

Correlation of Yukon 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</p> <p>2: Comparing Larger Numbers</p> <p>3: Estimating to Solve Problems</p> <p>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.</p> <p>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, distributive principle, commutative principle, repeated addition and repeated subtraction) • using multiplication and division in real-life contexts and problem-based situations • whole-class number talks 	<p>Number Unit 3: Fractions and Decimals 13: Representing Decimals 18: Consolidation of Fractions and Decimals</p> <p>Number Unit 8: Financial Literacy 34: Problem Solving with Money</p>	<p>Big Idea: The set of real numbers is infinite. Extending whole number understanding to the set of real numbers. - Extends decimal number understanding to thousandths. Big Idea: Numbers are related in many ways. Decomposing and composing numbers to investigate equivalencies - 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., $\frac{2}{5} = \frac{4}{10} = 0.4$). Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. Unitizing quantities into base-ten units - 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>
<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</p>	<p>Big Idea: Numbers are related in many ways. Comparing and ordering quantities (multitude or magnitude) - 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). Estimating quantities and numbers - Estimates the location of decimals and fractions on a number line. - Estimates the size and magnitude of fractions by comparing to benchmarks.</p>

	<p>Numbers 28: Subtracting with Decimal Numbers 32: Consolidation of Operations with Fractions and Decimals</p> <p>Data Unit 2: Probability 5A: Describing Likelihood of Outcomes</p>	<p>Decomposing and composing numbers to investigate equivalencies - 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> <p>Big Idea: Quantities and numbers can be grouped by or partitioned into equal-sized units. - Partitions fractional parts into smaller fractional units (e.g., partitions halves into thirds to create sixths).</p> <p>Big Idea: Quantities and numbers can be operated on to determine how many and how much.</p> <p>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.</p> <p>Estimating quantities and numbers - Rounds whole numbers using place-value understanding (e.g., 4736 can be rounded to 5000, 4700, 4740).</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 - Extends whole number computation models to larger numbers.</p> <p>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</p> <p>19: Relating Multiplication and Division Facts</p> <p>20: Using Estimation for Multiplication and Division</p> <p>21: Strategies for Multiplying Larger Numbers</p> <p>22: Multiplying Whole Numbers</p> <p>23: Dividing Larger Numbers</p> <p>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.</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). - Understands the identity of operations (e.g., $5 + 0 = 5$; $7 \times 1 = 7$). <p>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 Fractions 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 	<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.

<p>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>		<p>- Understands operational relationships (e.g., inverse relationship between multiplication/division, addition/subtraction).</p>
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<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. • 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>Number Unit 4: Fluency with Multiplication and Division 19: Relating Multiplication and Division Facts 25: Consolidation of Fluency with Multiplication and Division</p> <p>Patterning Unit 1: Patterning 2: Investigating Number Patterns</p>	<p>Big Idea: Quantities and numbers can be operated on to determine how many and how much. 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). - 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 1: Investigating Geometric Patterns 2: Investigating Number Patterns 3: Using Pattern Rules to Solve Problems</p>	<p>Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically. 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).

		<ul style="list-style-type: none"> - 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 use traditional dwellings 	<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. Understanding attributes that can be measured, compared, and ordered</p> <p>- Understands area as an attribute of 2-D shapes that can be measured and compared.</p> <p>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</p> <p>- Develops understanding of square units (e.g., square unit, square cm, square m) to measure area of 2-D shapes.</p> <p>- Chooses the most appropriate unit to measure a given attribute of an object (e.g., classroom area measured in square metres).</p> <p>Understands relationships among measured units</p> <p>- Investigates the relationship between perimeter and area in rectangles.</p>
<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</p> <p>14: Solving Problems Involving Time</p> <p>15: Consolidation of Time</p>	<p>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</p> <p>- Reads and records time (i.e., digital and analogue) and calendar dates.</p> <p>Understanding relationships among measured units</p> <p>- Understands relationship among different measures of time (e.g., seconds, minutes, hours, days, decades).</p>
<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</p> <p>2: Investigating Quadrilaterals</p> <p>3: Constructing Prisms</p> <p>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. Investigating geometric attributes and properties of 2-D shapes and 3-D solids</p> <p>- Sorts, describes, constructs, and classifies polygons based on side attributes (e.g., parallel, perpendicular, regular/irregular).</p> <p>- Sorts, describes, constructs, and classifies 3-D objects based on edges, faces, vertices, and angles (e.g., prisms, pyramids).</p>

		<ul style="list-style-type: none"> - 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>5: Investigating Translations 6: Investigating Reflections 7: Investigating Rotations 8: Identifying Transformations 9: 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.</p> <p>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</p> <p>6: Conducting Experiments</p> <p>7: Designing Experiments</p> <p>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.</p> <p>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.
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