

## **Correlation of Yukon Program of Studies with Mathology Grade 5**

Curriculum Expectations Grade 5 Mathology.ca	Mathology Practice	Pearson Canada Grades 4-6
	Workbook 5	<b>Mathematics Learning Progression</b>
number concepts to 1 000 000: Number Unit 1: Number	Unit 2 Questions 1, 2, 3, 4, 6, 7, 8,	Big Idea: The set of real numbers is
number concepts to 1 000 000:		9 9



Tlingit counting for the naming of numbers e.g., 10 = two hands, 20 = one person)			equal-sized units. Unitizing quantities into base-ten units - 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.
decimals to thousandths	Number Unit 3: Fractions and Decimals  13: Representing Decimals  18: Consolidation of Fractions and Decimals  Number Unit 8: Financial Literacy  34: Problem Solving with Money	Unit 7 Questions 5, 6, 7 (p. 44)	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 nonstandard 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.



equivalent fractions whole number, fraction, and decimal benchmarks:  • 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	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 Decimals18: Consolidation of Fractions and Decimals  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	Unit 9 Questions 1, 2, 3, 4, 5, 12 (pp. 52-54, 57)  Unit 12 Questions 1, 3, 4 (pp. 72-73)	<ul> <li>Understands that the value of a digit is one-tenth the value of the same digit one place to the left.</li> <li>Writes and reads decimal numbers in multiple forms (i.e., numerals, number names, expanded form).</li> <li>Big Idea: Numbers are related in many ways.</li> <li>Comparing and ordering quantities (multitude or magnitude)</li> <li>Compares, orders, and locates fractions with the same numerator or denominator using reasoning (e.g., <sup>3</sup>/<sub>5</sub> &gt; <sup>3</sup>/<sub>6</sub> because fifths are larger parts).</li> <li>Compares, orders, and locates fractions using flexible strategies (e.g., comparing models; creating common denominators or numerators).</li> <li>Estimating quantities and numbers</li> <li>Estimates the location of decimals and fractions on a number line.</li> <li>Estimates the size and magnitude of fractions by comparing to benchmarks.</li> <li>Decomposing and composing numbers to investigate equivalencies</li> </ul>
<ul> <li>equal partitioning</li> </ul>	28: Subtracting with Decimal		· · · · · · · ·
	Data Unit 2: Probability 5: Describing Likelihood of Events		represents the same part of a whole; same part of a set; same location on a number line).  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). Big Idea: Quantities and numbers can be operated on to determine how many and how much.



addition and subtraction of whole numbers to 1 000 000:  • 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	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	Unit 2 Question 13 (p. 12)  Unit 3 Questions 1, 2, 3, 4, 5, 6, 7, 8 (pp. 14-19)	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.  Big Idea: Numbers are related in many ways.  Estimating quantities and numbers - Rounds whole numbers using placevalue 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,
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multiplication and division to 3 digits, including division with remainders:  understanding the relationship between multiplication and division, multiplication 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	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	Unit 2 Questions 5, 12, 14 (pp. 9, 12)  Unit 13 Questions 3, 4, 5, 6, 7, 8, 9, 13 (pp. 81-83, 85)	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 × 1 = 7).  Developing conceptual meaning of operations  - Understands the effect of multiplying and dividing whole numbers by powers of 10.  - Extends whole number computation models to larger numbers.  Developing fluency of operations  - 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).
<ul> <li>addition and subtraction of decimals to thousandths:         <ul> <li>estimating decimal sums and differences</li> <li>using visual models such as base 10 blocks, place-value mats, grid paper, and number lines</li> </ul> </li> </ul>	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 Fractions and Decimals	Unit 9 Questions 1, 2, 3, 4, 5, 12 (pp. 52-54, 57)  Unit 12 Questions 1, 3, 4 (pp. 72-73)	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



