Pearson mathology

## Mathology 3 and Ontario Ministry of Education Long-Range Plan: by Question

| Ontario Ministry Long Range Plan | Pearson *Mathology* |
|---|---|
| **Who are we?** | **Big Ideas**<br>• **Numbers tell us how many and how much.**<br>• **Quantities and numbers can be grouped by or partitioned into equal-sized units.**<br>• **Numbers are related in many ways.**<br>• **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.**<br>• **2-D shapes and 3-D solids can be transformed in many ways and analyzed for change.**<br>• **Objects can be located in space and viewed from multiple perspectives.** |

**Time:** September

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| | | Welcome to The Nature Park<br>- interpret charts, tables, pictographs, and bar graphs<br>- draw conclusions from data displays |
| | | Gallery Tour<br>- describe and compare transformations<br>- identify, describe, and compare 2-D shapes |

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Data collection & organization, Data visualization (many-to-one), Data analysis (mode only), Likelihood, Amounts to 1000, Skip counting & ratios**<br>Number: B1.1; B1.2; B1.4; B2.9<br>Data: D1.1; D1.2; D1.3; D1.4; D1.5; D2.1; D2.2<br><br>They ask questions and gather information about their school community. They research its history, sporting records, and trends, and build an online survey to gather current information, both qualitative and quantitative, from students and teachers. They organize and represent data in a variety of ways, and use different scales (e.g., 1:2, 1:5, and 1:10) to represent larger sets of data. | - *Do students say 3-digit numbers without using the word "and"?*<br>- *Are students able to bridge tens and hundreds when counting on and back?*<br>- *Are students able to use patterns to help them skip-count forward and backward?*<br>- *Are students able to compare their number to other numbers?*<br>- *Do students understand the relationship between the whole and the parts and use it to decompose their number in different ways?*<br>- *Are students able to choose an appropriate scale or key for the graph?*<br>- *Are students able to use the graphs to answer questions and draw conclusions?* | <u>Number Unit 1: Counting</u><br>1: Numbers All Around Us<br>2: Counting to 1000<br>3: Skip-Counting Forward and Backward<br>***4: Consolidation (Counting)***<br><br><u>Number Unit 2: Number Relationships</u><br>6: Composing and Decomposing Quantities<br>***8: Consolidation (Number Relationships)***<br><br><u>Data Management and Probability Unit 1: Data Management</u><br>1: Sorting People and Things<br>2: Interpreting Graphs<br>3: Collecting & Organizing Data<br>4: Drawing Graphs |
| **Maps, Location & movement**<br>Spatial Sense: E1.4<br><br>They look at maps of the school and write instructions on how to get from one point to another. They collect their findings and graphs and present them as an orientation guide to the school. | - *Can students identify the three types of transformations (translations, reflections, rotations)?*<br>- *Do students visualize a pathway from Start to Finish before they start, or do they work step by step?*<br>- *Are students using transformational language (e.g., slide, flip, turn) and directional language (e.g., up, down, left, right) in their codes?* | <u>Geometry Unit 3: Mapping and Coding</u><br>11: Describing Location<br>12: Exploring Movements<br>13: Describing Movement on a Map<br>14: Coding on a Grid |
| ***Reflection:*** *Who are we?* | | |

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|---|---|---|
| **How much is 1000?** | **Big Ideas**<br>• **Numbers are related in many ways.**<br>• **Quantities and numbers can be grouped by or partitioned into equal-sized units.**<br>• **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.**<br>• **Assigning a unit to a continuous attribute allows us to measure and make comparisons.** | |
| **Time:** October | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | <u>Fantastic Journeys</u><br>- estimate quantities to 1000<br>- compare/order quantities to 1000 |
| | | <u>Finding Buster</u><br>- compose to 1000 based on place value<br>- compare/order numbers to 1000 |

