LONG-RANGE PLAN
Junior Division: Grades 4-6, Mathematics
Organized by Topics

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 structured into learning clusters or topics to support students in making connections within a cluster of specific expectations. Topics are carefully ordered to create a flow of learning to strengthen student understanding. In turn, learning can be expanded and applied in subsequent topics.

Suggested timing for each topic is specified, but there should be room for flexibility. Educators should make adjustments to timing if additional days are required to address student learning needs that emerge as the plan is implemented.

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 is 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: Junior Division (Grades 4-6)

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
Numbers, Patterns & Shapes in Everyday Life **(10 days)** Number, Algebra, Spatial Sense	**Numbers, Patterns & Shapes in Everyday Life** **(10 days)** Number, Algebra, Spatial Sense	**Numbers, Patterns & Shapes in Everyday Life** **(10 days)** Number, Algebra, Spatial Sense
Facts, Expressions & Equations including the Area of Rectangles **(10 days)** Number, Algebra, Spatial Sense	**Facts, Expressions & Equations including the Area of Parallelograms & Triangles** **(10 days)** Number, Algebra, Spatial Sense	**Facts, Expressions & Equations including Area of Various Shapes** **(10 days)** Number, Algebra, Spatial Sense
Number Patterns & Number Relationships **(10 days)** Number, Algebra	**Number Patterns & Number Relationships** **(10 days)** Number, Algebra	**Number Patterns & Number Relationships** **(10 days)** Number, Algebra
Data & Introduction to Mathematical Modelling **(30 days)** Number, Algebra. Data	**Data & Introduction to Mathematical Modelling** **(30 days)** Number. Algebra Data	**Data & Introduction to Mathematical Modelling** **(30 days)** Number. Algebra, Data
Transformations & Coding **(10 days)** Algebra, Spatial Sense	**Transformations & Coding** **(10 days)** Algebra, Spatial Sense	**Transformations & Coding** **(10 days)** Algebra, Spatial Sense
Comparison of Measures, Quantities & Expressions **(10 days)** Number, Algebra, Spatial Sense	**Comparison of Measures, Quantities & Expressions** **(10 days)** Number, Algebra, Spatial Sense	**Comparison of Measures, Quantities & Expressions** **(10 days)** Number, Algebra, Spatial Sense
Proportional Relationships & Measurement **(10 days)** Number, Spatial Sense	**Proportional Relationships & Measurement** **(10 days)** Number, Spatial Sense, Financial Literacy	**Proportional Relationships & Operations with Fractions** **(10 days)** Number
Patterns & Likelihood of Events **(15 days)** Algebra, Data, Spatial Sense	**Patterns & Probability** **(15 days)** Algebra, Data, Spatial Sense	**Patterns & Probability** **(15 days)** Algebra, Data
Operations & Measurement **(30 days)** Number, Spatial Sense	**Operations & Measurement** **(30 days)** Number, Algebra, Spatial Sense	**Operations & Measurement** **(30 days)** Number, Algebra, Spatial Sense

Financial Literacy & Operations involving Money **(10 days)**	Financial Literacy & Operations involving Money **(10 days)**	Financial Literacy & Operations involving Money **(10 days)**
Number, Algebra, Financial Literacy	Number, Algebra, Financial Literacy	Number, Algebra, Financial Literacy
Integrated Task **(10 days)**	**Integrated Task** **(10 days)**	**Integrated Task** **(10 days)**
Algebra	Algebra	Algebra

Grade 4 Long-Range Plan

155 days + 35 days discretionary

NOTE: The **Social-Emotional Learning Skills** and the **Mathematical Processes** are introduced, applied, and integrated throughout the year as appropriate.

