

# LONG-RANGE PLAN

Intermediate Division: Grades 7-8, 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: Intermediate Division (Grades 7-8)

The Social-Emotional Learning (SEL) Skills and the Mathematical Processes are to be integrated throughout each of the topics below as appropriate.

Grade 7	Grade 8
<p><b>Numbers, Patterns, &amp; Shapes in Everyday Life</b> (10 days)</p> <p>Number, Algebra, Spatial Sense</p>	<p><b>Numbers, Patterns, &amp; Measurements in Everyday Life</b> (10 days)</p> <p>Number, Algebra, Spatial Sense</p>
<p><b>Facts, Expressions, Equations &amp; Inequalities</b> (20 days)</p> <p>Number, Algebra</p>	<p><b>Facts, Expressions, Equations &amp; Inequalities</b> (20 days)</p> <p>Number, Algebra</p>
<p><b>Transformations and Coding</b> (10 days)</p> <p>Algebra, Spatial Sense</p>	<p><b>Transformations and Coding</b> (10 days)</p> <p>Algebra, Spatial Sense</p>
<p><b>Data &amp; Introduction to Mathematical Modelling</b> (30 days)</p> <p>Algebra, Data, Spatial Sense</p>	<p><b>Data &amp; Introduction to Mathematical Modelling</b> (30 days)</p> <p>Algebra, Data</p>
<p><b>Proportionality</b> (25 days)</p> <p>Number, Algebra, Spatial Sense, Financial Literacy</p>	<p><b>Proportionality</b> (25 days)</p> <p>Number, Algebra, Spatial Sense</p>
<p><b>Patterns &amp; Probability</b> (20 days)</p> <p>Algebra, Data</p>	<p><b>Patterns &amp; Probability</b> (20 days)</p> <p>Algebra, Data</p>
<p><b>Circles, Patterning, &amp; Algebraic Expressions</b> (10 days)</p> <p>Number, Algebra, Spatial Sense</p>	<p><b>Pythagorean Theorem, Proportionality, &amp; Algebraic Equations</b> (10 days)</p> <p>Number, Algebra, Spatial Sense</p>
<p><b>Operations &amp; Measurements</b> (20 days)</p> <p>Number, Algebra, Spatial Sense</p>	<p><b>Operations &amp; Measurements</b> (20 days)</p> <p>Number, Algebra, Spatial Sense</p>
<p><b>Financial Literacy &amp; Operations involving Money</b> (15 days)</p> <p>Number, Financial Literacy</p>	<p><b>Financial Literacy, Patterns, &amp; Operations involving Money</b> (15 days)</p> <p>Number, Algebra</p>
<p><b>Integrated Mathematical Modelling Task</b> (10 days)</p> <p>Algebra</p>	<p><b>Integrated Mathematical Modelling Task</b> (10 days)</p> <p>Algebra</p>

# Grade 7 Long-Range Plan

170 days + 20 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
<p><b>10 days</b></p>	<p><b>Numbers, Patterns and Shapes in Everyday Life</b></p> <p><b>Extending the range of numbers</b></p> <p>B1.1 represent and compare whole numbers up to and including one billion, including in expanded form using powers of ten, and describe various ways they are used in everyday life</p> <p>B1.3 read, represent, compare, and order rational numbers, including positive and negative fractions and decimal numbers to thousandths, in various contexts</p> <p>B2.7 evaluate and express repeated multiplication of whole numbers using exponential notation, in various contexts</p> <p><b>Using characteristics to classify</b></p> <p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values</p> <p>E1.1 describe and classify cylinders, pyramids, and prisms according to their geometric properties, including plane and rotational symmetry</p>
<p><b>20 days</b></p>	<p><b>Facts, Expressions, Equations, &amp; Inequalities</b></p> <p><b>Working with square numbers</b></p> <p>B1.2 identify and represent perfect squares, and determine their square roots, in various contexts</p> <p><b>Use patterning and the application of addition and subtraction facts of whole numbers to integers</b></p> <p>C1.4 create and describe patterns to illustrate relationships among integers</p> <p>B2.4 use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of integers</p> <p>C2.4 solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions</p> <p><b>Checking solutions is an application of evaluating algebraic expressions</b></p> <p>C2.1 add and subtract monomials with a degree of 1 that involve whole numbers, using tools</p> <p>C2.2 evaluate algebraic expressions that involve whole numbers and decimal numbers</p> <p>C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions</p>

