



## Ontario Ministry Sample Long Range Planner: By Topic and Mathology Grade 4

Time: 10 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Attributes and Numbers</b>  <b>Introduce and apply throughout the year as appropriate</b>            B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life            B1.7 read, represent, compare, and order decimal tenths, in various contexts</p> <p>E2.3 solve problems involving elapsed time by applying the relationships between different units of time</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u>            1: Representing Numbers to 10 000            3: Estimating and Rounding Numbers            5: Estimating to Solve Problems</p> <p><u>Number Unit 4: Decimals</u>            20: Exploring Tenths</p> <p><u>Measurement Unit 3: Time</u>            12: Exploring Time            13: Telling Time in One- and Five-Minute Intervals            14: Telling Time on a 24-Hour Clock            15: Relationships Between Units of Time            16: Exploring Elapsed Time  <b>18: Consolidation (Time)</b></p>
<p><b>Using characteristics to classify</b>            C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts</p> <p>E1.1 identify geometric properties of rectangles, including the number of right angles, parallel and perpendicular sides, and lines of symmetry            E2.4 identify angles and classify them as right, straight, acute, or obtuse</p>	<p><u>Patterning Unit 1: Patterns and Relations</u>            1: Repeating and Growing Patterns</p> <p><u>Geometry Unit 1B: 2-D Shapes and Angles</u>            1: Exploring Benchmark Angles            2: Properties of Rectangles            3: Investigating Polygons  <b>4: Consolidation (2-D Shapes and Angles)</b></p>

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<p><b>Facts, Expressions and Equations including Area of a Rectangle</b>  <b>Developing multiplication facts using the area of a rectangle</b>            B2.2 recall and demonstrate multiplication facts for <math>1 \times 1</math> to <math>10 \times 10</math>, and related division facts</p> <p>E2.5 use the row and column structure of an array to measure the areas of rectangles and to show that the area of any rectangle can be found by multiplying its side lengths</p>	<p><u>Number Unit 5: Fluency with Multiplication and Division Facts</u>            24: Strategies for Multiplication            25: Solving Multiplication Problems            26: Relating Multiplication and Division            27: Strategies for Division            28: Whole Number Rates  <b>29: Consolidation (Fluency with Multiplication and Division Facts)</b></p> <p><u>Measurement Unit 1: Length, Perimeter, and Area</u>            4: Estimating and Measuring Area in Square Metres            5: Estimating and Measuring Area in Square Centimetres            6: Exploring the Area of Rectangles</p>
<p><b>Understanding and working with equations</b>            B2.1 use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations</p> <p>C2.1 identify and use symbols as variables in expressions and equations            C2.2 solve equations that involve whole numbers up to 50 in various contexts, and verify solutions</p> <p>E2.6 apply the formula for the area of a rectangle to find the unknown measurement when given two of the three</p>	<p><u>Number Unit 2: Fluency with Addition and Subtraction</u>            7: Estimating Sums and Differences            8: Modelling Addition and Subtraction            9: Adding and Subtracting Larger Numbers            10: Using Mental Math to Add and Subtract            11: Creating and Solving Problems  <b>12: Consolidation (Fluency with Addition and Subtraction)</b></p> <p><u>Patterning Unit 2: Variables and Equations</u>            7: Using Symbols            8: Solving Equations Concretely            9: Solving Addition and Subtraction Equations            10: Solving Addition and Subtraction Inequalities            11: Solving Multiplication and Division Equations            12: Using Equations to Solve Problems  <b>13: Consolidation (Variables and Equations)</b></p> <p><u>Measurement Unit 1: Length, Perimeter, and Area</u>            4: Estimating and Measuring Area in Square Metres            5: Estimating and Measuring Area in Square Centimetres            6: Exploring the Area of Rectangles</p>

