LONG-RANGE PLAN

Grade 5, 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 5

- 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 4	Grade 5	Grade 6
Sep	**How are things** changing**?** Number, Algebra, Data, Spatial Sense	**How are things changing?** Number, Algebra, Data, Spatial Sense	**How are things changing?** Number, Algebra, Data, Spatial Sense
Oct	**How do things compare?** Number, Data, Spatial Sense, Financial Literacy	**How do things compare?** Number, Data, Spatial Sense, Financial Literacy	**How do things compare?** Number, Data, Spatial Sense, Financial Literacy
Nov	**What's the story?** Number, Data	**What's the story?** Number, Data	**What's the story?** Number, Data
Dec	**Equal groups: How much is that?** Number, Algebra, Spatial Sense	**How much is that?** Number, Algebra, Spatial Sense	**How much is that?** Number, Algebra, Spatial Sense
Jan	**How can we describe the space around us?** Number, Algebra, Spatial Sense	**How can we describe the space around us?** Number, Algebra, Spatial Sense	**How can we describe the space around us?** Number, Algebra, Spatial Sense
Feb	**When is addition and subtraction useful?**	**When are different operations useful?**	**When are different operations useful?**

	Number, Algebra, Spatial Sense, Financial Literacy	Number, Algebra, Spatial Sense, Financial Literacy	Number, Algebra, Data, Spatial Sense
Mar	**How can we keep things in balance?** Number, Algebra, Data, Financial Literacy	**How can we keep things in balance?** Number, Algebra, Financial Literacy	**How can we keep things in balance?** Number, Algebra, Spatial Sense, Financial Literacy
Apr	**Scaling & splitting: How much now?** Number, Data, Spatial Sense	**Scaling & splitting: How much now?** Number, Data, Spatial Sense, Financial Literacy	**Scaling & splitting: How much now?** Number, Data
May	**How can we make predictions and decide?** Number, Algebra, Data, Financial Literacy	**How can we make predictions and decide?** Number, Algebra, Data, Financial Literacy	**How can we make predictions and decide?** Number, Algebra, Data
Jun	**Is this statement true?** Number, Algebra	**Is this statement true?** Number, Algebra, Data	**Is this statement true?** Number, Algebra, Data

Sept	QUESTION: How are things changing?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Repeating, growing & shrinking patterns **C1.1** identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns **C, D: Graphing patterns & data** **C1.2** create and translate growing and shrinking patterns using various representations, including tables of values and graphs **D1.3** select from among a variety of graphs, including stacked-bar graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs **D1.6** analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions **C: Number relationships (whole numbers, decimals)** **C1.4** create and describe patterns to illustrate relationships among whole numbers and decimal tenths and hundredths **B: Place value relationships** **B1.1** read, represent, compose, and decompose whole numbers up to and including 100 000, using appropriate tools and strategies, and describe various ways they are used in everyday life **B1.2** compare and order whole numbers up to and including 100 000, in various contexts **B1.5** read, represent, compare, and order decimal numbers up to hundredths, in various contexts **B2.3** use mental math strategies to multiply whole numbers by 0.1 and 0.01 and estimate sums and differences of decimal numbers up to hundredths, and explain the strategies used **B: Equivalent fractions, ratios, rates** **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **B2.9** represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts **E: Translations, reflections, & rotations** **E1.4** plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that move a point from one coordinate to another **E1.5** describe and perform translations, reflections, and rotations up to 180° on a grid, and predict the results of these transformations --- **Number: B1.1; B1.2; B1.5; B1.7; B2.3; B2.9** **Algebra: C1.1; C1.2; C1.3; C1.4** **Data: D1.3; D1.6** **Spatial Sense: E1.4; E1.5**	Students describe how repeating, growing, and shrinking patterns change, and use various representations of the pattern to support their description. They describe relationships between whole numbers and decimals, and describe how the value of a digit changes as it shifts from one place value column to the next. They look at a series of equivalent fractions, ratios, and rates, and describe additive and multiplicative patterns that exist. They look at shapes that have been reflected, translated, or rotated and describe the spatial changes involved in each. In all these cases, they describe the actions involved in creating a change.