Time	Topics and Expectations
10 days	**Attributes and Numbers** **Introduce and apply throughout the year as appropriate** B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.7 read, represent, compare, and order decimal tenths, in various contexts E2.3 solve problems involving elapsed time by applying the relationships between different units of time **Using characteristics to classify** C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts E1.1 identify geometric properties of rectangles, including the number of right angles, parallel and perpendicular sides, and lines of symmetry E2.4 identify angles and classify them as right, straight, acute, or obtuse
10 days	**Facts, Expressions and Equations including Area of a Rectangle** **Developing multiplication facts using the area of a rectangle** B2.2 recall and demonstrate multiplication facts for 1 × 1 to 10 × 10, and related division facts E2.5 use the row and column structure of an array to measure the areas of rectangles and to show that the area of any rectangle can be found by multiplying its side lengths **Understanding and working with equations** B2.1 use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations C2.1 identify and use symbols as variables in expressions and equations C2.2 solve equations that involve whole numbers up to 50 in various contexts, and verify solutions E2.6 apply the formula for the area of a rectangle to find the unknown measurement when given two of the three
10 days	**Number Patterns and Number Relationships** **Extending place value to decimal tenths** B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.6 count to 10 by halves, thirds, fourths, fifths, sixths, eighths, and tenths, with and without the use of tools C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal tenths

Representing fractions

B1.4   represent fractions from halves to tenths using drawings, tools, and standard fractional notation, and explain the meanings of the denominator and the numerator

B1.9   describe relationships and show equivalences among fractions and decimal tenths, in various contexts

B2.7   represent the relationship between the repeated addition of a unit fraction and the multiplication of that unit fraction by a whole number, using tools, drawings, and standard fractional notation

30 days	**Collection, Organization, Representation, and Analysis of Data, and Introduction to Mathematical Modelling** **Collecting, organizing, and representing data** B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, 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 10 000, in various contexts D1.1 describe the difference between qualitative and quantitative data, and describe situations where each would be used D1.2 collect data from different primary and secondary sources to answer questions of interest that involve comparing two or more sets of data, and organize the data in frequency tables and stem-and-leaf plots D1.3 select from among a variety of graphs, including multiple-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 D1.4 create an infographic about a data set, representing the data in appropriate ways, including in frequency tables, stem-and-leaf plots, and multiple-bar graphs, and incorporating any other relevant information that helps to tell a story about the data **Analysing data using mean, median, and mode** B2.1 use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations D1.5 determine the mean and the median 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 D1.6 analyse different sets of data presented in various ways, including in stem-and-leaf plots and multiple-bar graphs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions D2.2 make and test predictions about the likelihood that the mean, median, and mode(s) of a data set will be the same for data collected from different populations **Posing a real-life situation that requires the process of mathematical modelling and involves the collection, organization, representation and analysis of data.*** C4 apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations** * Depending on the situation it may be appropriate to complete the mathematical modelling task now or continue as new learning is acquired ** One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same

10 days	**Transformations and Coding** **Creating, describing, and performing transformations** E1.3 describe and perform translations and reflections on a grid, and predict the results of these transformations E1.2 plot and read coordinates in the first quadrant of a Cartesian plane, and describe the translations that move a point from one coordinate to another C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, repeating, and nested events C3.2 read and alter existing code, including code that involves sequential, concurrent, repeating, and nested events, and describe how changes to the code affect the outcomes
10 days	**Comparison of Quantities** **Comparing measures** E2.2 use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity **Comparing whole numbers, fractions and decimal tenths** B1.2 compare and order whole numbers up to and including 10 000, in various contexts B1.5 use drawings and models to represent, compare, and order fractions representing the individual portions that result from two different fair-share scenarios involving any combination of 2, 3, 4, 5, 6, 8, and 10 sharers B1.7 read, represent, compare, and order decimal tenths, in various contexts **Comparing two expressions** C2.3 solve inequalities that involve addition and subtraction of whole numbers up to 20, and verify and graph the solutions
10 days	**Proportional Relationships and Measurements** **Using proportional reasoning** B2.3 use mental math strategies to multiply whole numbers by 10, 100, and 1000, divide whole numbers by 10, and add and subtract decimal tenths, and explain the strategies used E2.1 explain the relationships between grams and kilograms as metric units of mass, and between litres and millilitres as metric units of capacity, and use benchmarks for these units to estimate mass and capacity E2.2 use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity B2.8 show simple multiplicative relationships involving whole-number rates, using various tools and drawings E2.3 solve problems involving elapsed time by applying the relationships between different units of time