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<p><b>Number Patterns and Number Relationships</b>  <b>Extending place value to decimal tenths</b>            B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life            B1.6 count to 10 by halves, thirds, fourths, fifths, sixths, eighths, and tenths, with and without the use of tools</p> <p>C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal tenths</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u>            2: Composing and Decomposing Larger Numbers            4: Comparing and Ordering Numbers  <b>6: Consolidation (Number Relationships and Place Value)</b></p> <p><u>Number Unit 3: Fractions</u>            13: What Are Fractions?            14: Counting by Unit Fractions            15: Exploring Different Representations of Fractions</p> <p><u>Patterning Unit 1: Patterns and Relations</u>            4: Investigating Number Relationships</p>
<p><b>Representing fractions</b>            B1.4 represent fractions from halves to tenths using drawings, tools, and standard fractional notation, and explain the meanings of the denominator and the numerator            B1.9 describe relationships and show equivalences among fractions and decimal tenths, in various contexts            B2.7 represent the relationship between the repeated addition of a unit fraction and the multiplication of that unit fraction by a whole number, using tools, drawings, and standard fractional notation</p>	<p><u>Number Unit 3: Fractions</u>            15: Exploring Different Representations of Fractions            16: Sharing Equally            17: Exploring Equivalence in Fractions</p> <p><u>Number Unit 7: Operations with Fractions and Decimals</u>            39: Repeated Addition with Unit Fractions  <b>40: Consolidation (Operations with Fractions and Decimals)</b></p>

Time: 30 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Collection, Organization, Representation, and Analysis of Data, and Introduction to Mathematical Modelling</b></p> <p><b>Collecting, organizing, and representing data</b></p> <p>B1.1 read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life</p> <p>B1.2 compare and order whole numbers up to and including 10 000, in various contexts</p> <p>D1.1 describe the difference between qualitative and quantitative data, and describe situations where each would be used</p> <p>D1.2 collect data from different primary and secondary sources to answer questions of interest that involve comparing two or more sets of data, and organize the data in frequency tables and stem-and-leaf plots</p> <p>D1.3 select from among a variety of graphs, including multiple-bar 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 frequency tables, stem-and-leaf plots, and multiple-bar graphs, and incorporating any other relevant information that helps to tell a story about the data</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u></p> <p>2: Composing and Decomposing Larger Numbers</p> <p>4: Comparing and Ordering Numbers</p> <p><b>6: Consolidation (Number Relationships and Place Value)</b></p> <p><u>Data Management and Probability Unit 1B: Data Management</u></p> <p>1: Qualitative and Quantitative Data</p> <p>2: Collecting and Organizing Data</p> <p>3: Exploring Stem-and-Leaf Plots and Multiple-Bar Graphs</p> <p>4: Determining Mean, Median, and Mode</p> <p>5: Analyzing Data</p> <p>6: Creating Infographics</p> <p><b>7: 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>5: Estimating to Solve Problems</p> <p><u>Number Unit 2: Fluency with Addition and Subtraction</u></p> <p>11: Creating and Solving Problems</p> <p><u>Number Unit 3: Fractions</u></p> <p>16: Sharing Equally</p> <p><u>Number Unit 4: Decimals</u></p> <p>22: Comparing and Ordering Decimals</p> <p><u>Number Unit 5: Fluency with Multiplication and Division Facts</u></p>

