

Mathology Grade 3 Ontario: Number

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| **Mathology Activity #** | **Ontario Curriculum Specific**  **Expectations** | **Match to Ontario Curriculum** |
| **Overall Expectation:**  **B1. Number Sense**  **demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life** | | |
| **Unit 1 Counting** | | |
| Lesson 1 Numbers All Around Us | B1.1 r[ead, represent](https://www.dcp.edu.gov.on.ca/en/), [compose](https://www.dcp.edu.gov.on.ca/en/), and [decompose whole numbers](https://www.dcp.edu.gov.on.ca/en/) up to and including 1000, using a variety of [tools](https://www.dcp.edu.gov.on.ca/en/) and strategies, and describe various ways they are used in everyday life | √ |
| Lesson 2 Counting to 1000 | B1.4 count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies | √ |
| Lesson 3 Skip- Counting Forward and Backward | B1.4 count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies | * include counting by 50s and 200s * Include opportunities to skip count by 2, 5, 10, 20, 25s as well |
| Lesson 4 Consolidation | B1.1 read, [represent](https://www.dcp.edu.gov.on.ca/en/), [compose](https://www.dcp.edu.gov.on.ca/en/), and [decompose whole numbers](https://www.dcp.edu.gov.on.ca/en/) up to and including 1000, using a variety of [tools](https://www.dcp.edu.gov.on.ca/en/) and strategies, and describe various ways they are used in everyday life B1.4 count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies | √ |
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| **Unit 2 Number Relationships** | | |
| Lesson 5 Estimating  Quantities |  | Not specifically required by ON |
| Lesson 6 Composing and Decomposing Quantities | B1.1 read, [represent](https://www.dcp.edu.gov.on.ca/en/), [compose](https://www.dcp.edu.gov.on.ca/en/), and [decompose whole numbers](https://www.dcp.edu.gov.on.ca/en/) up to and including 1000, using a variety of [tools](https://www.dcp.edu.gov.on.ca/en/) and strategies, and describe various ways they are used in everyday life  C2.3 | * Include activities with numbers to 1,000 to make a real-life story problems. |

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|  | identify and use equivalent relationships for whole numbers up to 1000, in various contexts  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations |  |
| Lesson 7 Comparing and Ordering Quantities | B1.2 compare and order whole numbers up to and including 1000, in various contexts | √ |
| Lesson 8 Consolidation | B1.1 read, [represent](https://www.dcp.edu.gov.on.ca/en/), [compose](https://www.dcp.edu.gov.on.ca/en/), and [decompose whole numbers](https://www.dcp.edu.gov.on.ca/en/) up to and including 1000, using a variety of [tools](https://www.dcp.edu.gov.on.ca/en/) and strategies, and describe various ways they are used in everyday life  B1.2 compare and order whole numbers up to and including 1000, in various contexts  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | * Include opportunities to think about numbers in everyday life |
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| **Unit 3 Place Value** | | |
| Lesson 9 Building Numbers | B1.2 compare and order whole numbers up to and including 1000, in various contexts  B1.5 use [place value](https://www.dcp.edu.gov.on.ca/en/) when describing and representing multi-digit numbers in a variety of ways, including with [base ten materials](https://www.dcp.edu.gov.on.ca/en/)  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 10 Representing Numbers in Different Ways | B1.2 compare and order whole numbers up to and including 1000, in various contexts  B1.5 use [place value](https://www.dcp.edu.gov.on.ca/en/) when describing and representing multi-digit numbers in a variety of ways, including with [base ten materials](https://www.dcp.edu.gov.on.ca/en/) | √ |

