

Correlation of British Columbia Program of Studies with Mathology Grade 5

Curriculum Expectations	Grade 5 Mathology.ca	Pearson Canada Grades 4-6 Mathematics Learning Progression
<p>number concepts to 1 000 000:</p> <ul style="list-style-type: none"> • counting: <ul style="list-style-type: none"> - multiples - flexible counting strategies - whole number benchmarks • Numbers to 1 000 000 can be arranged and recognized: <ul style="list-style-type: none"> - comparing and ordering numbers - estimating large quantities • place value: <ul style="list-style-type: none"> - 100 000s, 10 000s, 1000s, 100s, 10s, and 1s - understanding the relationship between digit places and their value, to 1 000 000 • First Peoples use unique counting systems (e.g., Tsimshian use of three counting systems, for animals, people and things; Tlingit counting for the naming of numbers e.g., 10 = two hands, 20 = one person) 	<p>Number Unit 1: Number Relationships and Place Value</p> <p>1: Representing Larger Numbers 2: Comparing Larger Numbers 3: Estimating to Solve Problems 4: Consolidation of Number Relationships and Place Value</p> <p>Number Unit 4: Fluency with Multiplication and Division</p> <p>19: Relating Multiplication and Division Facts</p>	<p>Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers</p> <ul style="list-style-type: none"> - Extends whole number understanding to 1 000 000. <p>Big Idea: Numbers are related in many ways.</p> <p>Comparing and ordering quantities (multitude or magnitude)</p> <ul style="list-style-type: none"> - Compares, orders, and locates whole numbers based on place-value understanding and records using <, =, > symbols. <p>Estimating quantities and numbers</p> <ul style="list-style-type: none"> - Rounds whole numbers using place-value understanding (e.g., 4736 can be rounded to 5000, 4700, 4740). <p>Decomposing and composing numbers to investigate equivalencies</p> <ul style="list-style-type: none"> - Composes and decomposes whole numbers using standard and non-standard partitioning (e.g., 1000 is 10 hundreds or 100 tens). <p>Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units.</p> <p>Unitizing quantities into base-ten units</p> <ul style="list-style-type: none"> - Writes and reads whole numbers in multiple forms (e.g., 1358; one thousand three hundred fifty-eight; 1000 + 300 + 50 + 8). - Understands that the value of a digit is ten times the value of the same digit one place to the right.
<p>decimals to thousandths</p> <ul style="list-style-type: none"> • understanding the relationships between multiplication and division, multiplication and addition, division and subtraction • using flexible computation strategies (e.g., decomposing, 	<p>Number Unit 3: Fractions and Decimals</p> <p>13: Representing Decimals 18: Consolidation of Fractions and Decimals</p>	<p>Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers.</p> <ul style="list-style-type: none"> - Extends decimal number understanding to thousandths. <p>Big Idea: Numbers are related in many ways.</p> <p>Decomposing and composing numbers to</p>

<p>distributive principle, commutative principle, repeated addition and repeated subtraction)</p> <ul style="list-style-type: none"> • using multiplication and division in real-life contexts and problem-based situations • whole-class number talks 	<p>Number Unit 8: Financial Literacy 34: Problem Solving with Money</p>	<p>investigate equivalencies</p> <ul style="list-style-type: none"> - Composes and decomposes decimal numbers using standard and non-standard partitioning (e.g., 1.6 is 16 tenths or 0.16 tens). - Models and explains the relationship between a fraction and its equivalent decimal form (e.g., $\frac{2}{5} = \frac{4}{10} = 0.4$). <p>Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units.</p> <p>Unitizing quantities into base-ten units</p> <ul style="list-style-type: none"> - Uses fractions with denominators of 10 to develop decimal fraction understanding and notation (e.g., five-tenths is $\frac{5}{10}$ or 0.5). - Understands that the value of a digit is ten times the value of the same digit one place to the right. - Understands that the value of a digit is one-tenth the value of the same digit one place to the left. - Writes and reads decimal numbers in multiple forms (i.e., numerals, number names, expanded form).
<p>equivalent fractions whole number, fraction, and decimal benchmarks:</p> <ul style="list-style-type: none"> • Two equivalent fractions are two ways to represent the same amount (having the same whole). • comparing and ordering fractions and decimals • addition and subtraction of decimals to thousandths • estimating decimal sums and differences • estimating fractions with benchmarks (e.g., zero, half, whole) • equal partitioning 	<p>Number Unit 3: Fractions and Decimals 10: Equivalent Fractions 12: Comparing and Ordering Fractions 13: Representing Decimals 15: Comparing and Ordering Decimals 16: Relating Fractions and Decimals 18: Consolidation of Fractions and Decimals</p> <p>Number Unit 5: Operations with Fractions and Decimals 26: Estimating Sums and Differences with Decimals 27: Adding with Decimal Numbers 28: Subtracting with Decimal Numbers 32: Consolidation of Operations with Fractions and Decimals</p>	<p>Big Idea: Numbers are related in many ways.</p> <p>Comparing and ordering quantities (multitude or magnitude)</p> <ul style="list-style-type: none"> - Compares, orders, and locates fractions with the same numerator or denominator using reasoning (e.g., $\frac{3}{5} > \frac{3}{6}$ because fifths are larger parts). - Compares, orders, and locates fractions using flexible strategies (e.g., comparing models; creating common denominators or numerators). <p>Estimating quantities and numbers</p> <ul style="list-style-type: none"> - Estimates the location of decimals and fractions on a number line. - Estimates the size and magnitude of fractions by comparing to benchmarks. <p>Decomposing and composing numbers to investigate equivalencies</p> <ul style="list-style-type: none"> - Generates and identifies equivalent fractions using flexible strategies (e.g., represents the same part of a whole; same part of a set; same location on a number line). <p>Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units.</p>

