

**Mathology 2 and Ontario Ministry of Education Long Range Plan: by Question**

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
<b>Who are we?</b>	<b>Big Ideas</b>	
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Numbers tell us how many and how much.</li> <li>• Objects can be located in space and viewed from multiple perspectives.</li> </ul>	
<b>Time:</b> September		
Questions and Expectations	What to Look For	Little Books/Activity
		<u>What Would you Rather?</u> - compare quantities to 100 - estimate and count to 100
		<u>Big Buddy Days</u> - build pictographs - interpret pictographs
		<u>Ways to Count</u> - estimate and group to count to 100 - skip-count to 100
<b>Data collection &amp; organization, Data visualization, Data analysis (mode), Likelihood</b> Data: D1.1; D1.2; D1.3; D1.4  They learn about their class and their classmates. They ask questions that focus on two pieces of information and sort, organize, represent, and analyze the data in ways appropriate for grade 2. They identify the mode and use the language of likelihood to make predictions about another class. They test their predictions by surveying another class.	<i>-Are students able to create a line plot and bar graph to show the data?</i> <i>-How do students make comparisons?</i> <i>-Do students use math language when answering questions and comparing data?</i>	<u>Data Management and Probability Cluster 1: Data Management</u> 4: Creating a Survey 5: Making Graphs 1 6: Making Graphs 2  <u>Math Every Day Cards, Data Management and Probability</u> 1: Conducting Surveys

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Amounts to 100</b> Number: B1.1; B1.2; B1.4</p> <p>They work with numbers to approximately 100 as they count the number of people or objects and match the count of tallies to the amounts in the graph.</p>	<p><i>- Do students struggle bridging tens when counting on and back by 1s?</i></p> <p><i>- Are students able to skip-count forward and backward by 2s, 5s, and 10s, or do they need support?</i></p> <p><i>- Do students use patterns to help them count forward and backward?</i></p>	<p><u>Number Cluster 1: Counting</u></p> <p>1: Bridging Tens 2: Skip-Counting Forward 3: Skip-Counting Flexibly 4: Skip-Counting Backward</p> <p><b>5: Consolidation (Counting)</b></p> <p><u>Math Every Day Cards, Number</u></p> <p>1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number 1B: Skip-Counting with Actions 2A: Show Me in Different Ways; Guess My Number 2B: Math Commander; Building an Open Number Line 3A: Adding Ten 3B: Describe Me 5A: Building Numbers 5B: How Many Ways? 8A: Counting Equal Groups to Find How Many; I Spy 8B: How Many Blocks?; How Many Ways? 9: Collections of Coins</p>
<p><b>Maps &amp; movement</b> Spatial Sense: E1.4; E1.5</p> <p>They create simple maps of their classroom and other places that are familiar to them. They describe the relative position of several objects in the class and explain how to get from one object to the next.</p>	<p><i>- Do students give clear descriptions using positional language to locate a place on the map?</i></p> <p><i>- Do students understand the concept of perspective?</i></p> <p><i>- Are students able to isolate a particular view to distinguish its perspective?</i></p>	<p><u>Geometry Cluster 3: Location and Movement</u></p> <p>11: Reading Maps 12: Drawing a Map</p> <p><b>14: Consolidation (Location and Movement)</b></p> <p><u>Geometry Cluster 5: Coding</u></p> <p>15: Coding Concurrent Events</p>
<p><b>Reflection: Who are we?</b></p>		