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|  | C2.3 identify and use equivalent relationships for whole numbers up to 1000, in various contexts |  |
| Lesson 11 What’s the  Number? | B1.2 compare and order whole numbers up to and including 1000, in various contexts  B1.5 use [place value](https://www.dcp.edu.gov.on.ca/en/) when describing and representing multi-digit numbers in a variety of ways, including with [base ten materials](https://www.dcp.edu.gov.on.ca/en/) | √ |
| Lesson 12 Rounding Numbers | B1.3 round whole numbers to the nearest ten or hundred, in various contexts | * Keep some rounding 2 digits and when ready move to 3 digits. * Add additional Line Master with numbers to 1000 so students can round to nearest ten or hundred * Adapt some practice questions and exit ticket to include 3-digit numbers |
| Lesson 13 Consolidation | B1.2 compare and order whole numbers up to and including 1000, in various contexts  B1.3 round whole numbers to the nearest ten or hundred, in various contexts  B1.5 use [place value](https://www.dcp.edu.gov.on.ca/en/) when describing and representing multi-digit numbers in a variety of ways, including with [base ten materials](https://www.dcp.edu.gov.on.ca/en/) | * Adapt Show What You Know to include 3-digit numbers that can be rounded to nearest ten and hundred |
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| **Unit 4 Fractions** | | |
| Lesson 14 Exploring Equal Parts | B1.6 use [drawings](https://www.dcp.edu.gov.on.ca/en/) to represent, solve, and compare the results of [fair-share](https://www.dcp.edu.gov.on.ca/en/) [problems](https://www.dcp.edu.gov.on.ca/en/) that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, [mixed numbers](https://www.dcp.edu.gov.on.ca/en/), and fractional amounts  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | * Add another question in practice to show sharing up to 20 items. |

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| Lesson 15 Comparing  Fractions 1 | B1.6 use [drawings](https://www.dcp.edu.gov.on.ca/en/) to represent, solve, and compare the results of [fair-share](https://www.dcp.edu.gov.on.ca/en/) [problems](https://www.dcp.edu.gov.on.ca/en/) that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, [mixed numbers](https://www.dcp.edu.gov.on.ca/en/), and fractional amounts  B1.7 represent and solve fair-share problems that focus on determining and using [equivalent fractions](https://www.dcp.edu.gov.on.ca/en/), including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths | √ |
| Lesson 16 Comparing  Fractions 2 | B1.7 represent and solve fair-share problems that focus on determining and using [equivalent fractions](https://www.dcp.edu.gov.on.ca/en/), including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths | √ |
| Lesson 17 Partitioning Sets | B1.6 use [drawings](https://www.dcp.edu.gov.on.ca/en/) to represent, solve, and compare the results of [fair-share](https://www.dcp.edu.gov.on.ca/en/) [problems](https://www.dcp.edu.gov.on.ca/en/) that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, [mixed numbers](https://www.dcp.edu.gov.on.ca/en/), and fractional amounts | * Increase number of parts (up to 20) to share as students are ready |
| New Lesson: Partitioning Sets with Leftovers | B1.6 use [drawings](https://www.dcp.edu.gov.on.ca/en/) to represent, solve, and compare the results of [fair-share](https://www.dcp.edu.gov.on.ca/en/) [problems](https://www.dcp.edu.gov.on.ca/en/) that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, [mixed numbers](https://www.dcp.edu.gov.on.ca/en/), and fractional amounts | Currently in development |
| Lesson 18 Consolidation | B1.6 use [drawings](https://www.dcp.edu.gov.on.ca/en/) to represent, solve, and compare the results of [fair-share](https://www.dcp.edu.gov.on.ca/en/) [problems](https://www.dcp.edu.gov.on.ca/en/) that involve sharing up to 20 items among 2, 3, 4, 5, 6, 8, and 10 sharers, including problems that result in whole numbers, [mixed numbers](https://www.dcp.edu.gov.on.ca/en/), and fractional amounts  B1.7 represent and solve fair-share problems that focus on determining and using [equivalent fractions](https://www.dcp.edu.gov.on.ca/en/), including problems that involve halves, fourths, and eighths; thirds  and sixths; and fifths and tenths | * Add in equal sharing questions in Show What You Know |