15 days	**Patterns and Likelihood of Events**
	Creating patterns and code, and making predictions about them
	C1.2 create and translate repeating and growing 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 and growing patterns
	C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, repeating, and nested events
	C3.2 read and alter existing code, including code that involves sequential, concurrent, repeating, and nested events, and describe how changes to the code affect the outcomes
	Predicting the likelihood of an event
	D2.1 use mathematical language, including the terms "impossible", "unlikely", "equally likely", "likely", and "certain", to describe the likelihood of events happening, represent this likelihood on a probability line, and use it to make predictions and informed decisions
30 days	**Operations**
	Developing fluency with adding, subtracting, multiplying, and dividing
	B1.8 round decimal numbers to the nearest whole number, in various contexts
	B2.4 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 10 000 and of decimal tenths, using appropriate tools and strategies, including algorithms
	B2.5 represent and solve problems involving the multiplication of two- or three-digit whole numbers by one-digit whole numbers and by 10, 100, and 1000, using appropriate tools, including arrays
	B2.6 represent and solve problems involving the division of two- or three-digit whole numbers by one-digit whole numbers, expressing any remainder as a fraction when appropriate, using appropriate tools, including arrays
10 days	**Financial Literacy and Operations involving Money**
	Developing financial concepts
	F1.3 explain the concepts of spending, saving, earning, investing, and donating, and identify key factors to consider when making basic decisions related to each
	F1.4 explain the relationship between spending and saving, and describe how spending and saving behaviours may differ from one person to another
	F1.5 describe some ways of determining whether something is reasonably priced and therefore a good purchase
	F1.1 identify various methods of payment that can be used to purchase goods and services
	Using operations and mental math to solve problems involving purchases
	F1.2 estimate and calculate the cost of transactions involving multiple items priced in whole-dollar amounts, not including sales tax, and the amount of change needed when payment is made in cash, using mental math
	B1.3 round whole numbers to the nearest ten, hundred, or thousand, in various contexts
	B2.1 use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations
	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

10 days	**Integrated Task**
	This is an opportunity to apply mathematical concepts and skills from this grade to solve real-life problems that require the process of mathematical modelling*.
	Depending on the real-life situation, coding may be a tool in mathematical modelling
	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
	* One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same. Variables may be used to represent quantities that will change.

Grade 5 Long-Range Plan

155 days + 35 days discretionary

NOTE: The **Social-Emotional Learning Skills** and the **Mathematical Processes** are introduced, applied, and integrated throughout the year as appropriate.

Time	Topics and Expectations
10 days	**Attributes and Numbers** **Introduce and apply throughout the year as appropriate** 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 **Extending place value to 100 000 and decimal 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 B1.5 read, represent, compare, and order decimal numbers up to hundredths, in various contexts C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal tenths and hundredths **Using characteristics to classify** C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts E1.1 identify geometric properties of triangles, and construct different types of triangles when given side or angle measurements
10 days	**Facts, Expressions and Equations including the Area of Parallelograms and Triangles** **Developing multiplication facts using the area of a rectangles,** B2.2 recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts 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 **Understanding and working with expressions and equations** 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 C2.1 translate among words, algebraic expressions, and visual representations that describe equivalent relationships C2.3 solve equations that involve whole numbers up to 100 in various contexts, and verify solutions C2.2 evaluate algebraic expressions that involve whole numbers

10 days	**Number Patterns and Number Relationships** **Representing fractions and showing equivalences to decimals and percents** B1.3 represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, 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 B2.5 add and subtract fractions with like denominators, in various contexts
30 days	**Collection, Organization, Representation, and Analysis of Data, and Introduction to Mathematical Modelling** **Collecting, organizing, and representing data** 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 D1.1 explain the importance of various sampling techniques for collecting a sample of data that is representative of a population 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 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 D1.4 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 **Analysing data using mean, median, and mode** 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 **Posing a real-life situation that requires the process of mathematical modelling and involves the collection, organization, representation and analysis of data.*** C4 apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations** * Depending on the situation it may be appropriate to complete the mathematical modelling task now or continue as new learning is acquired ** One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same
10 days	**Transformations and Coding** **Creating, describing, and performing transformations** E1.5 describe and perform translations, reflections, and rotations up to 180 on a grid, and predict the results of these transformations 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 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