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
<p>How much is that?</p>	<p><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Numbers are related in many ways.</li> <li>• Quantities and numbers can be added and subtracted to determine how many or how much.</li> <li>• 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.</li> <li>• Assigning a unit to a continuous attribute allows us to measure and make comparisons.</li> <li>• Objects can be located in space and viewed from multiple perspectives.</li> </ul>	
<p><b>Time:</b> October</p>		
Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>Family Fun day</u></p> <ul style="list-style-type: none"> <li>- split quantities into equal groups to count to 100</li> <li>- compose/decompose to 100</li> </ul>
		<p><u>The Discovery</u></p> <ul style="list-style-type: none"> <li>- estimate and measure length, perimeter, and area</li> <li>- compare and describe length, perimeter, and area</li> </ul>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Compose &amp; decompose amounts to 100, Number relationships, Math facts (+/-)</b>            Number: B1.1; B1.2; B1.3; B1.4; B1.5; B2.2; B2.3; B2.4            Algebra: C1.4; C3.1; C3.2</p> <p>They consider how numbers are used to describe “how much”. They continue to strengthen their subitizing abilities and use number relationships to build their mental addition and subtraction strategies and math facts. They compose and decompose amounts to 100 and record their findings as number sentences.</p>	<ul style="list-style-type: none"> <li>- <i>What strategies do students use to prove the order is correct?</i></li> <li>- <i>Do students use comparative language to explain how they know numbers are ordered from least to greatest?</i></li> <li>- <i>Are students able to model a 3-digit number with Base Ten Blocks?</i></li> <li>- <i>Are students able to choose an appropriate strategy to answer each question or do they always use the same strategy?</i></li> </ul>	<p><u>Number Cluster 2: Number Relationships 1</u>            6: Comparing Quantities            7: Ordering Quantities            8: Odd and Even Numbers</p> <p><u>Number Cluster 7: Operational Fluency</u>            33: Using Doubles            34: Fluency with 20</p> <p><u>Math Every Day Cards, Number</u>            1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number            1B: Skip-Counting with Actions            2A: Show Me in Different Ways; Guess My Number            2B: Math Commander; Building an Open Number Line            3A: Adding Ten            3B: Describe Me            5A: Building Numbers            5B: How Many Ways?            6: What Math Do You See?; What Could the Story Be?            7A: Doubles and Near-Doubles; I Have... I Need...            7B: Hungry Bird; Make 10 Sequences            8A: Counting Equal Groups to Find How Many; I Spy            8B: How Many Blocks?; How Many Ways?            9: Collections of Coins</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Data visualization &amp; analysis</b> Data: D1.3; D1.4; D1.5</p> <p>They analyze sets of data and graphs and draw conclusions based on quantities represented by the graphs. They use numbers and non-standard units to describe how much length an object has, and move from answering comparison questions (Which is longer?) to measurement questions (How long? How much longer?). Lastly, they write code that programs a bot to travel a certain distance, in a certain direction.</p>	<p><i>- Do students collect the data systematically?</i></p> <p><i>- Are students able to create graphs that accurately show the data collected?</i></p> <p><i>- Are students able to use the graphs to answer questions?</i></p>	<p><u>Data Management and Probability Cluster 1: Data Management</u> 2: Interpreting Graphs 1 3: Interpreting Graphs 2 7: Identifying the Mode <b>8: Consolidation (Data Management)</b></p> <p><u>Math Every Day Cards, Data Management and Probability</u> 1: Reading and Interpreting Graphs</p> <p><u>Math Every Day Cards, Geometry</u> 4A: Our Design; Treasure Map 5: Wandering Animals</p>
<p><b>Non-standard units (length)</b> Spatial Sense: E2.1</p> <p>They use numbers and non-standard units to describe how much length an object has, and move from answering comparison questions (Which is longer?) to measurement questions (How long? How much longer?). Lastly, they write code that programs a bot to travel a certain distance, in a certain direction.</p>	<p><i>- Do students understand that an object can have several measurable attributes?</i></p> <p><i>- Do students select appropriate tools to measure the different attributes?</i></p>	<p><u>Measurement Cluster 1: Using Non-Standard Units</u> 1: Measuring Length 1 2: Measuring Length 2 3: Measuring Distance Around <b>4: Consolidation (Using Non-Standard Units)</b></p> <p><u>Math Every Day Cards, Measurement</u> 1: Estimation Scavenger Hunt; Estimation Station</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Coding, Maps &amp; movement</b> Spatial Sense: E1.4; E1.5</p> <p>They write code that programs a bot to travel a certain distance, in a certain direction.</p>	<ul style="list-style-type: none"> <li>- <i>Are students able to use numbers and arrows to write a code?</i></li> <li>- <i>Are students able to write a code for someone who is standing in a different location than they are?</i></li> <li>- <i>When obstacles are added, how do students adjust their code (e.g., start over, or make changes to one part of the code)?</i></li> <li>- <i>How do students check the code (e.g., move the mouse along the path, or visualize the movements)?</i></li> </ul>	<p><u>Geometry Cluster 3: Location and Movement</u> 11: Reading Maps 12: Drawing a Map <b>14: Consolidation (Location and Movement)</b></p> <p><u>Geometry Cluster 4: Coding</u> 15: Coding Concurrent Events</p> <p><u>Math Every Day Cards, Geometry</u> 4A: Our Design 5: Code of the Day; Wandering Animals</p>
<p><b>Reflection:</b> How much is that?</p>		

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
What comes first? What comes next?	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Numbers tell us how many and how much.</li> <li>• Numbers are related in many ways.</li> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• Regularity and repetition form patterns that can be generalized and predicted mathematically.</li> <li>• Objects can be located in space and viewed from multiple perspectives.</li> <li>• Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.</li> <li>• 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.</li> </ul>	
<b>Time:</b> November		
Questions and Expectations	What to Look For	Little Books/Activity
		<u>Pattern Quest</u> - investigate repeating patterns - investigate growing and shrinking patterns
		<u>Marsh Watch</u> - collect, organize, and display data in graphs - read and ask questions about graphs