October	QUESTION: How do these compare?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Amounts to 100 000, including decimal amounts to hundredths **B1.1** read, represent, compose, and decompose whole numbers up to and including 100 000, using appropriate tools and strategies, and describe various ways they are used in everyday life **B1.2** compare and order whole numbers up to and including 100 000, in various contexts **B: Rounding** **B1.6** round decimal numbers to the nearest tenth, in various contexts **B: Fractions, decimal hundredths, & whole numbers** **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts **B1.4** compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts **B: Fractions, decimals, & percents** **B1.5** read, represent, compare, and order decimal numbers up to hundredths, in various contexts **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **B2.9** represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts **D: Relative frequency** **D1.5** determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data **D1.6** analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions **D: Types of graphs** **D1.1** explain the importance of various sampling techniques for collecting a sample of data that is representative of a population **E: Angles (direct comparison & non-standard units)** **E2.3** compare angles and determine their relative size by matching them and by measuring them using appropriate nonstandard units **F: Price, value, and unit rate** **F1.5** calculate unit rates for various goods and services, and identify which rates offer the best value **F: Types of taxes & transfer payment methods** **F1.6** describe the types of taxes that are collected by the different levels of government in Canada, and explain how tax revenue is used to provide services in the community **Number: B1.1; B1.2; B1.3; B1.4; B1.5; B1.6; B1.7; B2.9** **Data: D1.1; D1.5; D1.6** **Spatial Sense: E2.3** **Financial Literacy: F1.5; F1.6**	Students compare amounts to 100 000, including those that involve decimals to hundredths. As they look at place value relationships, they make additive and multiplicative comparisons and explain the difference. They locate amounts on a number line and round to different intervals. They represent percents as an amount of 100, and explain how a percent could also be described with an equivalent fraction or decimal. They compare fractions, decimals, and percents. They look at different sets of data and use fractions and percents to describe relative frequency. They describe the advantages and disadvantages of using frequency data and relative frequency data when making comparisons. Students also directly and indirectly compare angles and use non-standard units and non-standard angle measuring tools to quantify the comparison. They compare prices for goods and services and use unit rates, as well as other strategies, to determine the best value. They use their understanding of percent to explain and compare different types of taxes, and they describe the advantages and disadvantages of using different ways to transfer money.

November	QUESTION: What's the story?	
	Topics and Specific Expectations	**Connecting the Learning**
	D: Representative sampling techniques **D1.1** explain the importance of various sampling techniques for collecting a sample of data that is representative of a population **D: Collect, organize, visualize data (relative frequency tables; stacked bar)** **D1.2** collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative frequency tables **B: Percentages** **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **D: Select type of graph** **D1.3** select from among a variety of graphs, including stacked-bar graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs **D: Analyze data; Misleading graphs; Challenge assumptions** **D1.6** analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions **D, B: Mean, median, mode** **B2.4** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms **D1.5** determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data **D: Tell data story (infographic)** **D1.4** create an infographic about a data set, representing the data in appropriate ways, including in relative-frequency tables and stacked bar graphs, and incorporating any other relevant information that helps to tell a story about the data --- **Number: B1.7; B2.4** **Data: D1.1; D1.2; D1.3; D1.4; D1.5; D1.6**	Students ask questions and gather information about areas of interest. They explain their sampling technique to ensure their data is representative of a population. They organize data in relative-frequency tables and select appropriate graphs to represent their findings, including stacked bar graphs. They determine the mean, median, and mode and describe what each indicates about the data. They create an infographic to share their findings and point of view. They analyze commercial infographics and other visual displays of data, and identify any misleading graphs or other strategies that might unfairly persuade an audience.