	<p>Data Unit 2: Probability 5A: Describing Likelihood of Outcomes</p>	<p>- Partitions fractional parts into smaller fractional units (e.g., partitions halves into thirds to create sixths). Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing fluency of operations - Estimates sums and differences of decimal numbers (e.g., calculating costs of transactions involving dollars and cents). - Solves decimal number computation using efficient strategies.</p>
<p>addition and subtraction of whole numbers to 1 000 000:</p> <ul style="list-style-type: none"> • using flexing computational strategies involving taking apart (e.g., decomposing using friendly numbers and compensating) and combining numbers in a variety of ways, regrouping • estimating sums and differences to 10 000 • using addition and subtraction in real-life contexts and problem-based situations 	<p>Number Unit 2: Fluency with Addition and Subtraction 5: Estimating Sums and Differences 6: Exploring Addition Strategies 7: Exploring Subtraction Strategies 8: Using Knowledge of Basic Facts 9: Consolidation of Fluency with Addition and Subtraction</p>	<p>Big Idea: Numbers are related in many ways. Estimating quantities and numbers - Rounds whole numbers using place-value understanding (e.g., 4736 can be rounded to 5000, 4700, 4740). Big Idea: Quantities and numbers can be operated on to determine how many and how much. Developing conceptual meaning of operations - Extends whole number computation models to larger numbers. Developing fluency of operations - Estimates the result of whole number operations using contextually relevant strategies (e.g., How many buses are needed to take the Grade 8 classes to the museum?). - Solves whole number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and change owing, saving money to make a purchase).</p>
<p>multiplication and division to 3 digits, including division with remainders:</p> <ul style="list-style-type: none"> • understanding the relationship between multiplication and division, multiplication and addition, and division and subtraction • using flexible computation strategies (e.g., decomposing, distributive principle, commutative principle, repeated addition, repeated subtraction) • using multiplication and division in real-life contexts and problem-based situations • whole-class number talks 	<p>Number Unit 4: Fluency with Multiplication and Division 19: Relating Multiplication and Division Facts 20: Using Estimation for Multiplication and Division 21: Strategies for Multiplying Larger Numbers 22: Multiplying Whole Numbers 23: Dividing Larger Numbers 25: Consolidation of Fluency with Multiplication and Division</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much. Investigating number and arithmetic properties - Recognizes and generates equivalent numerical expressions using commutative and associative properties. - Understands operational relationships (e.g., inverse relationship between multiplication/division, addition/subtraction). - Understands the identity of operations (e.g., $5 + 0 = 5$; $7 \times 1 = 7$). Developing conceptual meaning of operations</p>