	<p>27: Strategies for Division</p> <p><u>Number Unit 6: Multiplying and Dividing Larger Numbers</u>  30: Exploring Strategies for Multiplying  34: Dividing with Remainders</p> <p><u>Number Unit 7: Operations with Fractions and Decimals</u>  36: Estimating Sums and Differences with Decimals</p> <p><u>Number Unit 8: Financial Literacy</u>  41: Purchasing and Making Change (Whole-Dollar Amounts)</p> <p><u>Patterning Unit 1: Patterns and Relations</u>  3: Representing Patterns</p> <p><u>Patterning Unit 2: Variables and Equations</u>  12: Using Equations to Solve Problems</p> <p><u>Patterning Unit 3: Coding</u>  14: Writing Code</p> <p><u>Measurement Unit 1: Length, Perimeter, and Area</u>  6: Exploring the Area of Rectangles</p> <p><u>Measurement Unit 2: Mass and Capacity</u>  9: Investigating Capacity</p> <p><u>Measurement Unit 3: Time</u>  16: Exploring Elapsed Time</p> <p><u>Geometry Unit 1B: 2-D Shapes and Angles</u>  2: Properties of Rectangles</p> <p><u>Geometry Unit 2: Grids and Transformations</u>  5: Investigating Translations</p> <p><u>Data Management and Probability Unit 1B: Data Management</u>  5: Analyzing Data</p> <p><u>Data Management and Probability Unit 2: Probability</u>  11: Making and Testing Predictions</p>
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Time: 10 Days	
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<p><b>Transformations and Coding</b>  <b>Creating, describing, and performing transformations</b></p> <p>E1.2 plot and read coordinates in the first quadrant of a Cartesian plane, and describe the translations that move a point from one coordinate to another</p> <p>E1.3 describe and perform translations and reflections 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 code, including code that involves sequential, concurrent, repeating, and nested events</p> <p>C3.2 read and alter existing code, including code that involves sequential, concurrent, repeating, and nested events, and describe how changes to the code affect the outcomes</p>	<p><u>Geometry Unit 2: Grids and Transformations</u></p> <p>5: Investigating Translations</p> <p>6: Plotting and Reading Coordinates</p> <p>7: Investigating Reflections</p> <p><b>8: Consolidation (Grids and Transformations)</b></p> <p><u>Patterning Unit 3: Coding</u></p> <p>14: Writing Code</p> <p>15: Making Shapes</p> <p>16: Coding a Shape Design</p> <p><b>17: Consolidation (Coding)</b></p>

Time: 10 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Comparison of Quantities</b>  <b>Comparing measures</b>            E2.2 use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity</p>	<p><u>Measurement Unit 1: Length, Perimeter, and Area</u>            1: Estimating and Measuring in Millimetres            2: Measuring Length in Different Units            4: Estimating and Measuring Area in Square Metres            5: Estimating and Measuring Area in Square Centimetres            6: Exploring the Area of Rectangles  <b>7: Consolidation (Length, Perimeter, and Area)</b></p> <p><u>Measurement Unit 2: Mass and Capacity</u>            8: Investigating Mass            9: Investigating Capacity            10: Exploring Metric Prefixes</p>
<p><b>Comparing whole numbers, fractions and decimal tenths</b>            B1.2 compare and order whole numbers up to and including 10 000, in various contexts            B1.5 use drawings and models to represent, compare, and order fractions representing the individual portions that result from two different fair-share scenarios involving any combination of 2, 3, 4, 5, 6, 8, and 10 sharers            B1.7 read, represent, compare, and order decimal tenths, in various contexts</p> <p><b>Comparing two expressions solutions</b>            C2.3 solve inequalities that involve addition and subtraction of whole numbers up to 20, and verify and graph the solutions</p>	<p><u>Number Unit 1: Number Relationships and Place Value</u>            2: Composing and Decomposing Larger Numbers            4: Comparing and Ordering Numbers</p> <p><u>Number Unit 3: Fractions</u>            16: Sharing Equally            17: Exploring Equivalence in Fractions            18: Comparing and Ordering Fractions  <b>19: Consolidation (Fractions)</b></p> <p><u>Number Unit 4: Decimals</u>            20: Exploring Tenths            22: Comparing and Ordering Decimals  <b>23: Consolidation (Decimals)</b></p> <p><u>Patterning Unit 2: Variables and Equations</u>            10: Solving Addition and Subtraction Inequalities</p>