<p><b>10 days</b></p>	<p><b>Transformations &amp; Coding</b></p> <p><b>Creating, describing, and performing transformations</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures</p> <p>C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>E1.3 perform dilations and describe the similarity between the image and the original shape</p> <p>E1.4 describe and perform translations, reflections, and rotations on a Cartesian plane, and predict the results of these transformations</p>
<p><b>30 days</b></p>	<p><b>Collection, Organization, Representation, and Analysis of Data, and Introduction to Mathematical Modelling</b></p> <p><b>Collecting, organizing, and representing data</b></p> <p>D1.1 explain why percentages are used to represent the distribution of a variable for a population or sample in large sets of data, and provide examples</p> <p>D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest, and organize the sets of data as appropriate, including using percentages</p> <p>D1.3 select from among a variety of graphs, including circle 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</p> <p>E2.4 construct circles when given the radius, diameter, or circumference</p> <p>D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data</p> <p><b>Analysing data using measures of central tendency, and shape and distribution</b></p> <p>D1.5 determine the impact of adding or removing data from a data set on a measure of central tendency, and describe how these changes alter the shape and distribution of the data</p> <p>D1.6 analyse different sets of data presented in various ways, including in circle 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</p> <p><b>Posing a real-life situation that requires the process of mathematical modelling and involves the collection, organization, representation and analysis of data.*</b></p> <p>C4 apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations**</p> <p>* Depending on the situation it may be appropriate to complete the mathematical modelling task now or continue as new learning is acquired</p> <p>** One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same</p>

<p><b>25 days</b></p>	<p><b>Proportionality</b></p> <p><b>Using proportional reasoning</b></p> <p>B2.2 understand and recall commonly used percents, fractions, and decimal equivalents</p> <p>B2.3 use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used</p> <p>B2.10 identify proportional and non-proportional situations and apply proportional reasoning to solve problems</p> <p><b>Use factors and multiples to create equivalent fractions</b></p> <p>B2.6 determine the greatest common factor for a variety of whole numbers up to 144 and the lowest common multiple for two and three whole numbers</p> <p>B1.5 generate fractions and decimal numbers between any two quantities</p> <p>B2.5 add and subtract fractions, including by creating equivalent fractions, in various contexts</p> <p>B1.4 use equivalent fractions to simplify fractions, when appropriate, in various contexts</p> <p><b>Developing fluency with operations</b></p> <p>B2.8 multiply and divide fractions by fractions, using tools in various contexts</p> <p>B1.7 convert between fractions, decimal numbers, and percents, in various contexts</p> <p>B2.9 multiply and divide decimal numbers by decimal numbers, in various contexts</p> <p>F1.1 identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa</p>
<p><b>20 days</b></p>	<p><b>Patterns &amp; Probability</b></p> <p><b>Comparing measures spatially</b></p> <p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values</p> <p>C1.2 create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns</p> <p>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 involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns</p> <p>E1.2 draw top, front, and side views, as well as perspective views, of objects and physical spaces, using appropriate scales</p> <p>C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions</p> <p>Note: solving for an unknown value in an algebraic representation of a pattern rule is an application of solving equations</p> <p><b>Identifying patterns in real-life can include noticing patterns involving probability</b></p> <p>D2.1 describe the difference between independent and dependent events, and explain how their probabilities differ, providing examples</p> <p>D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening and of two dependent events happening</p> <p><b>Using coding to create patterns, check predictions and simulate probability experiments</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures</p> <p>C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p>