December	QUESTION: How much is that?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Fractions, decimals, & percent equivalences **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts **B1.4** compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts **B1.5** read, represent, compare, and order decimal numbers up to hundredths, in various contexts **B1.6** round decimal numbers to the nearest tenth, in various contexts **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **B: Add & subtract decimal hundredths, & fractions with like denominators** **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations **B2.4** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms **B2.5** add and subtract fractions with like denominators, in various contexts **B: Math facts (×/÷) & mental math** **B2.2** recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts **B2.3** use mental math strategies to multiply whole numbers by 0.1 and 0.01 and estimate sums and differences of decimal numbers up to hundredths, and explain the strategies used **E: Measure length, mass, capacity & convert larger to smaller SI units** **E2.1** use appropriate metric units to estimate and measure length, area, mass, and capacity **E2.2** solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units **E: Area of parallelograms & triangles** **E2.5** use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems **B: Multiply & divide whole numbers** **B2.6** represent and solve problems involving the multiplication of two-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods **B2.7** represent and solve problems involving the division of three-digit whole numbers by twodigit whole numbers using the area model and using algorithms, and make connections between the two methods, while expressing any remainder appropriately **B: Multiply & divide by unit fractions** **B2.8** multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings **C: Solve equations** **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships **C2.2** evaluate algebraic expressions that involve whole numbers --- **Number: B1.3; B1.4; B1.5; B1.6; B1.7; B2.1; B2.2; B2.3; B2.4; B2.5; B2.6; B2.7; B2.8** **Algebra: C2.1; C2.2** **Spatial Sense: E2.1; E2.2; E2.5**	Students use models, number sense, and spatial reasoning to describe and determine how much. They compare and order fractions on a number line, and represent equivalent fractions, decimals, and percents. They add and subtract decimals and fractions with like denominators. They use mental math strategies and the array or area model to understand and recall multiplication and related division facts to 12 × 12. They use metric units to describe how much length, mass, and capacity an object has, and use relationships between metric units to convert larger units to smaller ones. They identify spatial relationships between rectangles, parallelograms, and triangles, with the same base and height, and use these to indirectly measure their areas. They express these relationships with formulas. Students continue to use their understanding of the array to multiply and divide whole numbers. They use the distributive property to describe their mental multiplication and division strategies and to explain how the standard algorithms work. They also model what it means to multiply and divide by unit fractions.
C4: Integrated Modelling Task		

January	QUESTION: How can we describe the space around us?	
	Topics and Specific Expectations	**Connecting the Learning**
	E: Draw 2D views of 3D objects **E1.3** draw top, front, and side views of objects, and match drawings with objects **E: Angles, degrees, & protractors** **E2.3** compare angles and determine their relative size by matching them and by measuring them using appropriate nonstandard units **E2.4** explain how protractors work, use them to measure and construct angles up to 180°, and use benchmark angles to estimate the size of other angles **E: Properties of triangles** **E1.1** identify geometric properties of triangles, and construct different types of triangles when given side or angle measurements **E: Congruent shapes** **E1.2** identify and construct congruent triangles, rectangles, and parallelograms **E: Congruent areas, different perimeters** **E2.6** show that two-dimensional shapes with the same area can have different perimeters, and solve related problems **E: Represent area & perimeter as equations & solve** **E2.1** use appropriate metric units to estimate and measure length, area, mass, and capacity **E2.5** use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems **E: Symmetries (translations, reflections, rotations)** **E1.4** plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that move a point from one coordinate to another **E1.5** describe and perform translations, reflections, and rotations up to 180° on a grid, and predict the results of these transformations **B: Fractions & percentages of an area** **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts **B1.4** compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations **B2.2** recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts **C: Solve equations** **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships **C2.2** evaluate algebraic expressions that involve whole numbers **C2.3** solve equations that involve whole numbers up to 100 in various contexts, and verify solutions **C: Code conditional movement (Cartesian plane Q1)** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures **C3.2** read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes --- **Number: B1.3; B1.4; B1.7; B2.1; B2.2** **Algebra: C2.1; C2.2; C2.3; C3.1; C3.2** **Spatial Sense: E1.1; E1.2; E1.3; E1.4; E1.5; E2.1; E2.3; E2.4; E2.5; E2.6**	Students compare, construct, identify and measure shapes, and objects in space. They draw 2D views of 3D objects. They measure angles using degrees and explain how the scales on a protractor track the count of degrees. They use their ability to measure angles and lengths to describe and classify triangles. They construct different types of triangles when given certain measurements. They also construct rectangles and parallelograms and use measurement to identify congruence. Students translate among words, algebraic, and visual expressions involving area and perimeter. They solve equations related to area and perimeter when given different measurements. They use fractions and percentages to describe ways in which an area is subdivided. They demonstrate that congruent areas can have different perimeters. They also describe translations, reflections, and rotations in natural and human-made patterns. They translate, reflect, and rotate objects on a grid, both by hand and with technology, and describe the impact of each spatial operation. They use different scales to describe location and movement on the first quadrant of a Cartesian plane. They write, execute, and alter code involving conditional statements to navigate a space.

