

Correlation of Ontario Program of Studies with Mathology Grade 5

Overall Expectation

A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes

Mathology provides teachers with a flexible framework for Social Emotional Learning Skills, by including:

o Diverse resources in real-world contexts, so students can see themselves and others while positively engaging in mathematical activities

o Differentiated support to cope with challenges, meet students where they are and move them forward

• Learning opportunities (small group, pair, whole class), to work collaboratively on math problems, share thinking, and listen to the thinking of others

• **Digital** (e.g., virtual tools) and **printable resources** (e.g., lesson slides, line masters, and math mats), which allow students to reveal their mathematical thinking in a risk-free environment

• A variety of voices (built by and for Canadian learners) and opportunities to support local contexts (modifiable resources)

Curriculum Expectations	Grade 5 Mathology.ca	Mathology Practice	Pearson Canada Grades 4-6
		Workbook 5	Mathematics Learning Progression
B. Number			
B1. Number Sense			
demonstrate an understanding of nu	umbers and make connections to th	e way numbers are used in everyda	ay life
Whole Numbers			
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	Number Unit 1: Number Relationships and Place Value 1: Representing Larger Numbers 4. Consolidation of Number Relationships and Place Value	Unit 2 Questions 1, 2, 3, 4, 5, 6, 7, 15 (pp. 8-10, 13)	Big Idea: The set of real numbers is infinite.Extending whole number understanding tothe set of real numbers- Extends whole number understanding to100 000.Decomposing and composing numbers toinvestigate equivalencies- Composes and decomposes wholenumbers using standard and non-standardpartitioning (e.g., 1000 is 10 hundreds or100 tens).Big Idea: Quantities and numbers can begrouped by or partitioned into equal-sized



B1.2 compare and order whole numbers up to and including 100 000, in various contexts.	Number Unit 1: Number Relationships and Place Value 2: Comparing Larger Numbers 4. Consolidation of Number Relationships and Place Value	Unit 2 Questions 8, 9, 10, 11, 15 (pp. 10-11, 13)	 units. Unitizing quantities into base-ten units Writes and reads whole numbers in multiple forms (e.g., 1358; one thousand three hundred fifty-eight; 1000 + 300 + 50 + 8). Understands that the value of a digit is ten times the value of the same digit one place to the right. Big Idea: Numbers are related in many ways. Comparing and ordering quantities (multitude or magnitude) Compares, orders, and locates whole numbers based on place-value understanding and records using <, =, > symbols.
Fractions, Decimals, and Percents		Γ	
B1.3 represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts	Number Unit 3: Fractions and Decimals 10: Equivalent Fractions 11: Exploring Improper Fractions and Mixed Numbers 12: Comparing and Ordering Fractions 18. Consolidation of Fractions and Decimals	Unit 7 Questions 1, 2, 3, 4, 8, 9, 12 (pp. 42-43, 45, 47)	Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies - Generates and identifies equivalent fractions using flexible strategies (e.g., represents the same part of a whole; same part of a set; same location on a number line). - Models equivalent forms of improper fractions and mixed numbers using flexible strategies. Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Partitions fractional quantities to form fractions - Partitions fractional parts into smaller fractional units (e.g., partitions halves into thirds to create sixths).



B1.4 compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts	Number Unit 3: Fractions and Decimals 12: Comparing and Ordering Fractions 18. Consolidation of Fractions and Decimals	Unit 7 Questions 8, 9, 12 (pp. 45, 47)	Big Idea: Numbers are related in many ways. Comparing and ordering quantities (multitude or magnitude) - Compares, orders, and locates fractions with the same numerator or denominator using reasoning (e.g., $\frac{3}{5} > \frac{3}{6}$ because fifths are larger parts). - Compares, orders, and locates fractions using flexible strategies (e.g., comparing models; creating common denominators or numerators).
B1.5 read, represent, compare, and order decimal numbers up to hundredths, in various contexts	Number Unit 3: Fractions and Decimals 13: Representing Decimals 15: Comparing and Ordering Decimals 18. Consolidation of Fractions and Decimals	Unit 7 Questions 5, 6, 7, 8, 9, 12 (pp. 44-45, 47)	 Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers. Explores decimal fractions to tenths (e.g., 0.1, 0.5, 0.8) and hundredths (e.g., 0.42, 0.05, 0.90). Big Idea: Numbers are related in many ways. Comparing and ordering quantities (multitude or magnitude) Compares, orders, and locates decimal numbers using place-value understanding. Estimating quantities and numbers Estimates the location of decimals and fractions on a number line. Decomposing and composing numbers to investigate equivalencies Composes and decomposes decimal numbers using standard and non-standard partitioning (e.g., 1.6 is 16 tenths or 0.16 tens). Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Understands that the value of a digit is ten times the value of the same digit one place