| Questions and Expectations | What to Look For | Little Books/Activity |
| --- | --- | --- |
| **Compose, decompose & count amounts to 1000, Compare & round amounts, Place value, Number relationships, Analyzing data**<br>Number: B1.1; B1.2; B1.3; B1.4; B1.5; B2.3<br>Algebra: C1.4; C2.3<br>Data: D1.3; D1.5<br><br>They consider ways to represent 1000. They visualize 1000 and use that benchmark to estimate other amounts. They create a class "thousands chart" and use that to count to 1000 in different ways. They reaffirm the counting patterns through each of the hundreds and round numbers to nearby intervals. They compose and decompose amounts to 1000 and use addition and subtraction to make comparisons. They identify place-value relationships, including the "times 10" relationships between the columns. They look at bar graphs involving populations up to 1000 and cut out and reassemble the bars to show how the population is composed and decomposed. | - *Are students able to compare their number to other numbers?*<br>- *Are students able to represent their number in different ways?*<br>- *Are students able to choose an appropriate scale or key for the graph?*<br>- *Do students include all the different features on the graph?*<br>- *Are students able to use the graphs to answer questions and draw conclusions?* | <u>Number Unit 2: Number Relationships</u><br>7: Comparing and Ordering Quantities<br>***8: Consolidation (Number Relationships)***<br><br><u>Number Unit 3: Place Value</u><br>9: Building Numbers<br>10: Representing Numbers in Different Ways<br>11: What's the Number?<br>12: Rounding Numbers<br>***13: Consolidation (Place Value)***<br><br><u>Data Management and Probability Unit 1: Data Management</u><br>1: Sorting People and Things<br>4: Drawing Graphs |
| **Metric units (km, m, mm)**<br>Spatial Sense: E2.1<br><br>They use measurement units (km, m, mm) to visualize and compare what 1000 looks like with different units. They recognize that the actual size of 1000 depends on the unit being counted. | - *Are students using combinations of metres and centimetres?*<br>- *Do students understand there are 100 centimetres in 1 metre?*<br>- *Can students use objects of known lengths to help them estimate the lengths of other objects?* | <u>Measurement Unit 1: Length, Perimeter, and Time</u><br>1: Estimating Length<br>2: Relating Millimetres, Centimetres, Metres, and Kilometres |
| ***Reflection:*** *How Much is 1000?* | | |

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|---|---|---|
| **What comes first? What comes next?** | **Big Ideas**<br>• **Regularity and repetition form patterns that can be generalized and predicted mathematically.**<br>• **Patterns and relations can be represented with symbols, equations, and expressions.**<br>• **Assigning a unit to a continuous attribute allows us to measure and make comparisons.**<br>• **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.** | |
| **Time:** November | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | <u>Namir's Marvellous Masterpieces</u><br>- investigate growing and shrinking patterns (further developed)<br>- use equations to represent simple growing and shrinking patterns |
| | | <u>Chance</u><br>- explore the likelihood of different outcomes<br>- investigate the fairness of games |
| **Patterns & rules, Code events, Number sequences to 1000**<br>Number: B1.2; B1.3; B1.4; B1.5<br>Algebra: C1.1; C1.2; C1.3; C1.4; C3.1; C3.2<br>Data: D1.3; D1.4<br>Spatial Sense: E2.3; E2.4; E2.5; E2.7<br><br>They describe how things are ordered. They identify pattern rules to predict what comes next. They see patterns in the counting sequence to 1000 and use this to order numbers and amounts. | *- Are students able to write and explain the pattern rule?*<br>*- Are students able to extend increasing and decreasing patterns?*<br>*- Are students able to show patterns in different ways?*<br>*- Can students apply the pattern rule to identify missing terms and errors?*<br>*- Do students associate the equal sign with balance and understand that both sides of the equation must have the same value?*<br>*- Are students able to use different strategies to solve for an unknown?* | <u>Number Unit 1: Counting</u><br>3: Skip-Counting Forward and Backward<br><br><u>Patterning and Algebra Unit 1: Patterns and Expressions</u><br>1: Describing and Extending Patterns<br>2: Representing Patterns<br>3: Creating Patterns<br>4: Identifying Errors and Missing Terms<br>5: Solving Problems<br>6: Exploring Multiplicative Patterns<br>***9: Consolidation (Patterns and Expressions)*** |