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Number sequences to 200, Number relationships</b> Number: B1.2; B1.3; B1.4</p> <p>They explain how things are ordered and sequenced. They look at number sequences to 200 and use place value and other patterns to order numbers.</p>	<ul style="list-style-type: none"> <li>- <i>Do students struggle bridging tens when counting on and back by 1s?</i></li> <li>- <i>Are students able to skip-count forward and backward by 2s, 5s, and 10s, or do they need support?</i></li> <li>- <i>Do students use patterns to help them count forward and backward?</i></li> <li>- <i>Do students use comparative language to describe numbers?</i></li> <li>- <i>Can students order numbers from least to greatest and from greatest to least?</i></li> </ul>	<p><u>Number Cluster 1: Counting</u> 1: Bridging Tens 2: Skip-Counting Forward 3: Skip-Counting Flexibly 4: Skip-Counting Backward <b>5: Consolidation (Counting)</b></p> <p><u>Number Cluster 2: Number Relationships 1</u> 6: Comparing Quantities 7: Ordering Quantities 8: Comparing and Ordering Numbers to 200 10: Estimating with Benchmarks <b>11: Consolidation (Number Relationships 1)</b></p> <p><u>Number Cluster 3: Grouping and Place Value</u> 12: Building Numbers to 100 13: Making a Number Line 14: Grouping to Count <b>16: Consolidation (Grouping and Place Value)</b></p> <p><u>Math Every Day Cards, Number</u> 1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number 1B: Skip-Counting with Actions 3A: Adding Ten 3B: Thinking Tens 8A: Counting Equal Groups to Find How Many; I Spy 8B: How Many Blocks?; How Many Ways? 9: Collections of Coins</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Spatial patterns &amp; rules</b> Algebra: C1.1; C1.2; C1.3; C1.4; C3.1; C3.2</p> <p>They describe patterns in geometric designs and explain “what comes next” based on pattern rules.</p>	<ul style="list-style-type: none"> <li>- Are students able to use the core to create a repeating pattern?</li> <li>- Are students able to accurately predict an element in a repeating pattern? Can they extend the pattern to check?</li> <li>- Are students able to identify a missing element/error in a repeating pattern?</li> <li>- Are students able to create a pattern with two attributes changing?</li> <li>- Are students able to write the pattern rule?</li> <li>- Are students able to show an increasing pattern in different ways?</li> <li>- Are students able to explain, using math language, why two patterns are the same?</li> </ul>	<p><u>Patterning and Algebra Cluster 1: Repeating Patterns</u> 1: Exploring Patterns 2: Extending and Predicting 3: Errors and Missing Elements 4: Combining Attributes <b>5: Consolidation (Repeating Patterns)</b></p> <p><u>Patterning and Algebra Cluster 2: Increasing/Decreasing Patterns</u> 6: Increasing Patterns 1 7: Increasing Patterns 2 8: Decreasing Patterns 9: Extending Patterns</p> <p><u>Math Every Day Cards, Patterning and Algebra</u> 1: Repeating Patterns Around Us; Show Another Way 2A: How Many Can We Make? 2B: Making Increasing Patterns; Making Decreasing Patterns</p>
<p><b>Code concurrent &amp; sequential events</b> Algebra: C3.1, C3.2</p> <p>They put code in the right order so as to reach a desired destination or result.</p>	<ul style="list-style-type: none"> <li>- Are students able to use numbers and arrows to write a code?</li> <li>- Are students able to write a code for someone who is standing in a different location than they are?</li> <li>- When obstacles are added, how do students adjust their code (e.g., start over, or make changes to one part of the code)?</li> <li>- How do students check the code (e.g., move the mouse along the path, or visualize the movements)?</li> </ul>	<p><u>Geometry Cluster 4: Coding</u> 15: Coding Concurrent Events 16: Effects of Altering Code 17: Writing Code to Solve Problems <b>18: Consolidation (Coding)</b></p> <p><u>Math Every Day Cards, Geometry</u> 4A: Our Design 5: Code of the Day; Wandering Animals</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Order by length (distance), Order by duration (time)</b> Spatial Sense: E2.1; E2.4</p> <p>They compare objects by their measuring lengths, and order events by duration, as they engage in simple tasks and contests that can be timed (e.g., the amount of time it takes for an object to roll a given distance along a ramp at different heights).</p>	<ul style="list-style-type: none"> <li>- <i>Are students able to tell time to the quarter-hour on an analogue clock?</i></li> <li>- <i>Can students use ordinal numbers to identify a day in the week or a month in the year?</i></li> <li>- <i>Are students able to match pictures to the correct thermometers?</i></li> </ul>	<p><u>Measurement Cluster 3: Time</u> 10: Measuring Time 11: Passage of Time <b>12: Consolidation (Time)</b></p> <p><u>Math Every Day Cards, Measurement</u> 1: Estimation Scavenger Hunt; Estimation Station</p>
<p><b>Data analysis, Likelihood</b> Data: D1.3; D1.4; D:1.5; D2.1; D2.2</p> <p>They present the data in tables and graphs. Based on results of these tasks and contests, they predict the likely order of future events.</p>	<ul style="list-style-type: none"> <li>- <i>Do students collect the data systematically?</i></li> <li>- <i>Are students able to create graphs that accurately show the data collected?</i></li> <li>- <i>Are students able to use the graphs to answer questions?</i></li> <li>- <i>Are students able to compare events to decide which event is more/less likely or whether they are equally likely?</i></li> <li>- <i>Can students use words to describe how likely an event is to occur?</i></li> </ul>	<p><u>Data Management and Probability Cluster 1: Data Management</u> 2: Interpreting Graphs 1 3: Interpreting Graphs 2 5: Making Graphs 1 6: Making Graphs 2 7: Identifying the Mode <b>8: Consolidation (Data Management)</b></p> <p><u>Data Management and Probability Cluster 2: Probability and Chance</u> 9: Likelihood of Events 10: Conducting Experiments <b>11: Consolidation (Probability and Chance)</b></p> <p><u>Math Every Day Cards, Data Management and Probability</u> 1: Reading and Interpreting Graphs 2: What's in the Bag?; Word of the Day</p>
<p><b>Reflection:</b> <i>What comes first? What comes next?</i></p>		

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<b>Joining and separating: What do we have now?</b>	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• Regularity and repetition form patterns that can be generalized and predicted mathematically.</li> <li>• Numbers are related in many ways.</li> <li>• Quantities and numbers can be added and subtracted to determine how many or how much.</li> <li>• Patterns and relations can be represented with symbols, equations, and expressions.</li> <li>• 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes.</li> </ul>	
<b>Time:</b> December		
Questions and Expectations	What to Look For	Little Books/Activity
		<u>A Class-full of Projects</u> - add/subtract to 100 - compose/decompose based on units of 10
		<u>The Great Dogsled Race</u> - add/subtract to 100 - compare/order numbers
		<u>Kokum's Bannock</u> - model and describe equality and inequality - explore properties of addition and subtraction

