**Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Number)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome**  Develop number sense. | | |
| **Specific Outcomes**  1. Determine and explain why a number is divisible by 2, 3, 4, 5, 6, 8, 9 or 10, and why a number cannot be divided  by 0. | **Number Unit 1: Number Relationships**  1: Developing Divisibility Rules for 2, 4, 5, 8, and 10  2: Developing Divisibility Rules for 3, 6, and 9  3: Relating Factors, Multiples, and Divisibility | **Big Idea: Quantities and numbers can be operated on to determine how many and how much.**  **Investigating number and arithmetic properties**  - Examines and classifies whole numbers based on their properties (e.g., even/odd; prime; composite; divisible by 2, 5, 10).   * Uses reasoning and knowledge of factors to examine divisibility of numbers (by 4, 8, 3, 6, and 9). |
| 2. Demonstrate an understanding of the addition, subtraction, multiplication and division of decimals to solve problems (for more than 1-digit divisors or 2-digit multipliers, the use of technology is expected). | **Number Unit 4: Operations with Decimals, Percents, and Fractions**  16: Multiplying Decimals  17: Dividing Decimals  18: Applying the Order of Operations with Decimals  **Number Unit 5: Financial Literacy**  22: Calculating Sales Taxes and Tips  23: Calculating Sales Taxes and Discounts | **Big Idea:** **Quantities and numbers can be operated on to determine how many and how much.**  **Developing conceptual meaning of operations**   * Demonstrates an understanding of decimal number computation through modelling and flexible strategies.   **Developing fluency of operations**   * Solves decimal number computation using efficient strategies.   **Investigating number and arithmetic properties**   * Evaluates equations with brackets using order of operations. |
| 3. Solve problems involving percents from 1% to 100%. | **Number Unit 3: Fractions, Decimals, and Percents**  14: Relating Fractions, Decimals, and Percents  **Number Unit 4: Operations with Decimals, Percents, and Fractions**  19: Working with Percents  **Number Unit 5: Financial Literacy**  22: Calculating Sales Taxes and Tips  23: Calculating Sales Taxes and Discounts | **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 hundred (e.g., calculating sales tax, tips, or discounts). |
| 4. Demonstrate an understanding of the relationship between positive terminating decimals and positive fractions and between positive repeating decimals and positive fractions. | **Number Unit 3: Fractions, Decimals, and Percents**  12: Converting Between Fractions and Decimals | **Big Idea: Numbers are related in many ways.**  **Decomposing and composing numbers to investigate equivalencies**   * Understands that all fractions are equivalent to either terminating or repeating decimals. * Models and explains the relationship between a fraction and its equivalent decimal form. |
| 5. Demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially and symbolically (limited to positive sums and differences). | **Number Unit 4: Operations with Decimals, Percents, and Fractions**  20: Adding Fractions and Mixed Numbers  21: Subtracting Fractions and Mixed Numbers | **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. |
| 6. Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially and symbolically. | **Number Unit 2: Fluency with Integers**  5: Representing Integers  6: Adding Integers  7: Subtracting Integers  8: Solving Problems Involving Integers | **Big Idea: The set of real numbers is infinite.**  **Extending whole number understanding to the set of real numbers**   * Understands that a positive integer and its negative opposite are the same distance from zero (e.g., both 5 and –5 are five units from zero on a number line).   **Big Idea:** **Numbers are related in many ways.**  **Comparing and ordering quantities (multitude or magnitude)**   * Compares, orders, and locates integers.   **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. |
| 7. Compare and order positive fractions, positive decimals (to thousandths) and whole numbers by using:  • benchmarks  • place value  • equivalent fractions and/or decimals. | **Number Unit 3: Fractions, Decimals, and Percents**  13: Comparing and Ordering Fractions and Decimals | **Big Idea: Numbers are related in many ways.**  **Comparing and ordering quantities (multitude or magnitude)**   * Compares, orders, and locates positive rational numbers using flexible strategies. |

 **Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Patterns and Relations: Patterns)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome** Use patterns to describe the world and to solve problems. | | |
| **Specific Outcomes**  1. Demonstrate an understanding of oral and written patterns and their equivalent linear relations. | **Patterning Unit 1: Linear Patterns and Equations** 2: Writing an Expression to Describe a Linear Pattern | **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 of values).   **Using variables, algebraic expressions, and equations to represent mathematical relations**   * Identiﬁes and describes the meaning of parts of an equation using mathematical terms (e.g., sum, coefﬁcient, factor, variable, constant). * Writes expressions to describe patterns and contexts representing linear relations (e.g., 5, 8, 11, 14 can be represented as 3*n* + 2). |
| 2. Create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems. | **Patterning Unit 1: Linear Patterns and Equations** 1: Representing Patterns  6: Writing and Solving Patterns Involving Linear Relations | **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. * 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. * Models and solves problems with integers using linear equations in different forms (e.g., a*x* = *b*; *ax* + *b* = *c*; *a*(*x* + *b*) = *c*).   **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; *h*, 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 3*n* + 2). |