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| **Overall Expectation B2. Operations:**  **use knowledge of numbers and operations to solve mathematical problems encountered in**  **everyday life** | | |
| **Unit 5 Addition and Subtraction** | | |
| Lesson 19 Modelling Addition and Subtraction | B2.4 demonstrate an understanding of [algorithms](https://www.dcp.edu.gov.on.ca/en/) for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract  B2.5 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms | √ |
| Lesson 20 Estimating Sums and Differences | B2.3 use [mental math strategies](https://www.dcp.edu.gov.on.ca/en/), including [estimation,](https://www.dcp.edu.gov.on.ca/en/) to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 21 Adding and Subtracting Money Amounts | F1.1 estimate and calculate the change required for various simple [cash transactions](https://www.dcp.edu.gov.on.ca/en/) involving whole- dollar amounts and amounts of less than one dollar  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 22 Using Mental Math to Add and Subtract | B2.3 use [mental math strategies](https://www.dcp.edu.gov.on.ca/en/), including [estimation,](https://www.dcp.edu.gov.on.ca/en/) to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used | * Use 3-digit numbers * Assessment: include strategies with 3-digit numbers * Exit ticket and practice – add 3-digit numbers |
| Lesson 23 Mastering Addition and Subtraction Facts  (Grade 2 lesson) | Grade 2 ON | √ |

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|  | B2.2 recall and demonstrate addition facts for numbers up to 20, and related subtraction facts |  |
| Lesson 24 Creating and Solving Problems | B2.4 demonstrate an understanding of algorithms for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract  B2.5 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | * Include 3-digit numbers that have sum to no more than 1000 |
| Lesson 25 Creating and Solving Problems with Larger Numbers | B2.5 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 26 Consolidation | B2.3 use [mental math strategies](https://www.dcp.edu.gov.on.ca/en/), including [estimation,](https://www.dcp.edu.gov.on.ca/en/) to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used  B2.4 demonstrate an understanding of [algorithms](https://www.dcp.edu.gov.on.ca/en/) for adding and subtracting whole numbers by making connections to and describing the way other tools and strategies are used to add and subtract  B2.5 represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 1000, using various tools and algorithms | * Include 3 digits by 2-digit and 3 digits |
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| **Unit 6 Multiplication and Division** | | |

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| Lesson 27 Exploring Multiplication | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/) | √ |
| Lesson 28 Exploring Division | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/)  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 29 Relating Multiplication and Division | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/) | √ |
| Lesson 30 Properties of Multiplication | B2.1 use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations | * Extend to different balloon with totals 36 and 48 when students are ready |
| Lesson 31 Creating and Solving Problems | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/)  B2.7 represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into  real-life situations | * Add multiplication and division sentences between 5x5 and 10x10 |

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| Lesson 32 Building Fluency: The Games Room | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/)  B2.7 represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings | * Create a line master with multiplication and division by larger numbers. * Use spinners to determine numbers in activities * Make number cards with larger numbers |
| New Lesson: Multiplying and Dividing Larger Numbers | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/) | Currently in development |
| New Lesson: Investigating Ratios | B2.9 use the [ratios](https://www.dcp.edu.gov.on.ca/en/) of 1 to 2, 1 to 5, and 1 to 10 to [scale](https://www.dcp.edu.gov.on.ca/en/) up numbers and to solve problems | Currently in development |
| Lesson 33 Consolidation | B2.2 recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts  B2.6 represent multiplication of numbers up to 10 × 10 and division up to 100 ÷ 10, using a variety of tools and drawings, including [arrays](https://www.dcp.edu.gov.on.ca/en/)  B2.7 represent and solve problems involving multiplication and division, including problems that involve groups of one half, one fourth, and one third, using tools and drawings | * Use larger numbers (up to 100) for house numbers * Adjust activities to using larger numbers up to 10x10 |
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| **F1. Money and Finances**  **demonstrate an understanding of the value and use of Canadian currency** | | |
| **Unit 7 Financial Literacy** | | |
| Lesson 34 Estimating and Counting Money | F1.1 estimate and calculate the change required for various simple [cash transactions](https://www.dcp.edu.gov.on.ca/en/) involving whole- dollar amounts and amounts of less than one dollar | √ |