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Change situations (+/-), Part-whole situations (+/-), Mental math to 50, Math facts to 20</b></p> <p>Number: B1.1; B2.1; B2.2; B2.3; B2.4</p> <p>They describe what happens when things are joined, separated, and combined. They represent these problem types with part-whole models, and use direct modelling, counting strategies, their math facts, and mental math strategies to solve for unknown quantities.</p>	<ul style="list-style-type: none"> <li>- <i>Are students able to build the number using hundreds, tens, and ones?</i></li> <li>- <i>How do students determine how many more ones (tens) they need to make another ten (hundred)?</i></li> <li>- <i>Are students able to identify the benchmark numbers on the number line?</i></li> <li>- <i>When given a whole, how do students decompose the number into two parts?</i></li> <li>- <i>How do students solve the problem?</i></li> <li>- <i>How do students represent the problem (concretely, pictorially, symbolically)?</i></li> </ul>	<p><u>Number Cluster 3: Grouping and Place Value</u></p> <p>12: Building Numbers to 100 13: Making a Number Line 15: Building Numbers to 200</p> <p><b>16: Consolidation (Grouping and Place Value)</b></p> <p><u>Number Cluster 5: Number Relationships 2</u></p> <p>23: Benchmarks on a Number Line 25: Composing and Decomposing Numbers to 200</p> <p><u>Number Cluster 6: Conceptualizing Addition and Subtraction</u></p> <p>27: Exploring Properties 28: Solving Problems 1 29: Solving Problems 2</p> <p><u>Number Cluster 7: Operational Fluency</u></p> <p>33: Using Doubles 34: Fluency with 20</p> <p><u>Math Every Day Cards, Number</u></p> <p>1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number 1B: Skip-Counting with Actions 2A: Show Me in Different Ways; Guess My Number 2B: Math Commander; Building an Open Number Line 3A: Adding Ten 3B: Describe Me 5A: Building Numbers 5B: How Many Ways?; What's the Unknown Part? 6: What Math Do You See?; What Could the Story Be? 7A: I Have... I Need...; Doubles and Near-Doubles 7B: Hungry Bird</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Symbols as variables, Equivalence (+/-)</b> Algebra: C2.1; C2.2; C2.3</p> <p>They represent their thinking with number sentences and use symbols to show variables.</p>	<p><i>- Do students accurately represent the operations and quantities on each side of the number sentence with manipulatives?</i></p> <p><i>- Are students using the equal and not equal signs correctly?</i></p> <p><i>- Are students able to work with expressions that involve addition and subtraction?</i></p>	<p><u>Patterning and Algebra Cluster 3: Equality and Inequality</u> 15: Equal and Unequal Sets 16: Equal or Not Equal 18: Exploring Number Sentences 21: Missing Numbers</p> <p><u>Math Every Day Cards, Patterning and Algebra</u> 3A: Equal or Not Equal?; How Many Ways? 3B: What's Missing?</p> <p><u>Math Every Day Cards, Geometry</u> 3A: Fill Me In!</p>
<p><b>Compose-decompose area</b> Spatial Sense: E1.2</p> <p>They join, separate and combine 2-D areas (compose and decompose) and demonstrate that the area of a shape remains constant regardless of how the parts are arranged.</p>		<p><u>Geometry Cluster 2: Geometric Relationships</u> 6: Making Shapes 8: Creating Pictures and Designs 9: Covering Outlines</p>
<p><b>Reflection:</b> <i>Joining and separating: What do we have now?</i></p>		