10 days	**Comparison of Measures, Quantities and Expressions**

Comparing measures

E2.1	use appropriate metric units to estimate and measure length, area, mass, and capacity
E2.3	compare angles and determine their relative size by matching them and by measuring them using appropriate non-standard 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
E1.2	identify and construct congruent triangles, rectangles, and parallelograms

Comparing whole numbers, fractions and decimal tenths

B1.2	compare and order whole numbers up to and including 100 000, 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
E2.2	solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units

Comparing two expressions

C2.4	solve inequalities that involve one operation and whole numbers up to 50, and verify and graph the solutions

10 days	**Proportional Relationships and Measurements**

Using proportional reasoning

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
E2.2	solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units
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

15 days	**Patterns and Probability**

Creating patterns and code, and making predictions about them

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
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

Expressing and predicting 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 an event happening

30 days	## Operations and Measurement **Developing fluency with adding, subtracting, multiplying, and dividing** B1.6 round decimal numbers to the nearest tenth, 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 B2.4 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 B2.6 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 B2.5 add and subtract fractions with like denominators, in various contexts B2.8 multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings **Understanding and working with expressions and equations** C2.1 translate among words, algebraic expressions, and visual representations that describe equivalent relationships C2.2 evaluate algebraic expressions that involve whole numbers
10 days	## Financial Literacy and Operations involving Money **Developing financial concepts** F1.1 describe several ways money can be transferred among individuals, organizations, and businesses 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 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 **Using operations and mental math to solve problems involving purchases** F1.2 estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies 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 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

10 days	**Integrated Task** **This is an opportunity to apply mathematical concepts and skills from this grade to solve real-life problems that require the process of mathematical modelling*.** ***Depending on the real-life situation, coding may be a tool in mathematical modelling*** 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 * One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same. Variables may be used to represent quantities that will change.

Grade 6 Long-Range Plan

155 days + 35 days discretionary

NOTE: The **Social-Emotional Learning Skills** and the **Mathematical Processes** are introduced, applied, and integrated throughout the year as appropriate.

Time	Topics and Expectations
10 days	**Attributes and Numbers, Patterns and Shapes in Everyday Life** **Extending place value to one million and decimal thousandths** B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal numbers **Using characteristics to classify** C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear E1.1 create lists of the geometric properties of various types of quadrilaterals, including the properties of the diagonals, rotational symmetry, and line symmetry **Determining area by decomposing shapes** E2.4 determine the areas of trapezoids, rhombuses, kites, and composite polygons by decomposing them into shapes with known areas E2.5 create and use nets to demonstrate the relationship between the faces of prisms and pyramids and their surface areas E2.6 determine the surface areas of prisms and pyramids by calculating the areas of their two-dimensional faces and adding them together
10 days	**Facts, Expressions and Equations including Area of Various Shapes** **Apply addition facts to add monomials** C2.1 add monomials with a degree of 1 that involve whole numbers, using tools **Understanding and working with expressions and equations** B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions

10 days	**Number Patterns and Number Relationships**

Finding factors

B2.2   understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9, and 10

B2.6   represent composite numbers as a product of their prime factors, including through the use of factor trees

B1.5   round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts

Working with integers

B1.2   read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines

B1.3   compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts

E1.3   plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another

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25 days

Collection, Organization, Representation, and Analysis of Data, and Introduction to Mathematical Modelling

Collecting, organizing, and representing data

D1.1   describe the difference between discrete and continuous data, and provide examples of each

D1.2   collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals

D1.3   select from among a variety of graphs, including histograms and broken-line 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