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| Lesson 35 Investigating Equality  with Money |  | Not specifically required by ON |
| Lesson 36 Purchasing and Making Change | F1.1 estimate and calculate the change required for various simple [cash transactions](https://www.dcp.edu.gov.on.ca/en/) involving whole- dollar amounts and amounts of less than one dollar  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 37 Setting a Financial Goal |  | Not specifically required by ON |
| Lesson 38: Financial Literacy Consolidation | F1.1 estimate and calculate the change required for various simple [cash transactions](https://www.dcp.edu.gov.on.ca/en/) involving whole- dollar amounts and amounts of less than one dollar  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | * Focus on Working on It: Part B * Alternate questions: Imagine you saved $85. If you spent $27.50 on school supplies, how much money is left? |



Mathology Grade 3 Ontario: Algebra

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| **Mathology Activity Number** | **Ontario Curriculum Specific Expectations** | **Match to New Curriculum** |
| **Overall Expectations**  **C1. Patterns and Relationships**  **identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts** | | |
| **Unit 1 Increasing and Decreasing Patterns** | | |
| Lesson 1 Describing and Extending Patterns | C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts  C1.3 determine pattern rules and use them to extend patterns make and  justify predictions, and identify | √ |

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|  | missing elements in patterns that have repeating elements,  movements, or operations |  |
| Lesson 2 Representing Patterns | C1.2 create and translate patterns that have  repeating elements, movements or o perations, using a variety of representations, including  shapes, numbers, and tables of values  C1.3 determine pattern rules and use them to extend patterns make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 3 Creating Patterns | C1.2 create and translate patterns that have  repeating elements, movements, or operations, using a variety of representations, including  shapes, numbers, and tables of values  C1.4 create and describe patterns to illustrate relationships among whole numbers up to 1000  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide  insight into real-life situations | √ |
| Lesson 4 Identifying Errors and Missing Terms | C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations  C1.4 create and describe patterns to illustrate relationships among whole  numbers up to 1000 | √ |
| Lesson 5 Solving  Problems |  | Not required by Ontario |
| Lesson 6 Exploring Multiplicative Patterns | C1.2 create and translate patterns that have repeating elements, movements or, operations using a  variety of representations, including | √ |

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|  | shapes, numbers, and tables of values  C1.4 create and describe patterns to illustrate relationships among whole numbers up to 1000 |  |
| New Lesson Patterns in Whole Numbers | C1.4 create and describe patterns to illustrate relationships among whole numbers up to 1000 | Currently in Development |
| Lesson 7 Consolidation | C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts  C1.3 determine pattern rules and use them to extend patterns make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations  C1.4 create and describe patterns to illustrate relationships among whole numbers up to 1000 | * Include number strings and partial number strings in Show What you know |
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| **Overall Expectation**  **C2. Equations and Inequalities**  **demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts** | | |
| **Unit 2 Variables and Equations** | | |
| New Lesson Equivalent Expressions | C2.2 determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not  C2.3 identify and use equivalent relationships for whole numbers up to 1000, in various contexts | Currently in Development |
| Lesson 8 Solving  Equations Concretely |  | Not required by ON |
| Lesson 9 Strategies for Solving Equations | C2.1 describe how [variables](https://www.dcp.edu.gov.on.ca/en/) are used, and use them in various contexts as appropriate  C2.2 determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not | * Have pairs check if equations are equivalent |
| Lesson 10 Exploring the  Associative Property |  | Not required by ON  (grade 2 content) |
| Lesson 11 Creating Equations | C2.1 describe how [variables](https://www.dcp.edu.gov.on.ca/en/) are used, and use them in various contexts as appropriate | √ |