B1.6 round decimal numbers to the nearest tenth, in various contexts	Number Unit 3: Fractions and Decimals 14: Rounding Decimals 18. Consolidation of Fractions and Decimals	Unit 7 Questions 5, 7, 12 (pp. 44, 47)	to the right Understands that the value of a digit is one-tenth the value of the same digit one place to the left Writes and reads decimal numbers in multiple forms (i.e., numerals, number names, expanded form). Big Idea: Numbers are related in many ways. Estimating quantities and numbers - Provides approximate decimal values using multiple strategies (e.g., estimation, rounding, truncating).
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 Unit 3: Fractions and Decimals 16: Relating Fractions and Decimals 17: Relating Fractions, Decimals, and Percents 18. Consolidation of Fractions and Decimals Data Unit 1B: Data Management 2: Exploring Relative-Frequency Tables	Unit 7 Questions 10, 11, 12 (pp. 46-47) Unit 10 Questions 1, 2 (pp. 60-61)	Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies - Models and explains the relationship between a fraction and its equivalent decimal form (e.g., $\frac{2}{5} = \frac{4}{10} = 0.4$). - Models and explains the relationships among fractions, decimals, and percents. - Translates flexibly between representations. Using ratios, rates, proportions, and percents creates a relationship between quantities - Understands and applies the concept of percentage as a rate per 100 (e.g., calculating sales tax, tips, or discounts). Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Unitizing quantities into base-ten units - Uses fractions with denominators of 10 to develop decimal fraction understanding and notation (e.g., five-tenths is $\frac{5}{10}$ or 0.5).



B2. Operations use knowledge of numbers and ope Properties and Relationships	· · ·	· ·	 Understands that the value of a digit is ten times the value of the same digit one place to the right. Understands that the value of a digit is one-tenth the value of the same digit one place to the left. Writes and reads decimal numbers in multiple forms (i.e., numerals, number names, expanded form).
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	Number Unit 1: NumberRelationships and Place Value3: Estimating to Solve ProblemsNumber Unit 2: Fluency withAddition and Subtraction5: Estimating Sums andDifferences6: Exploring Addition Strategies7: Exploring SubtractionStrategies9. Consolidation of Fluency withAddition and SubtractionNumber Unit 4: Fluency withAddition and Division20: Using Estimation forMultiplication and Division21: Strategies for MultiplyingLarger Numbers22: Multiplying Whole Numbers23: Dividing Larger Numbers25. Consolidation of Fluencywith Multiplication and Division	Unit 2 Questions 12, 13, 14 (p. 12) Unit 3 Questions 1, 2, 3, 4, 5, 6, 7, 8 (pp. 14-19) Unit 9 Questions 1, 2, 3, 4, 5, 12 (pp. 52-54, 57) Unit 12 Questions 1, 2, 3, 4, 11 (pp. 72-73, 76) Unit 13 Questions 7, 9, 13, 14 (pp. 82-83, 85)	 Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations Extends whole number computation models to larger numbers. Demonstrates an understanding of decimal number computation through modelling and flexible strategies. Developing fluency of operations Estimates the result of whole number operations using contextually relevant strategies (e.g., How many buses are needed to take the Grade 8 classes to the museum?). Solves whole number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and change owing, saving money to make a purchase). Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). Solves decimal number computation using efficient strategies.



	Number Unit 5: Operations with Fractions and Decimals 26: Estimating Sums and Differences with Decimals 27: Adding with Decimal Numbers 28: Subtracting with Decimal Numbers 32. Consolidation of Operations with Fractions and Decimals Number Unit 6: Financial Literacy 33: Exploring Taxes		
	 34: Problem Solving with Money 36: Finding Best Value (Unit Rates) 37: Designing a Basic Budget 38: Consolidation of Financial Literacy 		
Math Facts			
B2.2 recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts	Number Unit 4: Fluency with Multiplication and Division 19: Relating Multiplication and Division Facts 25. Consolidation of Fluency with Multiplication and Division	Unit 13 Questions 1, 2 (pp. 80-81)	Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing fluency of operations - Fluently recalls multiplication and division facts to 100.
Mental Math			
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	Number Unit 5: Operations with Fractions and Decimals 26: Estimating Sums and Differences with Decimals 31: Multiplication with 0.01 and 0.1	Unit 9 Questions 1, 2, 3, 4, 5, 12 (pp. 52-54, 57)	Big Idea: Quantities and numbers can be operated on to determine how many and how much. Investigating number and arithmetic properties - Recognizes and generates equivalent numerical expressions using commutative and associative properties.