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Measure mass, Measure capacity, Compare areas of shapes, Data analysis, Order by likelihood**<br>Spatial Sense: E2.1, E2.2<br>Data: D1.5, D2.1, D2.2<br><br>They compare and order different objects by their mass and capacity after measuring them with different non-standard units. They notice that, although different units may produce different counts, the order remains constant.<br>They compare and order the areas of shapes by matching or rearranging the areas and show that the same area can come in different shapes. They put code in the right order so as to reach a desired destination. They analyze different graphs and frequency tables and use them to predict the likelihood that an event would happen | - *Do students realize that the area measures for the rectangle are different because the squares on the grids are of different sizes?*<br>- *How are students estimating mass/capacity? Are they using referents? Are their estimates reasonable?*<br>- *Are students able to use mathematical language to describe the likelihood of winning the game?*<br>- *Do students connect the fairness of a game to equally likely outcomes?*<br>- *Are students able to choose an appropriate scale or key for the graph?*<br>- *How are students identifying the mode?*<br>- *Are students able to use the graphs to answer questions and draw conclusions?* | Measurement Unit 3: Area, Mass, and Capacity<br>9: Measuring Area Using Non-Standard Units<br><br>Data Management and Probability Unit 1: Data Management<br>1: Sorting People and Things<br>2: Interpreting Graphs<br>3: Collecting & Organizing Data<br>4: Drawing Graphs<br>5: Identifying the Mode and the Mean<br>***6: Consolidation (Data Management)***<br><br>Data Management and Probability Unit 2: Probability and Chance<br>7: Making Predictions<br>8. Describing the Likelihood of Outcomes<br>9: Who's Likely to Win?<br>***10: Consolidation (Probability and Chance)*** |
| ***Reflection:*** *What comes first? What comes next?* | | |

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|---|---|---|
| **When is addition & subtraction useful?** | **Big Ideas**<br>• **Quantities and numbers can be added and subtracted to determine how many or how much.**<br>• **Patterns and relations can be represented with symbols, equations, and expressions.**<br>• **Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.**<br>• **Assigning a unit to a continuous attribute allows us to measure and make comparisons.** | |
| **Time:** December | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | Math Makes Me Laugh<br>- add/subtract to 1000<br>- estimate, compare, and order numbers to 1000 |
| | | The Bunny Challenge<br>- estimate, measure, and compare area<br>- estimate, measure, and compare perimeter |
| **Change, combine, & compare situations, Make change, Mental math & algorithms**<br>Number: B1.1; B1.5; B2.1; B2.3; B2.4; B2.5<br>Financial Literacy: F1.1<br><br>They come to see that addition and subtraction are useful when needing to join and separate amounts, combine amounts, or compare amounts. These include situations where they must make change. They represent these problem types with part-whole models and number sentences. They use mental math strategies and basic facts to solve for unknown quantities. They also learn to use standard addition and subtraction algorithms when quantities are too large to manipulate mentally. | - *How are students adding/subtracting?*<br>- *Are students able to use the information in the problem to write a number sentence?*<br>- *Are students able to round the prices to help them estimate?*<br>- *How are students finding the total cost?*<br>- *How do students find the amount left over?* | Number Unit 5: Addition and Subtraction<br>19: Modelling Addition and Subtraction<br>23: Creating and Solving Problems<br>24: Creating and Solving Problems with Larger Numbers<br>***25: Consolidation (Addition and Subtraction)***<br><br>Number Unit 7: Financial Literacy<br>35: Estimating and Counting Money<br>36: Adding and Subtracting Money Amounts<br>37: Purchasing and Making Change<br>***38: Consolidation (Financial Literacy)*** |