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| Lesson 12 Consolidation | C2.1 describe how [variables](https://www.dcp.edu.gov.on.ca/en/) are used, and use them in various contexts as appropriate  C2.2 determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not  C2.3 identify and use equivalent relationships for whole numbers up to 1000, in various contexts | * Have pairs determine multiplication and division expressions that could also represent the possible paths |
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| **Overall Expectation**  **C1. Patterns and Relationships**  **identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts** | | |
| **Unit 3 Repeating Patterns** | | |
| Lesson 13 Sorting with Attributes | **D1.1** sort sets of data about people or things according to two and three [attributes,](https://www.dcp.edu.gov.on.ca/en/) using tables and logic diagrams, including [Venn, Carroll](https://www.dcp.edu.gov.on.ca/en/), and [tree diagrams](https://www.dcp.edu.gov.on.ca/en/), as appropriate | √ |
| Lesson 14 Identifying and Extending Patterns | C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts  C1.2 create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values  C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements,  movements, or operations | √ |
| Lesson 15 Creating Patterns | C1.2 create and translate patterns that have  repeating elements, movements, or o perations, using a variety of representations, including shapes, numbers, and tables of values  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | * Include repeating movements or operations * Add translating patterns from geometric into a table of values with a repeating operation |
| Lesson 16 Consolidation | C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found  in real-life contexts | * Note in consolidation those that created   patterns with half |

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|  | You will need to include repeating patterns in real life.  C1.2 create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values  C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations | or quarter turns rather than flips or slides |
| **Overall Expectation C3. Coding**  **solve problems and create computational representations of mathematical situations using**  **coding concepts and skills** | | |
| **Geometry Unit 4: Mapping and Coding** | | |
| 15: Describing Location | **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events  **E1.4**  give and follow multistep instructions involving movement from one location to another, including distances and half- and quarter-turns | √ |
| 16: Describing Movement on a Map | **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events  **E1.4**  give and follow multistep instructions involving movement from one location to another, including distances and half- and quarter-turns | √ |
| 17: Coding on a Grid | **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events  **C3.2** read and alter existing code, including code that involves  sequential, concurrent, and repeating | √ |

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|  | events, and describe how changes to the code affect the outcomes  **E1.4**  give and follow multistep instructions involving movement from one location to another, including  distances and half- and quarter-turns |  |
| 18: Exploring Loops in Coding | **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events  **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes | √ |
| **New Activity: Altering Code** | **C3.2** read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | Currently in Development |
| **Overall Expectation**  **C4. Mathematical Modelling**  **apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations** | | |



Mathology Grade 3 Ontario: Data

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| **Mathology Activity #** | **Ontario Specific Curriculum Expectations** | **Match to Ontario Curriculum** |