<ul> <li>using addition and subtraction in real-life contexts and problem-based situations</li> <li>whole-class number talks</li> </ul>			<ul> <li>Estimates sums and differences of decimal numbers (e.g., calculating costs of transactions involving dollars and cents).</li> <li>Solves decimal number computation using efficient strategies.</li> </ul>
<ul> <li>Addition and subtraction facts to 20:</li> <li>Provide opportunities for authentic practice, building on previous grade-level addition and subtraction facts</li> <li>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)</li> </ul>	Number Unit 2: Fluency with Addition and Subtraction 8: Using Knowledge of Basic Facts	Unit 3 Questions 1, 4 (pp. 14, 16)	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).
multiplication and division facts to 100 (emerging computational fluency):  • 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	Number Unit 4: Fluency with Multiplication and Division 19: Relating Multiplication and Division Facts 25: Consolidation of Fluency with Multiplication and Division  Patterning Unit 1: Patterning 2: Investigating Number Patterns	Unit 13 Questions 1, 2, 5, 9 (pp. 80-81, 83)	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 × 1 = 7).



<ul> <li>Connect multiplication to skip-counting.</li> <li>Connect multiplication to division and repeated addition.</li> <li>using mental math strategies such as doubling and halving, annexing, and distributive property</li> <li>developing computational fluency with facts to 100</li> </ul>			Developing fluency of operations - 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).
rules for increasing and decreasing patterns with words, numbers, symbols, and variables	Patterning Unit 1: Patterning 1: Investigating Geometric Patterns 2: Investigating Number Patterns 3: Using Pattern Rules to Solve Problems	Unit 1 Questions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (pp. 2-7)	Big Idea: Regularity and repetition form patterns that can be generalized and predicted mathematically.  Representing patterns, relations, and functions  - 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.  Generalizing and analyzing patterns, relations, and functions  - Explains the rule for numeric patterns including the starting point and change



<ul> <li>one-step equations with variables:</li> <li>solving one-step equations with a variable</li> <li>expressing a given problem as an equation, using symbols (e.g., 4 + X = 15)</li> </ul>	Patterning Unit 2: Variables and Equations 5: Using Variables 6: Solving Addition and Subtraction Equations	Unit 16 Questions 1, 2, 3a, 3c, 5, 7, 8, 9, 13 (pp. 99-102, 104)	(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.  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
symbols (e.g., 4 + X = 15)	7: Solving Multiplication and Division Equations 8: Using Equations to Solve Problems 10: Consolidation of Variables and Equations		- 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: □ − 4 = 7).  - Determines an unknown number in simple one-step equations using different strategies (e.g., n × 3 = 12; 13 − □ = 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).  Using variables, algebraic expressions, and equations to represent



area measurement of squares and	Measurement Unit 1: Length,	Unit 14 Questions 5, 6, 7, 8, 9, 12	mathematical relations  - Understands an unknown quantity (i.e., variable) may be represented by a symbol or letter (e.g., 13 − □ = 8; 4n = 12).  - Flexibly uses symbols and letters to represent unknown quantities in equations (e.g., knows that 4 + □ = 7; 4 + x = 7; and 4 + y = 7 all represent the same equation with □, 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).  Big Idea: Many things in our world
area measurement of squares and rectangles relationship between area and perimeter:  • 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	Measurement Unit 1: Length, Perimeter, and Area 3: Measuring the Area of Rectangles 4: Relating the Perimeter and Area of Rectangles 6: Consolidation of Length, Perimeter, and Area	Unit 14 Questions 5, 6, 7, 8, 9, 12 (pp. 87-90, 92)	ligit ldea: 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 - Understands area as an attribute of 2-D shapes that can be measured and compared.  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 - 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).



