Correlation of the Ontario Mathematics Curriculum with Mathology Grade 7

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: ○ **Diverse resources** in real-world contexts, so students can see themselves and others while positively engaging in mathematical activities ○ **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 and line masters), 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 7 Mathology.ca**	**Mathology Practice Workbook 7**	**Pearson Canada Grades 4–9 Mathematics Learning Progression**
B. Number			
B1. Number Sense demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life			
Rational Numbers			
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	**Number Unit 1: Number Relationships** 3: Whole Numbers to One Billion Around Us	Unit 2 Questions 26-31 (pp. 18-20)	**Big Idea: Numbers are related in many ways.** **Comparing and ordering quantities (multitude and magnitude)** - Compares, orders, and locates whole numbers based on place-value understanding and records using <, =, > symbols. **Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units** **Unitizing quantities into base-ten units** - Uses understanding of place value to write numbers in expanded form using powers of 10 (e.g., $3107 = 3 \times 10^3 + 1 \times 10^2 + 7 \times 10^0$.

B1.2 identify and represent perfect squares, and determine their square roots, in various contexts	**Number Unit 1: Number Relationships** 4: Investigating Perfect Squares and their Square Roots	Unit 2 Questions 20-25, 31 (pp. 17-18, 20)	**Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies** - Models and expresses the inverse relationship between perfect squares and square roots (e.g., $10^2 = 100$, and inversely, or $100^{\frac{1}{2}} = 10$).
B1.3 read, represent, compare, and order rational numbers, including positive and negative fractions and decimal numbers to thousandths, in various contexts	**Number Unit 1: Number Relationships** 6: Understanding Rational Numbers	Unit 7 Questions 7-9 (pp. 62-63)	**Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers** - Extends decimal and fraction understanding to positive and negative rational numbers. **Big Idea: Numbers are related in many ways. Comparing and ordering quantities (multitude and magnitude)** - Compares, orders, and locates positive and negative rational numbers.
Fractions, Decimals, and Percents			
B1.4 use equivalent fractions to simplify fractions, when appropriate, in various contexts	**Number Unit 1: Number Relationships** 5: Finding Numbers Between Fractions and Decimals	Unit 7 Question 18 (p. 67) Unit 8 Questions 2, 6 (pp. 69-70)	**Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers** - Generates fractions and decimal fractions between any two numbers (i.e., rational number density) (i.e., between 2.3 and 2.4 is 2.31; and between 2.3 and 2.31 is 2.305).
B1.5 generate fractions and decimal numbers between any two quantities	**Number Unit 1: Number Relationships** 5: Finding Numbers Between Fractions and Decimals	Unit 7 Questions 9, 18 (pp. 63, 67)	**Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers** - Generates fractions and decimal fractions between any two numbers (i.e., rational number density) (i.e., between 2.3 and 2.4 is 2.31; and between 2.3 and 2.31 is 2.305).

B1.6 round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts	**Measurement/Geometry** **Unit 1: 2-D Shapes** 4: Calculating the Area of a Circle **Measurement/Geometry** **Unit 2: 3-D Objects** 11: Determining the Surface Area of Cylinders 12: Determining the Volume of Prisms and Cylinders	Unit 7 Question 10 (p. 63)	**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 the circumference and area of circles. - Develops and generalizes strategies and formulas to compute volume and surface area of regular solids (e.g., cones, cylinders, and spheres).
B1.7 convert between fractions, decimal numbers, and percents, in various contexts	**Number Unit 3: Proportional Reasoning** 16: Relationships among Decimals, Fractions, and Percents	Unit 7 Questions 1-6 (pp. 59-62) Unit 8 Questions 16, 17, 20, 21 (pp. 73-74)	**Big Idea: Numbers are related in many ways.** **Decomposing and composing numbers to investigate equivalencies** - 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).

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B2. Operations use knowledge of numbers and operations to solve mathematical problems encountered in everyday life			
Properties and Relationships			
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	**Number Unit 3: Proportional Reasoning** 19: Applying Proportional Reasoning to Solve Problems	Unit 5 Questions 18, 19 (pp. 45-46) Unit 7 Questions 11-17 (pp. 64-66) Unit 8 Questions 16, 17, 18, 20, 21, 22 (pp. 73-75) Unit 11 Questions 7, 8, 9, 10, 11, 12 (pp. 99-100) Unit 12 Questions 14-20 (pp. 114-115)	**Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities** - Distinguishes between proportional and non-proportional situations.
Math Facts			
B2.2 understand and recall commonly used percents, fractions, and decimal equivalents	**Number Unit 3: Proportional Reasoning** 16: Relationships among Decimals, Fractions, and Percents 17: Using Mental Math to Calculate Percents	Unit 7 Question 1 (p. 59)	**Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies** - Models and explains the relationships among fractions, decimals, and percents. - Translates flexibly between representations. **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).