Addition and Subtraction	32. Consolidation of Operations with Fractions and Decimals		 Understands operation relationships (e.g., inverse relationship between multiplication/division, addition/subtraction). Understands the identity of operations (e.g., 5 + 0 = 5; 7 × 1 = 7). Developing conceptual meaning of operations Demonstrates an understanding of decimal number computation through modelling and flexible strategies. Developing fluency of operations Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). Solves decimal number computation using efficient strategies.
Addition and Subtraction B2.4 represent and solve problems	Number Unit 1: Number	Unit 2 Question 13 (p. 12)	Big Idea: Quantities and numbers can be
involving the addition and	Relationships and Place Value	01111 2 Question 15 (p. 12)	operated on to determine how many and
subtraction of whole numbers that	3: Estimating to Solve Problems	Unit 3 Questions 1, 2, 3, 4, 5, 6,	how much.
add up to no more than 100 000,		7, 8 (pp. 14-19)	Developing conceptual meaning of
and of decimal numbers up to	Number Unit 2: Fluency with		operations
hundredths, using appropriate tools, strategies, including	Addition and Subtraction	Unit 9 Questions 3, 5 (pp. 53-54)	 Extends whole number computation models to larger numbers.
algorithms	5: Estimating Sums and	Unit 12 Questions 1, 2, 3, 4, 11	- Demonstrates an understanding of decimal
	Differences	(pp. 72-73 <i>,</i> 76)	number computation through modelling and
	6: Exploring Addition Strategies		flexible strategies.
	7: Exploring Subtraction		Developing fluency of operations - Estimates the result of whole number
	Strategies		operations using contextually relevant
	9. Consolidation of Fluency with		strategies (e.g., How many buses are needed
	Addition and Subtraction		to take the Grade 8 classes to the
			museum?).
	Number Unit 5: Operations		 Solves whole number computation using efficient strategies (e.g., mental
	with Fractions and Decimals		computation, algorithms, calculating cost of
	26: Estimating Sums and		transactions and change owing, saving
	Differences with Decimals		money to make a purchase).



	 27: Adding with Decimal Numbers 28: Subtracting with Decimal Numbers 32. Consolidation of Operations with Fractions and Decimals Number Unit 6: Financial Literacy 33: Exploring Taxes 		 Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). Solves decimal number computation using efficient strategies.
B2.5 add and subtract fractions with like denominators, in various contexts	Number Unit 5: Operations with Fractions and Decimals 29: Adding and Subtracting Fractions with Like Denominators 32. Consolidation of Operations with Fractions and Decimals	Unit 9 Questions 6, 7, 8, 12 (pp. 54-55, 57)	Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations - Models and symbolizes fraction addition and subtraction with like denominators (e.g., $\frac{2}{5} + \frac{1}{5}$) and where one denominator is a multiple of the other (e.g., $\frac{2}{5} + \frac{3}{10}$).
Multiplication and Division			
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	Number Unit 4: Fluency with Multiplication and Division 20: Using Estimation for Multiplication and Division 21: Strategies for Multiplying Larger Numbers 22: Multiplying Whole Numbers 25. Consolidation of Fluency with Multiplication and Division	Unit 2 Question 12 (p. 12) Unit 13 Questions 3, 4, 5, 7, 8, 9, 13 (pp. 81-83, 85)	Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations - Extends whole number computation models to larger numbers. Developing fluency of operations - Solves whole number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and change owing, saving money to make a purchase).
B2.7 represent and solve problems involving the division of three-digit whole numbers by two-digit whole numbers, using the area model	Number Unit 4: Fluency with Multiplication and Division	Unit 13 Question 6 (p. 82)	Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of



and using algorithms, and make connections between the two methods, while expressing any remainders appropriately	20: Using Estimation forMultiplication and Division23: Dividing Larger Numbers25. Consolidation of Fluencywith Multiplication and Division		 operations Extends whole number computation models to larger numbers. Models and develops meanings for division of whole numbers that result in fractions. Developing fluency of operations Solves whole number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and change owing, saving money to make a purchase).
B2.8 multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings	Number Unit 5: Operations with Fractions and Decimals 30: Multiplication and Division with Unit Fractions 32. Consolidation of Operations with Fractions and Decimals	Unit 3 Questions 9, 10, 11, 12 (pp. 56-57)	Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Partitioning quantities to form fractions - Understands the meaning of an $\frac{a}{b}$ fraction as a multiple of the unit fraction $\frac{1}{b}$ (e.g., $\frac{3}{5} = 3$ $\times \frac{1}{5}$). - Understands the fraction $\frac{a}{b}$ as $a \div b$. - Continues to extend fraction understanding to multiple contexts (e.g., sharing, division, ratios).
B2.9 represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts	Number Unit 4: Fluency with Multiplication and Division 24: Equivalent Ratios and Rates 25. Consolidation of Fluency with Multiplication and Division	Unit 12 Questions 7, 8 (p. 75) Unit 13 Questions 10, 11, 12 (p. 84)	Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities - Demonstrates multiplicative reasoning by applying unit rates in whole number contexts (e.g., If she earns \$12 per hour, how much will she earn for 5 hours of work?). - Understands the concept of ratio as a relationship between two quantities (e.g., 3 wins to 2 losses). - Understands and applies the concept of unit rates (e.g., If 3 kg is \$5, how much is 1 kg, or how many kg for \$1?).



