



Correlation of the Ontario Mathematics Curriculum with Mathology Grade 8

Overall Expectation
A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes
<p>Mathology provides teachers with a flexible framework for Social Emotional Learning Skills, by including:</p> <ul style="list-style-type: none"> ○ 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 8 Mathology.ca	Mathology Practice Workbook 8	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 very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life	Number Unit 1: Number Relationships 3: Very Large and Very Small Numbers Around Us	Unit 2 Questions 14-19 (pp. 14-15)	Big Idea: Numbers are related in many ways. Estimating Quantities and Numbers - Uses scientific notation to approximate large and small values (e.g., 395 674 213 is approximately 4.0×10^8). Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Unitizing Quantities into Base-Ten Units - Uses place value, rounding, and powers of 10 to represent very large and very small numbers using scientific notation (e.g., 3 241 782 can be represented as 3.24×10^6).

<p>B1.2 describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various contexts</p>	<p>Number Unit 1: Number Relationships 4: Irrational Numbers around Us 5: Real Numbers around Us</p>	<p>Unit 2 Questions 20-27 (pp. 16-18)</p>	<p>Big Idea: The set of real numbers is infinite. Extending Whole Number Understanding to the Set of Real Numbers - Explores irrational numbers (e.g., $\sqrt{2}$ and π are numbers that cannot be expressed as ratios, but have unique locations on the number line).</p>
<p>B1.3 estimate and calculate square roots, in various contexts</p>	<p>Number Unit 1: Number Relationships 1: Estimating and Calculating Square Roots</p>	<p>Unit 2 Questions 1, 3-8 (pp. 10-12)</p>	<p>Big Idea: The set of real numbers is infinite. Extending Whole Number Understanding to the Set of Real Numbers - Explores irrational numbers (e.g., $\sqrt{2}$ and π are numbers that cannot be expressed as ratios, but have unique locations on the number line). Big Idea: Numbers are related in many ways. Estimating Quantities and Numbers - Estimates square roots of numbers that are imperfect squares (e.g., $\sqrt{28}$ is between 5 and 6, and closer to 5).</p>
<p>Fractions, Decimals, and Percents</p>			
<p>B1.4 use fractions, decimal numbers, and percents, including percents of more than 100% or less than 1%, interchangeably and flexibly to solve a variety of problems</p>	<p>Number Unit 3: Proportional Reasoning 19: Solving Problems Involving Percents, Fractions, and Decimals Algebra Unit 3: Coding 12: Using Code to Explore Volume and Surface Area</p>	<p>Unit 6 Questions 27-33 (pp. 62-64)</p>	<p>Big Idea: Numbers are related in many ways. Using Ratios, Rates, Proportions, and Percents Creates a Relationship Between Quantities - Understands the meaning of percents greater than 100% and less than 1%. 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. Big Idea: Numbers are related in many ways. Estimating Quantities and Numbers - Estimates square roots of numbers that are imperfect squares (e.g., $\sqrt{28}$ is between 5 and 6, and closer to 5).</p>

B2. Operations			
use knowledge of numbers and operations to solve mathematical problems encountered in everyday life			
Properties and Relationships			
<p>B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations</p>	<p>Number Unit 2: Operations 13: Developing Fluency with Operations 15: Comparing Proportional Situations 19: Solving Problems Involving Percents, Fractions, and Decimals</p> <p>Financial Literacy Unit 1: Financial Literacy 1: Exploring Methods of Payment between Countries 2: Creating Financial Plans for Long-Term Goals 3: Maintaining a Balanced Budget 4: Simple Interest and Compound Interest 5: Growth and Impact of Interest at Different Rates 6: Making the Most of Your Money 7: Comparing Credit Cards and Other Consumer Contracts</p>	<p>Unit 6 Questions 1-9, 22-26, 34 (pp. 52-55, 61-62, 65)</p> <p>Unit 7 Questions 14-19 (pp. 71-73)</p> <p>Unit 11 Questions 21-25 (pp. 114-116)</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>Developing Fluency of Operations</p> <ul style="list-style-type: none"> - Solves decimal number computation using efficient strategies. - Uses reasoning, estimation, efficient, strategies, and algorithms to operate on positive and negative rational numbers. <p>Big Idea: Numbers are related in many ways.</p> <p>Usings Ratios, Rates, Proportions, and Percents Creates a Relationship Between Quantities</p> <ul style="list-style-type: none"> - Understands and applies the concept of percentage as a rate per 100 (e.g., calculating sales tax, tips, or discounts). - Uses equations to represent proportional relationships and solve problems (e.g., using exchange rates to convert between currencies). - Understands the meaning of percents greater than 100% and less than 1%. - Uses proportional reasoning in different contexts (e.g., scaling factors). - Explores percentage increase and percentage decrease to solve problems (e.g. calculating simple and compound interest).

