LONG-RANGE PLAN

Grade 1, Mathematics

ORGANIZED BY QUESTIONS

What is a long-range plan and why is it important?

A long-range plan outlines a yearlong plan for learning mathematics. It is a living document that is revised as educators become increasingly aware of the abilities, strengths, needs, and interests of their students. A thoughtfully developed long-range plan:

- ensures that instruction is sequenced in a manner that aligns with research about learning mathematics;
- allocates the appropriate time for concepts and skills so that students have multiple opportunities to focus on the overall expectations within the grade;
- ensures that all specific expectations are addressed at least once within the school year; and
- recognizes that some expectations need to be revisited several times throughout the year.

Note: These sample long-range plans outline possible sequences of instruction for the school year. There are many ways to structure an effective plan for learning.

How are these long-range plans structured?

Deep learning occurs when specific expectations are connected, are continuously expanded upon, and are revisited in a variety of contexts throughout the year.

This long-range plan is organized around ten unifying questions. Each question typically involves several strands and draws on big mathematical themes such as quantity, change, equivalence, dimension, pattern, and uncertainty. Often the same question spans several grades.

These ten questions can be sequenced throughout the year as ten blocks of time, as presented here in this long-range plan. Alternatively, the questions could be split into smaller, shorter blocks, with the embedded strands and topics serving as different contexts that would spiral the ten questions throughout the year.

While the long-range plan is presented as month-long blocks, this timing should be held loosely, and adjusted according to the learning readiness of students. The following are other considerations when using this long-range plan.

Considerations

- Sample long-range plans for each grade level include all overall and specific expectations from strands B through F.
- The overall expectation from Strand A (Social-Emotional Learning Skills and the Mathematical Processes) is integrated and taught in connection with the other strands throughout the school year.
- In developing long-range and daily plans, consider opportunities to teach and reinforce social-emotional learning skills and mathematical processes, as well as transferable skills, in order to help students develop confidence, cope with challenges, think critically and creatively, and develop a positive identity as a math learner.
- Mathematical modelling (Algebra, C4) provides opportunities for students to authentically engage in learning with everyday situations that involve mathematics. Tasks that require the process of mathematical modelling can be strategically situated throughout the year to support students in making connections among mathematical concepts, strands, and disciplines, and to provide opportunities for assessing the integration and application of learning.
- Coding (Algebra, C3) can be used to solve problems and help deepen students' understanding of mathematical concepts; it should be strategically addressed and assessed throughout the year, as appropriate.
- Some concepts and skills require ongoing attention so that students can develop proficiency and deep, lasting learning. Number Talks, Number Strings, and other math talk prompts can be used at the beginning of math classes to reinforce and strengthen number relationships, spatial relationships, math facts, mental math strategies, and problem-solving skills.

Reflective questions when planning

- What key concepts, models, and strategies do students need more time to develop?
- Does the long-range plan revisit expectations later? If not, how might I adjust the plan so it does? What prior learning is assumed in order for other expectations to be addressed?
- How can I create opportunities for students to continue to practise and consolidate learning when they are engaged in new learning?

Long-Range Plan: Grade 1

- Each month is organized around a unifying question. Strands connected to each question are listed below. The Social-Emotional Learning (SEL) Skills and the Mathematical Processes are to be integrated throughout each of the topics below as appropriate.

	Grade 1	Grade 2	Grade 3
Sep	**Who are we?** Number, Data, Spatial Sense	**Who are we?** Number, Data, Spatial Sense	**Who are we?** Number, Data, Spatial Sense
Oct	**How are numbers used in our world?** Number, Algebra, Data, Spatial Sense	**How much is that?** Number, Algebra, Data, Spatial Sense	**How much is 1000?** Number, Algebra, Data, Spatial Sense
Nov	**What comes first? What comes next?** Number, Algebra, Data, Spatial Sense	**What comes first? What comes next?** Number, Algebra, Data, Spatial Sense	**What comes first? What comes next?** Number, Algebra, Data, Spatial Sense
Dec	**Joining and separating: What do we have now?** Number, Algebra. Spatial Sense	**Joining and separating: What do we have now?** Number, Algebra. Spatial Sense	**When is addition and subtraction useful?** Number, Algebra, Spatial Sense, Financial Literacy
Jan	**What shapes are in our world?** Number, Algebra, Data, Spatial Sense	**How can we describe 2D shapes?** Number, Algebra, Data, Spatial Sense	**How can we describe 3D objects and space?** Data, Spatial Sense
Feb	**What is a pattern?** Number, Algebra, Spatial Sense	**Are they the same?** Number, Algebra, Spatial Sense	**Are they the same?** Number, Algebra, Spatial Sense