 **Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Patterns and Relations: Variables and Equations)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome**  Represent algebraic expressions in multiple ways. | | |
| **Specific Outcomes**  3. Demonstrate an understanding of preservation of equality by:  • modelling preservation of equality, concretely, pictorially and symbolically  • applying preservation of equality to solve equations. | **Patterning Unit 1: Linear Patterns and Equations** 4: Modelling and Solving One-Step Equations  6: Writing and Solving Problems Involving Linear Relations | **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.**   * Investigates and models the meaning of preservation of equality of single variable equations (e.g., 3*x* = 12). * Applies arithmetic properties (e.g., distributive, commutative, identities) to identify, transform, and generate equivalent numeric expressions   (e.g., 3(2 + 5) = (2 + 5) + (2 + 5) + (2 + 5)).   * Models the preservation of equality to solve equations involving integer coefﬁcients   (e.g., –4*m* + 16 = –12).  **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; *h*, 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 3*n* + 2).   **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. * Models and solves problems with integers using linear equations in different forms (e.g., a*x* = *b*; *ax* + *b* = *c*; *a*(*x* + *b*) = *c*). |

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| 4. Explain the difference between an expression and an equation. | **Patterning Unit 1: Linear Patterns and Equations** 3: Evaluating Expressions and Writing Equations | **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 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**   * Evaluates algebraic expressions, including formulas, given speciﬁc values for the variables (e.g., evaluate 3*r* – 12, when *r* = 3; *h*, 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 3*n* + 2). |
| 5. Evaluate an expression, given the value of the variable(s). | **Patterning Unit 1: Linear Patterns and Equations** 3: Evaluating Expressions and Writing Equations | **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 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**   * Evaluates algebraic expressions, including formulas, given speciﬁc values for the variables (e.g., evaluate 3*r* – 12, when *r* = 3; *h*, 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 3*n* + 2). |
| 6. Model and solve, concretely, pictorially and symbolically, problems that can be represented by one-step linear equations of the form *x* + *a* = *b*, where *a* and *b* are integers. | **Patterning Unit 1: Linear Patterns and Equations** 4: Modelling and Solving One-Step 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.**   * Investigates and models the meaning of preservation of equality of single variable equations (e.g., 3*x* = 12). * Applies arithmetic properties (e.g., distributive, commutative, identities) to identify, transform, and generate equivalent numeric expressions   (e.g., 3(2 + 5) = (2 + 5) + (2 + 5) + (2 + 5)).   * Models the preservation of equality to solve equations involving integer coefﬁcients   (e.g., –4*m* + 16 = –12). |
| 7. Model and solve, concretely, pictorially and symbolically, problems that can be represented by linear equations of the form:  • *ax* + *b* = *c*  • *ax* = *b*  • = *b,* a ≠ 0  where *a*, *b* and *c* are whole numbers. | **Patterning Unit 1: Linear Patterns and Equations** 5: Modelling and Solving Multi-Step Equations  6: Writing and Solving Problems Involving Linear Relations | **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.**   * Investigates and models the meaning of preservation of equality of single variable equations (e.g., 3*x* = 12). * Models the preservation of equality to solve equations involving integer coefﬁcients (e.g., –4*m* + 16 = –12).   **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; , 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 3*n* + 2).   **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. * Models and solves problems with integers using linear equations in different forms (e.g., a*x* = *b*;   *ax* + *b* = *c*; *a*(*x* + *b*) = *c*). |

 **Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Shape and Space: Measurement)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** | |
| **General Outcome** Use direct and indirect measurement to solve problems. | | |
| **Specific Outcomes**  1. Demonstrate an understanding of circles by:  • describing the relationships among radius, diameter and circumference  • relating circumference to pi  • determining the sum of the central angles  • constructing circles with a given radius or diameter  • solving problems involving the radii, diameters and circumferences of circles. | **Measurement Unit 1:**  **2-D Shapes and 3-D Solids**  1: Exploring Circles  2: Calculating Circumference  3: Exploring Central Angles | **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, or 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**   * Relates angle measures to arcs and sectors of a circle. * 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. |
| 2. Develop and apply a formula for determining the area of:  • triangles  • parallelograms  • circles. | **Measurement Unit 1:**  **2-D Shapes and 3-D Solids**  4: Determining the Area of Triangles and Parallelograms  5: Estimating and Determining the Area of a Circle | **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.   **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**   * Constructs and decomposes polygons into shapes with known areas (e.g., triangles, rectangles).   **Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.**  **Understanding relationships among measured units**   * Develops and generalizes strategies to compute area of triangles, quadrilaterals, and other polygons (e.g., decomposing a parallelogram and rearranging to form a rectangle). |