C. Algebra			
C.1 Patterns and Relationships			
identify, describe, extend, create, an	nd make predictions about a variety	y of patterns, including those found	l in real-life contexts
Patterns			
C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts	Patterning Unit 1: Patterning1: Investigating GeometricPatterns2: Investigating NumberPatterns3: Using Pattern Rules to SolveProblems4: Consolidation of Patterning	Unit 1 Questions 1, 4, 7, 8, 10 (pp. 2, 4, 5-7)	Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.Representing patterns, relations, and functions- Describes, generates, extends, translates, and corrects number and shape patterns that follow a predetermined rule.Generalizing and analyzing patterns, relations, and functions- Explains the rule for numeric patterns including the starting point and change (e.g., given: 16, 22, 28, 34, Start at 16 and add 6 each time) Describes numeric and shape patterns using words and numbers.
C1.2 create and translate growing and shrinking patterns using various representations, including tables of values and graphs	 Patterning Unit 1: Patterning 1: Investigating Geometric Patterns 2: Investigating Number Patterns 3: Using Pattern Rules to Solve Problems 4: Consolidation of Patterning 	Unit 1 Questions 2, 4, 5, 10 (pp. 3-5, 7)	Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.Representing patterns, relations, and functions- Describes, generates, extends, translates, and corrects number and shape patterns that follow a predetermined rule Uses multiple approaches to model situations involving repetition (i.e., repeating patterns) and change (i.e., increasing/decreasing patterns) (e.g., using objects, tables, graphs, symbols, loops and nested loops in coding) Represents a numeric or shape pattern using a table of values by pairing the term value with the term number.



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	Patterning Unit 1: Patterning 1: Investigating Geometric Patterns 2: Investigating Number Patterns 3: Using Pattern Rules to Solve Problems 4. Consolidation of Patterning	Unit 1 Questions 1, 2, 4, 5, 6, 7, 8, 10 (pp. 2-7)	 Generates a visual model to represent a simple number pattern. Generalizing and analyzing patterns, relations, and functions Explains the rule for numeric patterns including the starting point and change. Describes numeric and shape patterns using words and numbers. Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Representing patterns, relations, and functions Describes, generates, extends, translates, and corrects number and shape patterns that follow a predetermined rule. Generalizing and analyzing patterns, relations, and functions Explains the rule for numeric patterns including the starting point and change (e.g., given: 16, 22, 28, 34, Start at 16 and add 6 each time). Describes numeric and shape patterns using words and numbers. Predicts the value of a given element in a numeric or shape pattern, using pattern rules.
C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal tenths and hundredths	Patterning Unit 1: Patterning2: Investigating NumberPatterns4. Consolidation of Patterning	N/A	Big Idea: Regularity and repetition formpatterns that can be generalized andpredicted mathematically.Representing patterns, relations, andfunctions- Describes, generates, extends, translates,and corrects number and shape patternsthat follow a predetermined rule.Generalizing and analyzing patterns,relations, and functions- Describes numeric and shape patternsusing words and numbers.



C2. Equations and Inequalities			
demonstrate an understanding of va	ariables, expressions, equalities, and	inequalities, and apply this under	standing in various contexts
Variables and Expressions			
C2.1 translate among words, algebraic expressions, and visual representations that describe equivalent relationships	Patterning Unit 2: Variables and Equations 5: Using Variables 10. Consolidation of Variables and Equations	Unit 16 Questions 1, 2 (p. 99)	Big Idea: Patterns and relations can be represented with symbols, equations, and expressions. Understanding equality and inequality, building on generalized properties of numbers and operations - Expresses a one-step mathematical problem as an equation using a symbol or letter to represent an unknown number (e.g., Sena had some tokens and used four. She has seven left: $\Box - 4 = 7$). Using variables, algebraic expressions, and equations to represent mathematical relations - Understands an unknown quantity (i.e., variable) may be represented by a symbol or letter (e.g., $13 - \Box = 8$; $4n = 12$). - Flexibly uses symbols and letters to represent unknown quantities in equations (e.g., knows that $4 + \Box = 7$; $4 + x = 7$; and $4 + y = 7$ all represent the same equation with \Box , <i>x</i> , and <i>y</i> representing the same value). - Interprets and writes algebraic expressions (e.g., $2n$ means two times a number; subtracting a number from 7 can be written as $7 - n$). - Understands a variable as a changing quantity (e.g., 5 <i>s</i> , where <i>s</i> can be any value).
C2.2 evaluate algebraic expressions that involve whole numbers	Patterning Unit 2: Variables and Equations 5: Using Variables 10. Consolidation of Variables	Unit 16 Question 1 (p. 99)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding relationships among
	and Equations		measured units - Develops and generalizes strategies to compute area and perimeter of rectangles.