February	QUESTION: When are different useful?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Represent types of +/−/×/÷ situations **B2.4** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms **B2.5** add and subtract fractions with like denominators, in various contexts **B2.6** represent and solve problems involving the multiplication of two-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods **B2.7** represent and solve problems involving the division of three-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods, while expressing any remainder appropriately **B2.8** multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings **B: Relationship between operations** **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations **B2.2** recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts **B2.3** use mental math strategies to multiply whole numbers by 0.1 and 0.01 and estimate sums and differences of decimal numbers up to hundredths, and explain the strategies used **C: Write & solve algebraic equations** **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships **C2.2** evaluate algebraic expressions that involve whole numbers **E: Area & perimeter problems** **E2.5** use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems **E2.6** show that two-dimensional shapes with the same area can have different perimeters, and solve related problems **E: Conversion between SI units** **E2.2** solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units **E: Translations on Cartesian plane (Q1) with scales** **E1.4** plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that move a point from one coordinate to another **F: Total cost (sales tax, discounts)** **F1.2** estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies **C: Coding operations** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures **C3.2** read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes --- **Number: B2.1; B2.2; B2.3; B2.4; B2.5; B2.6; B2.7; B2.8** **Algebra: C2.1; C2.2; C3.1; C3.2** **Spatial Sense: E1.4; E2.2; E2.5; E2.6** **Financial Literacy: F1.2**	Students represent and solve addition and subtraction problems where amounts are joined, separated, combined, and compared. They represent and solve multiplication and division problems involving repeated equal groups, rates, ratios, area measurements, and possible combinations. They choose the appropriate operation to match the situation and write and solve algebraic equations. They use addition and subtraction to solve perimeter problems and multiplication and division to solve area problems. They describe multiplicative relationships between metric units and in place value that help them convert between units. They use addition and subtraction to calculate distances (translations) on a Cartesian plane and they use combinations of the operations to calculate the total cost of multiple items, including sales tax. They use a variety of operations when writing code.

March	QUESTION: How can we keep things in balance?	
	Topics and Specific Expectations	**Connecting the Learning**
	F: Design basic budget; credit & debt **F1.3** design sample basic budgets to manage finances for various earning and spending scenarios **F1.4** explain the concepts of credit and debt, and describe how financial decisions may be impacted by each **F: Transfer payment methods** **F1.1** describe several ways money can be transferred among individuals, organizations, and businesses **B: Relationships between operations** **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations **C: Describe and represent equivalent relationships** **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships **C: Evaluate algebraic expressions** **C2.3** solve equations that involve whole numbers up to 100 in various contexts, and verify solutions **C: Solve equations** **C1.1** identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts **C1.2** create and translate growing and shrinking patterns using various representations, including tables of values and graphs **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns **C: Write, execute & alter code** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures **C3.2** read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes --- **Number: B2.1** **Algebra: C1.1; C1.2; C1.3; C2.1; C2.3; C3.1; C3.2** **Financial Literacy: F1.1; F1.3; F1.4**	Students describe ways to keep things in balance and equal. They design a basic budget given different earning and spending scenarios and explain the concepts of credit and debt. They create conditional code that compares budgets to actual spending. As they do this they also discuss different ways to transfer money. They create equivalent representations of a situation using words, algebraic expressions, and concrete models and explain why they are the same. They solve equations using a balance model. They evaluate algebraic expressions and use inverse operations to demonstrate that the algebraic expressions on either side of an equal sign are in balance.

