



Correlation of Nova Scotia Program of Studies (2022) with Mathology Grade 8 (Number)

Outcomes	Grade 8 Mathology.ca	Pearson Canada Grades 4–9 Mathematics Learning Progression
General Curriculum Outcome Demonstrate number sense.		
Performance Indicators N01 Demonstrate an understanding of perfect squares and square roots, concretely, pictorially and symbolically (limited to whole numbers).	Number Unit 1: Fluency with Whole Numbers and Integers 1: Investigating Perfect Squares and Square Roots	Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies <ul style="list-style-type: none"> - Models and expresses the inverse relationship between perfect squares and square roots. Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations <ul style="list-style-type: none"> - Models and demonstrates an understanding of squares and square roots.
N02 Determine the approximate square root of numbers that are not perfect squares (limited to whole numbers).	Number Unit 1: Fluency with Whole Numbers and Integers 1: Investigating Perfect Squares and Square Roots	Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies <ul style="list-style-type: none"> - Models and expresses the inverse relationship between perfect squares and square roots. Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations <ul style="list-style-type: none"> - Models and demonstrates an understanding of squares and square roots.
N03 Demonstrate an understanding of percents greater than or equal to 0%.	Number Unit 2: Proportions, Ratios, Rates, and Percent 11: Working with Whole Number Percents 12: Working with Fractional Percents 13: Solving Percent Problems Number Unit 4: Financial Literacy 20: Solving Problems Involving Coupons and Discounts	Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities <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 discount) - Understands the meaning of percents greater than 100% and less than 1%

<p>N04 Demonstrate an understanding of ratio and rate.</p>	<p>Number Unit 2: Proportions, Ratios, Rates, and Percent 7: Exploring Ratios 8: Relating Ratio and Proportion 9: Exploring Rates</p>	<p>Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities</p> <ul style="list-style-type: none"> - Solves for missing values and determines equivalent ratios and rates using flexible strategies (e.g., tables, graphing, unit rates, $\frac{a}{b} = \frac{c}{d}$ relationship). - 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 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?). <p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Generalizing and analyzing patterns, relations, and functions</p> <ul style="list-style-type: none"> - Analyzes the relationship between values of two linear number patterns (e.g., P1 is 2, 4, 6, 8, ...; and P2 is 3, 6, 9, 12, ...; as P1 goes up by 1, P2 goes up by 3).
<p>N05 Solve problems that involve rates, ratios and proportional reasoning.</p>	<p>Number Unit 2: Proportions, Ratios, Rates, and Percent 7: Exploring Ratios 8: Relating Ratio and Proportion 9: Exploring Rates 10: Solving Problems Involving Proportions, Ratios, and Rate</p> <p>Number Unit 4: Financial Literacy 21: Calculating the Best Buy</p>	<p>Big Idea: Numbers are related in many ways. Using ratios, rates, proportions, and percents creates a relationship between quantities</p> <ul style="list-style-type: none"> - Solves for missing values and determines equivalent ratios and rates using flexible strategies (e.g., tables, graphing, unit rates, $\frac{a}{b} = \frac{c}{d}$ relationship). - 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 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?). <p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Generalizing and analyzing patterns, relations, and functions</p> <ul style="list-style-type: none"> - Analyzes the relationship between values of two linear number patterns (e.g., P1 is 2, 4, 6, 8, ...; and P2 is 3, 6, 9, 12, ...; as P1 goes up by 1, P2 goes up by 3).

<p>N06 Demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially and symbolically.</p>	<p>Number Unit 3: Operations with Fractions and Mixed Numbers 16: Multiplying Fractions and Mixed Numbers 17: Dividing Fractions and Mixed Numbers</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing Conceptual Meaning of Operations</p> <ul style="list-style-type: none"> - Models and demonstrates an understanding of multiplication and division of fractions.
<p>N07 Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically.</p>	<p>Number Unit 1: Fluency with Whole Numbers and Integers 4: Multiplying Integers 5: Dividing Integers 6: Order of Operations with Integers</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations</p> <ul style="list-style-type: none"> - Models and demonstrates an understanding of integer addition and subtraction. - Models and demonstrates an understanding of integer multiplication and division. <p>Developing fluency of operations</p> <ul style="list-style-type: none"> - Estimates and solves integer addition and subtraction using efficient strategies. - Solves integer multiplication and division using efficient strategies.

Correlation of Nova Scotia Program of Studies (2022) with Mathology Grade 8 (Patterns and Relations)