Mental Math			
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	**Number Unit 3: Proportional Reasoning** 17: Using Mental Math to Calculate Percents	Unit 8 Question 19 (p. 74)	**Big Idea: Numbers are related in many ways.** **Decomposing and composing numbers to investigate equivalencies** - Models and explains the relationships among fractions, decimals, and percents. Translates flexibly between representations.
Addition and Subtraction			
B2.4 use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of integers	**Number Unit 2: Operations** 7: Adding Integers 8: Subtracting Integers	Unit 12 Questions 1-7, 14-17, 21 (pp. 109-111, 114, 116)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing conceptual meaning of operations** - Models and demonstrates an understanding of integer addition and subtraction. **Developing fluency of operations** - Estimates and solves integer addition and subtraction using efficient strategies.
B2.5 add and subtract fractions, including by creating equivalent fractions, in various contexts	**Number Unit 2: Operations** 9: Adding and Subtracting Fractions	Unit 8 Questions 1-6, 12-14, 22 (pp. 68-70, 72-73, 75) Unit 12 Questions 14, 18 (pp. 114-115)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing conceptual meaning of operations** - Models and demonstrates an understanding of fraction addition and subtraction. **Developing fluency of operations** - Solves fraction addition and subtraction using efficient strategies.

Multiplication and Division			
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	**Number Unit 1: Number Relationships** 1: Exploring Greatest Common Factors and Lowest Common Multiples	Unit 2 Questions 1-19, 31 (pp. 11-16, 20)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Investigating number and arithmetic properties** - Determines the greatest common factor and least common multiple of whole numbers. - Uses reasoning and knowledge of factors to examine divisibility of numbers (by 4, 8, 3, 6, and 9)
B2.7 evaluate and express repeated multiplication of whole numbers using exponential notation, in various contexts	**Number Unit 1: Number Relationships** 2: Using Exponential Notation	Unit 8 Question 8 (p. 70)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Investigating number and arithmetic properties** - Distinguishes between and investigates properties of prime and composite numbers (e.g., prime factorization). - Extends exponent notation to any repeated multiplication (e.g., $2 \times 2 \times 2 \times 2 = 2^4$) and evaluates expressions using exponents (e.g., $3^4 = 3 \times 3 \times 3 \times 3 = 81$).
B2.8 multiply and divide fractions by fractions, using tools in various contexts	**Number Unit 2: Operations** 10: Multiplying Fractions 11: Dividing Fractions	Unit 8 Questions 7-15, 22 (pp. 70-73, 75) Unit 12 Question 19 (p. 115)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing conceptual meaning of operations** - Models and demonstrates an understanding of multiplication and division of fractions.
B2.9 multiply and divide decimal numbers by decimal numbers, in various contexts	**Number Unit 2: Operations** 12: Multiplying Decimals 13: Dividing Decimals 14. Developing Fluency with Operations	Unit 3 Questions 5-13 (pp. 22-26)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing Fluency of Operations** - Solves decimal number computation using efficient strategies.

B2.10 identify proportional and non-proportional situations and apply proportional reasoning to solve problems	**Number Unit 3: Proportional Reasoning** 15: Exploring Proportional and Non-Proportional Situations 19: Applying Proportional Reasoning to Solve Problems	Unit 7 Questions 11-17 (pp. 64-66)	**Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities** - Distinguishes between proportional and non-proportional situations.

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C. Algebra			
C.1 Patterns and Relationships identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts			
Patterns			
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	**Algebra Unit 1: Patterns and Linear Relations** 1: Representing Patterns 3: Comparing Linear Patterns **Algebra Unit 3: Coding** 11: Using Code to Generate Linear Patterns	Unit 1 Questions 1-3 (pp. 2-4) Unit 7 Question 12 (pp. 64-65)	**Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - Matches different representations of the same linear relation (e.g., graph, equation, table values). - 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). **Generalizing and analyzing patterns, relations, and functions** - Investigates, analyzes, and compares equations and graphs of linear relations to make generalizations and predictions (e.g., How will the graphs of $y = 3x - 4$ and $y = 3x - 8$ be alike/different?)