| Questions and Expectations | What to Look For | Little Books/Activity |
| --- | --- | --- |
| **Measure perimeter, Compare measurements**<br>Spatial Sense: E2.1; E2.3; E2.4; E2.8; E2.9<br><br>They use addition and subtraction to solve perimeter problems and see them as the joining or separating of lengths. They add and subtract to compare measurements involving length, mass, and capacity. | - *Are students making reasonable estimates? Are they using personal referents?*<br>- *Do students recognize equal sides on a shape, or do they measure all sides?*<br>- *Are students able to make different shapes with the same perimeter?* | Measurement Unit 1: Length, Perimeter, and Time<br>3: Measuring Length<br>4: Introducing Perimeter<br>5: Measuring Perimeter<br>6: How Many Can You Make?<br>***8: Consolidation (Length, Perimeter, and Time)*** |
| ***Reflection:*** *When is addition & subtraction useful?* | | |

<table>
<tr><th>Ontario Ministry Long Range Plan</th><th colspan="2">Pearson Mathology</th></tr>
<tr><td>How can we describe 3-D objects and space?</td><td colspan="2">Big Ideas<br>• 2-D shapes and 3-D solids can be analyzed and classified in different ways by their attributes.<br>• Assigning a unit to a continuous attribute allows us to measure and make comparisons.</td></tr>
<tr><td colspan="3">Time: January</td></tr>
<tr><th>Questions and Expectations</th><th>What to Look For</th><th>Little Books/Activity</th></tr>
<tr><td></td><td></td><td><u>Goat Island</u><br>- measure time, temperature, and length<br>- explore units of measure and their relationships</td></tr>
<tr><td></td><td></td><td><u>Measurements About YOU!</u><br>- estimate, measure, and compare attributes<br>- identify and relate measures</td></tr>
<tr><td></td><td></td><td><u>WONDERful Buildings</u><br>- identify, describe, and compare 2-D shapes and 3-D solids<br>- compose and decompose 2-D shapes and 3-D solids</td></tr>
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| Questions and Expectations | What to Look For | Little Books/Activity |
| --- | --- | --- |
| **Measure 3-D objects (lengths, mass, capacity), Venn, Carroll, & tree diagrams, Compare, describe, & identify 3-D objects**<br>Data: D1.1<br>Spatial Sense: E1.1; E1.2; E1.3; E2.1; E2.2; E2.3; E2.4; E2.5; E2.8; E2.9<br><br>They compare, describe, identify and measure 3-D objects and space. They use Venn, Carroll, and tree diagrams to show relationships among prisms, pyramids, cylinders, and cones and their attributes. | - *Are students able to identify the attributes of the different shapes? Are they able to sort by different attributes?*<br>- *Are students able to name the same shape in more than one way?*<br>- *Are students able to describe the geometric attributes of their solid? Are they using mathematical language?*<br>- *Are students able to recognize real-world examples of their solid?*<br>- *Are students thinking about the numbers of edges and vertices when they pick the materials to make a skeleton?*<br>- *What strategies are students using to identify the net of their solid?*<br>- *How are students comparing angles (e.g., using the geometric attributes of shapes, directly testing each angle, visualizing a benchmark angle)?*<br>- *Are students able to identify an angle as being a right angle, less than a right angle, or greater than a right angle?* | <u>Geometry Unit 1: 2-D Shapes</u><br>1: Sorting Polygons<br>2: Exploring Congruency<br>3: What's the Sorting Rule?<br>4: Composing Shapes<br>***5: Consolidation (2-D Shapes)***<br><br><u>Geometry Unit 2: 3-D Solids</u><br>6: Exploring Geometric Attributes of Solids<br>7: Building Solids<br>8: Constructing Skeletons<br>9: Working with Nets<br>***10: Consolidation (3-D Solids)***<br><br><u>Geometry Unit 4: Angles</u><br>18: Investigating Angles<br>19: Comparing Angles<br>***20: Consolidation (Angles)*** |