		<ul style="list-style-type: none"> - Understands the effect of multiplying and dividing whole numbers by powers of 10. - Extends whole number computation models to larger numbers. <p>Developing fluency of operations</p> <ul style="list-style-type: none"> - Fluently recalls multiplication and division facts to 100. - 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).
<p>addition and subtraction of decimals to thousandths:</p> <ul style="list-style-type: none"> • estimating decimal sums and differences • using visual models such as base 10 blocks, place-value mats, grid paper, and number lines • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks 	<p>Number Unit 5: Operations with Fraction and Decimals</p> <p>26: Estimating Sums and Differences with Decimals</p> <p>27: Adding with Decimal Numbers</p> <p>28: Subtracting with Decimal Numbers</p> <p>32: Consolidation of Fractions and Decimals</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>Developing conceptual meaning of operations</p> <ul style="list-style-type: none"> - Demonstrates an understanding of decimal number computation through modelling and flexible strategies. <p>Developing fluency of operations</p> <ul style="list-style-type: none"> - Estimates sums and differences of decimal numbers (e.g., calculating costs of transactions involving dollars and cents). - Solves decimal number computation using efficient strategies.
<p>addition and subtraction facts to 20:</p> <ul style="list-style-type: none"> • Provide opportunities for authentic practice, building on previous grade-level addition and subtraction facts • applying strategies and knowledge of addition and subtraction facts in real-life contexts and problem-based situations, as well as when making math-to-math connections (e.g., for $800 + 700$, you can annex the zeros and use the knowledge of $8 + 7$ to find the total) 	<p>Number Unit 2: Fluency with Addition and Subtraction</p> <p>8: Using Knowledge of Basic Facts</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>Investigating number and arithmetic properties</p> <ul style="list-style-type: none"> - Recognizes and generates equivalent numerical expressions using commutative and associative properties. - Understands operational relationships (e.g., inverse relationship between multiplication/division, addition/subtraction).
<p>multiplication and division facts to 100 (emerging computational fluency):</p> <ul style="list-style-type: none"> • Provide opportunities for concrete and pictorial representations of multiplication. • Use games to provide opportunities for authentic practice of multiplication computations. 	<p>Number Unit 4: Fluency with Multiplication and Division</p> <p>19: Relating Multiplication and Division Facts</p> <p>25: Consolidation of Fluency with Multiplication and Division</p> <p>Patterning Unit 1: Patterning</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>Investigating number and arithmetic properties</p> <ul style="list-style-type: none"> - Recognizes and generates equivalent numerical expressions using commutative and associative properties. - Understands operational relationships (e.g., inverse relationship between multiplication/division,

<ul style="list-style-type: none"> • looking for patterns in numbers, such as in a hundred chart, to further develop understanding of multiplication computation • Connect multiplication to skip-counting. • Connect multiplication to division and repeated addition. • using mental math strategies such as doubling and halving, annexing, and distributive property • developing computational fluency with facts to 100 	<p>2: Investigating Number Patterns</p>	<p>addition/subtraction).</p> <ul style="list-style-type: none"> - Understands the identity of operations (e.g., $5 + 0 = 5$; $7 \times 1 = 7$). <p>Developing fluency of operations</p> <ul style="list-style-type: none"> - Fluently recalls multiplication and division facts to 100. - 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).
<p>rules for increasing and decreasing patterns with words, numbers, symbols, and variables</p>	<p>Patterning Unit 1: Patterning</p> <p>1: Investigating Geometric Patterns</p> <p>2: Investigating Number Patterns</p> <p>3: Using Pattern Rules to Solve Problems</p> <p>4: Consolidation of Patterning</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"> - Describes, generates, extends, translates, and corrects number and shape patterns that follow a predetermined rule. - Uses multiple approaches to model situations involving repetition (i.e., repeating patterns) and change (i.e., increasing/decreasing patterns) (e.g., using objects, tables, graphs, symbols, loops and nested loops in coding). - Represents a numeric or shape pattern using a table of values by pairing the term value with a term number. - Generates a visual model to represent a simple number pattern. - Represents a mathematical context or problem with expressions and equations using variables to represent unknowns. <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). - Describes numeric and shape patterns using words and numbers. - Predicts the value of a given element in a numeric or shape pattern using pattern rules.