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	**Algebra Unit 1: Patterns and Linear Relations** 1: Representing Patterns 2: Writing an Expression to Describe a Linear Pattern 3: Comparing Linear Patterns **Algebra Unit 3: Coding** 11: Using Code to Generate Linear Patterns	Unit 1 Questions 4-6, 15 (pp. 4-7, 10) Unit 14 Questions 2, 3, 5, 8, 9 (pp. 129-131, 133-134)	**Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - Matches different representations of the same linear relation (e.g., graph, equation, table values). - 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). **Generalizing and analyzing patterns, relations, and functions** - Investigates, analyzes, and compares equations and graphs of linear relations to make generalizations and predictions (e.g., How will the graphs of $y = 3x - 4$ and $y = 3x - 8$ be alike/different?) **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as $3n + 2$)

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	**Algebra Unit 1: Patterns and Linear Relations** 4: Working with Linear Patterns 5: Evaluating Expressions and Writing Equations **Algebra Unit 3: Coding** 11: Using Code to Generate Linear Patterns	Unit 1 Questions 3, 5, 6, 7, 8, 15 (pp. 4-7, 10)	**Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Generalizing and Analyzing Patterns, Relations, and Functions** - Predicts the value of a given element in a numeric or shape pattern using pattern rules **Representing patterns, relations, and functions** - 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). **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as $3n + 2$).
C1.4 create and describe patterns to illustrate relationships among integers	**Number Unit 2: Operations** 7: Adding Integers 8: Subtracting Integers	Unit 12 Questions 1-3, 9 (pp. 109-110, 112)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing conceptual meaning of operations** - Models and demonstrates an understanding of integer addition and subtraction. **Developing fluency of operations** - Estimates and solves integer addition and subtraction using efficient strategies.

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C.2 Equations and Inequalities demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts			
Variables and Expressions			
C2.1 add and subtract monomials with a degree of 1 that involve whole numbers, using tools	**Algebra Unit 2: Variables and Equations** 6: Adding and Subtracting Monomials	Unit 13 Questions 1, 4-7, 9 (pp. 117-119)	**Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Uses expressions and equations with variables to represent generalized relations and algorithms (e.g., P = 2*l* + 2*w*).
C2.2 evaluate algebraic expressions that involve whole numbers and decimal numbers	**Algebra Unit 2: Variables and Equations** 7: Evaluating Algebraic Expressions	Unit 1 Questions 9-14 (pp. 7-9) Unit 3 Questions 12, 13 (pp. 25-26) Unit 12 Questions 15, 20 (pp. 114-115) Unit 13 Questions 1-4, 8-10 (pp. 117-120)	**Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Evaluates algebraic expressions, including formulas, given specific values for the variables (e.g., evaluate 3*r* – 12, when *r* = 3; $\frac{1}{2}(bh)$, when base is 12 cm and height is 5 cm).

Equalities and Inequalities			
C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions	**Algebra Unit 1: Patterns and Linear Relations** 4: Working with Linear Patterns 5: Evaluating Expressions and Writing Equations **Algebra Unit 2: Variables and Equations** 8: Solving One-Step Equations 9: Solving Equations with Multiple Terms	Unit 3 Questions 1-4, 10, 11 (pp. 21-22, 25) Unit 12 Question 17 (p. 114) Unit 13 Questions 11-19, 23 (pp. 120-124, 127)	**Big Idea: Quantities and numbers can be operated on to determine how many and how much.** **Developing fluency of operations** - Solves decimal number computation using efficient strategies. - Estimates and solves integer addition and subtraction using efficient strategies. - Solves fraction addition and subtraction using efficient strategies. **Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Generalizing and Analyzing Patterns, Relations, and Functions** - Predicts the value of a given element in a numeric or shape pattern using pattern rules. **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as $3n + 2$). - Evaluates algebraic expressions, including formulas, given specific values for the variables (e.g., evaluate $3r - 12$, when $r = 3$; $\frac{1}{2}(bh)$, when base is 12 cm and height is 5 cm). **Understanding equality and inequality, building on generalized properties of numbers and operations** - Investigates and models the meaning of preservation of equality of single variable equations (e.g., $3x = 12$).