April	QUESTION: Scaling and splitting: How much now?	
	Topics and Specific Expectations	**Connecting the Learning**
	B: Equivalent fractions (scaling-splitting) **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts **B: Equivalent fractions & decimals** **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts **B, F: Equivalent ratios; unit rates** **B2.7** represent and solve problems involving the division of three-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods, while expressing any remainder appropriately **B2.9** represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts **F1.5** calculate unit rates for various goods and services, and identify which rates offer the best value **B: Multiply and divide by unit fractions** **B2.8** multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings **D: Relative frequency tables** **D1.2** collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative frequency tables **E: Convert larger to smaller SI units** **E2.2** solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units --- **Number: B1.3; B1.7; B2.7; B2.8; B2.9** **Data: D1.2** **Spatial Sense: E2.2** **Financial Literacy: F1.5**	Students represent situations involving scaling and splitting and describe connections among multiplication, division, fractions, ratios, and rates. They model scaling and splitting as they use ratio tables to determine equivalent fractions, ratios, and rates. They find the unit rate to compare prices and find the best value. They use double number lines to show percent as the splitting of an amount by 100. They describe relative amounts, create relative frequency tables, and make relative comparisons that involve percents, fractions, and decimals. They see multiplying by unit fractions as splitting and scaling down, and dividing by unit fractions as splitting and counting the partitions. They describe how converting from larger to smaller metric units involves splitting, and use relationships among metric units to carry out conversions.
C4: Integrated Modelling Task		

May	QUESTION: How can we make predictions and decide?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Represent repeating & growing patterns as rules & graphs; extend, predict & justify **C1.1** identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts **C1.2** create and translate growing and shrinking patterns using various representations, including tables of values and graphs **C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns **C1.4** create and describe patterns to illustrate relationships among whole numbers and decimal tenths and hundredths **D: Visualize & analyze data** **D1.5** determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data **D1.6** analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions **F: Making financial decisions** **F1.3** design sample basic budgets to manage finances for various earning and spending scenarios **F1.4** explain the concepts of credit and debt, and describe how financial decisions may be impacted by each **D: Experimental & theoretical probability** **D2.1** use fractions to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions **D2.2** determine and compare the theoretical and experimental probabilities of of an event happening **D, B: Probability expressed as fraction & represented on probability line** **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts **B1.4** compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts **B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts --- **Number: B1.3; B1.4; B1.7** **Algebra: C1.1; C1.2; C1.3; C1.4** **Data: D1.5; D1.6; D2.1; D2.2** **Financial Literacy: F1.3; F1.4**	Students use patterns and trends in data, presented in different ways, to inform decisions and make predictions. They examine repeating, growing, and shrinking patterns represented concretely, as rules, and as graphs, and use these to justify their predictions about future trends. They analyze different spending scenarios, make financial decisions about credit and debt, and ensure budgets are well managed. They determine and compare the theoretical and experimental probabilities of an event happening by expressing them both as fractions and plotting them on a probability line. They describe the factors involved in making predictions and decisions.

June	QUESTION: Is this statement true?	
	Topics and Specific Expectations	**Connecting the Learning**
	C: Equivalent representations of patterns **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships **C, B: Solve equations** **C2.2** evaluate algebraic expressions that involve whole numbers **C2.3** solve equations that involve whole numbers up to 100 in various contexts, and verify solutions **C: Solve & graph inequalities** **C2.4** solve inequalities that involve one operation and whole numbers up to 50, and verify and graph the solutions **D: Misleading graphs** **D1.6** analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions **B: Number properties** **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations **C: Write, execute, & alter code involving conditional statements** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures **C: Test code involving conditional statements** **C3.2** read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes --- **Number: B2.1** **Algebra: C2.1; C2.2; C2.3; C2.4; C3.1; C3.2** **Data: D1.6**	Students analyze a variety of situations to decide whether they are true. They decide if various representations of a pattern or situation are equivalent. They verify if a solution to an equation is true and, if not, adjust accordingly. They solve and graph inequalities and explain conditions for when an inequality is true. They analyze misleading graphs and describe how the truth has been distorted. They analyze different number properties, presented algebraically, and describe why they are true. They create code involving if-then conditions. and demonstrate that both sides of the flow diagram are true.