D1.4   create an infographic about a data set, representing the data in appropriate ways, including in tables, histograms, and broken-line graphs, and incorporating any other relevant information that helps to tell a story about the data

Analysing data using measures of central tendency

D1.5   determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets

D1.6   analyse different sets of data presented in various ways, including in histograms and broken-line 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

Posing a real-life situation that requires the process of mathematical modelling and involves the collection, organization, representation and analysis of data.*

C4   apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations**

*   Depending on the situation it may be appropriate to complete the mathematical modelling task now or continue as new learning is acquired

**   One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same

10 days	**Transformations and Coding**

Creating, describing, and performing transformations

E1.4 describe and perform combinations of translations, reflections, and rotations up to 360 on a grid, and predict the results of these transformations

E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another

C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient 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 and the efficiency of the code

15 days	**Comparison of Measures, Quantities and Expressions**

Comparing measures spatially

E1.2 construct three-dimensional objects when given their top, front, and side views

E2.5 create and use nets to demonstrate the relationship between the faces of prisms and pyramids and their surface areas

E2.6 determine the surface areas of prisms and pyramids by calculating the areas of their two-dimensional faces and adding them together

Comparing measures using standard units

E2.2 use a protractor to measure and construct angles up to 360, and state the relationship between angles that are measured clockwise and those that are measured counterclockwise

E2.3 use the properties of supplementary angles, complementary angles, opposite angles, and interior and exterior angles to solve for unknown angle measures

E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa

Comparing integers, fractions, and decimal numbers

B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts

B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts

B1.6 describe relationships and show equivalences among fractions and decimal numbers up to thousandths, using appropriate tools and drawings, in various contexts

Comparing two expressions

C2.4 solve inequalities that involve two operations and whole numbers up to 100, and verify and graph the solutions

10 days	**Proportional Relationships and Operations with Fractions**

Using proportional reasoning

B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used

B2.12 solve problems involving ratios, including percents and rates, using appropriate tools and strategies

B2.5 add and subtract fractions with like and unlike denominators, using appropriate tools, in various contexts

B2.9 multiply whole numbers by proper fractions, using appropriate tools and strategies

B2.10 divide whole numbers by proper fractions, using appropriate tools and strategies

15 days	**Patterns and Probability** **Creating patterns and code, and making predictions about them** C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear C1.2 create and translate repeating, growing, and shrinking patterns using various representations, including tables of values, graphs, and, for linear growing patterns, algebraic expressions and equations 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, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions NOTE: solving for an unknown value with an algebraic representation of a pattern is an application in solving equations **Expressing and predicting probability** D2.1 use fractions, decimals, and percents 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 two independent events happening **Coding can be used to create patterns, check predictions, and simulate probabilities** C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient 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 and the efficiency of the code
30 days	**Operations and Measurement** **Developing fluency with adding, subtracting, multiplying, and dividing** B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations B2.4 represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms B2.7 represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms B2.8 represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate B2.11 represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths

10 days	**Financial Literacy and Operations involving Money**
	Developing financial concepts
	F1.1 describe the advantages and disadvantages of various methods of payment that can be used to purchase goods and services
	F1.2 identify different types of financial goals, including earning and saving goals, and outline some key steps in achieving them
	F1.3 identify and describe various factors that may help or interfere with reaching financial goals
	F1.4 explain the concept of interest rates, and identify types of interest rates and fees associated with different accounts and loans offered by various banks and other financial institutions
	F1.5 describe trading, lending, borrowing, and donating as different ways to distribute financial and other resources among individuals and organizations
	Using operations and mental math to solve problems involving purchases
	B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations
	C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient 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 and the efficiency of the code
10 days	**Integrated Task**
	This is an opportunity to apply mathematical concepts and skills from this grade to solve real-life problems that require the process of mathematical modelling*.
	Depending on the real-life situation, coding may be a tool in mathematical modelling
	C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient 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 and the efficiency of the code
	* One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same. Variables may be used to represent quantities that will change.