			- Investigates the process of decomposing arithmetic equations and comparing them with the sequence of operations used to solve algebraic equations (e.g., $4 \times 5 \div 6 = 26$ compared to solving $4x + 6 = 26$).
C2.4 solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions	**Algebra Unit 2: Variables and Equations** 10: Solving and Graphing Two-Step Inequalities	Unit 13 Questions 20-23 (pp. 125-17)	**Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** **Using variables, algebraic expressions, and equations to represent mathematical relations** - Evaluates algebraic expressions, including formulas, given specific values for the variables (e.g., evaluate $3r - 12$, when $r = 3$; $\frac{1}{2}(bh)$, when base is 12 cm and height is 5 cm). **Understanding equality and inequality, building on generalized properties of numbers and operations** - Applies arithmetic properties to solve inequalities (e.g., $2x > 9$) and determines which inequalities have finite or infinitely many solutions.

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C3. Coding solve problems and create computational representations of mathematical situations using coding concepts and skills			
Coding Skills			
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 subprogram and other control structures	**Algebra Unit 3: Coding** 11: Using Code to Generate Linear Patterns 12: Using Code to Perform Transformations 13: Using Code to Calculate Area and Volume 14: Using Code to Simulate Probability Experiments	Unit 14 Questions 1, 3-7 (pp. 128-132)	**Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - 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).
C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or subprogram and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code	**Algebra Unit 3: Coding** 11: Using Code to Generate Linear Patterns 12: Using Code to Perform Transformations 13: Using Code to Calculate Area and Volume 14: Using Code to Simulate Probability Experiments	Unit 14 Questions 2, 8, 9 (pp. 129-134)	**Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - 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).

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C4. Mathematical Modelling			
Apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations			
This overall expectation has no specific expectations. Mathematical modelling is an iterative and interconnected process that is applied to various contexts, allowing students to bring in learning from other strands. Students' demonstration of the process of mathematical modelling, as they apply concepts and skills learned in other strands, is assessed and evaluated.			

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D. Data			
D.1 Data Literacy manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life			
Data Collection and Organization			
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	**Data Management Unit 1: Data** 2: Exploring Circle Graphs	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 graphical representations to illustrate parts of a whole (e.g., circle graph). **Drawing conclusions by making inferences and justifying decisions based on data collected** - Draws conclusions based on data presented.
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	**Data Management Unit 1: Data** 1: Collecting and Organizing Data 3: Presenting Data Graphically 5: Changes to Measures of Central Tendency	Unit 10 Questions 1, 16 (pp. 85-86, 95)	**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** - Distinguishes between categorical (e.g., pet type, occupation) and discrete (e.g., class size, free throws made) data. **Formulating questions to learn about groups, collections, and events by collecting relevant data** - Formulates questions about a population that require data collection from representative samples. **Creating graphical displays of collected data** - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data.

			Drawing conclusions by making inferences and justifying decisions based on data collected - Draws conclusions based on data presented. **Reading and interpreting data displays and analyzing variability** - Explains the effect of adding, removing, or changing values (including outliers on measures of central tendency.
Data Visualization			
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	**Data Management Unit 1: Data** 2: Exploring Circle Graphs 3: Presenting Data Graphically 6: Creating an Infographic	Unit 10 Questions 3-6, 16 (pp. 86-89, 95)	**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 graphical representations to illustrate parts of a whole (e.g., circle graph). - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data. **Drawing conclusions by making inferences and justifying decisions based on data collected** - Draws conclusions based on data presented.
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	**Data Management Unit 1: Data** 6: Creating an Infographic	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** - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data.

Data Analysis			
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	**Data Management Unit 1: Data** 5: Changes to Measures of Central Tendency	Unit 10 Questions 7-13 (pp. 89-92)	**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** - Explains the effect of adding, removing, or changing values (including outliers on measures of central tendency.
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	**Data Management Unit 1: Data** 2: Exploring Circle Graphs 3: Presenting Data Graphically 4: Analysing and Critiquing Given Data 6: Creating an Infographic	Unit 10 Questions 3-6, 14, 15 (pp. 86-89, 93-94)	**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 graphical representations to illustrate parts of a whole (e.g., circle graph). - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data. **Drawing conclusions by making inferences and justifying decisions based on data collected** - Draws conclusions based on data presented. **Reading and interpreting data displays and analyzing variability** - Critiques the ways in which data is presented in graphs and tables (e.g., misleading graphs; changing scale).