Mar	**How much is 50?** Number, Algebra, Data, Financial Literacy	**How much more?** Number, Algebra, Data, Spatial Sense, Financial Literacy	**How can we describe things that repeat?** Number, Algebra, Spatial Sense, Financial Literacy
Apr	**What's the difference?** Number, Algebra, Data, Spatial Sense, Financial Literacy	**What are different ways to get there?** Number, Algebra, Data, Spatial Sense, Financial Literacy	**What are different ways to get there?** Number, Algebra, Data, Spatial Sense, Financial Literacy
May	**How can we share things equally?** Number, Algebra, Spatial Sense	**How can we share things equally?** Number, Algebra	**How can we share things equally?** Number, Algebra, Data
Jun	**How much is that?** Number, Algebra, Data, Financial Literacy	**Equal groups: How much is that?** Number, Algebra, Financial Literacy	**Equal groups: How much is that?** Number, Algebra

September	QUESTION: Who are we?	
	Topics and Specific Expectations	**Connecting the Learning**
	D: Data collection & organization **D1.1** sort sets of data about people or things according to one attribute, and describe rules used for sorting **D1.2** collect data through observations, experiments, and interviews to answer questions of interest that focus on a single piece of information; record the data using methods of their choice; and organize the data in tally tables **D: Data visualization** **D1.3** display sets of data, using one-to-one correspondence, in concrete graphs and pictographs with proper sources, titles, and labels **D: Data analysis** **D1.4** order categories of data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs, and pictographs **D1.5** analyse different sets of data presented in various ways, including in tally tables, concrete graphs, and pictographs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **B: Count to 20** **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B1.3** compare and order whole numbers up to and including 50, in various contexts **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **E: Relative location** **E1.4** describe the relative locations of objects or people, using positional language **E: Directions for movement** **E1.5** give and follow directions for moving from one location to another --- **Number: B1.1; B1.2; B1.3; B1.5** **Data: D1.1; D1.2; D1.3; D1.4; 1.5** **Spatial Sense: E1.4, E1.5**	Students learn about their class and classmates. They ask questions, collect information about people and things (their classmates, their hobbies, and things they might collect), and put that information into concrete graphs and pictographs. They work with numbers to approximately 20 as they count the number of people or objects and match the count of tallies to the amounts in the graph. They describe where their desks are in the classroom (and other objects) and use positional language to create instructions for their peers.

October	QUESTION: How are numbers used in our world?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Estimate & count quantities to 50 **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B1.3** compare and order whole numbers up to and including 50, in various contexts **B1.4** estimate the number of objects in collections of up to 50, and verify their estimates by counting **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **D: Data collection & analysis** **D1.4** order categories of data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs, and pictographs **D1.5** analyse different sets of data presented in various ways, including in tally tables, concrete graphs, and pictographs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **B: Math facts (+/−)** **B2.2** recall and demonstrate addition facts for numbers up to 10, and related subtraction facts **C: Coding** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events **C3.2** read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomeS **E: Location** **E1.5** give and follow directions for moving from one location to another	Students name and notice how numbers are used in everyday life. They connect amounts with the count. They subitize amounts; they estimate amounts; they count amounts. They notice patterns in the counting sequence. They count amounts by 2, 5, and 10 and recognize that the count remains the same regardless of the strategy. They use numbers as they write code to program a bot, and they give distances to places around the room by counting the number of steps.
	Number: B1.1; B1.2; B1.3; B1.4; B1.5; B2.2 **Algebra: C3.1; C3.2** **Data: D1.4; D1.5** **Spatial Sense: E1.5**	