Math Facts			
B2.2 understand and recall commonly used square numbers and their square roots	Number Unit 1: Number Relationships 1: Estimating and Calculating Square Roots	Unit 2 Questions 1, 8 (pp. 10, 12)	Big Idea: Numbers are related in many ways. Estimating Quantities and Numbers - Estimates square roots of numbers that are imperfect squares (e.g., $\sqrt{28}$ is between 5 and 6, and closer to 5). Big Idea: The set of real numbers is infinite. Extending Whole Number Understanding to the Set of Real Numbers - Explores irrational numbers (e.g., $\sqrt{2}$ and π are numbers that cannot be expressed as ratios, but have unique locations on the number line).
Mental Math			
B2.3 use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used	Number Unit 1: Number Relationships 2: Exploring Powers of 10 Number Unit 2: Operations 6: Mental Math with Powers of 10	Unit 2 Questions 14-19 (pp. 10-15) Unit 11 Questions 1-4 (pp. 108-109)	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., $3107 = 3 \times 10^3 + 1 \times 10^2 + 7 \times 10^0$). Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing Fluency of Operations - Develops efficient strategies for computing numbers expressed in scientific notation.
Addition and Subtraction			
B2.4 add and subtract integers, using appropriate strategies, in various contexts	Number Unit 2: Operations 7: Adding and Subtracting Integers	Unit 11 Questions 5-9, 18, 19, 20, 22 (pp. 109-111, 113, 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 integer addition and subtraction. Developing Fluency of Operations - Estimates and solves integer addition and subtraction using efficient strategies.

B2.5 add and subtract fractions, using appropriate strategies, in various contexts	Number Unit 2: Operations 10: Adding and Subtracting Fractions	Unit 7 Questions 1-5, 12, 13, 17, 19 (pp. 66-68, 71, 72-73)	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 multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts	Number Unit 2: Operations 11: Multiplying Fractions 12: Dividing Fractions	Unit 7 Questions 6-13, 15, 18, 19 (pp. 68-70, 71-73)	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.
B2.7 multiply and divide integers, using appropriate strategies, in various contexts	Number Unit 2: Operations 8: Multiplying Integers 9: Dividing Integers	Unit 11 Questions 10-20, 22 (pp. 111-113, 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 integer multiplication and division. Developing Fluency of Operations - Solves integer multiplication and division using efficient strategies.
B2.8 Compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts	Number Unit 3: Operations 14: Recognizing and Describing Proportional Situations 15: Comparing Proportional Situations 17: Comparing Constant Rates and Initial Values 18. Determining Unknown Values in Proportional Situations Measurement/Geometry Unit 1: 2-D Shapes and 3-D Objects 3. Using Scale Drawings 4. Exploring Angle Properties	Unit 3 Questions 13-16 (pp. 25-26) Unit 6 Questions 3-8, 10-13, 21, 34 (pp. 53-57, 60, 65) Unit 10 Question 12 (p. 102) Unit 11 Questions 23, 24 (p. 115)	Big Idea: Numbers are related in many ways. Uses Ratios, Rates, Proportions, and Percents Creates a Relationship Between Quantities - Uses proportional reasoning in different contexts (e.g., scaling factors). Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Representing Patterns, Relations, and Functions - Generates ordered pairs for a linear relation and plots the coordinates on a graph. (Limited to integer values on four quadrants.)