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Measure areas, Compare $cm^2$ & $m^2$**<br>Spatial Sense: E2.2; E2.3; E2.4; E2.5; E2.8; E2.9<br><br>They measure the mass and capacity of 3-D objects as well as their different lengths. They measure the areas of different spaces and shapes, including those with curved sides. They use non-standard and standard units of area ($cm^2$ and $m^2$) and decompose and recompose units to avoid gaps and overlaps. They compare the area of a square centimetre to a square metre and create different shapes with those same areas. They use these benchmark shapes to estimate the areas of shapes and spaces. | - *Do students realize that the area measures for the rectangle are different because the squares on the grids are of different sizes?*<br>- *Are students using the measuring tools correctly?*<br>- *Do students know the relationships among the different standard units (e.g., g and kg, mL and L, two 250-g masses are the same as one 500-g mass)?* | <u>Measurement Unit 3: Area, Mass, and Capacity</u><br>10: Measuring Area Using Standard Units<br>11: Measuring Mass Using Non-Standard Units<br>12: Measuring Capacity Using Non-Standard Units<br>***13: Consolidation (Area, Mass, and Capacity)*** |
| ***Reflection:*** *How can we describe 3-D objects and space?* | | |

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|---|---|---|
| **Are they the same?** | **Big Ideas**<br>• **Quantities and numbers can be grouped by or partitioned into equal-sized units.**<br>• **Patterns and relations can be represented with symbols, equations, and expressions.**<br>• **Objects can be located in space and viewed from multiple perspectives.**<br>• **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.** | |
| **Time:** February | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | How Numbers Work<br>- compose/decompose 3-digit numbers<br>- find and use number patterns |
| **Translate/represent patterns, Equivalent expressions, Compose-decompose, Compare & equalize situations, Skip counting, repeated addition, & multiplication**<br>Number: B1.1; B1.4; B1.5; B1.6; B1.7; B2.2<br>Algebra: C1.1; C1.2; C1.3; C1.4<br><br>They determine if quantities, patterns, shapes, expressions, and movements are equal, and if not, how they might be equalized. They decide if repeating elements in patterns, translated into different forms, are equivalent. They compare different expressions, represented with different operations and amounts, and determine if they are equal. If they are not, they adjust the expressions to make them the same. They show how skip counting, repeated addition, and multiplication are the same, and do the same with division. | - *Can students represent their thinking concretely, pictorially, and symbolically?*<br>- *Are students able to use their numbers to make a real-life story problem?* | Number Unit 1: Counting<br>3: Skip-Counting Forward and Backward<br><br>Number Unit 2: Number Relationships<br>6: Composing and Decomposing Quantities |

| Questions and Expectations | What to Look For | Little Books/Activity |
| --- | --- | --- |
| **Equivalent fractions & ratios, Coding events**<br>Number: B1.6; B1.7<br>Algebra: C3.1, C3.2<br><br>They compare two different equal share situations involving fractions and equalize them so that all people in both situations receive the same amount. From this, they identify equivalent fractions and ratios. They compare code and use repeating events to produce the same result. | - *Are students able to use Pattern Blocks and rods to show different fractions of a whole?*<br>- *Are students able to label the parts with fraction words or symbols?*<br>- *How do students compare fractions of the same whole (e.g., by comparing the parts concretely, by comparing the numerators)?*<br>- *Are students using loops to show moves that repeat?*<br>- *Do students understand that a symbol can be used to represent a series of moves?* | <u>Number Unit 4: Fractions</u><br>15: Comparing Fractions 1<br>16: Comparing Fractions 2<br><br><u>Geometry Unit 4: Mapping and Coding</u><br>14: Coding on a Grid<br>15: Exploring Loops in Coding<br>16: Altering Code |
| **Congruent 3-D objects, Mean as equalizing amounts, Mean, mode & likelihood**<br>Spatial Sense: E1.3<br>Data: D1.4, D2.2<br><br>They identify congruent elements in 3-D objects and determine if the objects themselves are congruent. They look at bar graphs, rearrange the bars to level and equalize them, and use this to explain the mean. They compare the mean and the mode and discuss how each might be used to describe likelihood. | - *How are students identifying the mode and the mean?*<br>- *Are students able to use mathematical language to describe the likelihood of winning the game?*<br>- *Do students connect the fairness of a game to equally likely outcomes?* | <u>Data Management and Probability Unit 1: Data Management</u><br>1: Sorting People and Things<br>5: Identifying the Mode and the Mean<br>***6: Consolidation (Data Management)*** |
| ***Reflection:*** *Are they the same?* | | |