Equalities and Inequalities C2.3 solve equations that involve	Patterning Unit 2: Variables and	Unit 16 Questions 2 4 5 6 7 9	 Develops and generalizes strategies to compute area of triangles, quadrilaterals, and other polygons (e.g., decomposing a parallelogram and rearranging to form a rectangle). Big Idea: Patterns and relations can be
whole numbers up to 100 in various contexts, and verify solutions	Fatterning Unit 2: Variables and Equations 6: Solving Addition and Subtraction Equations 7: Solving Multiplication and Division Equations 8: Using Equations to Solve Problems 10. Consolidation of Variables and Equations	Unit 16 Questions 3, 4, 5, 6, 7, 8, 9, 10, 13 (pp. 100-102, 104)	Figure 2: Patterns and relations can be represented with symbols, equations, and expressions. Understanding equality and inequality, building on generalized properties of numbers and operations - Determines an unknown number in simple one-step equations using different strategies (e.g., $n \times 3 = 12$; $13 - \Box = 8$). - Uses arithmetic properties to investigate and transform one-step addition and multiplication equations (e.g., $5 + 4 = 9$ and $5 + a = 9$ have the same structure and can be rearranged in similar ways to maintain equality: $4 + 5 = 9$ and $a + 5 = 9$). - Uses arithmetic properties to investigate and transform one-step subtraction and multiplication equations (e.g., $12 - 5 = 7$ and $12 - b = 7$ have the same structure and can be rearranged in similar ways to maintain equality: $12 - 7 = 5$ and $12 - 7 = b$).
C2.4 solve inequalities that involve one operation and whole numbers up to 50, and verify and graph the solutions	Patterning Unit 2: Variables and Equations 9: Solving and Graphing Inequalities 10. Consolidation of Variables and Equations	Unit 16 Questions 11, 12 (p. 103)	



C3. Coding			
solve problems and create computat Coding Skills	tional representations of mathem	atical situations using coding conc	cepts and skills
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	Patterning Unit 3: Coding 11: Altering Dance Code 12: Making Shapes 13: Classifying Triangles 14. Consolidation of Coding	Unit 6 Questions 4, 5, 6, 7 (pp. 37-39)	 Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Selecting and using units to estimate, measure, construct, and make comparisons Measures, constructs, and estimates angles using degrees. Big Idea: 2-D shapes and 3-D objects can be analyzed and classified in different ways by their attributes. Investigating geometric attributes and properties of 2-D shapes and 3-D solids Sorts, describes, constructs, and classifies polygons based on side attributes (e.g., parallel, perpendicular, regular/irregular). Understands angle as a geometric figure formed from two rays or line segments sharing a common endpoint. Big Idea: Objects can be located in space and viewed from multiple perspectives. Locating and mapping objects in space Develops understanding of a Cartesian plane as a coordinate system using perpendicular axes. Plots and locates points on a Cartesian plane, and relates the location to the two axes. (Limited to the first quadrant.)
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	Patterning Unit 3: Coding 11: Altering Dance Code 12: Making Shapes 13: Classifying Triangles 14. Consolidation of Coding	Unit 6 Questions 1, 2, 3 (pp. 35-36)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.Selecting and using units to estimate, measure, construct and make comparisons - Measures, constructs, and estimates angles using degrees.Big Idea: 2-D shapes and 3-D objects can be analyzed and classified in different ways by



C4. Mathematical Modelling Apply the process of mathematical n	nodelling to represent analyse ma		their attributes. Investigating geometric attributes and properties of 2-D shapes and 3-D solids - Sorts, describes, constructs, and classifies polygons based on side attributes (e.g., parallel, perpendicular, regular/irregular). - Understands angle as a geometric figure formed from two rays or line segments sharing a common endpoint. Big Idea: Objects can be located in space and viewed from multiple perspectives. Locating and mapping objects in space - Develops understanding of a Cartesian plane as a coordinate system using perpendicular axes. - Plots and locates points on a Cartesian plane, and relates the location to the two axes. (Limited to the first quadrant.)
This overall expectation has no specific	Number 3: Estimating to Solve Problems	N/A	
expectations. Mathematical modelling is an iterative and	7: Exploring Subtraction Strategies		
interconnected process that is applied to various contexts,	10: Equivalent Fractions		
allowing students to bring in learning from other strands.	20: Using Estimation for Multiplication and Division		
Students' demonstration of the process of mathematical	27: Adding with Decimal Numbers		
modelling, as they apply concepts and skills learned in other strands,	30: Multiplication and Division		
is assessed and evaluated.	with Unit Fractions 34: Problem Solving with Money		
	Patterning		
	3: Using Pattern Rules to Solve Problems		
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8 Using Equations to Solve	
Problems	
11: Altering Dance Code	
Measurement	
4: Relating the Perimeter and	
Area of Rectangles	
8: Investigating Capacity	
Data Management	
4: Analyzing Graphs	
6: Creating an Infographic	



D. Data			
D.1 Data Literacy			
manage, analyse, and use data to m	ake convincing arguments and info	rmed decisions, in various context	ts drawn from real life
Data Collection and Organization			
D1.1 explain the importance of various sampling techniques for collecting a sample of data that is representative of a population	Data Management Unit 1B: Data Management 1: Exploring Sampling Techniques 7: Consolidation of Data Management	Unit 10 Questions 1, 2, 3 (pp. 60-61)	 Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Collecting data and organizing it into categories Constructs data organizers to support data collection (e.g., creates tally chart or line plot on a grid to collect survey data). Selects and justifies an appropriate method of data collection (e.g., experiment, observation, survey) based on question posed.
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	Data Management Unit 1B: Data Management 1: Exploring Sampling Techniques 2: Exploring Relative-Frequency Tables 5: Measures of Central Tendency 7: Consolidation of Data Management	Unit 10 Questions 1, 2, 3 (pp. 60-61)	 Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Collecting data and organizing it into categories Constructs data organizers to support data collection (e.g., creates tally chart or line plot on a grid to collect survey data). Selects and justifies an appropriate method of data collection (e.g., experiment, observation, survey) based on question posed. Creating graphical displays of collected data Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table).