Curriculum Expectations	Grade 8 Mathology.ca	Mathology Practice Workbook 8	Pearson Canada Grades 4–9 Mathematics Learning Progression
C. Algebra			
C1. Patterns and Relationships			
identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts			
Patterns			
<p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values</p>	<p>Number Unit 3: Proportional Reasoning 16: Exploring Constant Rates and Initial Values in Patterns 17: Comparing Constant Rates and Initial Values</p> <p>Algebra Unit 1: Patterns and Relations 1: Exploring Patterns 5: Patterns Around Us</p>	<p>Unit 1 Questions 1, 2, 6, 8, 9, 12 (pp. 2-7)</p> <p>Unit 5 Questions 14-17 (pp. 57-59)</p>	<p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.</p> <p>Representing Patterns, Relations, and Functions</p> <ul style="list-style-type: none"> - Generates ordered pairs for a linear relation and plots the coordinates on a graph. (Limited to integer values on four quadrants.) - Matches different representations of the same linear relation (e.g., graph, equation, table of values). - Differentiates between linear and non-linear relations by their graphical representation. <p>Generalizing and Analyzing Patterns, Relations, and Functions</p> <ul style="list-style-type: none"> - 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). - Compares linear relations on the same graph and describes the differences graphically (e.g., y-intercept) and symbolically (e.g., constant). <p>Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.</p> <p>Using Variables, Algebraic Expressions, and Equations to Represent Mathematical Relations</p> <ul style="list-style-type: none"> - Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as $3n + 2$). <p>Understanding Equality and Inequality, Building on Generalized Properties of Numbers and Operations</p> <ul style="list-style-type: none"> - Models the preservation of equality to solve equations involving integer coefficients (e.g., $-4m + 16 = -12$).

<p>C1.2 create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, algebraic expressions and equations for linear growing and shrinking patterns</p>	<p>Algebra Unit 1: Patterns and Relations 1: Exploring Patterns 2: Writing Algebraic Pattern Rules 3: Representing Linear Relations</p>	<p>Unit 1 Questions 1, 2, 7, 10, 11, 17 (pp. 2-3, 6, 9)</p>	<p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Representing Patterns, Relations, and Functions - Represents a mathematical context or problem with expressions and equations using variables to represent unknowns. - Matches different representations of the same linear relations (e.g., graph, equation, table of values). - Differentiates between linear and non-linear relations by their graphical representation. 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 $3n + 2$).</p>
<p>C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns</p>	<p>Algebra Unit 1: Patterns and Relations 3: Representing Linear Relations 4: Determining Term Numbers and Term Values 5: Patterns Around Us</p>	<p>Unit 1 Questions 1, 2, 3, 5, 8, 17 (pp. 2-5, 9) Unit 5 Questions 14-17 (pp. 57-59)</p>	<p>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 relations (e.g., graph, equation, table of values). 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 $3n + 2$). 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 - Models the preservation of equality to solve equations involving integer coefficients (e.g., $-4m + 16 = -12$).</p>

C1.4 create and describe patterns to illustrate relationships among rational numbers	Number Unit 2: Operations 7: Adding and Subtracting Integers 8: Multiplying Integers 9: Dividing Integers	Unit 11 Questions 1, 5, 8, 9, 10, 15, 16 (pp. 108-112)	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. - Models and demonstrates an understanding of integer multiplication and division Developing Fluency of Operations - Estimates and solves integer addition and subtraction using efficient strategies. - Solves integer multiplication and division using efficient strategies.
--	---	--	--

C2. 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, and add binomials with a degree of 1 that involve integers, using tools	Algebra Unit 2: Variables and Equations 6: Working with Monomials and Binomials 7: Evaluating Expressions	Unit 1 Question 13 (p. 7) Unit 12 Questions 4-6 (p. 118)	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., $P = 2l + 2w$). - 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).
C2.2 evaluate algebraic expressions that involve rational numbers	Algebra Unit 2: Variables and Equations 7: Evaluating Expressions	Unit 1 Questions 13-16 (pp. 7-8) Unit 12 Questions 2, 3, 7 (pp. 117-118)	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).

