that this school year will be unique, and with the understanding that the priority will remain the well-being of students and staff, while students and educators renew focus on necessary academic learning. The intention is to provide a full picture of a reasonable number of learning expectations per grade level so teachers may examine all that is to be learned by the student, make cross-curricular connections and plan opportunities for learning. The prioritized outcomes for each of the grades must be applied with the knowledge of where students are at; therefore, formative assessments at the start of the school year will be an important indicator for teachers in their planning.

The information in this document is meant to provide teachers and students time to adjust to the numerous changes they have experienced. It is not a permanent replacement for the existing curricula. Teachers can refer to the full curriculum guides, in English and French, for information and suggestions about teaching and learning. Collaboratively, with their own pedagogical knowledge and that of their colleagues and professional learning communities, teachers can use this document to facilitate planning for this school year.

Recommended instructional practices include, but are not limited to:

- time to build relationships that foster and affirm identities.
- time to acknowledge and process the major events and changes that have happened since March 2020.
- regular use of the assessment cycle (of, for, and as learning) to support capable learners who know where they are, where they are going, and how to plan with their teachers to improve.
- the intentional teaching of vocabulary, through consistent processes, which builds key concepts across subject areas, supports language learners, and strengthens comprehension and chances for transfer to new learning.

Mathematics

Students are curious, active learners that make sense of their environment through observations and interactions, from which they will construct their own meaning of mathematics. This meaning is best developed when learners encounter and discuss mathematical experiences that proceed from the simple to the complex and from the concrete to the abstract. Curiosity about mathematics is fostered when children are engaged in activities such as counting and comparing quantities, searching for patterns, sorting objects, ordering objects, creating designs, building with blocks and talking about these activities.

The full curriculum document can be accessed [here](#).

Number Sense

- Demonstrate an understanding of number sequences counting by 1s starting anywhere from 1 to 10 and from 10 to 1. (N1)
- Recognize, at a glance, and name familiar arrangements of 1 to 5 objects or dots. (N2)
- Relate a numeral, 1 to 10, to its respective quantity. (N3)
- Represent and describe numbers 2 to 10, using 5 as a benchmark, concretely and pictorially. (N4)
- Compare quantities, 1 to 10, using one-to-one correspondence. (N5)

Patterns and Relations

- Demonstrate an understanding of repeating patterns (two or three elements) by: identifying; reproducing; extending; creating patterns using manipulatives. (PR1)

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The full curriculum document can be accessed [here](#) / Le programme d'études est accessible [ici](#).

Number Sense

- Demonstrate an understanding of number sequences, 0 to 20, by: counting by 1s forward and backward between any two given numbers; 2s to 20, forward starting at 0; 5s to 20, forward starting at 0. (N1)
- Recognize, at a glance, and name familiar arrangements of 1 to 10 objects or dots. (N2)
- Demonstrate an understanding of counting by: indicating that the last number said identifies “how many”; showing that any set has only one count; using the counting on strategy; using parts or equal groups to count sets; and identifying one more, two more, one less and two less than a given number. (N3)
- Represent and describe numbers to 20 concretely, pictorially and symbolically. (N4)
- Compare sets and estimate quantities containing up to 20 elements to solve problems using: referents; one-to-one correspondence. (N5 & N6)
- Demonstrate, concretely and pictorially, how a given number can be represented by a variety of equal groups with and without singles. (N7)
- Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely and pictorially, by: using familiar and mathematical language to describe additive and subtractive actions from their experience; creating and solving problems in context that involve addition and subtraction; modelling addition and subtraction using a variety of concrete and visual representations, and model recording the process symbolically. (N9)
- Describe and use mental mathematics strategies (memorization not intended), such as: counting on and counting back; doubles; using addition to subtract for the basic addition and subtraction facts to 10. (N10)

Patterns and Relations

- Demonstrate an understanding of repeating patterns (two to four elements) by: describing; reproducing; extending; creating patterns using manipulatives and diagrams. (PR1)
- Describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20). (PR3)

Shape and Space

- Demonstrate an understanding of measurement as a process of comparing by: identifying attributes that can be compared; ordering objects; making statements of comparison; filling, covering or matching. (SS1)
- Sort 3-D objects and 2-D shapes using one attribute, and explain the sorting rule. (SS2)

