



## Ontario Ministry Sample Long Range Planner: By Topic and Mathology Grade 6

Time: 10 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Extending place value to one million and decimal thousandths</b>            B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life            C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal numbers</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u>            1: Representing Larger Numbers (to 1 000 000 and Beyond)            2: Representing Numbers in Different Forms  <b>5: Consolidation (Number Relationships and Place Value)</b></p> <p><u>Patterning Unit 1: Patterning</u>            2: Solving Problems            3: Representing Patterns in Different Ways</p>
<p><b>Using characteristics to classify</b>            C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear            E1.1 create lists of the geometric properties of various types of quadrilaterals, including the properties of the diagonals, rotational symmetry, and line symmetry</p>	<p><u>Patterning Unit 1: Patterning</u>            1: Investigating Patterns and Relationships in Tables and Graphs            2: Solving Problems</p> <p><u>Geometry Unit 1B: 2-D Shapes and Angles</u>            1: Measuring and Constructing Angles            3: Properties of Quadrilaterals            4: Constructing 3-D Objects  <b>5: Consolidation (2-D Shapes and Angles)</b></p>
<p><b>Determining area by decomposing shapes</b>            E2.4 determine the areas of trapezoids, rhombuses, kites, and composite polygons by decomposing them into shapes with known areas            E2.5 create and use nets to demonstrate the relationship between the faces of prisms and pyramids and their surface areas            E2.6 determine the surface areas of prisms and pyramids by calculating the areas of their two-dimensional faces and adding them together</p>	<p><u>Measurement Unit 1B: Length, Mass, Capacity, and Area</u>            2: Determining Area            3: Surface Area of Prisms and Pyramids  <b>4: Consolidation (Length, Mass, Capacity, and Area)</b></p>

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<p><b>Finding factors</b></p> <p>B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts</p> <p>B2.2 understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9, and 10</p> <p>B2.6 represent composite numbers as a product of their prime factors, including through the use of factor trees</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u></p> <p>3: Identifying Factors and Multiples</p> <p>4: Identifying Prime and Composite Numbers</p> <p><b>5: Consolidation (Number Relationships and Place Value)</b></p> <p><u>Number Unit 2: Fluency with Whole Numbers</u></p> <p>6: Solving Problems with Whole Numbers</p> <p><u>Number Unit 3: Fractions, Decimals, Percents, and Integers</u></p> <p>16: Comparing and Ordering Decimals</p> <p><b>21: Consolidation (Fractions, Decimals, Percents, and Integers)</b></p>
<p><b>Working with integers</b></p> <p>B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines</p> <p>B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts</p> <p>E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another</p>	<p><u>Number Unit 3: Fractions, Decimals, Percents, and Integers</u></p> <p>14: Comparing and Ordering Fractions</p> <p>17: Comparing and Ordering Fractions and Decimals</p> <p>19: Representing Integers</p> <p>20: Comparing and Ordering Integers</p> <p><u>Geometry Unit 2: Grids and Transformations</u></p> <p>6: Plotting and Reading Coordinates</p> <p>8: Rotating 2-D Shapes up to 360°</p> <p><u>Patterning Unit 3: Coding</u></p> <p>12: Making Shapes</p> <p>13: Classifying Polygons</p>

Time: 25 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Collecting, organizing, and representing data</b></p> <p>D1.1 describe the difference between discrete and continuous data, and provide examples of each</p> <p>D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals</p> <p>D1.3 select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs</p> <p>D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables, histograms, and broken-line graphs, and incorporating any other relevant information that helps to tell a story about the data</p>	<p><u>Data Management and Probability Unit 1: Data Management</u></p> <p>1: Exploring Line Graphs</p> <p>2: Exploring Histograms</p> <p>3: Collecting and Organizing Data</p> <p>4: Interpreting Graphs to Solve Problems</p> <p>5: Determining Range and Measures of Central Tendency</p>
<p><b>Analyzing data using measures of central tendency</b></p> <p>D1.5 determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets</p> <p>D1.6 analyze different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions</p>	<p><u>Data Management and Probability Unit 1: Data Management</u></p> <p><b>6: Consolidation (Data Management)</b></p>
<p><b>Posing a real-life situation that requires the process of mathematical modelling and involves the collection, organization, representation, and analysis of data. *</b></p> <p>C4 apply the process of mathematical modelling to represent, analyze, make predictions, and provide insight into real-life situations**</p> <p>* Depending on the situation, it may be appropriate to complete the mathematical modelling task now or continue as new learning is acquired.</p> <p>** One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same.</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u></p> <p>4: Identifying Prime and Composite Numbers</p> <p><u>Number Unit 2: Fluency with Whole Numbers</u></p> <p>6: Solving Problems with Whole Numbers</p> <p><u>Number Unit 3: Fractions, Decimals, Percents, and Integers</u></p> <p>14: Comparing and Ordering Fractions</p>