<p>one-step equations with variables:</p> <ul style="list-style-type: none"> • solving one-step equations with a variable • expressing a given problem as an equation, using symbols (e.g., $4 + X = 15$) 	<p>Patterning Unit 2: Variables and Equations</p> <p>5: Using Variables</p> <p>6: Solving Addition and Subtraction Equations</p> <p>7: Solving Multiplication and Division Equations</p> <p>8: Using Equations to Solve Problems</p> <p>10: Consolidation of Variables and Equations</p>	<p>Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.</p> <p>Understanding equality and inequality, building on generalized properties of numbers and operations</p> <ul style="list-style-type: none"> - Expresses a one-step mathematical problem as an equation using a symbol or letter to represent an unknown number (e.g., Sena had some tokens and used four. She has seven left: $\square - 4 = 7$). - Determines an unknown number in simple one-step equations using different strategies (e.g., $n \times 3 = 12$; $13 - \square = 8$). - Uses arithmetic properties to investigate and transform one-step addition and multiplication equations (e.g., $5 + 4 = 9$ and $5 + a = 9$ have the same structure and can be rearranged in similar ways to maintain equality: $4 + 5 = 9$ and $a + 5 = 9$). - Uses arithmetic properties to investigate and transform one-step subtraction and division equations (e.g., $12 - 5 = 7$ and $12 - b = 7$ have the same structure and can be rearranged in similar ways to maintain equality: $12 - 7 = 5$ and $12 - 7 = b$). <p>Using variables, algebraic expressions, and equations to represent mathematical relations</p> <ul style="list-style-type: none"> - Understands an unknown quantity (i.e., variable) may be represented by a symbol or letter (e.g., $13 - \square = 8$; $4n = 12$). - Flexibly uses symbols and letters to represent unknown quantities in equations (e.g., knows that $4 + \square = 7$; $4 + x = 7$; and $4 + y = 7$ all represent the same equation with \square, x, and y representing the same value). - Interprets and writes algebraic expressions (e.g., $2n$ means two times a number; subtracting a number from 7 can be written as $7 - n$).
<p>area measurement of squares and rectangles relationship between area and perimeter:</p> <ul style="list-style-type: none"> • measuring area of squares and rectangles, using tiles, geoboards, grid paper • investigating perimeter and area and how they are related to but not dependent on each other 	<p>Measurement Unit 1: Length, Perimeter, and Area</p> <p>3: Measuring the Area of Rectangles</p> <p>4: Relating the Perimeter and Area of Rectangles</p> <p>6: Consolidation of Length, Perimeter, and Area</p>	<p>Big Idea: Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.</p> <p>Understanding attributes that can be measured, compared, and ordered</p> <ul style="list-style-type: none"> - Understands area as an attribute of 2-D shapes that can be measured and compared. <p>Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.</p>

<ul style="list-style-type: none"> • use traditional dwellings 		<p>Selecting and using units to estimate, measure, construct, and make comparisons</p> <ul style="list-style-type: none"> - Develops understanding of square units (e.g., square unit, square cm, square m) to measure area of 2-D shapes. - Chooses the most appropriate unit to measure a given attribute of an object (e.g., classroom area measured in square metres). <p>Understands relationships among measured units</p> <ul style="list-style-type: none"> - Investigates the relationship between perimeter and area in rectangles.
<p>duration, using measurement of time:</p> <ul style="list-style-type: none"> • understanding elapsed time and duration • apply concepts of time in real-life contexts and problem-based situations • daily and seasonal cycles, moon cycles, tides, journeys, events 	<p>Measurement Unit 3: Time</p> <p>13: Exploring Elapsed Time 14: Solving Problems Involving Time 15: Consolidation of Time</p>	<p>Big Idea: Assigning a unit to a continuous attribute allows us to measure and make comparisons.</p> <p>Selecting and using units to estimate, measure, construct, and make comparisons</p> <ul style="list-style-type: none"> - Reads and records time (i.e., digital and analogue) and calendar dates. <p>Understanding relationships among measured units</p> <ul style="list-style-type: none"> - Understands relationship among different measures of time (e.g., seconds, minutes, hours, days, decades).
<p>classification of prisms and pyramids:</p> <ul style="list-style-type: none"> • investigating 3D objects and 2D shapes, based on multiple attributes • describing and sorting quadrilaterals • describing and constructing rectangular and triangular prisms • identifying prisms in the environment 	<p>Geometry Unit 1A: 2-D Shapes and 3-D Solids</p> <p>1: Properties of 2-D Shapes and 3-D Objects 2: Investigating Quadrilaterals 3: Constructing Prisms 4: Consolidation of 2-D Shapes and 3-D Solids</p>	<p>Big Ideas: 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes.</p> <p>Investigating geometric attributes and properties of 2-D shapes and 3-D solids</p> <ul style="list-style-type: none"> - Sorts, describes, constructs, and classifies polygons based on side attributes (e.g., parallel, perpendicular, regular/irregular). - Sorts, describes, constructs, and classifies 3-D objects based on edges, faces, vertices, and angles (e.g., prisms, pyramids). - Sorts, describes, classifies 2-D shapes based on their geometric properties (e.g., side lengths, angles, diagonals). - Classifies 2-D shapes within a hierarchy based on their properties (e.g., rectangles are a subset of parallelograms).
<p>single transformations:</p> <ul style="list-style-type: none"> • single transformations (slide/translation, flip/reflection, turn/rotation) • using concrete materials with a focus on the motion of transformations • weaving, cedar basket, designs 	<p>Geometry Unit 2A: Transformations</p> <p>5A: Investigating Translations 6A: Investigating Reflections 7A: Investigating Rotations 8A: Identifying Transformations 9A: Consolidation of Transformations</p>	<p>Big Ideas: 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change.</p> <p>Exploring 2-D shapes and 3-D solids by applying and visualizing transformations</p> <ul style="list-style-type: none"> - Identifies, describes, and performs single transformations (i.e., translation, reflection, rotation) on 2-D shapes.