Equalities and Inequalities			
<p>C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions</p>	<p>Algebra Unit 1: Patterns and Relations 4: Determining Term Numbers and Term Values 5: Patterns Around Us Algebra Unit 2: Variables and Equations 8: Solving Equations with Multiple Terms 10: Solving Problems Using Equations and Inequalities</p> <p>Measurement/Geometry Unit 1: 2-D Shapes and 3-D Objects 1: Exploring Relationships in Right Triangles 2: Solving Problems with the Pythagorean Theorem</p>	<p>Unit 12 Questions 8-15, 20 (pp. 119-123, 126)</p>	<p>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 $3n + 2$). 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 - Models the preservation of equality to solve equations involving integer coefficients (e.g., $-4m + 16 = -12$).</p>
<p>C2.4 solve inequalities that involve integers, and verify and graph the solutions</p>	<p>Algebra Unit 2: Variables and Equations 9. Solving and Graphing Inequalities involving Integers 10. Solving Problems Using Equations and Inequalities</p>	<p>Unit 12 Questions 16-20 (pp. 124-126)</p>	<p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Representing Patterns, Relations, and Functions - Models and solves linear inequalities graphically and symbolically ($a + 5 < 9$). 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 - Applies arithmetic properties to solve inequalities (e.g., $2x > 9$) and determines which inequalities have finite or infinitely many solutions.</p>

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 code, including code that involves the analysis of data in order to inform and communicate decisions	Algebra Unit 3: Coding 11: Using Code to Explore Translations 12: Using Code to Explore Volume and Surface Area 13: Using Code to Analyze Data and Make Decisions 14: Using Code to Simulate Independent Events	Unit 13 Questions 1-6 (pp. 128-133)	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 involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code	Algebra Unit 3: Coding 11: Using Code to Explore Translations 12: Using Code to Explore Volume and Surface Area 13: Using Code to Analyze Data and Make Decisions 14: Using Code to Simulate Independent Events	Unit 13 Questions 1-6 (pp. 128-133)	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).

C4. Mathematical Modelling
Apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations
<i>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.</i>
Algebra Unit 2: Variables and Equations 10: Solving Problems Using Equations and Inequalities
Measurement Unit 1: 2-D Shapes and 3-D Objects 10: Solving Problems with 3-D Composite Objects

Curriculum Expectations	Grade 8 Mathology.ca	Mathology Practice Workbook 8	Pearson Canada Grades 4–9 Mathematics Learning Progression
D. Data			
D1. 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 identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed	Data Management Unit 1: Data 1: Exploring Types of Data	Unit 9 Questions 1, 2 (pp. 85-86)	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 - Generates bivariate data (i.e., two variables such as foot size and height) to explore relationships.
D1.2 collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values	Data Management Unit 1: Data 1: Exploring Types of Data	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. Collecting Data and Organizing It into Categories - Generates bivariate data (i.e., two variables such as foot size and height) to explore relationships.

Data Visualization			
D1.3 select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs	Data Management Unit 1: Data 2: Exploring Scatter Plots 3: Using Different Types of Graphs	Unit 9 Questions 7-12, 17 (pp. 89-92, 96)	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. Formulating questions learn about groups, collections, and events by collecting relevant data. <ul style="list-style-type: none"> - Generates questions seeking a potential relationship between two variables or attributes (e.g. Does study time impact test scores?) Creating Graphical Displays of Collected Data <ul style="list-style-type: none"> - Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table). - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graph) and continuous (e.g., line graph) data.
D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data	Data Management Unit 1: Data 6: Creating an Infographic Algebra Unit 3: Coding 13: Using Code to Analyze and Make Decisions	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. Formulating questions learn about groups, collections, and events by collecting relevant data. <ul style="list-style-type: none"> - Investigates questions in society involving statistics (e.g., population growth) and probability (e.g., insurance options, weather).

Data Analysis			
D1.5 use mathematical language, including the terms “strong”, “weak”, “none”, “positive”, and “negative”, to describe the relationship between two variables for various data sets with and without outliers	Data Management Unit 1: Data 2: Exploring Scatter Plots 4: Investigating Relationships in Data	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. Formulating questions learn about groups, collections, and events by collecting relevant data <ul style="list-style-type: none"> - Generates questions seeking a potential relationship between two variables or attributes (e.g., Does study time impact test scores?). Collecting Data and Organizing It into Categories <ul style="list-style-type: none"> - Generates bivariate data (i.e., two variables such as foot size and height) to explore relationships. Creating Graphical Displays of Collected Data <ul style="list-style-type: none"> - Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table).
D1.6 analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	Data Management Unit 1: Data 5: Using Data to Make Convincing Arguments Algebra Unit 3: Coding 13: Using Code to Analyze and Make Decisions	Unit 9 Questions 13-17 (pp. 93-96)	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. <ul style="list-style-type: none"> - Critiques the ways in which data is presented in graphs and tables (e.g., misleading graphs; changing scale).