	<p><u>Number Unit 4: Operations with Fractions, Decimals, and Percents</u> 22: Multiplying Decimals by 1-Digit Numbers</p> <p><u>Number Unit 5: Financial Literacy</u> 33: Planning for Financial Goals</p> <p><u>Patterning Unit 2: Variables and Equations</u> 8: Writing and Solving Equations</p> <p><u>Measurement Unit 1B: Length, Mass, Capacity, and Area</u> 2: Determining Area</p> <p><u>Data Management and Probability Unit 1: Data Management</u> 2: Exploring Histograms</p> <p><u>Data Management and Probability Unit 2: Probability</u> 8: Independent Events</p> <p><u>Patterning Unit 3: Coding</u> 11: Altering Code for a Game 12: Making Shapes 13: Classifying Polygons <b>14: Consolidation (Coding)</b></p>
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Time: 10 Days	
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<p><b>Creating, describing, and performing transformations</b></p> <p>E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another</p> <p>E1.4 describe and perform combinations of translations, reflections, and rotations up to 360 on a grid, and predict the results of these transformations</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures</p> <p>C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p>	<p><u>Geometry Unit 2: Grids and Transformations</u></p> <p>7: Transformations on a Grid</p> <p>9: Combining Transformations on a Grid</p> <p><b>10: Consolidation (Grids and Transformations)</b></p> <p><u>Patterning Unit 3: Coding</u></p> <p>11: Altering Code for a Game</p> <p>12: Making Shapes</p> <p>13: Classifying Polygons</p> <p><b>14: Consolidation (Coding)</b></p>

Time: 15 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Comparing measures spatially</b>            E1.2 construct three dimensional objects when given their top, front, and side views            E2.5 create and use nets to demonstrate the relationship between the faces of prisms and pyramids and their surface areas            E2.6 determine the surface areas of prisms and pyramids by calculating the areas of their two-dimensional faces and adding them together</p>	<p><u>Geometry Unit 1B: 2-D Shapes and Angles</u>            4: Constructing 3-D Objects  <b>5: Consolidation (2-D Shapes and Angles)</b></p> <p><u>Measurement Unit 1B: Length, Mass, Capacity, and Area</u>            2: Determining Area            3: Surface Area of Prisms and Pyramids  <b>4: Consolidation (Length, Mass, Capacity, and Area)</b></p>
<p><b>Comparing measures using standard units</b>            E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa            E2.2 use a protractor to measure and construct angles up to 360, and state the relationship between angles that are measured clockwise and those that are measured counterclockwise            E2.3 use the properties of supplementary angles, complementary angles, opposite angles, and interior and exterior angles to solve for unknown angle measures</p>	<p><u>Measurement Unit 1B: Length, Mass, Capacity, and Area</u>            1: Relationships Among Metric Units  <b>4: Consolidation (Length, Mass, Capacity, and Area)</b></p> <p><u>Geometry Unit 1B: 2-D Shapes and Angles</u>            1: Measuring and Constructing Angles            2: Angle Properties and Relationships            3: Properties of Quadrilaterals  <b>5: Consolidation (2-D Shapes and Angles)</b></p>
<p><b>Comparing integers, fractions, and decimal numbers</b>            B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts            B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts            B1.6 describe relationships and show equivalences among fractions and decimal numbers up to thousandths, using appropriate tools and drawings, in various contexts</p> <p><b>Comparing two expressions</b>            C2.4 solve inequalities that involve two operations and whole numbers up to 100, and verify and graph the solutions</p>	<p><u>Number Unit 3: Fractions, Decimals, Percents, and Integers</u>            13: Representing Fractions            14: Comparing and Ordering Fractions            15: Representing Decimals            16: Comparing and Ordering Decimals            17: Comparing and Ordering Fractions and Decimals            18: Relating Fractions, Decimals, and Percents            20: Comparing and Ordering Integers  <b>21: Consolidation (Fractions, Decimals, Percents, and Integers)</b></p> <p><u>Patterning Unit 2: Variables and Equations</u>            9: Solving and Graphing Inequalities  <b>10: Consolidation (Variables and Equations)</b></p>

