LONG-RANGE PLAN

Grade 3, Mathematics

ORGANIZED BY QUESTIONS

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

A long-range plan outlines a year-long 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 3

- 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 two and three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate **D1.2** collect data through observations, experiments, and interviews to answer questions of interest that focus on qualitative and quantitative data, and organize the data using frequency tables **D: Data visualization (many-to-one)** **D1.3** display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales **D: Data analysis (mode only)** **D1.4** determine the mean and identify the mode(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data **D1.5** analyse different data sets presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **D: Likelihood** **D2.1** use mathematical language, including the terms "impossible", "unlikely", "equally likely", "likely", 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 mean and the mode(s) of a data set will be the same for data collected from different populations **B: Amounts to 1000** **B1.1** read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools and strategies, and describe various ways they are used in everyday life **B1.2** compare and order whole numbers up to and including 1000, in various contexts **B: Skip counting & ratios** **B1.4** count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies **B2.9** use the ratios of 1 to 2, 1 to 5, and 1 to 10 to scale up numbers and to solve problems **E: Maps, location & movement** **E1.4** describe the relative locations of objects or people, using positional language --- **Number: B1.1; B1.2; B1.4; B2.9** **Data: D1.1; D1.2; D1.3; D1.4; 1.5; D2.1; D2.2** **Spatial Sense: E 1.4**	Students ask questions and gather information about their school community. They research its history, sporting records, and trends, and build an online survey to gather current information, both qualitative and quantitative, from students and teachers. They organize and represent data in a variety of ways, and use different scales (e.g., 1:2, 1:5, and 1:10) to represent larger sets of data. They look at maps of the school and write instructions on how to get from one point to another. They collect their findings and graphs and present them as an orientation guide to the school.

October	QUESTION: How much is 1000?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Compose, decompose & count amounts to 1000 **B1.1** read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools and strategies, and describe various ways they are used in everyday life **B1.4** count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used **B: Compare & round amounts** **B1.2** compare and order whole numbers up to and including 1000, in various contexts **B1.3** round whole numbers to the nearest ten or hundred, in various contexts **B: Place value** **B1.5** use place value when describing and representing multidigit numbers in a variety of ways, including with base ten materials **C: Number relationships** **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 1000 **C2.3** identify and use equivalent relationships for whole numbers up to 1000, in various contexts **E: Metric units (km, m, mm)** **E2.1** use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a given perimeter **D: Analyzing data** **D1.3** display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales **D1.5** analyse different data sets presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions --- **Number: B1.1; B1.2; B1.3; B1.4; B1.5; B2.3** **Algebra: C1.4; C2.3** **Data: D1.3; D1.5** **Spatial Sense: E2.1**	Students consider ways to represent 1000. They visualize 1000 and use that benchmark to estimate other amounts. They create a class “thousands chart” and use that to count to 1000 in different ways. They reaffirm the counting patterns through each of the hundreds, and round numbers to nearby intervals. They compose and decompose amounts to 1000 and use addition and subtraction to make comparisons. They identify place value relationships, including the “times 10” relationships between the columns. They look at bar graphs involving populations up to 1000, and cut out and reassemble the bars to show how the population is composed and decomposed. They use measurement units (km, m, mm) to visualize and compare what 1000 looks like with different units. They recognize that the actual size of 1000 depends on the unit being counted.