<p>one-to-one correspondence and many-to-one correspondence, using double-bar graphs:</p> <ul style="list-style-type: none"> many-to-one correspondence: one symbol represents a group or a value (e.g., on a bar graph, one square may represent five cookies) 	<p>Data Management Unit 1A: Data Management</p> <p>1: Exploring First-Hand and Second-Hand Data 2: Constructing Double-Bar Graphs 3: Interpreting Double-Bar Graphs 4: Consolidation of Data Management</p>	<p>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</p> <ul style="list-style-type: none"> Differentiates between primary (i.e., first-hand) and secondary (i.e., second-hand) data sources. <p>Creating graphical displays of collected data</p> <ul style="list-style-type: none"> Represents data graphically using many-to-one correspondence with appropriate scales and intervals (e.g., each symbol on pictograph represents 10 people). Visually represents two or more data sets (e.g., double bar chart, stacked bar graph, multi-line graph, multi-column table). <p>Reading and interpreting data displays and analyzing variability</p> <ul style="list-style-type: none"> Reads and interprets data displays using many-to-one correspondence. <p>Drawing conclusions by making inferences and justifying decisions based on data collected.</p> <ul style="list-style-type: none"> Draws conclusions based on data presented. Interprets the results of data presented graphically from primary (e.g., class survey) and secondary (e.g., online news reports) sources.
<p>probability experiments, single events or outcomes:</p> <ul style="list-style-type: none"> predicting outcomes of independent events (e.g., when you spin using a spinner and it lands on a single colour) predicting single outcomes (e.g., when you spin using a spinner and it lands on a single colour) using spinners, rolling dice, pulling objects out of a bag representing single outcome probabilities using fractions 	<p>Data Management Unit 2A: Probability</p> <p>5: Describing Likelihood of Outcomes 6: Conducting Experiments 7: Designing Experiments 8: Consolidation of Probability</p>	<p>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</p> <ul style="list-style-type: none"> Records the results of multiple trials of simple events. <p>Using the language and tools of chance to describe and predict events</p> <ul style="list-style-type: none"> Locates the likelihood of outcomes on a vocabulary-based probability continuum (e.g., impossible, unlikely, likely, certain). Distinguishes between equally likely events (e.g., heads or tails on a fair coin) and unequally likely events (e.g., spinner with differently sized sections). Identifies the sample space of independent events in an experiment (e.g., flipping a cup, drawing a coloured cube from a bag).

		- Investigates and calculates the experimental probability (i.e., relative frequency) of simple events (e.g., 3 heads in 5 coin tosses is $\frac{3}{5}$).
<p>financial literacy – monetary calculations, including making change with amounts to \$1000 and developing simple financial plans:</p> <ul style="list-style-type: none"> • making monetary calculations, including making change and decimal notation to \$1000 in real-life contexts and problem-based situations • applying a variety of strategies such as counting up, counting back, and decomposing, to calculate totals and make change • making simple financial plans to meet a financial goal • developing a budget that takes into account income and expenses 	<p>Number Unit 8: Financial Literacy</p> <p>34: Problem Solving with Money</p> <p>35: Credit, Debt, and Transfers</p> <p>37: Designing a Basic Budget</p> <p>38: Consolidation of Financial Literacy</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>Developing conceptual meaning of operations</p> <ul style="list-style-type: none"> - Models and develops meaning for whole number computation to four digits. - Demonstrates an understanding of decimal number computation through modelling and flexible strategies. <p>Developing fluency of operations</p> <ul style="list-style-type: none"> - Estimates the result of whole number operations using contextually relevant strategies (e.g., How many buses are needed to take the Grade 8 classes to the museum?). - Solves whole number computation using efficient strategies (e.g., mental computation, algorithms, calculating cost of transactions and change owing, saving money to make a purchase). - Estimates sums and differences of decimal numbers (e.g., calculating cost of transactions involving dollars and cents). - Solves decimal number computation using efficient strategies.