D2. Probability describe the likelihood that events will happen, and use that information to make predictions			
Probability			
D2.1 solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams	Data Management Unit 2: Data 8: Exploring Probability Using Venn Diagrams 9: Probability of Multiple Independent Events 10: Probability of Multiple Dependent Events	Unit 8 Questions 1, 2, 3 (pp. 76-77)	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 - Extends understanding of the probability continuum by expressing and comparing probabilities using decimals (between 0 and 1), ratios, fractions, and percents. - Determines and represents theoretical probability of outcomes for two independent events (e.g., rolling a die and tossing a coin) using graphical tools (e.g. tree diagram, lists, matrix). - Distinguishes between independent and dependent events (e.g., removing marbles without replacement). Drawing Conclusions by Making Inferences and Justifying Decisions Based on Data Collected - Compares short- and long-run experimental probabilities of events to their theoretical expectations and explains the differences.
D2.2 determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening	Data Management Unit 2: Data 9. Probability of Multiple Independent Events 10. Probability of Multiple Dependent Events Algebra Unit 3: Coding 14: Using Code to Simulate Independent Events	Unit 8 Questions 4-17 (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 - Determines and represents theoretical probability of outcomes for two independent events (e.g., rolling a die and tossing a coin)

			<p>using graphical tools (e.g., tree diagram, lists, matrix).</p> <ul style="list-style-type: none"> - Distinguishes between independent and dependent events (e.g., removing marbles without replacement). <p>Drawing Conclusions by Making Inferences and Justifying Decisions Based on Data Collected</p> <ul style="list-style-type: none"> - Compares short- and long-run experimental probabilities of events to their theoretical expectations and explains the differences.
--	--	--	--

Curriculum Expectations	Grade 8 Mathology.ca	Mathology Practice Workbook 8	Pearson Canada Grades 4–9 Mathematics Learning Progression
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 identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations	Geometry Unit 1: 2-D Shapes and 3-D Objects 8: Exploring Tessellations	Unit 5 Questions 9-16 (pp. 46-49)	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 - Uses properties of shapes and transformations to design tessellations.
E1.2 make objects and models using appropriate scales, given their top, front, and side views or their perspective views	Geometry Unit 1: 2-D Shapes and 3-D Objects 9: Building Objects from Drawings	Unit 4 Questions 1-5 (pp. 32-35)	Big Idea: Objects can be located in space and viewed from multiple perspectives. Viewing and Representing Objects from Multiple Perspectives - Interprets and created coded plans, and constructs objects from plans (e.g., uses linking cubes to build 3-D object from plan).

Location and Movement			
E1.3 use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios	Geometry Unit 1: 2-D Shapes and 3-D Objects 3: Using Scale Drawings 9: Building Objects from Drawings	Unit 3 Questions 13-16 (pp. 25-26) Unit 5 Questions 11, 12 (p. 56)	Big Idea: Objects can be located in space and viewed from multiple perspectives. Viewing and Representing Objects from Multiple Perspectives - Interprets and created coded plans, and constructs objects from plans (e.g., uses linking cubes to build 3-D object from plan). Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding Relationships Among Measured Units - Investigates the proportional effect of a scale factor on side lengths, perimeter, and area of similar (i.e., scalar) 2-D shapes.
E1.4 describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations	Geometry Unit 1: 2-D Shapes and 3-D Objects 7: Transformations on the Cartesian Plane Algebra Unit 3: Coding 11: Using Code to Explore Translations	Unit 5 Questions 1, 3-8, 16 (pp. 42-45, 49)	Big Idea: Objects can be located in space and viewed from multiple perspectives. Locating and Mapping Objects in Space - Analyzes and predicts the location of 2-D shapes under transformation on a Cartesian plane.