Time: 10 Days	
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<p><b>Proportional Relationships and Measurements</b>  <b>Using proportional reasoning</b></p> <p>B2.3 use mental math strategies to multiply whole numbers by 10, 100, and 1000, divide whole numbers by 10, and add and subtract decimal tenths, and explain the strategies used</p> <p>E2.1 explain the relationships between grams and kilograms as metric units of mass, and between litres and millilitres as metric units of capacity, and use benchmarks for these units to estimate mass and capacity</p> <p>E2.2 use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity</p> <p>B2.8 show simple multiplicative relationships involving whole-number rates, using various tools and drawings</p> <p>E2.3 solve problems involving elapsed time by applying the relationships between different units of time</p>	<p><u>Number Unit 6: Multiplying and Dividing Larger Numbers</u></p> <p>30: Exploring Strategies for Multiplying</p> <p>31: Estimating Products</p> <p>32: Exploring Strategies for Dividing</p> <p>33: Estimating Quotients</p> <p>34: Dividing with Remainders</p> <p><b>35: Consolidation (Multiplying and Dividing Larger Numbers)</b></p> <p><u>Measurement Unit 2: Mass and Capacity</u></p> <p>10: Exploring Metric Prefixes</p> <p><b>11: Consolidation (Mass and Capacity)</b></p>



Time: 15 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Patterns and Likelihood of Events</b>  <b>Creating patterns and code, and making predictions about them</b></p> <p>C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs</p> <p>C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating and growing patterns</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, repeating, and nested events</p> <p>C3.2 read and alter existing code, including code that involves sequential, concurrent, repeating, and nested events, and describe how changes to the code affect the outcomes</p>	<p><u>Patterning Unit 1: Patterns and Relations</u></p> <p>1: Repeating and Growing Patterns</p> <p>3: Representing Patterns</p> <p>4: Investigating Number Relationships</p> <p><b>6: Consolidation (Increasing and Decreasing Patterns)</b></p>
<p><b>Predicting the likelihood of an event</b></p> <p>D2.1 use mathematical language, including the terms “impossible”, “unlikely”, “equally likely”, “likely”, and “certain”, to describe the likelihood of events happening, represent this likelihood on a probability line, and use it to make predictions and informed decisions</p>	<p><u>Data Management and Probability Unit 2: Probability</u></p> <p>8: Describing Likelihood of Events</p> <p>9: Predicting Outcomes of an Event</p> <p>10: Conducting Experiments to Check Predictions</p> <p>11: Making and Testing Predictions</p> <p><b>12: Consolidation (Probability)</b></p>

Time: 30 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Operations</b>  <b>Developing fluency with adding, subtracting, multiplying, and dividing</b>            B1.8 round decimal numbers to the nearest whole number, in various contexts            B2.4 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 10 000 and of decimal tenths, using appropriate tools and strategies, including algorithms            B2.5 represent and solve problems involving the multiplication of two- or three-digit whole numbers by one-digit whole numbers and by 10, 100, and 1000, using appropriate tools, including arrays            B2.6 represent and solve problems involving the division of two- or three-digit whole numbers by one-digit whole numbers, expressing any remainder as a fraction when appropriate, using appropriate tools, including arrays</p>	<p><u>Number Unit 2: Fluency with Addition and Subtraction</u>            8: Modelling Addition and Subtraction            9: Adding and Subtracting Larger Amounts</p> <p><u>Number Unit 4: Decimals</u>            20: Exploring Tenths</p> <p><u>Number Unit 6: Multiplying and Dividing Larger Numbers</u>            30: Exploring Strategies for Multiplying            31: Estimating Products            32: Exploring Strategies for Dividing            33: Estimating Quotients            34: Dividing with Remainders  <b>35: Consolidation (Multiplying and Dividing Larger Numbers)</b></p> <p><u>Number Unit 7: Operations with Fractions and Decimals</u>            36: Estimating Sums and Differences with Decimals            37: Adding and Subtracting Decimals            38: Using Mental Math to Add and Subtract Decimals</p> <p><u>Number Unit 8: Financial Literacy</u>            41: Purchasing and Making Change (Whole-Dollar Amounts)            43: Making Financial Decisions            44: Making Good Purchases  <b>45: Consolidation (Financial Literacy)</b></p>