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<p><b>How can we describe 2-D shapes?</b></p>	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.</li> <li>• Assigning a unit to a continuous attribute allows us to measure and make comparisons.</li> <li>• 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes.</li> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> </ul>	
<p><b>Time:</b> January</p>		
Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>The Best Surprise</u></p> <ul style="list-style-type: none"> <li>- split wholes into equal parts (fractions)</li> <li>- model equal grouping/sharing</li> </ul>
		<p><u>I Spy Awesome Buildings</u></p> <ul style="list-style-type: none"> <li>- find and classify 2-D shapes in 3-D objects</li> <li>- investigate and make 2-D shapes</li> </ul>
<p><b>Measure &amp; draw lengths</b> Spatial Sense: E2.1; E2.2; E2.3</p> <p>They are introduced to centimetres and metres as standard units for measuring length. They understand that measuring tools, such as rulers, represent the repetition and count of units. They use rulers, as well as other strategies and tools, to measure and draw various lengths, distances, and shapes.</p>	<ul style="list-style-type: none"> <li>- <i>Do students understand that an object can have several measurable attributes?</i></li> <li>- <i>Do students select appropriate tools to measure the different attributes?</i></li> <li>- <i>How do students estimate? Are their estimates reasonable?</i></li> <li>- <i>Do students choose the appropriate unit to measure with? Can students justify their choice of unit?</i></li> <li>- <i>Are students using the measuring tools correctly? Are they able to iterate a tool accurately?</i></li> </ul>	<p><u>Measurement Cluster 1: Using Non-Standard Units</u></p> <p>1: Measuring Length 1 2: Measuring Length 2 <b>4: Consolidation (Using Non-Standard Units)</b></p> <p><u>Measurement Cluster 2: Using Standard Units</u></p> <p>5: Benchmarks and Estimation 6: The Metre 7: The Centimetre 8: Metres or Centimetres? <b>9: Consolidation (Using Standard Units)</b></p> <p><u>Math Every Day Cards, Measurement</u></p> <p>1: Estimation Scavenger Hunt; Estimation Station 2: What Am I?; Which Unit?</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Compare, describe, &amp; identify 2-D shapes, Venn &amp; Carroll diagrams</b> Data: D1.3 Spatial Sense: E1.1; E1.2; E1.3</p> <p><b>Fractions of shapes (part-whole), Patterns with shapes, Coding to make shapes</b> Number: B1.6; B1.7 Algebra: C1.1; C1.2; C1.3</p> <p>They compare, describe, identify, and measure 2-D shapes. They use Venn and Carroll diagrams to show relationships between shapes and their attributes. They also construct 2-D shapes using code and create spatial patterns based on the attributes of shapes. They compose and decompose the areas of 2-D shapes and recognize, for example, that there are many ways to show a half of a rectangle. They continue to split 2-D shapes into smaller equal parts and use fractions to describe the resulting shapes.</p>	<ul style="list-style-type: none"> <li>- Are students able to sort the shapes using attributes?</li> <li>- Are students able to identify attributes used to sort and explain their thinking?</li> <li>- Are students able to compare fractional parts to determine which is bigger?</li> <li>- Do students realize that the whole covered with the most rods has the smallest parts?</li> <li>- Are students able to create a pattern with two attributes changing that matches a core card?</li> <li>- Do students use math language (e.g., combine, core, repeats, attribute, changes, shape, size, colour, thickness, orientation, next) in their discussions?</li> </ul>	<p><u>Geometry Cluster 1: 2-D Shapes</u> 1: Sorting 2-D Shapes 2: Congruent Shapes 3: Exploring 2-D Shapes 4: Symmetry in 2-D Shapes <b>5: Consolidation (2-D Shapes)</b></p> <p><u>Geometry Cluster 2: Geometric Relationships</u> 6: Making Shapes 9: Covering Outlines</p> <p><u>Number Cluster 4: Early Fractional Thinking</u> 17: Equal Parts 18: Comparing Fractions 1 19: Comparing Fractions 2</p> <p><u>Patterning and Algebra Cluster 1: Repeating Patterns</u> 1: Exploring Patterns 3: Errors and Missing Elements 4: Combining Attributes</p> <p><u>Data Management and Probability Cluster 1: Data Management</u> 1: Sorting Data by 2 Attributes</p> <p><u>Math Every Day Cards, Geometry</u> 1: Visualizing Shapes; Comparing Shapes</p> <p><u>Math Every Day Cards, Number</u> 4A: Equal Parts from Home; Modelling Fraction Amounts 4B: Naming Equal Parts</p> <p><u>Math Every Day Cards, Patterning and Algebra</u> 1: Repeating Patterns Around Us; Show Another Way 2A: How Many Can We Make? 2B: Making Increasing Patterns; Making Decreasing Patterns</p>
<p><b>Reflection:</b> How can we describe 2-D shapes and compare fractions?</p>		

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<p style="text-align: center;"><b>Are they the same?</b></p>	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Regularity and repetition form patterns that can be generalized and predicted mathematically.</li> <li>• 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes.</li> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• 2-D shapes and 3-D solids can be transformed in many ways and analyzed for change.</li> <li>• Objects can be located in space and viewed from multiple perspectives.</li> </ul>	
<p><b>Time:</b> February</p>		
Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>Sharing Our Stories</u></p> <ul style="list-style-type: none"> <li>- explore lines of symmetry in 2-D shapes</li> <li>- explore 2-D shape</li> </ul>
<p><b>Pattern types &amp; rules, Translate &amp; represent patterns</b></p> <p>Algebra: C1.1; C1.2; C1.3; C1.4; C2.1; C2.2; C2.3; C3.1</p> <p>They determine if quantities, shapes, patterns, and movements are the same. They decide if patterns, translated into different forms, represent the same pattern rule.</p>	<p><i>-Are students able to write and explain the pattern rule?</i></p> <p><i>-Are students able to extend an increasing pattern by two terms?</i></p> <p><i>-Are students able to show an increasing pattern in different ways?</i></p>	<p><u>Patterning and Algebra Cluster 2: Increasing/Decreasing Patterns</u></p> <p>10: Reproducing Patterns  11: Creating Patterns  12: Errors and Missing Terms  13: Solving Problems</p> <p><b>15: Consolidation (Increasing/Decreasing Patterns)</b></p> <p><u>Math Every Day Cards. Patterning and Algebra</u></p> <p>1: Repeating Patterns Around Us; Show Another Way  2A: How Many Can We Make?  2B: Making Increasing Patterns; Making Decreasing Patterns  3A: Equal or Not Equal?; How Many Ways?  3B: What's Missing?</p>

Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>Math Every Day Cards, Number</u>            1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number            1B: Skip-Counting with Actions            2A: Show Me in Different Ways; Guess My Number            2B: Math Commander; Building an Open Number Line            3A: Adding Ten            3B: Describe Me            4A: Equal Parts from Home; Modelling Fraction Amounts            4B: Naming Equal Parts            5A: Building Numbers            5B: How Many Ways?            8A: I Spy            8B: How Many Blocks? How Many Ways?</p>
<p><b>Congruency, Different units of length, including centimetres &amp; metres, Conservation of area</b>            Spatial Sense: E1.2; E1.3; E2.1; E2.2; E2.3</p> <p>They measure lengths and match angles to identify congruent elements in 2-D shapes and determine if the shapes themselves are congruent. They compare lengths measured in centimetres, metres, or familiar non-standard units, and decide if the lengths are the same even though the number of units may differ. They examine silhouettes of shapes that have been rearranged to form other shapes and determine if the areas are the same.</p>	<p><i>-Are students able to determine if a shape is congruent?</i>  <i>-Are students able to use attributes to describe a shape or a solid?</i>  <i>-Are students able to identify and create the shape or solid from the attributes given?</i>  <i>-Do students have a mental picture of the shape or solid?</i></p>	<p><u>Geometry Cluster 1: 2-D Shapes</u>            2: Congruent Shapes  <b>5: Consolidation (2-D Shapes)</b></p> <p><u>Geometry Cluster 2: Geometric Relationships</u>            7: Visualizing Shapes and Solids  <b>10: Consolidation (Geometric Relationships)</b></p> <p><u>Math Every Day Cards, Geometry</u>            3A: Fill Me In!            4A: Our Design</p> <p><u>Math Every Day Cards, Measurement</u>            2: What Am I? Which Unit?</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Equivalent relationships, Coding events, Fractions as equal parts &amp; equal shares, Equivalent fractions</b></p> <p>Number: B1.1; B1.3; B1.6; B1.7 Algebra: C3.2</p> <p>They look at both sides of an equal sign to determine if they represent the same amount. They examine two sets of code and predict whether they both lead to the same destination or result. And they look at different ways of representing fractions, both as equal parts of a whole and as equal shares, and notice that the same fraction can represent different situations. In doing so, they also notice that the same quantity can be described by different but equivalent fractions.</p>	<ul style="list-style-type: none"> <li>- <i>Do students realize that the fractional name tells the number of equal parts?</i></li> <li>- <i>Are students able to compare fractional parts to determine which is bigger/smaller?</i></li> <li>- <i>Are students able to regroup fractional parts to make wholes?</i></li> <li>- <i>Do students use positional language (left, right, up, down) correctly in their codes?</i></li> <li>- <i>Can students describe how the codes from A to B and B to A are alike and how they are different?</i></li> </ul>	<p>Number Cluster 4: Early Fractional Thinking</p> <p>20: Regrouping Fractional Parts 21: Partitioning Sets</p> <p><b>22: Consolidation (Early Fractional Thinking)</b></p> <p>Geometry Cluster 4: Coding</p> <p>15: Coding Concurrent Events 16: Effects of Altering Code 17: Writing Code to Solve Problems</p> <p>Math Every Day Cards, Geometry</p> <p>5: Code of the Day; Wandering Animals</p>
<p><b>Reflection:</b> Are they the same?</p>		

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
<p><b>How much more?</b></p>	<p><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Numbers are related in many ways.</li> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• Quantities and numbers can be added and subtracted to determine how many or how much.</li> <li>• Patterns and relations can be represented with symbols, equations, and expressions.</li> <li>• 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.</li> <li>• Assigning a unit to a continuous attribute allows us to measure and make comparisons.</li> </ul>	
<p><b>Time:</b> March</p>		
Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>The Money Jar</u></p> <ul style="list-style-type: none"> <li>- add/subtract to 100 (further developed)</li> <li>- compose/decompose based on units of 10</li> </ul>
<p><b>Mental math to 50, Coins &amp; bills to 200, Compare situations (+/-)</b>            Number: B1.1; B1.2; B1.3; B1.4; B2.1; B2.2; B2.3; B2.4            Financial Literacy: F1.1</p> <p>They answer the question “How much more?” as they consider comparison situations where the difference, the larger amount, or the smaller amount is unknown, including situations that involve money.</p>	<ul style="list-style-type: none"> <li>- <i>When given a whole, how do students decompose the number into two parts?</i></li> <li>- <i>When given the whole and a part, how do students find the other part?</i></li> <li>- <i>How do students decide which operation to use?</i></li> <li>- <i>Can students translate the information in the story problem to a number sentence?</i></li> <li>- <i>How do students count the coins and bills to check the amounts?</i></li> <li>- <i>What strategies do students use to find the fewest number of coins and/or bills to represent the amounts?</i></li> </ul>	<p><u>Number Cluster 2: Number Relationships 1</u>            8: Comparing and Ordering Numbers to 200</p> <p><u>Number Cluster 3: Grouping and Place Value</u>            15: Building Numbers to 200</p> <p><u>Number Cluster 5: Number Relationships 2</u>            24: Jumping on the Number Line  <b>26: Consolidation (Number Relationships 2)</b></p> <p><u>Number Cluster 6: Conceptualizing Addition and Subtraction</u>            30: Solving Problems 3            31: Solving Problems 4  <b>32: Consolidation (Conceptualizing Addition and Subtraction)</b></p>

Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>Number Cluster 9: Financial Literacy</u> 45: Earning Money</p> <p><u>Math Every Day Cards, Number</u> 1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number 1B: Skip-Counting with Actions 2A: Show Me in Different Ways; Guess My Number 2B: Math Commander; Building an Open Number Line 3A: Adding Ten 3B: Describe Me 5A: Building Numbers 5B: How Many Ways? 7A: Doubles and Near-Doubles 8A: Counting Equal Groups to Find How Many; I Spy 8B: How Many Blocks?; How Many Ways? 9: Collections of Coins; Showing Money in Different Ways</p>
<p><b>Equalize expressions</b> Algebra: C1.4; C2.1; C2.2; C2.3; C3.1; C3.2</p> <p>They determine what amount is needed to equalize and balance expressions. They answer the question “How much more?” as they consider comparison situations where the difference, the larger amount, or the smaller amount is unknown, including situations that involve money. They determine what amount is needed to equalize and balance expressions.</p>	<p><i>- What strategies do students use to identify equal or not equal?</i> <i>- Do students know when to use the equal and not equal signs?</i></p>	<p><u>Math Every Day Cards, Patterning and Algebra</u> 3A: Equal or Not Equal?; How Many Ways? 3B: What’s Missing?</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Measure length (cm, m), Measure duration (time)</b> Data: D1.3; D1.4; D1.5; (D2.1) Spatial Sense: E2.2; E2.3; E2.4</p> <p>They measure and compare times and length measurements and use the count of units to describe how much more. They look at graphs, tally charts, and determine how much more frequently one response occurs than another. As they compare two amounts, they recognize that one amount and its complement create a whole. In all these contexts, they explain how addition and subtraction can be used to describe, represent, and answer the question how much more.</p>	<ul style="list-style-type: none"> <li>- <i>Can students use words to describe how likely an event is to occur?</i></li> <li>- <i>Can students describe how likely an event is to occur to help them make choices?</i></li> <li>- <i>Do students choose the appropriate unit to measure with? Can students justify their choice of unit?</i></li> <li>- <i>How do students deal with lengths that are not whole numbers of centimetres or metres?</i></li> </ul>	<p><u>Data Management and Probability Cluster 2: Probability and Chance</u> 9: Likelihood of Events 10: Conducting Experiments <b>11: Consolidation (Probability and Chance)</b></p> <p><u>Measurement Cluster 2: Using Standard Units</u> 5: Benchmarks and Estimation 6: The Metre 7: The Centimetre 8: Metres or Centimetres? <b>9: Consolidation (Using Standard Units)</b></p> <p><u>Measurement Cluster 3: Time</u> 10: Measuring Time</p> <p><u>Math Every Day Cards, Measurement</u> 2: What Am I?; Which Unit?</p> <p><u>Math Every Day Cards, Data Management and Probability</u> 1: Reading and Interpreting Graphs 2: What's in the Bag?; Word of the Day</p>
<b>Reflection:</b> <i>How much more?</i>		

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
What are different ways to get there?	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Objects can be located in space and viewed from multiple perspectives.</li> <li>• Numbers are related in many ways.</li> <li>• Numbers tell us how many and how much.</li> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• Quantities and numbers can be added and subtracted to determine how many or how much.</li> </ul>	
<b>Time:</b> April		
Questions and Expectations	What to Look For	Little Books/Activity
		<u>Getting Ready for School</u> - estimate and measure length, duration, and distance around - compare, order, and describe measures
		<u>Robo</u> - describe the location of objects - explore and describe the movement of objects

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Maps &amp; movement, Compare distances, Compare times, Coding routes, Logic diagrams (flowchart)</b></p> <p>Algebra: C2.1; C2.2; C2.3; C3.1; C3.2 Data: D1.1 Spatial Sense: E1.4; E1.5; E2.3; E2.4</p> <p>They use and describe different strategies and paths to arrive at a common destination, whether that be spatial or numerical. They create maps of different areas and describe, measure, and compare routes to arrive at a common destination. They do similar things as they create concurrent code and determine which is the most efficient path. They measure and compare the time it takes to do a task using different approaches and use logic diagrams and flowcharts to describe sequences.</p>	<p><i>- Do students use relative positional language when describing locations?</i></p> <p><i>- Are students able to make a simple map, with labels, of a familiar environment?</i></p> <p><i>- Are students able to use numbers and arrows to write a code?</i></p> <p><i>- Are students able to write a code for someone who is standing in a different location than they are?</i></p>	<p><u>Geometry Cluster 4: Location and Movement</u> 11: Reading Maps 12: Drawing a Map</p> <p><u>Geometry Cluster 4: Coding</u> 15: Coding Concurrent Events 16: Effects of Altering Code 17: Writing Code to Solve Problems <b>18: Consolidation (Coding)</b></p> <p><u>Data Management and Probability Cluster 1: Data Management</u> 1: Sorting Data by 2 Attributes</p> <p><u>Measurement Cluster 3: Time</u> 10: Measuring Time 11: Passage of Time <b>12: Consolidation (Time)</b></p> <p><u>Math Every Day Cards, Patterning and Algebra</u> 3B: What's Missing?</p> <p><u>Math Every Day Cards, Geometry</u> 4A: Our Design; Treasure Map 5: Code of the Day; Wandering Animals</p>

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Estimation &amp; counting strategies, Compose &amp; decompose numbers to 200, Mental Math to 50, Money amounts to 200</b></p> <p>Number: B1.1; B1.3; B1.4; B2.1; B2.2; B2.3; B2.4 Financial Literacy: F1.1</p> <p>They compare different ways to get to a numerical calculation, or ways that an amount might be composed or decomposed. They model number relationships with number lines, describe and compare mental math strategies, and apply their math facts.</p>	<p><i>- Do students use math language to explain the strategy they used to find the answer?</i></p> <p><i>- Which strategies are students using efficiently? Which ones do they need more practice with?</i></p>	<p><u>Number Cluster 3: Grouping and Place Value</u> 15: Building Numbers to 200</p> <p><u>Number Cluster 5: Number Relationships 2</u> 23: Benchmarks on a Number Line</p> <p><u>Number Cluster 7: Operational Fluency</u> 35: Mastering Addition and Subtraction Facts 36: Multi-Digit Fluency <b>37: Consolidation (Operational Fluency)</b></p> <p><u>Number Cluster 9: Financial Literacy</u> 44: Estimating Money 45: Earning Money 46: Spending Money 47: Money up to \$200 48: Saving Regularly <b>49: Consolidation (Financial Literacy)</b></p> <p><u>Math Every Day Cards, Number</u> 1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number 1B: Skip-Counting with Actions 2A: Show Me in Different Ways; Guess My Number 2B: Math Commander; Building an Open Number Line 3A: Adding Ten 3B: Describe Me 5A: Building Numbers 5B: How Many Ways? What's the Unknown Part? 6: What Math Do You See? What Could the Story Be? 7A: Doubles and Near-Doubles; I Have... I Need... 7B: Hungry Bird; Make 10 Sequences 8A: Counting Equal Groups to Find How Many; I Spy 8B: How Many Blocks? How Many Ways? 9: Collections of Coins; Showing Money in Different Ways</p>