Time: 10 Days	
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<p><b>Using proportional reasoning</b></p> <p>B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used</p> <p>B2.5 add and subtract fractions with like and unlike denominators, using appropriate tools, in various contexts</p> <p>B2.9 multiply whole numbers by proper fractions, using appropriate tools and strategies</p> <p>B2.10 divide whole numbers by proper fractions, using appropriate tools and strategies</p> <p>B2.12 solve problems involving ratios, including percents and rates, using appropriate tools and strategies</p>	<p><u>Number Unit 2: Fluency with Whole Numbers</u></p> <p>10: Unit Rates</p> <p>11: Exploring Ratios</p> <p><b>12: Consolidation (Fluency with Whole Numbers)</b></p> <p><u>Number Unit 4: Operations with Fractions, Decimals, and Percents</u></p> <p>22: Multiplying Decimals by 1-Digit Numbers</p> <p>23: Multiplying 3-Digit Whole Numbers by Decimal Tenths</p> <p>24: Dividing Decimals by 1-Digit Numbers</p> <p>25: Dividing 3-Digit Whole Numbers by Decimal Tenths</p> <p>26: Adding and Subtracting Decimals</p> <p>27: Adding and Subtracting Fractions</p> <p>28: Multiplying and Dividing Whole Numbers by Proper Fractions</p> <p>29: Using Mental Math to Calculate Percents</p>

Time: 15 Days	
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<p><b>Creating patterns and code, and making predictions about them</b></p> <p>C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear</p> <p>C1.2 create and translate repeating, growing, and shrinking patterns using various representations, including tables of values, graphs, and, for linear growing patterns, algebraic expressions and equations</p> <p>C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns</p> <p>C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions</p> <p><b>NOTE:</b> solving for an unknown value with an algebraic representation of a pattern is an application in solving equations</p>	<p><u>Patterning Unit 1: Patterning</u></p> <p>1: Investigating Patterns and Relationships in Tables and Graphs</p> <p>2: Solving Problems</p> <p>3: Representing Patterns in Different Ways</p> <p><b>4: Consolidation (Patterning)</b></p> <p><u>Patterning Unit 2: Variables and Equations</u></p> <p>7: Representing Generalizations in Patterns</p> <p>8: Writing and Solving Equations</p> <p><b>10: Consolidation (Variables and Equations)</b></p>
<p><b>Expressing and predicting probability</b></p> <p>D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions</p> <p>D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening</p>	<p><u>Data Management and Probability Unit 2: Probability</u></p> <p>7: Exploring Theoretical Probability</p> <p>8: Independent Events</p> <p>9: Conducting Experiments</p> <p><b>10: Consolidation (Probability)</b></p>
<p><b>Coding can be used to create patterns, check predictions, and simulate probabilities</b></p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures</p> <p>C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p>	<p><u>Patterning Unit 3: Coding</u></p> <p>11: Altering Code for a Game</p> <p>12: Making Shapes</p> <p>13: Classifying Polygons</p> <p><b>14: Consolidation (Coding)</b></p>