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<tr><td>How can we describe things that repeat?</td><td colspan="2">Big Ideas<br>• Objects can be located in space and viewed from multiple perspectives.<br>• Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.<br>• Assigning a unit to a continuous attribute allows us to measure and make comparisons.<br>• Many things in our world (e.g., objects, spaces, events) have attributes that can be measured and compared.</td></tr>
<tr><td colspan="3">Time: March</td></tr>
<tr><th>Questions and Expectations</th><th>What to Look For</th><th>Little Books/Activity</th></tr>
<tr><td></td><td></td><td><u>Planting Seeds</u><br>- add/subtract to 1000<br>- develop concept of multiplication</td></tr>
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| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Repeating elements & operations, Code repeating events, Skip count, Multiplication & division facts, Repeated unit fractions, Multiplication & division; ratio, Equivalent expressions**<br>Number: B1.4; B2.1; B2.2; B2.6; B2.7; B2.8; B2.9<br>Algebra: C1.1; C1.2; C1.3; C2.1; C2.2; C2.3; C3.1; C3.2<br>Financial Literacy: F1.1<br><br>They describe and represent repeating elements, movements, and operations, including through the use of code. They connect skip counting and repeated addition to multiplication and division as they learn their 2, 5, and 10 multiplication and division facts. They also represent the multiplication and division of numbers up to 10 × 10. They see how the repeated addition of a unit fraction can be represented with a numerator. They extend the idea of repeated groups to visualize situations involving ratios where they must scale quantities up. | - *Are students able to follow a code to perform a workout routine created by other students?*<br>- *Are students able to alter the code and describe how the changes affect the outcomes?*<br>- *Are students able to give/interpret instructions using positional and directional language to accurately describe/follow a route?*<br>- *Are students considering perspective when giving directions, especially when they are sitting on opposite sides of the map?*<br>- *Are students able to write a multiplication/division sentence for an array?*<br>- *Do students recognize the relationship between multiplication and division?*<br>- *Are students able to create a story problem to match a given multiplication/division sentence?*<br>- *Are students able to choose the correct operation to solve a problem?*<br>- *Can students recognize a ratio as a comparison of two numbers or quantities measured in the same unit?* | Geometry Unit 3: Mapping and Coding<br>11: Describing Location<br>13: Describing Movement on a Map<br>14: Coding on a Grid<br>15: Exploring Loops in Coding<br>16: Altering Code<br>***20: Consolidation (Mapping and Coding)***<br><br>Number Unit 6: Multiplication and Division<br>26: Exploring Multiplication<br>27: Exploring Division<br>28: Relating Multiplication and Division<br>29: Properties of Multiplication<br>30: Multiplying and Dividing Larger Numbers<br>31: Creating and Solving Problems<br>33: Investigating Ratios<br>***34: Consolidation (Multiplication and Division)***<br><br>Patterning and Algebra Unit 2: Repeating Patterns<br>10. Sorting with Attributes<br>11: Identifying and Extending Patterns<br>12: Creating Patterns<br>***13: Consolidation (Repeating Patterns)*** |

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Clocks, scales & units**<br>Spatial Sense: E2.2<br><br>They use the idea of scale to understand and read the scales on an analogue clock to tell time, one hand at a time. They compare analogue clocks with digital clocks and practise telling time throughout the year. | - *Do students understand the relationships between different units of time?*<br>- *Are students able to read the time shown on the analogue clock?* | Measurement Unit 1: Length, Perimeter, and Time<br>7: Telling Time<br>***8: Consolidation (Length, Perimeter, and Time)*** |
| ***Reflection:*** *How can we describe things that repeat?* | | |