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D2. Probability describe the likelihood that events will happen, and use that information to make predictions			
Probability			
D2.1 describe the difference between independent and dependent events, and explain how their probabilities differ, providing examples	**Data Management Unit 2: Probability** 7: Exploring Independent and Dependent Events	Unit 9 Questions 1, 2 (p. 78)	**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.** **Using the language and tools of chance to describe and predict events** - Distinguishes between independent and dependent events (e.g., removing marbles without replacement).
D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening and of two dependent events happening	**Data Management Unit 2: Probability** 8: Probability of Two Independent Events 9: Probability of Two Dependent Events **Algebra Unit 3: Coding** 14: Using Code to Simulate Probability Experiments	Unit 9 Questions 2-9 (pp. 78-84)	**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.** **Using the language and tools of chance to describe and predict events** - Distinguishes between independent and dependent events (e.g., removing marbles without replacement). - Determines the relative frequency of each outcome in an experiment involving two independent events by performing multiple trials. **Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - 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).

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E. Spatial Sense			
E1. Geometric and Spatial Reasoning describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them			
Geometric Reasoning			
E1.1 describe and classify cylinders, and pyramids according to their geometric properties, including plane and rotational symmetry	**Measurement/Geometry** **Unit 2: 3-D Objects** 7: Geometric Properties of 3-D Objects 8: Symmetry in 3-D Objects	Unit 5 Questions 1-5 (pp. 38-40)	**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** - Sorts, describes, constructs, and classifies 3-D objects based on edges, faces, vertices, and angles (e.g., prisms, pyramids). **Big Idea: 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change.** **Exploring symmetry to analyze 2-D shapes and 3-D solids** - Explores and analyzes symmetry of 3-D objects (e.g., plane, rotational).
E1.2 draw top, front, and side views, as well as perspective views, of objects and physical spaces, using appropriate scales	**Measurement/Geometry** **Unit 2: 3-D Objects** 9: Drawing Views of 3-D Objects 10: Scale Drawings	Unit 5 Questions 6-11 (pp. 40-42)	**Big Idea: Objects can be located in space and viewed from multiple perspectives.** **Viewing and representing objects from multiple perspectives** - Designs and represents compound 3-D objects using 2-D representations from multiple perspectives (e.g., isometric sketches, orthographic sketches, nets).

Location and Movement			
E1.3 perform dilations and describe the similarity between the image and the original shape	**Measurement/Geometry** **Unit 1: 2-D Shapes** 6: Dilating 2-D Shapes	Unit 6 Questions 3, 15, 16 (pp. 49, 55-56)	**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** - Understands similarity as a form of transformation (i.e., dilation) that maintains angle congruence and proportional side length.
E1.4 describe and perform translations, reflections, and rotations on a Cartesian plane, and predict the results of these transformations	**Measurement/Geometry** **Unit 1: 2-D Shapes** 5: Transformations on the Cartesian Plane **Algebra Unit 3: Coding** 13: Using Code to Perform Transformations	Unit 6 Questions 1, 2, 4-13, 16, 17 (pp. 47-54, 56)	**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** - Identifies, describes, applies, and creates a combination of successive transformations on 2-D shapes. **Big Idea: Objects can be located in space and viewed from multiple perspectives.** **Viewing and representing objects from multiple perspectives** - Analyzes and locates points, lines, and shapes on a Cartesian plane after successive transformations. **Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - 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).

Curriculum Expectations	Grade 7 Mathology.ca	Mathology Practice Workbook 7	Pearson Canada Grades 4–9 Mathematics Learning Progression
E2. Measurement compare, estimate, and determine measurements in various contexts			
The Metric System			
E2.1 describe the differences and similarities between volume and capacity, and apply the relationship between millilitres (mL) and cubic centimetres (cm3) to solve problems	**Measurement/Geometry** **Unit 2: 3-D Objects** 13: Exploring Volume and Capacity Relationships	N/A	**Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.** **Understanding relationships among measured units** - Understands and applies the multiplicative relationship among metric units of length, mass, and capacity.
E2.2 solve problems involving perimeter, area, and volume that require converting from one metric unit of measurement to another	**Measurement/Geometry** **Unit 1: 2-D Shapes** 1: Unit Conversions **Measurement/Geometry** **Unit 2: 3-D Objects** 13: Exploring Volume and Capacity Relationships	Unit 1 Question 13 (p. 9)	**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 and perimeter of rectangles. - Understands and applies the multiplicative relationship among metric units of length, mass, and capacity.