			Understands relationships among measured units - Investigates the relationship between perimeter and area in rectangles.
duration, using measurement of time:  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	Measurement Unit 3: Time  13: Exploring Elapsed Time  14: Solving Problems Involving Time  15: Consolidation of Time	Unit 8 Questions 1, 2, 3, 4, 5, 6, 7 (pp. 48-51)	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  - Reads and records time (i.e., digital and analogue) and calendar dates.  Understanding relationships among measured units  - Understands relationship among different measures of time (e.g., seconds, minutes, hours, days, decades).
<ul> <li>classification of prisms and pyramids:         <ul> <li>investigating 3D objects and 2D shapes, based on multiple attributes</li> <li>describing and sorting quadrilaterals</li> <li>describing and constructing rectangular and triangular prisms</li> <li>identifying prisms in the environment</li> </ul> </li> </ul>	Geometry Unit 1A: 2-D Shapes and 3-D Solids  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	Unit 4 Questions 1, 2, 3, 4, 5, 9, 10 (pp. 22-24, 26-27)	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 - 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).



single transformations:  • single transformations (slide/translation, flip/reflection, turn/rotation)  • using concrete materials with a focus on the motion of transformations  • weaving, cedar basket, designs	Geometry Unit 2A Transformations 5: Investigating Translations 6: Investigating Reflections 7: Investigating Rotations 8: Identifying Transformations 9: Consolidation of Transformations	Unit 5 Questions 4, 5, 6, 7, 8, 9, 10 (pp. 30-33)	- Classifies 2-D shapes within a hierarchy based on their properties (e.g., rectangles are a subset of parallelograms).  Big Ideas: 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change.  Exploring 2-D shapes and 3-D solids by applying and visualizing transformations  - Identifies, describes, and performs single transformations (i.e., translation, reflection, rotation) on 2-D shapes.
one-to-one correspondence and many-to-one correspondence, using double-bar graphs:  • many-to-one correspondence: one symbol represents a group or a value (e.g., on a bar graph, one square may represent five cookies)	Data Management Unit 1A: Data Management  1: Exploring First-Hand and Second- Hand Data  2: Constructing Double-Bar Graphs  3: Interpreting Double-Bar Graphs  4: Consolidation of Data Management	Unit 10 Questions 3, 4, 8 (pp. 61, 62, 65)	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  - Differentiates between primary (i.e., first-hand) and secondary (i.e., second-hand) data sources.  Creating graphical displays of collected data  - 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).  Reading and interpreting data displays and analyzing variability  - Reads and interprets data displays using many-to-one correspondence.



<ul> <li>events or outcomes:</li> <li>predicting outcomes of independent events (e.g., when you spin using a spinner and it lands on a</li> </ul>	ata Management Unit 2A: robability Describing Likelihood of Events Conducting Experiments Designing Experiments Consolidation of Probability	Unit 11 Questions 1, 2, 3, 4, 5, 6, 7, 8, 9 (pp. 66-71)	inferences and justifying decisions based on data collected.  - 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.  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  - Records the results of multiple trials of simple events. Using the language and tools of chance to describe and predict events  - 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)
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financial literacy – monetary	Number Unit 8: Financial Literacy	Unit 11 Questions 1 3 4 5 6 9	Rig Idea: Quantities and numbers can
financial literacy – monetary calculations, including making change with amounts to \$1000 and developing simple financial plans:  • making monetary calculations, including	Number Unit 8: Financial Literacy 34: Problem Solving with Money 35: Credit, Debt, and Transfers 37: Designing a Basic Budget 38: Consolidation of Financial	Unit 11 Questions 1, 3, 4, 5, 6, 9, 10, 11, 12 (pp. 72-77)	Big Idea: Quantities and numbers can be operated on to determine how many and how much.  Developing conceptual meaning of operations  - Models and develops meaning for
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	38: Consolidation of Financial Literacy		- Models and develops meaning for whole number computation to four digits Demonstrates an understanding of decimal number computation through modelling and flexible strategies.  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) Estimates sums and differences of decimal numbers (e.g., calculating cost
			of transactions involving dollars and cents) Solves decimal number computation using efficient strategies.

Unit 6: Coding Not required, but recommended