Time: 30 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Developing fluency with adding, subtracting, multiplying, and dividing</b></p> <p>B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations</p> <p>B2.4 represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms</p> <p>B2.7 represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms</p> <p>B2.8 represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate</p> <p>B2.11 represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies</p> <p>C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths</p>	<p><u>Number Unit 2: Fluency with Whole Numbers</u></p> <p>6: Solving Problems with Whole Numbers</p> <p>7: Estimating Reasonableness of Solutions</p> <p>8: The Order of Operations</p> <p>9: Mental Math Strategies</p> <p><u>Number Unit 4: Operations with Fractions, Decimals, and Percents</u></p> <p>22: Multiplying Decimals by 1-Digit Numbers</p> <p>23: Multiplying 3-Digit Whole Numbers by Decimal Tenths</p> <p>24: Dividing Decimals by 1-Digit Numbers</p> <p>25: Dividing 3-Digit Whole Numbers by Decimal Tenths</p> <p>26: Adding and Subtracting Decimals</p> <p>27: Adding and Subtracting Fractions</p> <p>28: Multiplying and Dividing Whole Numbers by Proper Fractions</p> <p>29: Using Mental Math to Calculate Percents</p> <p><b>30: Consolidation (Operations with Fractions, Decimals, and Percents)</b></p> <p><u>Patterning Unit 2: Variables and Equations</u></p> <p>5: Investigating Algebraic Expressions</p> <p>6: Investigating Equality in Equations</p>

Time: 10 Days	
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<p><b>Developing financial concepts</b></p> <p>F1.1 describe the advantages and disadvantages of various methods of payment that can be used to purchase goods and services</p> <p>F1.2 identify different types of financial goals, including earning and saving goals, and outline some key steps in achieving them</p> <p>F1.3 identify and describe various factors that may help or interfere with reaching financial goals</p> <p>F1.4 explain the concept of interest rates, and identify types of interest rates and fees associated with different accounts and loans offered by various banks and other financial institutions</p> <p>F1.5 describe trading, lending, borrowing, and donating as different ways to distribute financial and other resources among individuals and organizations</p>	<p><u>Number Unit 5: Financial Literacy</u></p> <p>31: Advantages and Disadvantages of Payment Methods</p> <p>32: Interest Rates and Fees</p> <p>33: Planning for Financial Goals</p> <p><b>34: Consolidation (Financial Literacy)</b></p>
<p><b>Using operations and mental math to solve problems involving purchases</b></p> <p>B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures</p> <p>C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p>	<p><u>Number Unit 2: Fluency with Whole Numbers</u></p> <p>6: Solving Problems with Whole Numbers</p> <p>7: Estimating Reasonableness of Solutions</p> <p>8: The Order of Operations</p> <p>9: Mental Math Strategies</p> <p><u>Patterning Unit 3: Coding</u></p> <p>11: Altering Code for a Game</p> <p>12: Making Shapes</p> <p>13: Classifying Polygons</p> <p><b>14: Consolidation (Coding)</b></p>

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<p><b>Integrated Task</b></p> <p>This is an opportunity to apply mathematical concepts and skills from this grade to solve real-life problems that require the process of mathematical modelling*.</p> <p>Depending on the real-life situation, coding may be a tool in mathematical modelling.</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures</p> <p>C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code</p> <p>* One aspect of the mathematical modelling process is to identify things that change (variable) and things that remain the same. Variables may be used to represent quantities that will change.</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u> 4: Identifying Prime and Composite Numbers</p> <p><u>Number Unit 2: Fluency with Whole Numbers</u> 6: Solving Problems with Whole Numbers</p> <p><u>Number Unit 3: Fractions, Decimals, Percents, and Integers</u> 14: Comparing and Ordering Fractions</p> <p><u>Number Unit 4: Operations with Fractions, Decimals, and Percents</u> 22: Multiplying Decimals by 1-Digit Numbers</p> <p><u>Number Unit 5: Financial Literacy</u> 33: Planning for Financial Goals</p> <p><u>Patterning Unit 2: Variables and Equations</u> 8: Writing and Solving Equations</p> <p><u>Measurement Unit 1B: Length, Mass, Capacity, and Area</u> 2: Determining Area</p> <p><u>Data Management and Probability Unit 1: Data Management</u> 2: Exploring Histograms</p> <p><u>Data Management and Probability Unit 2: Probability</u> 8: Independent Events</p> <p><u>Patterning Unit 3: Coding</u> 11: Altering Code for a Game 12: Making Shapes 13: Classifying Polygons <b>14: Consolidation (Coding)</b></p>