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<tr><td>What are different ways to get there?</td><td colspan="2">Big Ideas<br>• Quantities and numbers can be added and subtracted to determine how many or how much.<br>• Patterns and relations can be represented with symbols, equations, and expressions.<br>• Objects can be located in space and viewed from multiple perspectives.</td></tr>
<tr><td colspan="3">Time: April</td></tr>
<tr><th>Questions and Expectations</th><th>What to Look For</th><th>Little Books/Activity</th></tr>
<tr><td></td><td></td><td><u>The Street Party</u><br>- add/subtract to 1000<br>- compare/order numbers to 1000 (further developed)</td></tr>
<tr><td></td><td></td><td><u>A Week of Challenges</u><br>- use properties of equality to solve problems<br>- use the language of algebra</td></tr>
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| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Mental math, Equivalent expressions, Coding events, Logic & tree diagrams**<br>Number: B2.3; B2.4; B2.5<br>Algebra: C2.1; C2.2; C2.3; C3.1; C3.2<br>Data: D1.1<br>Spatial Sense: E1.4<br>Financial Literacy: F1.1<br><br>They use and describe different strategies be spatial or numerical. They describe different paths to move from one location to another, using distances and turns in their instructions. They create concurrent code, with repeating and non-repeating events, and determine the most efficient path (and code). They use logic diagrams and flowcharts to describe sequences and choices. They also compare different ways to get to a numerical calculation, or ways that an amount might be composed or decomposed. They model equivalent expressions using tools such as number lines. They compare mental math strategies and various standard algorithms as different approaches to the same end. | - *What strategies are students using to add/subtract (e.g., making friendly numbers, using doubles, decomposing, counting on or back)?*<br>- *Are students using estimation to help them decide if their answers are reasonable?*<br>- *Do students visualize a pathway from Start to Finish before they start, or do they work step by step?*<br>- *Are students using transformational language (e.g., slide, flip, turn) and directional language (e.g., up, down, left, right) in their codes?*<br>- *How do students decide how to decompose a number?*<br>- *Once students have decomposed a number, how do they find the sum (e.g., using a number line, using mental math, adding tens and then adding ones)?* | <u>Number Unit 5: Addition and Subtraction</u><br>20: Estimating Sums and Differences<br>22: Using Mental Math to Add and Subtract<br><br><u>Geometry Unit 3: Mapping and Coding</u><br>14: Coding on a Grid<br>15: Exploring Loops in Coding<br><br><u>Data Management and Probability Unit 1: Data Management</u><br>1: Sorting People and Things<br>3: Collecting & Organizing Data<br>***6: Consolidation (Data Management)*** |
| ***Reflection:*** *What are different ways to get there?* | | |

| Ontario Ministry Long Range Plan | Pearson *Mathology* | |
|---|---|---|
| **How can we share things equally?** | **Big Ideas**<br>• **Quantities and numbers can be grouped by or partitioned into equal-sized units.**<br>• **Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.**<br>• **Patterns and relations can be represented with symbols, equations, and expressions.** | |
| **Time:** May | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | Hockey Homework<br>- split wholes into equal parts (fractions)<br>- compare fractions |
| | | Sports Camp<br>- model and solve equal grouping/sharing problems<br>- relate adding to multiplying, subtracting to dividing |