Mathematics

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Number Sense

- Demonstrate an understanding of number sequences from 0 to 100 by: counting by 2s, 5s and 10s, forward and backward, using starting points that are multiples of 2, 5 and 10 respectively; 10s using starting points from 1 to 9; 2s starting from 1. (N1)
- Represent and describe numbers to 100, including if the number is even or odd, concretely, pictorially and symbolically. (N4)
- Estimate quantities to 100 using referents. (N6)
- Illustrate, concretely and pictorially, the meaning of place value for numerals to 100. (N7)
- Demonstrate an understanding of addition (limited to 1 and 2-digit numerals) with answers to 100 and the corresponding subtraction by: using personal strategies for adding and subtracting with and without the support of manipulatives; creating and solving problems that involve addition and subtraction; explaining that the order in which numbers are added does not affect the sum; explaining that the order in which numbers are subtracted may affect the difference. (N9)
- Apply mental mathematics strategies, such as: using doubles; making 10; one more, one less; two more, two less; addition for subtraction to determine basic addition facts to 18 and related subtraction facts. (N10)

Patterns and Relations

- Demonstrate an understanding of repeating and/or increasing patterns by: describing; reproducing; extending; creating patterns using manipulatives, diagrams, sounds and actions (numbers to 100). (PR2)
- Demonstrate and explain the meaning of equality and inequality by using manipulatives and diagrams (0 to 100), and record symbolically (using the equal and not equal symbols). (PR3)

Shape and Space

- Relate the number of days to a week and the number of months to a year in a problem-solving context. (SS1)
- Compare and order objects by length, height, distance around and mass (weight) using non-standard units, and make statements of comparison. (SS3)
- Sort 2-D shapes and 3-D objects, including those in the environment, using two attributes, and explain the sorting rule. (SS6)

Mathematics

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Number Sense

- Demonstrate an understanding of number sequences forward and backward from 0 to 1000 by: counting by 5s, 10s, or 100s, using any starting point; 3s using starting points that are multiples of 3; 4s using starting points that are multiples of 4; 25s, using starting points that are multiples of 25. (N1)
- Represent, describe, compare and order numbers to 1000, concretely, pictorially and symbolically. (N2)
- Illustrate, concretely & pictorially, the meaning of place value for numerals to 1000. (N5)
- Describe and apply mental mathematics strategies for adding and subtracting two 2-digit numerals. (N6 & N7)
- Apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem-solving context. (N8)
- Demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1, 2 and 3- digit numerals). (N9)
- Apply mental mathematics strategies and number properties, such as: using doubles; making 10; using the commutative property; using the property of zero; thinking addition for subtraction to determine answers for basic addition facts and related subtraction facts (to 18). (N10)

Patterns and Relations

- Demonstrate an understanding of increasing and decreasing patterns by: describing, extending, comparing, creating patterns using manipulatives and diagrams (numbers to 1000). (PR2)

Shape and Space

- Relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years). (SS1)
- 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. (SS2)
- Demonstrate an understanding of measuring length (cm, m) by: selecting and justifying referents for the units cm and m. (SS3)

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Number Sense

- Represent, describe, compare and order whole numbers to 10 000, pictorially and symbolically. (N1)
- Demonstrate an understanding of addition of numbers with answers to 10 000 and their corresponding subtractions (limited to 3 and 4-digit numerals). (N3)
- Describe and apply mental mathematics strategies, such as: skip counting from a known fact; using doubling or halving; using doubling or halving and adding or subtracting one more group; using patterns in the 9s facts; using repeated doubling to determine basic multiplication facts to 9×9 and related division facts. (N5)
- Demonstrate an understanding of multiplication (2- or 3-digit by 1-digit) and the properties of 0 and 1 for multiplication to solve problems. (N6)
- Demonstrate an understanding of division (1-digit divisor and up to 2-digit dividend) and the properties of 0 and 1 for division to solve problems by: using personal strategies for dividing with and without concrete materials; estimating quotients; relating division to multiplication. (N7)
- Demonstrate an understanding of fractions less than or equal to one by using concrete and pictorial representations to: name and record fractions for the parts of a whole or a set; compare and order fractions; model and explain that for different wholes, two identical fractions may not represent the same quantity; provide examples of where fractions are used. (N8)

Patterns and Relations

- Express a given problem as an equation in which a symbol is used to represent an unknown number. (PR5)

Shape and Space

- Read and record time using digital and analog clocks. (SS1)
- Demonstrate an understanding of area of regular and irregular 2-D shapes by: recognizing that area is measured in square units selecting and justifying referents for the units cm^2 or m^2 ; estimating area by using referents for cm^2 or m^2 ; determining and recording area (cm^2 or m^2); constructing different rectangles for a given area (cm^2 or m^2) in order to demonstrate that many different rectangles may have the same area. (SS3)

Statistics and Probability

- Interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions. (SP2)