Time: 10 Days	
Ontario Ministry Topics and Expectations	Pearson Mathology Lessons
<p><b>Financial Literacy and Operations involving Money</b></p> <p><b>Developing financial concepts</b></p> <p>F1.1 identify various methods of payment that can be used to purchase goods and services</p> <p>F1.3 explain the concepts of spending, saving, earning, investing, and donating, and identify key factors to consider when making basic decisions related to each</p> <p>F1.4 explain the relationship between spending and saving, and describe how spending and saving behaviours may differ from one person to another</p> <p>F1.5 describe some ways of determining whether something is reasonably priced and therefore a good purchase</p>	<p><u>Number Unit 8: Financial Literacy</u></p> <p>41: Purchasing and Making Change (Whole-Dollar Amounts)</p> <p>43: Making Financial Decisions</p> <p>44: Making Good Purchases</p> <p><b>45: Consolidation (Financial Literacy)</b></p>
<p><b>Using operations and mental math to solve problems involving purchases</b></p> <p>F1.2 estimate and calculate the cost of transactions involving multiple items priced in whole-dollar amounts, not including sales tax, and the amount of change needed when payment is made in cash, using mental math</p> <p>B1.3 round whole numbers to the nearest ten, hundred, or thousand, in various contexts</p> <p>B2.1 use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations</p> <p>C3.1 solve problems and create computational representations of mathematical situations by writing and executing 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</p>	<p><u>Number Unit 8: Financial Literacy</u></p> <p>41: Purchasing and Making Change (Whole-Dollar Amounts)</p> <p> </p> <p><u>Number Unit 1: Number Relationships and Place Value</u></p> <p>3: Estimating and Rounding Numbers</p>

Time: 10 Days	
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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 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</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> 5: Estimating to Solve Problems</p> <p><u>Number Unit 2: Fluency with Addition and Subtraction</u> 11: Creating and Solving Problems</p> <p><u>Number Unit 3: Fractions</u> 16: Sharing Equally</p> <p><u>Number Unit 4: Decimals</u> 22: Comparing and Ordering Decimals</p> <p><u>Number Unit 5: Fluency with Multiplication and Division Facts</u> 27: Strategies for Division</p> <p><u>Number Unit 6: Multiplying and Dividing Larger Numbers</u> 30: Exploring Strategies for Multiplying 34: Dividing with Remainders</p> <p><u>Number Unit 7: Operations with Fractions and Decimals</u> 36: Estimating Sums and Differences with Decimals</p> <p><u>Number Unit 8: Financial Literacy</u> 41: Purchasing and Making Change (Whole-Dollar Amounts)</p> <p><u>Patterning Unit 1: Patterns and Relations</u> 3: Representing Patterns</p> <p><u>Patterning Unit 2: Variables and Equations</u> 12: Using Equations to Solve Problems</p> <p><u>Patterning Unit 3: Coding</u> 14: Writing Code</p> <p><u>Measurement Unit 1: Length, Perimeter, and Area</u> 6: Exploring the Area of Rectangles</p> <p><u>Measurement Unit 2: Mass and Capacity</u> 9: Investigating Capacity</p> <p><u>Measurement Unit 3: Time</u> 16: Exploring Elapsed Time</p>

	<p><u>Geometry Unit 1B: 2-D Shapes and Angles</u> 2: Properties of Rectangles</p> <p><u>Geometry Unit 2: Grids and Transformations</u> 5: Investigating Translations</p> <p><u>Data Management and Probability Unit 1B: Data Management</u> 5: Analyzing Data</p> <p><u>Data Management and Probability Unit 2: Probability</u> 11: Making and Testing Predictions</p>
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