November	QUESTION: What comes first? What comes next?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Extend patterns **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns **E: Order by attribute** **E2.1** identify measurable attributes of two-dimensional shapes and three dimensional objects, including length, area, mass, capacity, and angle **E2.2** compare several everyday objects and order them according to length, area, mass, and capacity **B: Counting sequences to 50** **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **C: Number patterns to 50** **C1.1** identify and describe the regularities in a variety of patterns, including patterns found in real-life contexts **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 50 **B: Ordering by number** **B1.3** compare and order whole numbers up to and including 50, in various contexts **B1.4** estimate the number of objects in collections of up to 50, and verify their estimates by counting **D: Data analysis (frequency)** **D1.3** display sets of data, using one-to-one correspondence, in concrete graphs and pictographs with proper sources, titles, and labels **D1.4** order categories of data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs, and pictographs **D1.5** analyse different sets of data presented in various ways, including in tally tables, concrete graphs, and pictographs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **C: Coding sequences** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events **C3.2** read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomes **E: Calendars** **E2.3** read the date on a calendar, and use a calendar to identify days, weeks, months, holidays, and seasons **D: Likelihood** **D2.1** use mathematical language, including the terms “impossible”, “possible”, and “certain”, to describe the likelihood of events happening, and use that likelihood to make predictions and informed decisions **D2.2** make and test predictions about the likelihood that the categories in a data set from one population will have the same frequencies in data collected from a different population of the same size **Number: B1.3; B1.4; B1.5** **Algebra: C1.1; C1.3; C1.4; C3.1; C3.2** **Data: D1.3; D1.4; D:1.5; D2.1; D2.2** **Spatial Sense: E2.1; E2.2; E2.3**	Students describe how things are ordered. They notice regularities in patterns and use these to predict what comes next. They translate the patterns into other forms and notice the same pattern applies. They see patterns in the counting sequence to 50 and use this to order numbers and amounts. They compare and order objects by attribute (length, mass, capacity, area, angle) and recognize that comparing different attributes produces a different order. They analyze and order data by frequency. They put code in the right order so to reach a desired destination. They use calendars to describe what comes next, and describe the likelihood that an event will happen.

December	QUESTION: Joining and separating: What do we have now?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Change situations (+/–) and Part-whole situations (+/–) **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B1.3** compare and order whole numbers up to and including 50, in various contexts **B1.4** estimate the number of objects in collections of up to 50, and verify their estimates by counting **B2.1** use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations **B2.4** use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 50 **B: Mental math to 20** **B2.2** recall and demonstrate addition facts for numbers up to 10, and related subtraction facts **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20, and explain the strategies used **C: Equivalent expressions** **C2.2** determine whether given pairs of addition and subtraction expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 50, in various contexts **E: Compose and decompose shapes & objects** **E1.2** construct three-dimensional objects, and identify two-dimensional shapes contained within structures and objects **E1.3** construct and describe two-dimensional shapes and three dimensional objects that have matching halves **Number: B1.1; B1.2; B1.3; B1.4; B2.1; B2.2; B2.3; B2.4** **Algebra: C2.2; C2.3** **Spatial Sense: E1.2; E1.3**	Students join, separate, and combine amounts (compose and decompose) and represent the amounts with addition and subtraction. They use counting and direct modelling to find an unknown result, starting point, or change. They create part-whole models to represent the actions. They describe their mental math strategies, and notice that the same situation can be represented with an addition and subtraction number sentence. As they come to trust the count, they recognize that math facts exist and begin to develop automaticity. They also join, separate and combine shapes and describe the results. They notice what smaller shapes it takes to create a larger shape (composing) and the shapes that are within shapes (decomposing).
C4: Integrated Modelling Task		