| Questions and Expectations | What to Look For | Little Books/Activity |
|---|---|---|
| **Fractions, Partitive division, Relationship between division & multiplication, Equivalent expressions, Many-to-one scales**<br>Number: B1.6; B1.7; B2.1; B2.6; B2.7<br>Algebra: C2.2<br>Data: D1.3; D1.5<br><br>They connect equal sharing to fractions, (partitive) division, and multiplication. They solve equal share problems involving fractions and use this to identify equivalent fractions. They solve equal share problems involving whole numbers and represent situations with drawings, concrete materials, as well as with multiplication and division expressions. They see how the same situation can be described with multiplication and division. They use these types of situations to continue practicing 2, 5, and 10 multiplication and division facts and to extend these to include multiplication facts to 10 and related division facts. They apply this understanding as they choose a scale to represent a set of data along an axis. | - *Are students able to use different materials to model fractions?*<br>- *Are students able to flexibly change the whole to show different fractions?*<br>- *Do students understand that when working with a whole (area or length), the size of the parts must be equal, but when working with a set, the parts don't have to be equal sizes?*<br>- *Are students able to partition a shape into halves, fourths, eighths, thirds, and sixths?*<br>- *Do students realize that the number of equal parts names the unit (e.g., an item cut into 3 equal parts shows thirds)?*<br>- *What strategies are students using to multiply/divide?*<br>- *Are students using the relationship between multiplication and division?* | Number Unit 4: Fractions<br>14: Exploring Equal Parts<br>15: Comparing Fractions 1<br>16: Comparing Fractions 2<br>17: Partitioning Sets<br>***18: Consolidation (Fractions)***<br><br>Number Unit 6: Multiplication and Division<br>28: Relating Multiplication and Division<br>29: Properties of Multiplication<br>32: Building Fluency: The Games Room<br><br>Patterning and Algebra Unit 1: Patterns and Expressions<br>8: Equivalent Expressions<br><br>Data Management and Probability Unit 1: Data Management<br>4: Drawing Graphs |
| ***Reflection:*** *How can we share things equally?* | | |

| Ontario Ministry Long Range Plan | Pearson *Mathology* | |
|---|---|---|
| **How much is that?** | **Big Ideas**<br>• **Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.**<br>• **Regularity and repetition form patterns that can be generalized and predicted mathematically.** | |
| **Time:** June | | |
| **Questions and Expectations** | **What to Look For** | **Little Books/Activity** |
| | | <u>Calla's Jingle Dress</u><br>- multiply and divide to 50<br>- add and subtract to 100 |
| **Skip count, Multiplication, Quotative division, including with fractions, Relationship between multiplication & division, Equivalent expressions, Repeating operations**<br>Number: B2.1; B2.2; B2.6; B2.7; B2.8<br>Algebra: C1.1; C2.2<br>They work with ratios and equal groups as they extend their understanding of multiplication and division. They solve problems with equal groups and make connections between multiplication and skip counting as they learn that multiplication determines the total product when the number of groups and size of the groups are known. They also solve problems, where a total must be split into equal groups, and learn that division can be used to solve both equal group and sharing situations. They describe the relationship between multiplication and division and work with quantities involving whole numbers, fractions, and fractions > 1. | *-Do students recognize the relationship between multiplication and division?*<br>*-How do students deal with any leftovers?*<br>*-Are students able to show patterns in different ways?*<br>*-Are students able to use different strategies to solve for an unknown?*<br>*-Can students extend a repeating pattern involving 2 attributes?*<br>*-Are students able to translate the patterns?* | <u>Number Unit 4: Fractions</u><br>17: Partitioning Sets<br><br><u>Number Unit 6: Multiplication and Division</u><br>26: Exploring Multiplication<br>27: Exploring Division<br>31: Creating and Solving Problems<br><br><u>Patterning and Algebra Unit 1: Patterns and Expressions</u><br>1: Describing and Extending Patterns<br>5: Solving Problems<br>6: Exploring Multiplicative Patterns<br>***9: Consolidation (Patterns and Expressions)***<br><br><u>Patterning and Algebra Unit 2: Repeating Patterns</u><br>10. Sorting with Attributes<br>11: Identifying and Extending Patterns<br>12: Creating Patterns<br>***13: Consolidation (Repeating Patterns)*** |
| ***Reflection:*** *How much is that?* | | |