November	QUESTION: What comes first? What comes next?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Patterns & rules **C1.1** identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts **C1.2** create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 1000 **C: Code events** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes **B: Number sequences to 1000** **B1.2** compare and order whole numbers up to and including 1000, in various contexts **B1.3** round whole numbers to the nearest ten or hundred, in various contexts **B1.4** count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies **B1.5** use place value when describing and representing multi-digit numbers in a variety of ways, including with base ten materials **E: Measure mass** **E2.4** compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units **E2.5** use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same **E: Measure capacity** **E2.3** use nonstandard units appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy **E2.5** use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same **E: Compare areas of shapes** **E2.2** explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths **E2.5** use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same **E2.7** compare the areas of two-dimensional shapes by matching, covering, or decomposing and recomposing the shapes, and demonstrate that different shapes can have the same area **D: Data analysis** **D1.3** display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales **D1.4** determine the mean and identify the mode(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data **D1.5** analyse different data sets presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions **D: Order by likelihood** **D2.1** use mathematical language, including the terms "impossible", "unlikely", "equally likely", "likely", and "certain", to describe the likelihood of events happening, and use that likelihood to make predictions and informed decisions --- **Number: B1.2; 1.3; B1.4; B1.5** **Algebra: C1.1; C1.2; C1.3; C1.4; C3.1; C3.2** **Data: D1.3; D1.4; D:1.5; D2.1** **Spatial Sense: E2.2; E2.3; E2.4; E2.5; E2.7**	Students describe how things are ordered. They identify pattern rules to predict what comes next. They see patterns in the counting sequence to 1000 and use this to order numbers and amounts. They compare and order different objects by their mass and capacity after measuring them with different non-standard units. They notice that, although different units may produce different counts, the order remains constant. They compare and order the areas of shapes by matching or rearranging the areas, and show that the same area can come in different shapes. They put code in the right order so as to reach a desired destination. They analyze different graphs and frequency tables and use them to predict the likelihood that an event would happen.

December	QUESTION: When is addition and subtraction useful?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Change, combine, & compare situations **B1.1** read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools and strategies, and describe various ways they are used in everyday life **B1.5** use place value when describing and representing multi-digit numbers in a variety of ways, including with base ten materials **B2.1** use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations **B2.5** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms **E: Measure perimeter** **E2.1** use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a given perimeter **E: Compare measurements** **E2.3** use nonstandard units appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy **E2.4** compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units **E2.8** use appropriate non-standard units to measure area, and explain the effect that gaps and overlaps have on accuracy **E2.9** use square centimetres (cm2) and square metres (m2) to estimate, measure, and compare the areas of various two-dimensional shapes, including those with curved sides **B: Mental math & algorithms** **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used **B2.4** demonstrate an understanding of algorithms for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract **C: Symbols as variables** **C2.1** describe how variables are used, and use them in various contexts as appropriate **C: Equivalence** **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 1000, in various contexts **F: Make change** **F1.1** estimate and calculate the change required for various simple cash transactions involving whole dollar amounts and amounts of less than one dollar --- **Number: B1.1; B1.5; B2.1; B2.3; B2.4; B2.5** **Algebra: C2.1; C2.2; C2.3** **Spatial Sense: E2.1; E2.3; E2.4; E2.8; E2.9** **Financial Literacy: F1.1**	Students come to see that addition and subtraction is useful when needing to join and separate amounts, combine amounts, or compare amounts. These include situations where they must make change. They represent these problem types with part-whole models and number sentences. They use variables to represent unknown amounts, and recognize that what is unknown can appear anywhere in an equation. They also use addition and subtraction to solve perimeter problems, and see them as the joining or separating of lengths. They add and subtract to compare measurements involving length, mass, and capacity. They use mental math strategies and basic facts to solve for unknown quantities. They also learn to use standard addition and subtraction algorithms when quantities are too large to manipulate mentally.
C4: Integrated Modelling Task		

January	QUESTION: How can we describe 3D objects and space?	
	Topics and Specific Expectations	**Connecting the Learning**
	E: Compare, describe, & identify 3D objects **E1.1** sort, construct, and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles **E1.2** compose and decompose various structures, and identify the two-dimensional shapes and three-dimensional objects that these structures contain **E1.3** identify congruent lengths, angles, and faces of three-dimensional objects by mentally and physically matching them, and determine if the objects are congruent **E: Measure 3D objects (lengths, mass, capacity)** **E2.1** use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a given perimeter **E2.2** explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths **E2.3** use nonstandard units appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy **E2.4** compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units **E2.5** use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same **E: Measure areas** **E2.8** use appropriate non-standard units to measure area, and explain the effect that gaps and overlaps have on accuracy **E: Compare cm^2 & m^2** **E2.9** use square centimetres (cm^2) and square metres (m^2) to estimate, measure, and compare the areas of various two-dimensional shapes, including those with curved sides **D: Venn, Carroll, & tree diagrams** **D1.1** sort sets of data about people or things according to two and three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate --- **Data: D1.1** **Spatial Sense: E1.1; E1.2; E1.3; E2.1; E2.2; E2.3; E2.4; E2.5; E2.8; E2.9**	Students compare, describe, identify and measure 3D objects and space. They use Venn, Carrol, and tree diagrams to show relationships among prisms, pyramids, cylinders, and cones and their attributes. They measure the mass and capacity of 3D objects as well as their different lengths. They measure the areas of different spaces and shapes, including those with curved sides. They use non-standard and standard units of area (cm^2 and m^2) and decompose and recompose units to avoid gaps and overlaps. They compare the area of a square centimetre to a square metre, and create different shapes with those same areas. They use these benchmark shapes to estimate the areas of shapes and spaces.