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| **D1. Data Literacy**  **manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life** | | |
| **Unit 1 Data Management** | | |
| **New Lesson Sorting People and Things** | **D1.1** sort sets of data about people or things according to two and three [attributes](https://www.dcp.edu.gov.on.ca/en/), using tables and logic diagrams, including [Venn](https://www.dcp.edu.gov.on.ca/en/), [Carroll](https://www.dcp.edu.gov.on.ca/en/), and [tree diagrams](https://www.dcp.edu.gov.on.ca/en/), as appropriate | Currently in Development |
| Lesson 1 Interpreting Bar Graphs | **D1.5** analyse different sets of data presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed  decisions | * Include frequency tables * Include making convincing arguments and informed decisions based on the data |
| Lesson 2 Collecting Data | D1.1 sort sets of data about people or things according to two and three [attributes](https://www.dcp.edu.gov.on.ca/en/), using tables and logic diagrams, including [Venn](https://www.dcp.edu.gov.on.ca/en/), [Carroll](https://www.dcp.edu.gov.on.ca/en/), and [tree diagrams](https://www.dcp.edu.gov.on.ca/en/), as appropriate  D1.2 collect data through observations, experiments, and interviews to answer [questions of](https://www.dcp.edu.gov.on.ca/en/) [interest](https://www.dcp.edu.gov.on.ca/en/) that focus on [qualitative](https://www.dcp.edu.gov.on.ca/en/) and  [quantitative data](https://www.dcp.edu.gov.on.ca/en/), and organize the data using [frequency tables](https://www.dcp.edu.gov.on.ca/en/) | * Use 2 and 3 attributes to sort * Record your findings using tables and logic diagrams, Venn, Carroll and tree diagrams |
| Lesson 3 Drawing Graphs | D1.3 display sets of data, using [many-](https://www.dcp.edu.gov.on.ca/en/) [to-one correspondence,](https://www.dcp.edu.gov.on.ca/en/) in [pictographs](https://www.dcp.edu.gov.on.ca/en/) and [bar graphs](https://www.dcp.edu.gov.on.ca/en/) with proper sources, titles, and labels, and appropriate scales  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into  real-life situations | √ |
| Lesson 4 Identifying the Mode | D1.4 determine the [mean](https://www.dcp.edu.gov.on.ca/en/) and identify the [mode](https://www.dcp.edu.gov.on.ca/en/)(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data  D2.2 make and test predictions about the likelihood that the mean and the mode(s) of a data set will be the same for data collected from different  [populations](https://www.dcp.edu.gov.on.ca/en/) | * Include identifying mean * Make predictions about the mean and mode if they collected data from another classroom (older grades vs younger grades). What happens to the mean, mode? |
| Lesson 5 Consolidation | D1.1 sort sets of data about people or things according to two and three [attributes](https://www.dcp.edu.gov.on.ca/en/), using tables and logic diagrams, including [Venn](https://www.dcp.edu.gov.on.ca/en/), [Carroll](https://www.dcp.edu.gov.on.ca/en/), and [tree diagrams](https://www.dcp.edu.gov.on.ca/en/), as appropriate | * Include identifying mean * Compare the two graphs, analyse, draw conclusions and make informed decisions |

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|  | D1.2 collect data through observations, experiments, and interviews to answer [questions of](https://www.dcp.edu.gov.on.ca/en/) [interest](https://www.dcp.edu.gov.on.ca/en/) that focus on [qualitative](https://www.dcp.edu.gov.on.ca/en/) and [quantitative data](https://www.dcp.edu.gov.on.ca/en/), and organize the data using [frequency tables](https://www.dcp.edu.gov.on.ca/en/)  D1.3 display sets of data, using [many-](https://www.dcp.edu.gov.on.ca/en/) [to-one correspondence,](https://www.dcp.edu.gov.on.ca/en/) in [pictographs](https://www.dcp.edu.gov.on.ca/en/) and [bar graphs](https://www.dcp.edu.gov.on.ca/en/) with proper sources, titles, and labels, and appropriate scales  D1.4 determine the [mean](https://www.dcp.edu.gov.on.ca/en/) and identify the [mode](https://www.dcp.edu.gov.on.ca/en/)(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data  D1.5 analyse different sets of data presented in various ways, including in frequency tables and in graphs with different scales, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | based on the data collected |
| **D2. Probability**  **describe the likelihood that events will happen, and use that information to make predictions** | | |
| **Unit 2 Probability** | | |
| Lesson 6: Making Predictions | D2.2 make and test predictions about the likelihood that the mean and the mode(s) of a data set will be the same for data collected from different [populations](https://www.dcp.edu.gov.on.ca/en/)  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations | √ |
| Lesson 15: Is it Fair? |  | Not required by ON |
| Lesson 7: Describing the Likelihood of Outcomes | D2.1 use mathematical language,  including the terms “impossible”, “unlikely”, “equally likely”, “likely”, and “certain”, to describe the [likelihood](https://www.dcp.edu.gov.on.ca/en/) of events happening, and  use that likelihood to make predictions  and informed decisions | √ |