 **Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Shape and Space: 3-D Objects and 2-D Shapes)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome** Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them. | | |
| **Specific Outcomes**  3. Perform geometric constructions, including:  • perpendicular line segments  • parallel line segments  • perpendicular bisectors  • angle bisectors. | **Measurement Unit 1:**  **2-D Shapes and 3-D Solids**  6: Constructing Lines  7: Constructing Bisectors | **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**   * Identifies and draws parallel, intersecting, and perpendicular lines. * Performs geometric constructions to gain insight into properties of lines, angles, and polygons (e.g., constructs perpendicular bisectors, 45° angles, angle bisectors, equilateral triangle). |

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**Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Shape and Space: Transformations)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome** Describe and analyze position and motion of objects and shapes. | | |
| **Specific Outcomes**  4. Identify and plot points in the four quadrants of a Cartesian plane, using integral ordered pairs. | **Geometry Unit 1: Transformations on a Cartesian Plane**  1: Exploring the Cartesian Plane | **Big Idea: Objects can be located in space and viewed from multiple perspectives.**  **Locating and mapping objects in space**   * Identifies, locates, and plots points, polygon vertices, and lines on a Cartesian plane in all four quadrants. (Limited to integers.) |
| 5. Perform and describe transformations (translations, rotations or reflections) of a 2-D shape in all four quadrants of a Cartesian plane (limited to integral number vertices). | **Geometry Unit 1: Transformations on a Cartesian Plane**  2: Translating 2-D Shapes on a Cartesian Plane  3: Reflecting and Rotating 2-D Shapes on a Cartesian Plane  4: Combining Transformations | **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. * Analyzes and locates points, lines, and shapes on a Cartesian plane after successive transformations. |

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Description automatically generated **Correlation of the Alberta Mathematics Program of Study**  **with Mathology Grade 7 (Statistics and Probability: Data Analysis)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome** Collect, display and analyze data to solve problems. | | |
| **Specific Outcomes**  1. Demonstrate an understanding of central tendency and range by:  • determining the measures of central tendency (mean, median, mode) and range  • determining the most appropriate measures of central tendency to report findings. | **Data Management Unit 1: Data Management**  1: Exploring Measures of Data  2: Determining Mean and Mode  3: Determining Median and Range  4: Comparing Measures of Central Tendency | **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**   * Creates charts and graphs with appropriate titles and labels to represent data collected. * Represents data graphically using many -to-one correspondence with appropriate scales and intervals.   **Reading and interpreting data displays and analyzing variability**   * Reads and interprets data displays using many-to-one correspondence. * Visualizes and determines the mean of a data set. * Visualizes and determines the median value as a middle measure representing a whole data set. * Understands and describes the differences between the central tendency values (i.e., mode, median, mean) and explores which measure is most appropriate for the data collected.   **Using the language and tools of chance to describe and predict events**   * Describes data using frequency counts (e.g., 5 people chose peppermint) and modal value (e.g., dogs are the most common pets). |
| 2. Determine the effect on the mean, median and mode when an outlier is included in a data set. | **Data Management Unit 1:  Data Management** 5: Exploring the Impact of Outliers on Mean, Median, and Mode | **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.**  **Reading and interpreting data displays and analyzing variability**   * Explains the effect of removing or changing values (including outliers) on measures of central tendency. |
| 3. Construct, label and interpret circle graphs to solve problems. | **Data Management Unit 1:  Data Management** 6: Exploring Circle Graphs  7: Constructing Circle Graphs | **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**   * 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**   * Draw conclusions based on data presented. |

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Description automatically generated **Correlation of the Alberta Mathematics Program of Study**   
**with Mathology Grade 7 (Statistics and Probability: Chance and Uncertainty)**

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| **Curriculum Outcomes** | **Grade 7 Mathology.ca** | **Pearson Canada Grades 4–9 Mathematics Learning Progression** |
| **General Outcome** Use experimental or theoretical probabilities to represent and solve problems involving uncertainty. | | |
| **Specific Outcomes**  4. Express probabilities as ratios, fractions and percents. | **Data Management Unit 2: Probability**  8: Writing Experimental Probabilities | **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.**  **Using the language and tools of chance to describe and predict events**   * Determines the relative frequency of each outcome in an experiment involving two independent events by performing multiple trials. |
| 5. Identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events. | **Data Management Unit 2: Probability**  9: Identifying and Representing Sample Spaces | **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.**  **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) using graphical tools (e.g., tree diagram, lists, matrix). |

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| 6. Conduct a probability experiment to compare the theoretical probability (determined using a tree diagram, table or other graphic organizer) and experimental probability of two independent events. | **Data Management Unit 2: Probability**  10: Exploring Theoretical and Experimental Probability | **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.**  **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) using graphical tools (e.g., tree diagram, lists, matrix). |