Circles			
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	**Measurement/Geometry** **Unit 1: 2-D Shapes** 2: Exploring Circles 3: Calculating Circle Measures	Unit 4 Questions 1-7 (pp. 29-31)	**Big Idea: Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.** **Understanding attributes that can be measured, compared, and ordered** - Understands circumference as the measure around a circle. **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** - Constructs circles based on radius and diameter measures. **Understanding relationships among measured units** - Develops and generalizes strategies to compute the circumference and area of circles.
E2.4 construct circles when given the radius, diameter, or circumference	**Measurement/Geometry** **Unit 1: 2-D Shapes** 2: Exploring Circles	Unit 4 Question 2 (p. 30)	**Big Idea: Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.** **Understanding attributes that can be measured, compared, and ordered** - Understands circumference as the measure around a circle. **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** - Constructs circles based on radius and diameter measures.
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	**Measurement/Geometry** **Unit 1: 2-D Shapes** 4: Calculating the Area of a Circle	Unit 4 Questions 8-10 (pp. 31-32)	**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 the circumference and area of circles.

Volume and Surface Area			
E2.6 represent cylinders as nets and determine their surface area by adding the areas of their parts	**Measurement/Geometry** **Unit 2: 3-D Objects** 11: Determining the Surface Area of Cylinders	Unit 4 Questions 11-15 (pp. 33-35) Unit 5 Questions 12, 14, 20 (pp. 42-43, 46)	**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 and formulas to compute volume and surface area of regular solids (e.g., cones, cylinders, and spheres).
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	**Measurement/Geometry** **Unit 2: 3-D Objects** 12: Determining the Volume of Prisms and Cylinders **Algebra Unit 3: Coding** 13: Using Code to Calculate Area and Volume	Unit 5 Question 13, 15-20 (pp. 43-46) Unit 14 Questions 6, 7 (pp. 131-132)	**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 and formulas to compute volume and surface area of regular solids (e.g., cones, cylinders, and spheres). **Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.** **Representing patterns, relations, and functions** - 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).

Curriculum Expectations	Grade 7 Mathology.ca	Mathology Practice Workbook 7	Pearson Canada Grades 4–9 Mathematics Learning Progression
Financial Literacy			
F1. Money and Finances demonstrate the knowledge and skills needed to make informed financial decisions			
Money Concepts			
F1.1 identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa	**Number Unit 3: Proportional Reasoning** 18: Exploring Exchange Rates and Foreign Currencies	Unit 11 Questions 1, 2, 21 (pp. 96, 106)	**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 unit rates (e.g., If 3 kg is $5, how much is 1 kg or how many kg for $1?)
Financial Management			
F1.2 identify and describe various reliable sources of information that can help with planning for and reaching a financial goal	**Financial Literacy Unit 1: Financial Literacy** 2: Investigating Sources of Information for Financial Planning	Unit 11 Questions 4, 5 (pp. 97-98)	**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** - Interprets and critiques presented results of an investigation based on potential bias, ethical implications, and cultural context.
F1.3 create, track, and adjust sample budgets designed to meet longer-term financial goals for various scenarios	**Financial Literacy Unit 1: Financial Literacy** 5: Adjusting a Budget 6: Creating a Budget	Unit 11 Questions 6, 19-21 (pp. 98, 104-106)	**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 change owing, saving money to make a purchase).

F1.4 identify various societal and personal factors that may influence financial decision making, and describe the effects that each might have	**Financial Literacy Unit 1: Financial Literacy** 1: Factors that Influence Financial Decisions	Unit 11 Question 3 (p. 97)	**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** - Interprets and critiques presented results of an investigation based on potential bias, ethical implications, and cultural context.
Consumer and Civic Awareness			
F1.5 explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time	**Financial Literacy Unit 1: Financial Literacy** 3: Exploring Interest Rates	Unit 11 Questions 15-18 (pp. 102-103)	**Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities** - Explores percentage increase and percentage decrease to solve problems (e.g., calculating simple and compound interest).
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	**Financial Literacy Unit 1: Financial Literacy** 4: Comparing Interest Rates and Fees	Unit 11 Questions 13-18 (pp. 101-103)	**Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities** - Explores percentage increase and percentage decrease to solve problems (e.g., calculating simple and compound interest).