Data Visualization				
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 graph	Data Management Unit 1B: Data Management 3: Exploring Stacked-Bar Graphs 7: Consolidation of Data Management	Unit 10 Questions 4, 5, 7 (pp. 62-64)	Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Creating graphical displays of collected data - Creates charts and graphs with appropriate titles and labels to represent data collected (e.g., bar graph, line plot, pictograph, stem- and-leaf plot). - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data. - Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table).	
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	Data Management Unit 1B: Data Management 6: Creating an Infographic 7: Consolidation of Data Management	N/A	Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Creating graphical displays of collected data - Creates charts and graphs with appropriate titles and labels to represent data collected (e.g., bar graph, line plot, pictograph, stem- and-leaf plot). - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data. - Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table).	



Data Analysis			
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	Data Management Unit 1B: Data Management 5: Measures of Central Tendency 7. Consolidation of Data Management	Unit 10 Questions 6, 7 (p. 63-64)	Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness.Reading and interpreting data displays and analyzing variability - Visualizes and determines the median value as a middle measure representing a whole data set. - Visualizes and determines the mean of a data set. - Understands that measures of central tendency (i.e., mode, median, mean) are summary measures that represent all values in a data set with a single number (i.e., most frequent value; middle value; balance point of values). - Understands and describes the difference between the central tendency values (i.e., mode, median, mean) and explores which measure is most appropriate for the data collected.Using the language and tools of chance to describe and predict events - Describes data using frequency counts (e.g., 5 people chose peppermint) and modal value (e.g., dogs are the most common pet).
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	Data Management Unit 1B: Data Management 3: Exploring Stacked-Bar Graphs 4: Analyzing Graphs 6: Creating an Infographic 7. Consolidation of Data Management	Unit 10 Questions 1, 2, 4, 5, 7, 8 (pp. 60-62, 64-65)	Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphical displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Drawing conclusions by making inferences and justifying decisions based on data collected



convincing arguments and informed decisions			 Draws conclusions based on data presented. Uses inferences to make predictions about future grants (a.g., Wayled the mithermore and a future)
			future events (e.g., Would the pictograph of shoe types look the same every day?). - Interprets the results of data presented
			graphically from primary (e.g., class survey) and secondary (e.g., online news report) sources.
D2. Probability			sources.
describe the likelihood that events v	vill happen, and use that informatio	n to make predictions	
Probability			
D2.1 use fractions to express	Data Management Unit 2B:	Unit 11 Questions 1, 2, 4, 5, 6, 7,	Big Idea: Formulating questions, collecting
the probability of events	Probability	8, 9 (pp. 66-71)	data, and consolidating data in visual and
happening, represent this	8: Describing Likelihood of		graphical displays help us understand,
probability on a probability line,	Events		predict, and interpret situations that
and use it to make predictions and	10: Designing Experiments		involve uncertainty, variability, and
informed decisions	11. Consolidation of Probability		randomness.
			Using the language and tools of chance to
			describe and predict events
			- Locates the likelihood of outcomes on a
			vocabulary-based probability continuum
			(e.g., impossible, unlikely, likely, certain).
			- Distinguishes between equally likely events (e.g., heads or tails on a fair coin) and
			unequally likely events (e.g., spinner with
			differently sized sections).
D2.2 determine and compare	Data Management Unit 2B:	Unit 11 Questions 4, 5, 6, 7, 8, 9	Big Idea: Formulating questions, collecting
the theoretical and experimental	Probability	(pp. 67-71)	data, and consolidating data in visual and
probabilities of an event	9: Conducting Experiments	(pp. 07 7 1)	graphical displays help us understand,
happening	10: Designing Experiments		predict, and interpret situations that
	11. Consolidation of Probability		involve uncertainty, variability, and
	,		randomness.
			Collecting data and organizing it into
			categories
			- Records the results of multiple trials of
			simple events.
			Using the language and tools of chance to
			describe and predict events