E2. Measurement			
compare, estimate, and determine measurements in various contexts			
The Metric System			
E2.1 represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation	Number Unit 1: Number Relationships 3: Very Large and Very Small Numbers around Us	N/A	Big Idea: Numbers are related in many ways. Estimating Quantities and Numbers - Uses scientific notation to approximate large and small values (e.g., 395 674 213 is approximately 4.0×10^8). Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Unitizing Quantities into Base-Ten Units - Uses place value, rounding, and powers of 10 to represent very large and very small numbers using scientific notation (e.g., 3 241 782 can be represented as 3.24×10^6).
Lines and Angles			
E2.2 solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons	Measurement Unit 1: 2-D Shapes and 3-D Objects 4: Exploring Angle Properties	Unit 3 Questions 17-19 (pp. 27-28) Unit 6 Questions 18-20 (p. 60)	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 - Develops and applies understanding of angle relationships of intersecting lines, transversals, and triangles to solve problems. - Uses interior angle properties of polygons to solve problems and determine similarity.

Length, Area, and Volume			
E2.3 solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas	<p>Measurement Unit 1: 2-D Shapes and 3-D Objects 6: Solving Problems with 2-D Composite Shapes 10. Solving Problems with 3-D Composite Objects</p> <p>Algebra Unit 3: Coding 12: Using Code to Explore Volume and Surface Area</p>	<p>Unit 3 Questions 8, 9, 10, 20-24 (pp. 24, 29-31)</p> <p>Unit 4 Questions 7-15 (pp. 36-41)</p>	<p>Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.</p> <p>Understanding Relationships Among Measured Units</p> <ul style="list-style-type: none"> - Develops and generalizes strategies to compute area of triangles, quadrilaterals, and other polygons (e.g., decomposing a parallelogram and rearranging to form a rectangle). - Determines volume and surface area of composite 3-D objects.
E2.4 describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle	<p>Measurement Unit 1: 2-D Shapes and 3-D Objects 1: Exploring Relationships in Right Triangles 2: Solving Problems with the Pythagorean Relationship</p>	<p>Unit 3 Questions 1-12, 21, 24 (pp. 21-25, 29, 31)</p> <p>Unit 4 Questions 8, 14 (pp. 36, 40)</p>	<p>Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.</p> <p>Understanding Relationships Among Measured Units</p> <ul style="list-style-type: none"> - Develops and generalizes strategies to construct, compute, and apply the Pythagorean Theorem

Curriculum Expectations	Grade 8 Mathology.ca	Mathology Practice Workbook 8	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 describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates	Financial Literacy Unit 1: Financial Literacy 1. Exploring Methods of Payment between Countries	Unit 10 Questions 1, 2 (pp. 97-98)	Big Idea: Numbers are related in many ways. Using Ratios, Rates, Proportions, and Percents Creates a Relationship Between Quantities - Uses equations to represent proportional relationships and solve problems (e.g., using exchange rates to convert between currencies).
Financial Management			
F1.2 create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications	Financial Literacy Unit 1: Financial Literacy 2. Creating Financial Plans for Long-Term Goals	Unit 10 Questions 3, 4 (p. 98)	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 - Solves decimal number computation using efficient strategies.
F1.3 identify different ways to maintain a balanced budget, and use appropriate tools to track all income and spending, for several different scenarios	Financial Literacy Unit 1: Financial Literacy 3. Maintaining a Balanced Budget	Unit 10 Questions 3, 4 (p. 98)	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 - Solves decimal number computation using efficient strategies.

<p>F1.4 determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning</p>	<p>Financial Literacy Unit 1: Financial Literacy 4. Simple Interest and Compound Interest 5. Growth and Impact of Interest at Different Rates</p>	<p>Unit 10 Questions 5-10 (pp. 99-101)</p>	<p>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). 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.</p>
Consumer and Civic Awareness			
<p>F1.5 compare various ways for consumers to get more value for their money when spending, including taking advantage of sales and customer loyalty and incentive programs, and determine the best choice for different scenarios</p>	<p>Financial Literacy Unit 1: Financial Literacy 6. Making the Most of Your Money</p>	<p>Unit 10 Questions 11-13 (pp. 102-103)</p>	<p>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 - Solves decimal number computation using efficient strategies.</p>
<p>F1.6 compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios</p>	<p>Financial Literacy Unit 1: Financial Literacy 7. Comparing Credit Cards and other Consumer Contracts</p>	<p>Unit 10 Questions 14-16 (pp. 104-105)</p>	<p>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 - Solves decimal number computation using efficient strategies.</p>