January	QUESTION: What shapes are in our world?	
	Topics and Specific Expectations	**Connecting the Learning**
	E: Sort, build, describe 2D shapes & 3D objects **E1.1** sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used **E1.2** construct three-dimensional objects, and identify two-dimensional shapes contained within structures and objects **E, B: Matching halves** **E1.3** construct and describe two-dimensional shapes and three=dimensional objects that have matching halves **B1.6** use drawings to represent and solve fair-share problems that involve 2 and 4 sharers, respectively, and have remainders of 1 or 2 **B1.7** recognize that one half and two fourths of the same whole are equal, in fair-sharing contexts **D: Sort sets of data** **D1.1** sort sets of data about people or things according to one attribute, and describe rules used for sorting **C: Patterns with shapes** **C1.2** create and translate patterns using movements, sounds, objects, shapes, letters, and numbers	Students sort and describe shapes and objects using attributes. They identify common shapes. They compose and decompose them. They identify matching halves by physically and visually manipulating the shapes to show they are the same. They create patterns using an attribute.
	Number: B1.6; B1.7 **Algebra: C1.2** **Data: D1.1** **Spatial Sense: E1.1; E1.2; E1.3**	

February	QUESTION: What is a pattern?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Pattern types & rules **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns **C: Translate/represent patterns** **C1.2** create and translate patterns using movements, sounds, objects, shapes, letters, and numbers **C: Quantities that change** **C1.1** identify and describe the regularities in a variety of patterns, including patterns found in real-life contexts **C2.1** identify quantities that can change and quantities that always remain the same in real-life contexts **C2.2** determine whether given pairs of addition and subtraction expressions are equivalent or not **C: Patterns with numbers (to 50)** **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 50 **C: Coding patterns** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events **C3.2** read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomes **E: Spatial patterns (sorting)** **E1.1** sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used **B: Number sequences** **B1.3** compare and order whole numbers up to and including 50, in various contexts **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **Number: B1.3; B1.5;** **Algebra: C1.1; C1.2; C1.3; C1.4; C2.1; C2.2; C3.1; C3.2** **Spatial Sense: E1.1**	Students recognize and describe a variety of patterns. They identify regularities in patterns and use that to extend the pattern and predict what comes next. They work with number patterns, spatial patterns, and patterns in code. They identify what changes and what stays the same.

March	QUESTION: How much is 50?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Estimate & count **B1.4** estimate the number of objects in collections of up to 50, and verify their estimates by counting **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **B: Number relationships to 50** **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B1.3** compare and order whole numbers up to and including 50, in various contexts **B: Addition & subtraction** **B2.1** use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations **B2.2** recall and demonstrate addition facts for numbers up to 10, and related subtraction facts **B2.4** use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 50 **B: Mental math to 20** **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20, and explain the strategies used **F: Coins & bills to 50** **F1.1** identify the various Canadian coins up to 50¢ and coins and bills up to $50, and compare their values **D: Data analysis (frequency)** **D1.3** display sets of data, using one-to-one correspondence, in concrete graphs and pictographs with proper sources, titles, and labels **D1.4** order categories of data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs, and pictographs **D1.5** analyse different sets of data presented in various ways, including in tally tables, concrete graphs, and pictographs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **C: Number patterns** **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 50 **C: Equivalent expressions** **C2.2** determine whether given pairs of addition and subtraction expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 50, in various contexts **C: Coding** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events **C3.2** read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomes **Number: B1.1; B1.2; B1.3; B1.4; B1.5; B2.1; B2.2; B2.3; B2.4;** **Algebra: C1.4; C2.2; C2.3; C3.1; C3.2** **Data: D1.3: D1.4; D1.5;** **Financial Literacy: F1.1**	Students describe amounts that make 50, as well as amounts leading up to 50 (e.g., amounts to 10, 20, 30, and 40). They work with anchors of five and ten. They estimate. They count data. They connect a count to addition and subtraction. They use coins and bills, and describe "how much more" is needed to make an amount. They create code that moves a bot 50 units as a sequence of smaller units. They notice patterns in the counting sequence to 50 and write equivalent expressions that total 50 (or other amounts).

