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	Students learn about their class and classmates. They ask questions, collect information about people and things (their classmates, their hobbies, and things they
	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	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
	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	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.
	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	

October (QUESTION: How are numbers used in our world?	
Т	opics and Specific Expectations	Connecting the Learning
B B B B B C C C C C C C C C C C C C C C	•	Connecting the Learning 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.

December	QUESTION: Joining and separating: What do we have now?	
	Topics and Specific Expectations	Connecting the Learning
	B: Change situations (+/-) and Part-whole situations (+/-)	Students join, separate, and combine
	B1.1 read and represent whole numbers up to and including 50, and describe various ways they are used in	amounts (compose and decompose) and
	everyday life	represent the amounts with addition and
	B1.2 compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts	subtraction. They use counting and direct
	B1.3 compare and order whole numbers up to and including 50, in various contexts	modelling to find an unknown result, starting
	B1.4 estimate the number of objects in collections of up to 50, and verify their estimates by counting	point, or change. They create part-whole
	B2.1 use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations	models to represent the actions. They describe their mental math strategies, and
	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	notice that the same situation can be
	B: Mental math to 20	represented with an addition and subtraction
	B2.2 recall and demonstrate addition facts for numbers up to 10, and related subtraction facts	number sentence. As they come to trust the
	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	count, they recognize that math facts exist and begin to develop automaticity. They also
	C: Equivalent expressions	join, separate and combine shapes and
	C2.2 determine whether given pairs of addition and subtraction expressions are equivalent or not	describe the results. They notice what
	C2.3 identify and use equivalent relationships for whole numbers up to 50, in various contexts	smaller shapes it takes to create a larger
	E: Compose and decompose shapes & objects	shape (composing) and the shapes that are
	E1.2 construct three-dimensional objects, and identify two-dimensional shapes contained within structures and objects	within shapes (decomposing).
	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	
	C4: Integrated Modelling Task	

January	QUESTION: What shapes are in our world?	
	Topics and Specific Expectations	Connecting the Learning
January	Topics and Specific Expectations 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	Connecting the Learning 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.
	C1.2 create and translate patterns using movements, sounds, objects, shapes, letters, and numbers 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	Students recognize and describe a variety of patterns. They identify regularities in
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March	QUESTION: How much is 50?	
	Topics and Specific Expectations	Connecting the Learning
	B: Estimate & count	Students describe amounts that
	B1.4 estimate the number of objects in collections of up to 50, and verify their estimates by counting	make 50, as well as amounts leading
	B1.5 count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies	up to 50 (e.g., amounts to 10, 20, 30,
	B: Number relationships to 50	and 40). They work with anchors of
	B1.1 read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life	five and ten. They estimate. They
	B1.2 compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts	count data. They connect a count to
	B1.3 compare and order whole numbers up to and including 50, in various contexts	addition and subtraction. They use
	B: Addition & subtraction	coins and bills, and describe "how
	B2.1 use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations	much more" is needed to make an
	B2.2 recall and demonstrate addition facts for numbers up to 10, and related subtraction facts	amount. They create code that
	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	moves a bot 50 units as a sequence
	B: Mental math to 20	of smaller units. They notice patterns
	B2.3 use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20, and	in the counting sequence to 50 and
	explain the strategies used	write equivalent expressions that
	F: Coins & bills to 50	total 50 (or other amounts).
	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;	
ı.	Financial Literacy: F1.1	

April	QUESTION: What's the difference?	
	Topics and Specific Expectations	Connecting the Learning
	B: Change situations (+/-) and Compare situations (+/-)	Students solve comparison situations where
	B1.1 read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life	the difference, the larger amount, or the smaller amount is unknown. They represent
	B1.2 compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts	the situations, including situations involving
	B2.1 use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations	money, concretely or with drawings. They represent their thinking with addition and
	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	subtraction. They use counting and draw on math facts to determine differences. They
	B: Math facts	also compare shapes and objects and
	B2.2 recall and demonstrate addition facts for numbers up to 10, and related subtraction facts	describe how one is different from the other.
	B: Mental math to 20	They use these to sort and describe shapes.
	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	
	C4: Integrated Modelling Task	



May	QUESTION: How can we share things equally?	
	Topics and Specific Expectations	Connecting the Learning
	E: Matching halves	Students identify matching halves by
	E1.3 construct and describe two-dimensional shapes and three-dimensional objects that have matching halves	comparing lengths and areas. They identify
	E: Compare attributes	attributes that are equal. They split amounts
	E1.1 sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used	(areas) equally among 2 or 4 and describe each amount as one-half or one-fourth of the
	B: Equal sharing (fractions)	whole. They notice that 4 groups of one-
	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	fourth make a whole. They also share collections equally among 2 or 4, and split
	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	any remainders into halves or fourths.
	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	

June	QUESTION: How much is that?	
	Topics and Specific Expectations	Connecting the Learning
	B: Estimate & count	Students continue to work with amounts to
	B1.4 estimate the number of objects in collections of up to 50, and verify their estimates by counting	50 in various contexts. They determine total
	B1.5 count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies	amounts, as well as the amounts that make
	B: Change situations (+/-) and Compare situations (+/-)	up a total, and write equivalent number
	B1.1 read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life	sentences. They count, estimate, draw on math facts, and use mental math strategies.
	B1.2 compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts	They connect data to graphs and determine
	B2.1 use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations	money amounts. They also consider the parallel question, "how much more is that?"
	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	