**Reflection:** *What are different ways to get there?*

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
How can we share things equally?	<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Quantities and numbers can be grouped by or partitioned into equal-sized units.</li> <li>• Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.</li> <li>• Numbers tell us how many and how much.</li> </ul>	
<b>Time:</b> May		
Questions and Expectations	What to Look For	Little Books/Activity
		<u>Array's Bakery</u> - solve addition/subtraction problems - solve equal grouping/sharing problems

Questions and Expectations	What to Look For	Little Books/Activity
<p><b>Fractions, Partitive division, Relationships among the operations, Equivalent expressions</b></p> <p>Number: B1.6; B1.7; B2.1; B2.6 Algebra: C2.2</p> <p>They engage in situations where they must share amounts equally. They share amounts where the portions are whole number amounts, where the portions are fractional amounts, and where the portions are amounts greater than 1. They share their drawings and strategies and use a combination of words and numbers to describe the fractional size of the portion. They compare two different equal sharing situations and recognize that if the amount to be shared is the same, the number of sharers determines who gets more, and if the number of sharers is the same, the amount to be shared is the deciding factor. They represent their strategies with drawings and addition and subtraction number sentences. They come to see that the operation of division can also be used to describe the sharing of an amount equally.</p>	<p><i>- Are students able to compare fractional parts to determine which is bigger/smaller?</i></p> <p><i>- Do students make equal groups? Do they realize that when there are leftovers, equal sharing is not possible?</i></p> <p><i>- Are students able to use a repeated addition and multiplication sentence to show equal grouping?</i></p> <p><i>- Are students able to use a repeated subtraction and division sentence to show equal grouping?</i></p>	<p><u>Number Cluster 4: Early Fractional Thinking</u> 20: Regrouping Fractional Parts 21: Partitioning Sets <b>22: Consolidation (Early Fractional Thinking)</b></p> <p><u>Number Cluster 8: Early Multiplicative Thinking</u> 38: Making Equal Shares 39: Making Equal Groups 40: Exploring Repeated Addition 41: Repeated Addition and Multiplication 42: Repeated Subtraction and Division <b>43: Consolidation (Early Multiplicative Thinking)</b></p> <p><u>Number Cluster 9: Financial Literacy</u> 45: Earning Money 46: Spending Money 47: Money up to \$200 <b>48: Consolidation (Financial Literacy)</b></p> <p><u>Math Every Day Cards, Number</u> 4A: Equal Parts from Home; Modelling Fraction Amounts 4B: Naming Equal Parts</p> <p><u>Math Every Day Cards, Patterning and Algebra</u> 3B: What's Missing?</p>
<p><b>Reflection:</b> How can we share things equally?</p>		

Ontario Ministry Long Range Plan	Pearson <i>Mathology</i>	
<p><b>Equal groups: How much is that?</b></p>	<p><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>• Numbers are related in many ways.</li> <li>• Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.</li> </ul>	
<p><b>Time:</b> June</p>		
Questions and Expectations	What to Look For	Little Books/Activity
		<p><u>Marbles, Alleys, Mibs, and Guli!</u>  - add/subtract 2-digit numbers  - solve equal grouping/sharing problems</p>
<p><b>Skip count, Even &amp; odd numbers, Multiplication, Quotative division, Coins &amp; bills to 50, Equivalent expressions</b>  Number: B1.1; B1.4; B1.5; B2.1; B2.5  Algebra: C2.2  Financial Literacy: F1.1  They work with equal groups and use skip-counting to determine the total. They come to see that numbers that can be split into equal whole number groups are called even and ones that cannot are called odd. They represent and solve problems involving repeated groups, including those with fractional amounts, and learn that multiplication can be used to represent the total product. Likewise, they represent and solve problems where they must split amounts into equal groups and find out how many are in each group. They come to see that division can also represent grouping situations as well as sharing situations. They show how the same equal group situation can be modelled using addition, subtraction, multiplication, and division.</p>	<p><i>- Are students able to explain why a number is even or odd?</i>  <i>- Are students able to use a repeated addition and multiplication sentence to show equal grouping?</i>  <i>- Are students able to use a repeated subtraction and division sentence to show equal grouping?</i>  <i>- Can students represent the action in their story problem with a number sentence?</i>  <i>- Can students draw a picture to show how they solved a problem?</i></p>	<p><u>Number Cluster 2: Number Relationships 1</u>  9: Odd and Even Numbers  <u>Number Cluster 8: Early Multiplicative Thinking</u>  40: Exploring Repeated Addition  41: Repeated Addition and Multiplication  42: Repeated Subtraction and Division  <b>43: Consolidation (Early Multiplicative Thinking)</b>  <u>Math Every Day Cards, Number</u>  1A: Skip-Counting on a Hundred Chart; Skip-Counting from Any Number  1B: Skip-Counting with Actions  2A: Show Me in Different Ways; Guess My Number  2B: Math Commander; Building an Open Number Line  3A: Adding Ten  3B: Describe Me  5A: Building Numbers  5B: How Many Ways?  8A: Counting Equal Groups to Find How Many; I Spy  8B: How Many Blocks? How Many Ways?  9: Collections of Coins  <u>Math Every Day Cards, Patterning and Algebra</u>  3B: What's Missing?</p>
<p><b>Reflection:</b> Equal groups: How much is that?</p>		