April	QUESTION: What's the difference?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Change situations (+/−) and Compare situations (+/−) **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B2.1** use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations **B2.4** use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 50 **B: Math facts** **B2.2** recall and demonstrate addition facts for numbers up to 10, and related subtraction facts **B: Mental math to 20** **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20, and explain the strategies used **E: Sort shapes & objects** **E1.1** sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used **F: Coins & bills to 50** **F1.1** identify the various Canadian coins up to 50¢ and coins and bills up to $50, and compare their values **C: Equivalent expressions** **C2.2** determine whether given pairs of addition and subtraction expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 50, in various contexts **D: Sort (compare) data** **D1.1** sort sets of data about people or things according to one attribute, and describe rules used for sorting **Number: B1.1; B1.2; B2.1; B2.2; B2.3; B2.4** **Algebra: C2.2; C2.3** **Data: D1.1** **Spatial Sense: E1.1** **Financial Literacy: F1.1**	Students solve comparison situations where the difference, the larger amount, or the smaller amount is unknown. They represent the situations, including situations involving money, concretely or with drawings. They represent their thinking with addition and subtraction. They use counting and draw on math facts to determine differences. They also compare shapes and objects and describe how one is different from the other. They use these to sort and describe shapes.
C4: Integrated Modelling Task		

May	QUESTION: How can we share things equally?	
	Topics and Specific Expectations	**Connecting the Learning**
	E: Matching halves **E1.3** construct and describe two-dimensional shapes and three-dimensional objects that have matching halves **E: Compare attributes** **E1.1** sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used **B: Equal sharing (fractions)** **B1.6** use drawings to represent and solve fair-share problems that involve 2 and 4 sharers, respectively, and have remainders of 1 or 2 **B1.8** use drawings to compare and order unit fractions representing the individual portions that result when a whole is shared by different numbers of sharers, up to a maximum of 10 **B: Equal groupings (× ÷)** **B2.5** represent and solve equal group problems where the total number of items is no more than 10, including problems in which each group is a half, using tools and drawings **B: Halves, fourths** **B1.7** recognize that one half and two fourths of the same whole are equal, in fair-sharing contexts **C: Equivalent expressions** **C2.3** identify and use equivalent relationships for whole numbers up to 50, in various contexts **Number: B1.6; B1.7; B1.8; B2.5** **Algebra: C2.3** **Spatial Sense: E1.3; E1.1**	Students identify matching halves by comparing lengths and areas. They identify attributes that are equal. They split amounts (areas) equally among 2 or 4 and describe each amount as one-half or one-fourth of the whole. They notice that 4 groups of one-fourth make a whole. They also share collections equally among 2 or 4, and split any remainders into halves or fourths.

June	QUESTION: How much is that?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Estimate & count **B1.4** estimate the number of objects in collections of up to 50, and verify their estimates by counting **B1.5** count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies **B: Change situations (+/−) and Compare situations (+/−)** **B1.1** read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life **B1.2** compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts **B2.1** use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations **B2.4** use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 50 **B: Math facts** **B2.2** recall and demonstrate addition facts for numbers up to 10, and related subtraction facts **B: Mental math to 20** **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20, and explain the strategies used **F: Coins & bills to 50** **F1.1** identify the various Canadian coins up to 50¢ and coins and bills up to $50, and compare their values **C: Equivalent expressions** **C2.3** identify and use equivalent relationships for whole numbers up to 50, in various contexts **D: Compare data** **D1.1** sort sets of data about people or things according to one attribute, and describe rules used for sorting **Number: B1.1; B1.2; B1.4; B1.5; B2.1; B2.2; B2.3; B2.4** **Algebra: C2.3** **Data: D1.1** **Financial Literacy: F1.1**	Students continue to work with amounts to 50 in various contexts. They determine total amounts, as well as the amounts that make up a total, and write equivalent number sentences. They count, estimate, draw on math facts, and use mental math strategies. They connect data to graphs and determine money amounts. They also consider the parallel question, “how much more is that?”