continuum by expressing and comparing probabilities using decimals (between 0 and
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E. Spatial Sense E1. Geometric and Spatial Reasonir	ng		
-	-	ometric properties and spatial	relationships in order to navigate the world
around them	ion, and movement by applying get	ometric properties and spatial	relationships in order to havigate the world
Geometric Reasoning			
E1.1 identify geometric properties	Geometry Unit 1B: 2-D Shapes,	Unit 4 Questions 1, 3, 4, 10 (22-	Big Idea: 2-D shapes and 3-D solids can be
of triangles, and construct different types of triangles when given side or angle measurements	Angles, and 3-D Solids 2: Properties of Triangles 3: Identifying and Constructing Triangles 6. Consolidation of 2-D Shapes, Angles, and 3-D Solids	24, 27)	 analyzed and classified in different ways by their attributes. Investigating geometric attributes and properties of 2-D shapes and 3-D solids Sorts, describes, constructs, and classifies polygons based on side attributes (e.g., parallel, perpendicular, regular/irregular). Sorts, describes, and classifies 2-D shapes based on their geometric properties (e.g., side lengths, angles, diagonals).
E1.2 identify and construct congruent triangles, rect angles, and parallelograms	Geometry Unit 1B: 2-D Shapes, Angles, and 3-D Solids 4: Identifying and Constructing Congruent 2-D Shapes 6. Consolidation of 2-D Shapes, Angles, and 3-D Solids	Unit 4 Questions 8, 10 (26-27)	Big Ideas: 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change. Exploring 2-D shapes and 3-D solids by applying and visualizing transformations - Demonstrates an understanding of congruency (i.e., same side lengths and angles).
E1.3 draw top, front, and side views of objects, and match drawings with objects	Geometry Unit 1B: 2-D Shapes, Angles, and 3-D Solids 5: Drawing Views 6. Consolidation of 2-D Shapes, Angles, and 3-D Solids	N/A	Big Idea: Objects can be located in space and viewed from multiple perspectives. Viewing and representing objects from multiple perspectives - Investigates, predicts, and draws orthographic projections of 3-D objects (e.g., if you shine a light onto a linking cube structure, what will the shadow look like?).
Location and Movement			
E1.4 plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that	Geometry Unit 2B: Grids and Transformations 7: Plotting and Reading Coordinates 11. Consolidation of Grids and Transformations	Unit 5 Questions 1, 2, 3, 11 (pp. 28-29, 34)	Big Idea: 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change. Exploring 2-D shapes and 3-D solids by applying and visualizing transformations



move a point from one coordinate			Identifies describes and performs single
move a point from one coordinate			- Identifies, describes, and performs single
to another			transformations (i.e., translation, reflection,
			rotation) on 2-D shapes.
			Big Idea: Objects can be located in space
			and viewed from multiple perspectives.
			Locating and mapping objects in space
			- Develops understanding of a Cartesian
			plane as a coordinate system using
			perpendicular axes.
			- Plots and locates points on a Cartesian
			plane, and relates the location to the two
			axes. (Limited to the first quadrant).
			- Analyzes and locates the vertices of 2-D
			shapes after transformation on a Cartesian
			plane. (Limited to the first quadrant).
E1.5 describe and perform	Geometry Unit 2B: Grids and	Unit 5 Questions 4, 5, 6, 7, 8, 9,	Big Idea: 2-D shapes and 3-D solids can be
translations and reflections, and	Transformations	10, 11 (pp. 30-34)	transformed in many ways and analyzed for
rotations up to 180° on a grid, and	8: Translating and Reflecting 2-D		change.
predict the results of these	Shapes		Exploring 2-D shapes and 3-D solids by
transformations	9: Rotating 2-D Shapes		applying and visualizing transformations
	10: Identifying Transformations		- Identifies, describes, and performs single
	11. Consolidation of Grids and		transformations (i.e., translation, reflection,
	Transformations		rotation) on 2-D shapes.
E2. Measurement			
compare, estimate, and determine	measurements in various contexts		
The Metric System			
E2.1 use appropriate metric	Measurement Unit 1: Length,	Unit 14 Questions 1, 2, 7	Big Idea: Many things in our world (e.g.,
units to estimate and measure	Perimeter, and Area	(pp. 86, 89)	objects, spaces, events) have attributes
length, area, mass, and capacity	1: Estimating and Measuring in		that can be measured and compared.
	Millimetres	Unit 15 Questions 1, 4, 6	Understanding attributes that can be
	2: Measuring Length in	(pp. 93-95)	measured, compared, and ordered
	Different Units		- Understands volume and capacity as
	3: Measuring the Area of		attributes of 3-D objects that can be
	Rectangles		measured and compared.
	4: Relating the Perimeter and		Big Idea: Assigning a unit to a continuous
	Area of Rectangles		attribute allows us to measure and make
			attribute allows us to measure and make comparisons.
	Area of Rectangles		