February	QUESTION: Are they the same?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Translate/represent patterns **C1.1** identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts **C1.2** create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations **C1.4** create and describe patterns to illustrate relationships among whole numbers up to 1000 **C: Equivalent expressions** **C2.1** describe how variables are used, and use them in various contexts as appropriate **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 1000, in various contexts **B: Compose-decompose** **B1.1** read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools and strategies, and describe various ways they are used in everyday life **B1.5** use place value when describing and representing multi-digit numbers in a variety of ways, including with base ten materials **B: Compare & equalize situations** **B1.6** use drawings to represent, solve, and compare the results of fair-share problems that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, mixed numbers, and fractional amounts **B: Skip counting, repeated addition, & multiplication** **B1.4** count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies **B2.2** recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts **B: Equivalent fractions & ratios** **B1.7** represent and solve fair-share problems that focus on determining and using equivalent fractions, including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths **C: Coding events** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes **E: Congruent 3D objects** **E1.3** identify congruent lengths, angles, and faces of three-dimensional objects by mentally and physically matching them, and determine if the objects are congruent **D: Mean as equalizing amounts** **D1.4** determine the mean and identify the mode(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data **D: Mean, mode & likelihood** **D2.2** make and test predictions about the likelihood that the mean and the mode(s) of a data set will be the same for data collected from different populations --- **Number: B1.1; B1.4; B1.5; B1.6; B1.7; B2.2** **Algebra: C1.1; C1.2; C1.3; C1.4; C2.1; C2.2; C2.3; C3.1; C3.2** **Spatial Sense: E1.3** **Data: D1.4; D2.2**	Students determine if quantities, patterns, shapes, expressions, and movements are equal, and if not, how they might be equalized. They decide if repeating elements in patterns, translated into different forms, are equivalent. They compare different expressions, represented with different operations and amounts, and determine if they are equal. If they are not, they adjust the expressions to make them the same. They show how skip counting, repeated addition, and multiplication are the same, and do the same with division. They compare two different equal share situations involving fractions and equalize them so that all people in both situations receive the same amount. From this they identify equivalent fractions and ratios. They compare code and use repeating events to produce the same result. They identify congruent elements 3D objects and determine if the objects themselves are congruent. They look at bar graphs, rearrange the bars to level and equalize them, and use this to explain the mean. They compare the mean and the mode and discuss how each might be used to describe likelihood.

March	QUESTION: How can we describe things that repeat?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Repeating elements & operations **C1.1** identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts **C1.2** create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations **C: Code repeating events** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes **B: Skip count** **B1.4** count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies **B: Multiplication & division facts** **B2.1** use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations **B2.2** recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts **B: Repeated unit fractions** **B2.8** represent the connection between the numerator of a fraction and the repeated addition of the unit fraction with the same denominator using various tools and drawings, and standard fractional notation **B: Multiplication & division; ratio** **B2.6** represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including arrays **B2.7** represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings **B2.9** use the ratios of 1 to 2, 1 to 5, and 1 to 10 to scale up numbers and to solve problems **C, F: Equivalent expressions** **C2.1** describe how variables are used, and use them in various contexts as appropriate **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 1000, in various contexts **E: Clocks, scales & units** **E2.2** explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths --- **Number: B1.4; B2.1; B2.2; B2.6; B2.7; B2.8; B2.9** **Algebra: C1.1; C1.2; C1.3; C2.1; C2.2; C2.3; C3.1; C3.2** **Spatial Sense: E2.2**	Students describe and represent repeating elements, movements, and operations, including through the use of code. They connect skip counting and repeated addition to multiplication and division as they learn their 2, 5, and 10 multiplication and division facts. They also represent the multiplication and division of numbers up to 10 × 10. Students see how the repeated addition of a unit fraction can be represented with a numerator. They extend the idea of repeated groups to visualize situations involving ratios where they must scale quantities up. And they use the idea of scale to understand and read the scales on an analogue clock to tell time, one hand at a time. They compare analogue clocks with digital clocks and practice telling time throughout the year.