Outcomes	Grade 8 Mathology.ca	Pearson Canada Grades 4–9 Mathematics Learning Progression
General Curriculum Outcome Use patterns to describe the world and to solve problems. Represent algebraic expressions in multiple ways		
Specific Curriculum Outcomes PR01 Graph and analyze two-variable linear relations.	Patterning Unit 1: Linear Relations and Equations 2: Representing Linear Relations 3: Determining if a Relationship is Linear	Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. Representing patterns, relations, and functions <ul style="list-style-type: none"> - Represents a mathematical context or problem with expressions and equations using variables to represent unknowns. - 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.
PR02 Model and solve problems concretely, pictorially and symbolically, where a , b and c are integers. using linear equations of the form: <ul style="list-style-type: none"> • $ax = b$ • $x/a = b$, $a \neq 0$ • $ax + b = c$ • $x/a + b = c$, $a \neq 0$ • $a(x + b) = c$ 	Patterning Unit 1: Linear Relations and Equations 4: Solving Linear Equations Using Models 5: Solving Linear Equations Algebraically 6: Solving Equations Involving the Distributive Property 7: Solving Problems Using Linear Equations	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. <ul style="list-style-type: none"> - Investigates and models the meaning of preservation of equality of single variable equations (e.g., $3x = 12$). - Models the preservation of equality to solve equations involving integer coefficients (e.g., $-4m + 16 = -12$). - Applies arithmetic properties to transform, simplify, and identify equivalent linear expressions (e.g., $x(4 + 5) = 4x + 5x = 9x$). - Applies the distributive property to expressions and identifies common factors

		<p>to create equivalent expressions (e.g., $4a + 12 = 4(a + 3)$).</p> <p>Using variables, algebraic expressions, and equations to represent mathematical relations.</p> <ul style="list-style-type: none"> - 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). - Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as $3n + 2$).
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Correlation of Nova Scotia Program of Studies (2022) with Mathology Grade 8 (Measurement)

Outcomes	Grade 8 Mathology.ca	Pearson Canada Grades 4–9 Mathematics Learning Progression
General Curriculum Outcome Use direct and indirect measurement to solve problems.		
Specific Curriculum Outcomes M01 Develop and apply the Pythagorean theorem to solve problems.	Measurement Unit 1: 2-D Shapes and 3-D Solids 1: Exploring the Pythagorean Theorem 2: Applying the Pythagorean Theorem to Solve Problems	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 <ul style="list-style-type: none"> - Applies Pythagorean Theorem to find unknown side lengths and distance between points on a Cartesian plane. Understanding relationships among measured units <ul style="list-style-type: none"> - Develops and generalizes strategies to construct, compute, and apply the Pythagorean Theorem.
M02 Draw and construct nets for 3-D objects.	Measurement Unit 1: 2-D Shapes and 3-D Solids 3: Exploring Nets of Prisms and Cylinders	Big Idea: 2-D Shapes and 3-D solids can be analyzed and classified in different ways by their attributes. Investigating 2-D shapes, 3-D solids, and their attributes through composition and decomposition <ul style="list-style-type: none"> - Identifies and constructs nets for 3-D objects made from polygons (e.g. cylinder, hexagonal prism)
M03 Determine the surface area of right rectangular prisms, right triangular prisms, and right cylinders to solve problems.	Measurement Unit 1: 2-D Shapes and 3-D Solids 4: Determining the Surface Area of Prisms and Cylinders	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding relationships among measured units <ul style="list-style-type: none"> - Develops and generalizes strategies and formulas to compute volume and surface area of regular solids (e.g., cones, cylinders, and spheres).
M04 Develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms, and right cylinders.	Measurement Unit 1: 2-D Shapes and 3-D Solids 5: Determining the Volume of Prisms and Cylinders	Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons. Understanding relationships among measured units <ul style="list-style-type: none"> - Develops and generalizes strategies and formulas to compute volume and surface area of regular solids (e.g., cones, cylinders, and spheres).



Correlation of Nova Scotia Program of Studies (2022) with Mathology Grade 8 (Geometry)

Outcomes	Grade 8 Mathology.ca	Pearson Canada Grades 4–9 Mathematics Learning Progression
General Curriculum Outcome Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.		
Specific Curriculum Outcomes G01 Draw and interpret top, front and side views of 3-D objects composed of right rectangular prisms.	Measurement Unit 1: 2-D Shapes and 3-D Solids 6: Sketching Views of 3-D Objects 7: Building 3-D Objects from their Views 8: Exploring Rotations of 3-D Objects	Big Idea: Objects can be located in space and viewed from multiple perspectives. Viewing and representing objects from multiple perspectives <ul style="list-style-type: none"> - Designs and represents compound 3-D objects using 2-D representations from multiple perspectives (e.g., isometric sketches, orthographic sketches, nets). - Interprets and creates coded plans, and constructs objects from plans (e.g., uses linking cubes to build 3-D object from plan).



Correlation of Nova Scotia Program of Studies (2022) with Mathology Grade 8 (Statistics and Probability)

Outcomes	Grade 8 Mathology.ca	Pearson Canada Grades 4–9 Mathematics Learning Progression
General Curriculum Outcome Collect, display and analyze data to solve problems.		
Specific Curriculum Outcomes SP01 Critique ways in which data is presented.	Data Management Unit 1: Data Management 4: Presenting Data Graphically 5: Analyzing and Critiquing Given Data	Big Idea: Formulating questions, collecting data, and consolidating data in visual and graphic displays help us understand, predict, and interpret situations that involve uncertainty, variability, and randomness. Creating graphical displays of collected data <ul style="list-style-type: none"> - Chooses and justifies appropriate visual representations for displaying discrete (e.g., bar graphs) and continuous (e.g., line graph) data. Reading and interpreting data displays and analyzing variability <ul style="list-style-type: none"> - Critiques the ways in which data are presented in graphs and tables (e.g., misleading graphs, changing scale).