<p><b>10 days</b></p>	<p><b>Circles, Patterning &amp; Algebraic Equations</b></p> <p><b>Constructing circles</b></p> <p>E2.4 construct circles when given the radius, diameter, or circumference</p> <p><b>Using the formula for the area of a circle</b></p> <p>B1.6 round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts</p> <p>C2.2 evaluate algebraic expressions that involve whole numbers and decimal numbers</p> <p>C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions</p> <p>E2.3 use the relationships between the radius, diameter, and circumference of a circle to explain the formula for finding the circumference and to solve related problems</p> <p>E2.5 show the relationships between the radius, diameter, and area of a circle, and use these relationships to explain the formula for measuring the area of a circle and to solve related problems</p> <p><b>Representing and extending patterns</b></p> <p>C1.2 create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns</p> <p>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 involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns</p>
<p><b>20 days</b></p>	<p><b>Operations &amp; Measurements</b></p> <p><b>Developing fluency with operations and equations</b></p> <p>C2.2 evaluate algebraic expressions that involve whole numbers and decimal numbers</p> <p>B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations</p> <p>B1.6 round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts</p> <p>B1.2 identify and represent perfect squares, and determine their square roots, in various contexts</p> <p>E2.6 represent cylinders as nets and determine their surface area by adding the areas of their parts</p> <p>C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions</p> <p><b>Solving measurement problems</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures</p> <p>C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>E2.7 show that the volume of a prism or cylinder can be determined by multiplying the area of its base by its height, and apply this relationship to find the area of the base, volume, and height of prisms and cylinders when given two of the three measurements</p> <p>E2.1 describe the differences and similarities between volume and capacity, and apply the relationship between millilitres (mL) and cubic centimetres (cm<sup>3</sup>) to solve problems</p> <p>E2.2 solve problems involving perimeter, area, and volume that require converting from one metric unit of measurement to another</p>

<p><b>15 days</b></p>	<p><b>Financial Literacy &amp; Operations involving Money</b></p> <p><b>Developing financial concepts</b></p> <p>F1.2 identify and describe various reliable sources of information that can help with planning for and reaching a financial goal</p> <p>F1.3 create, track, and adjust sample budgets designed to meet longer-term financial goals for various scenarios</p> <p>F1.4 identify various societal and personal factors that may influence financial decision making, and describe the effects that each might have</p> <p>F1.5 explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time</p> <p>F1.6 compare interest rates and fees for different accounts and loans offered by various financial institutions, and determine the best option for different scenarios</p> <p><b>Using operations and mental math to solve problems involving purchases</b></p> <p>B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations</p>
<p><b>10 days</b></p>	<p><b>Integrated Mathematical Modelling Task</b></p> <p><b>Depending on the real-life situation, coding may be a tool in mathematical modelling*</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures</p> <p>C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>* 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.</p>



# Grade 8 Long-Range Plan

170 days + 20 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
<p><b>10 days</b></p>	<p><b>Numbers, Patterns &amp; Measurements in Everyday Life</b></p> <p><b>Extending the range of numbers</b></p> <p>B1.1 represent and compare very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life</p> <p>B1.2 describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various contexts</p> <p>E2.1 represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation</p> <p><b>Using characteristics to classify</b></p> <p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values</p>
<p><b>20 days</b></p>	<p><b>Facts, Expressions, Equations, &amp; Inequalities</b></p> <p><b>Working with square numbers</b></p> <p>B2.2 understand and recall commonly used square numbers and their square roots</p> <p><b>Using patterning and the application of addition, subtraction, multiplication, and division facts of whole numbers to integers</b></p> <p>C1.4 create and describe patterns to illustrate relationships among [integers a subset of] rational numbers</p> <p>B2.4 add and subtract integers, using appropriate strategies, in various contexts</p> <p>B2.7 multiply and divide integers, using appropriate strategies, in various contexts</p> <p><b>Understanding and working with equations</b></p> <p>C2.1 add and subtract monomials with a degree of 1, and add binomials with a degree of 1 that involve integers, using tools</p> <p>C2.2 evaluate algebraic expressions that involve rational numbers</p> <p>C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions</p> <p>C2.4 solve inequalities that involve integers, and verify and graph the solutions</p>
<p><b>10 days</b></p>	<p><b>Transformations &amp; Coding</b></p> <p><b>Using code to create and verify predicted transformations</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions</p> <p>C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>E1.4 describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations</p> <p>E1.1 identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations</p>