April	QUESTION: What are different ways to get there?	
	Topics and Specific Expectations	**Connecting the Learning**
	B, F: Mental math **B2.3** use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used **B2.4** demonstrate an understanding of algorithms for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract **B2.5** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms **F1.1** estimate and calculate the change required for various simple cash transactions involving whole dollar amounts and amounts of less than one dollar **C: Equivalent expressions** **C2.1** describe how variables are used, and use them in various contexts as appropriate **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **C2.3** identify and use equivalent relationships for whole numbers up to 1000, in various contexts **C, E: Coding events** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes **E1.4** give and follow multistep instructions involving movement from one location to another, including distances and half and quarter-turns **D: Logic & tree diagrams** **D1.1** sort sets of data about people or things according to two and three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate --- **Number: B2.3; B2.4; B2.5** **Algebra: C2.1; C2.2; C2.3; C3.1; C3.2** **Data: D1.1** **Spatial Sense: E1.4** **Financial Literacy: F1.1**	Students use and describe different strategies and be spatial or numerical. They describe different paths to move from one location to another, using distances and turns in their instructions. They create concurrent code, with repeating and non-repeating events, and determine the most efficient path (and code). They use logic diagrams and flowcharts to describe sequences and choices. They also compare different ways to get to a numerical calculation, or ways that an amount might be composed or decomposed. They model equivalent expressions using tools such as number lines. They compare mental math strategies and various standard algorithms as different approaches to the same end.
C4: Integrated Modelling Task		

May	QUESTION: How can we share things equally?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Fractions and Partitive division **B1.6** use drawings to represent, solve, and compare the results of fair-share problems that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, mixed numbers, and fractional amounts **B1.7** represent and solve fair-share problems that focus on determining and using equivalent fractions, including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths **B: Relationship between division & multiplication** **B2.1** use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations **B2.6** represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including arrays **B2.7** represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings **C: Equivalent expressions** **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **D: Many-to-one scales** **D1.3** display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales **D1.5** analyse different data sets presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions --- **Number: B1.6; B1.7; B2.1; B2.6; B2.7** **Algebra: C2.2** **Data: D1.3; D1.5**	Students connect equal sharing to fractions, (partitive) division, and multiplication. They solve equal share problems involving fractions and use this to identify equivalent fractions. They solve equal share problems involving whole numbers and represent situations with drawings, concrete materials, as well as with multiplication and division expressions. They see how the same situation can be described with multiplication and division. They use these types of situations to continue practising 2, 5, and 10 multiplication and division facts and to extend these to include multiplication facts to 10 and related division facts. They apply this understanding as they choose a scale to represent a set of data along an axis.

June	QUESTION: Equal groups: How much is that?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Skip count and Multiplication **B2.1** use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations **B2.2** recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts **B: Quotative division, including with fractions** **B2.7** represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings **B2.8** represent the connection between the numerator of a fraction and the repeated addition of the unit fraction with the same denominator using various tools and drawings, and standard fractional notation **B: Relationship between multiplication & division** **B2.6** represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including arrays **C: Equivalent expressions** **C2.2** determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not **C: Repeating operations** **C1.1** identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts --- **Number: B2.1; B2.2; B2.6; B2.7; B2.8** **Algebra: C1.1; C2.2**	Students work with ratios and equal groups as they extend their understanding of multiplication and division. They solve problems with equal groups and make connections between multiplication and skip counting as they learn that multiplication determines the total product when the number of groups and size of the groups are known. Students also solve problems where a total must be split into equal groups, and learn that division can be used to solve both equal group and sharing situations. They describe the relationship between multiplication and division and work with quantities involving whole numbers, fractions, and fractions greater than 1.