Mathematics

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Number Sense

- Represent and describe place value to 1 000 000. (N1)
- Use estimation strategies including: front-end rounding, compensation, and compatible numbers; in problem-solving contexts. (N2)
- Apply mental mathematics strategies and number properties, such as: skip counting from a known fact, using doubling or halving, using patterns in the 9s facts, and using repeated doubling or halving; to determine answers for basic multiplication facts to 81 and related division facts. (N3)
- Apply mental mathematics strategies for multiplication (up to 2-digit by 2-digit), with and without concrete materials, such as: annexing then adding zero, halving and doubling, and using the distributive property. (N4)
- Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit) and interpret remainders to solve problems. (N6)
- Demonstrate an understanding of fractions by using concrete and pictorial representations to: create sets of equivalent fractions and compare fractions with like and unlike denominators. (N7)
- Describe and represent decimals (tenths & hundredths) concretely, pictorially and symbolically. (N8)
- Relate decimals to fractions (tenths & hundredths). (N9)
- Compare and order decimals (tenths & hundredths) by using: benchmarks, place value, and equivalent decimals. (N10)
- Demonstrate an understanding of addition and subtraction of decimals (tenths & hundredths). (N11)

Patterns and Relations

- Solve problems involving single-variable, one-step equations with whole number coefficients and whole number solutions. (PR2)

Shape and Space

- Demonstrate an understanding of measuring length (mm and km) by: selecting and justifying referents for the units mm and km. (SS2)
- Demonstrate an understanding of volume by: selecting and justifying referents for cm^3 or m^3 units. (SS3)
- Demonstrate an understanding of capacity by: describing the relationship between mL and L; selecting and justifying referents for mL or L units. (SS4)

Appendix A

Grade Level	Required Outcomes	Remaining Outcomes
Kindergarten	N1 , N2 , N3 , N4 , N5 PR1	SS1 , SS2 , SS3
Grade 1	N1 , N2 , N3 , N4 , N5 , N6 , N7 , N9 , N10 PR1 , PR3 SS1 , SS2	N8 PR2 , PR4 SS3 , SS4
Grade 2	N1 , N4 , N6 , N7 , N9 , N10 PR2 , PR3 SS1 , SS3 , SS6 , SS9	N2 , N3 , N5 , N8 PR1 , PR4 SS2 , SS4 , SS5 , SS7 , SS8 SP1 , SP2
Grade 3	N1 , N2 , N5 , N6 , N7 , N8 , N9 , N10 PR2 SS1 , SS2 , SS3	N3 , N4 , N11 , N12 , N13 PR1 , PR3 SS4 , SS5 , SS6 , SS7 SP1 , SP2
Grade 4	N1 , N3 , N5 , N6 , N7 , N8 PR5 SS1 , SS3 SP2	N2 , N4 , N9 , N10 , N11 PR1 , PR2 , PR3 , PR4 , PR6 SS2 , SS4 , SS5 , SS6 SP1
Grade 5	N1 , N2 , N3 , N4 , N6 , N7 , N8 , N9 , N10 , N11 PR2 SS2 , SS3 , SS4	N5 PR1 SS1 , SS5 , SS6 , SS7 , SS8 SP1 , SP2 , SP3 , SP4

The preceding table helps educators link to the [Math Improvement Website](#) for Grade Level (English) formative assessment examples for each specific curriculum outcome. The curriculum outcomes listed as required are prioritized and correspond to the recommended learning expectations in the document above. The outcomes listed as remaining can be left for later learning.

Appendix B

Grade Level	Required Outcomes	Remaining Outcomes
Grade 1	N1 , N2 , N3 , N4 , N5 , N6 , N7 , N9 , N10 PR1 , PR3 SS1 , SS2	N8 PR2 , PR4 SS3 , SS4
Grade 2	N1 , N4 , N6 , N7 , N9 , N10 PR2 , PR3 SS1 , SS3 , SS6 , SS9	N2 , N3 , N5 , N8 PR1 , PR4 SS2 , SS4 , SS5 , SS7 , SS8 SP1 , SP2
Grade 3	N1 , N2 , N5 , N6 , N7 , N8 , N9 , N10 PR2 SS1 , SS2 , SS3	N3 , N4 , N11 , N12 , N13 PR1 , PR3 SS4 , SS5 , SS6 , SS7 SP1 , SP2
Grade 4	N1 , N3 , N5 , N6 , N7 , N8 PR5 SS1 , SS3 SP2	N2 , N4 , N9 , N10 , N11 PR1 , PR2 , PR3 , PR4 , PR6 SS2 , SS4 , SS5 , SS6 SP1
Grade 5	N1 , N2 , N3 , N4 , N6 , N7 , N8 , N9 , N10 , N11 PR2 SS2 , SS3 , SS4	N5 PR1 SS1 , SS5 , SS6 , SS7 , SS8 SP1 , SP2 , SP3 , SP4

The preceding table helps educators link to the [Math Improvement Website](#) for Grade Level (French) formative assessment examples for each specific curriculum outcome. The curriculum outcomes listed as required are prioritized and correspond to the recommended learning expectations in the document above. The outcomes listed as remaining can be left for later learning.