30  
days

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

### Collecting, organizing, and representing data

- D1.1 identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed
- D1.2 collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values
- D1.3 select from among a variety of graphs, including scatter plots, 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 and scatter plots, and incorporating any other relevant information that helps to tell a story about the data

### Analysing data using measures of central tendency, and shape and distribution

- D1.5 use mathematical language, including the terms "strong", "weak", "none", "positive", and "negative", to describe the relationship between two variables for various data sets with and without outliers
- D1.6 analyse different sets of data presented in various ways, including in scatter plots 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
- C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions
- C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code

### 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

<p><b>25 days</b></p>	<p><b>Proportionality</b></p> <p><b>Using proportional reasoning</b></p> <p>B2.3 use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used</p> <p>B2.8 compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts</p> <p>B1.4 use fractions, decimal numbers, and percents, including percents of more than 100% or less than 1%, interchangeably and flexibly to solve a variety of problems</p> <p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values</p> <p>B2.5 add and subtract fractions, using appropriate strategies, in various contexts</p> <p>B2.6 multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts</p> <p><b>Using scaling to develop understanding of the multiplication and division of fractions.</b></p> <p>E1.3 use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios</p> <p>E1.2 make objects and models using appropriate scales, given their top, front, and side views or their perspective views</p>
<p><b>20 days</b></p>	<p><b>Patterns &amp; Probability</b></p> <p><b>Creating patterns and code, and making predictions about them</b></p> <p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values</p> <p>C1.2 create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns</p> <p>C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns</p> <p>C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions</p> <p>Note: solving for an unknown value in an algebraic representation of a pattern rule is an application of solving equations</p> <p><b>Expressing and predicting probability</b></p> <p>D2.1 solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams</p> <p>D2.2 determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions</p> <p>C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code</p>

<p><b>10 days</b></p>	<p><b>Pythagorean Theorem, Proportionality, &amp; Algebraic Equations</b></p> <p><b>Working with the Pythagorean theorem</b></p> <p>E2.4 describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle</p> <p>B1.3 estimate and calculate square roots, in various contexts</p> <p><b>Understanding and working with equations and proportionality</b></p> <p>C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions</p> <p>B2.8 compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts</p>
<p><b>20 days</b></p>	<p><b>Operations &amp; Measurements</b></p> <p><b>Developing fluency with operations</b></p> <p>B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations</p> <p>C2.2 evaluate algebraic expressions that involve rational numbers</p> <p><b>Solving measurement problems</b></p> <p>C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions</p> <p>C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>E2.2 solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons</p> <p>E2.3 solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas</p>

**15  
days**

## **Financial Literacy, Patterning, & Operations involving Money**

### **Developing financial concepts**

- F1.1 describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates
- F1.2 create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications
- F1.3 identify different ways to maintain a balanced budget, and use appropriate tools to track all income and spending, for several different scenarios
- F1.4 determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning

### **Applying patterning and coding skills to determine and compare money values at different growth rates**

- C1.2 create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns
- C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns
- F1.5 compare various ways for consumers to get more value for their money when spending, including taking advantage of sales and customer loyalty and incentive programs, and determine the best choice for different scenarios
- F1.6 compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios

### **Using operations and mental math to solve problems involving purchases**

- B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

**10  
days**

## **Integrated Mathematical Modelling 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 the analysis of data in order to inform and communicate decisions
- C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, 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.