E2.2 solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units	 6. Consolidation of Length, Perimeter, and Area Measurement Unit 2: Mass, Capacity, and Volume 7: Investigating Mass 8: Investigating Capacity 12. Consolidation of Mass, Capacity, and Volume Measurement Unit 1: Length, Perimeter, and Area 2: Measuring Length in Different Units 6. Consolidation of Length, Perimeter, and Area Measurement Unit 2: Mass, Capacity, and Volume 7: Investigating Mass 9: Investigating Relationships Among Units 12. Consolidation of Mass, Capacity, and Volume 	Unit 14 Questions 3, 4, 5 (pp. 87-88) Unit 15 Questions 2, 3, 5, 6, 7 (pp. 94-95)	 Measures, constructs, and estimates perimeter and area of regular and irregular polygons. Chooses the most appropriate unit to measure a given attribute of an object (e.g., classroom area measured in square metres). Understanding relationships among measured units Understands and applies the multiplicative relationships among metric units of length, mass, and capacity. Develops and generalizes strategies to compute area and perimeter of rectangles. Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Understands that the value of a digit is ten times the value of the same digit one place to the right. Understands that the value of a digit is one-tenth the value of the same digit one place to the left. Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understands nd applies the multiplicative
			relationships among metric units of length, mass, and capacity.
Angles			
E2.3 compare angles and determine their relative size by matching them and by measuring them using appropriate non- standard units	Geometry Unit 1B: 2-D Shapes, Angles, and 3-D Shapes 1: Measuring and Comparing Angles 6. Consolidation of 2-D Shapes, Angles, and 3-D Solids	Unit 4 Questions 6, 7, 10 (pp. 24-25, 27)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Selecting and using units to estimate, measure, construct, and make comparisons - Measures, constructs, and estimates angles using degrees.



			Big Idea: 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes. Investigating geometric attributes and properties of 2-D shapes and 3-D solids - Understands angle as a geometric figure formed from two rays or line segments sharing a common endpoint. - Draws, compares, and classifies angles (i.e., right, acute, obtuse, straight, reflex).
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	Geometry Unit 1B: 2-D Shapes, Angles, and 3-D Shapes 1: Measuring and Comparing Angles 6. Consolidation of 2-D Shapes, Angles, and 3-D Solids	Unit 4 Questions 6, 7, 10 (pp. 24-25, 27)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Selecting and using units to estimate, measure, construct, and make comparisons - Measures, constructs, and estimates angles using degrees.
Area			
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	Measurement Unit 1: Length, Perimeter, and Area Lesson 5: Areas of Parallelograms and Triangles 6. Consolidation of Length, Perimeter, and Area	Unit 14 Questions 5, 6, 8, 9, 10, 11, 12 (pp. 87-92)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding relationships among measured units - Develops and generalizes strategies to compute area of triangles, quadrilaterals, and other polygons (e.g., decomposing a parallelogram and rearranging to form a rectangle).
E2.6 show that two-dimensional shapes with the same area can have different perimeters, and solve related problems	Measurement Unit 1: Length, Perimeter, and Area 4: Relating the Perimeter and Area of Rectangles 6. Consolidation of Length, Perimeter, and Area	Unit 14 Question 8 (p. 89)	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding relationships among measured units - Investigates the relationship between perimeter and area in rectangles.



Financial Literacy						
F1. Money and Finances						
demonstrate the knowledge and sk	ills needed to make informed finan	cial decisions				
Money Concepts						
F1.1 describe several ways money can be transferred among individuals, organizations, and businesses	Number Unit 6: Financial Literacy 35: Credit, Debt, and Transfers	Unit 12 Questions 5, 6, 12 (pp. 74, 77)				
F1.2 estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies	Number Unit 6: Financial Literacy 33: Exploring Taxes 34: Problem Solving with Money 38: Consolidation of Financial Literacy	Unit 12 Questions 1, 2, 3, 4, 10, 11 (pp. 72-73, 76)	Big Idea: Numbers are related in many ways.Using ratios, rates, proportions, and percents creates a relationship between quantities- Understands and applies the concept of percentage as a rate per 100 (e.g., calculating sales tax, tips, or discounts).Big Idea: Quantities and numbers can be operated on to determine how many and how much.Developing fluency of operations - Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). - Solves decimal number computation using efficient strategies.			
Financial Management		1				
F1.3 design sample basic budgets to manage finances for various earning and spending sce narios	Number Unit 6: Financial Literacy 37: Designing a Basic Budget 38: Consolidation of Financial Literacy	Unit 12 Questions 9, 10, 11 (p. 76)	Big Idea: Quantities and numbers can be operated on to determine how many and how much.Developing fluency of operations - Solves whole-number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and money owing, saving			



F1.4 explain the concepts of credit and debt, and describe how financial decisions may be impacted by each	Number Unit 6: Financial Literacy 35: Credit, Debt, and Transfers 38: Consolidation of Financial Literacy	Unit 12 Questions 6, 12 (pp. 74, 77)	
Consumer and Civic Awareness			
F1.5 calculate unit rates for various goods and services, and identify which rates offer the best value	Number Unit 6: Financial Literacy 36: Finding Best Value (Unit Rates) 38: Consolidation of Financial Literacy	Unit 12 Questions 7, 8, 12 (pp. 75, 77)	 Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities Demonstrates multiplicative reasoning by applying unit rates in whole number contexts (e.g., If she earns \$12 per hour, how much will she earn for 5 h of work?). Understands the concept of unit rates (e.g., If 3 kg is \$5, how much is 1 kg or how many kg for \$1?).
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 Unit 6: Financial Literacy 33: Exploring Taxes 38: Consolidation of Financial Literacy	N/A	Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities - Understands and applies the concept of percentage as a rate per 100 (e.g., calculating sales tax, tips, or discounts). Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing fluency of operations - Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). - Solves decimal number computation using efficient strategies.