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| Lesson 8: Consolidation | D2.1 use mathematical language,  including the terms “impossible”, “unlikely”, “equally likely”, “likely”, and “certain”, to describe the [likelihood](https://www.dcp.edu.gov.on.ca/en/) of events happening, and  use that likelihood to make predictions and informed decisions  D2.2 make and test predictions about the likelihood that the mean and the mode(s) of a data set will be the same for data collected from different  [populations](https://www.dcp.edu.gov.on.ca/en/) | * Create spinners, use counters/paper bags, number cubes or play coins to create games * Use mathematical language to describe the likelihood of events * Identify mean and mode if applicable and note how it might change if the material changed |
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Mathology Grade 3 Ontario: Spatial Sense

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| **Mathology Activity #** | **Ontario Curriculum Specific Expectations** | **Match to Ontario Curriculum** |
| **Overall Expectation**  **E1. Geometric and Spatial Reasoning**  **describe and represent shape, location, and movement by applying** [**geometric properties**](https://www.dcp.edu.gov.on.ca/en/) **and** [**spatial relationships**](https://www.dcp.edu.gov.on.ca/en/) **in order to navigate the world around them** | | |
| **Unit 1 2-D Shapes** | | |
| Lesson 1 Sorting Polygons | D1.1 sort sets of data about people or things according to two or three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams as appropriate. | √ |
| Lesson 12: Exploring Congruence | E1.3 identify [congruent](https://www.dcp.edu.gov.on.ca/en/) lengths, angles, and faces of three- dimensional objects by mentally and physically matching them, and determine if the objects are congruent | Not specifically required by ON but will support identifying congruence in 3D objects |
| Lesson 2 What’s the  Sorting Rule? | D1.1 sort sets of data about people or things according to two or three  attributes, using tables and logic | √ |

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|  | diagrams, including Venn, Carroll, and tree diagrams as appropriate. |  |
| Lesson 3 Composing Shapes | E1.2 [compose](https://www.dcp.edu.gov.on.ca/en/) and [decompose](https://www.dcp.edu.gov.on.ca/en/) various structures, and identify the [two-dimensional shapes](https://www.dcp.edu.gov.on.ca/en/) and [three-](https://www.dcp.edu.gov.on.ca/en/) [dimensional objects](https://www.dcp.edu.gov.on.ca/en/) that these structures contain | * Identify 3D solids that include various 2D shapes as faces |
| Lesson 4 Exploring  Quadrilaterals |  | Not required by ON |
| Lesson 5 Consolidation | D1.1 sort sets of data about people or things according to two or three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams as appropriate. E1.2 [compose](https://www.dcp.edu.gov.on.ca/en/) and [decompose](https://www.dcp.edu.gov.on.ca/en/) various structures, and identify the [two-dimensional shapes](https://www.dcp.edu.gov.on.ca/en/) and [three-](https://www.dcp.edu.gov.on.ca/en/) [dimensional objects](https://www.dcp.edu.gov.on.ca/en/) that these structures contain  E1.3 identify [congruent](https://www.dcp.edu.gov.on.ca/en/) lengths, angles, and faces of three- dimensional objects by mentally and physically matching them, and determine if the objects are  congruent | * Focus on sorting using various tables and diagrams * Include determining if an 2D shape is congruent while sorting or finding attributes |
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| **Unit 2 3-D Solids** | | |
| Lesson 6 Exploring Geometric Attributes of Solids | E1.1 sort, construct and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles  E1.3 identify congruent lengths, angles, and faces of three- dimensional objects by mentally and physically matching them,  and determine if the objects are congruent  **D1.1** sort sets of data about people or things according to two or three attributes, using tables and logic diagrams, including Venn, Carroll, and tree diagrams as appropriate. | * Include identifying angles * include identification of congruent objects |
| Lesson 7 Building Solids | E1.1 sort, construct and  identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles  E1.2 compose and decompose a variety of structures, and identify  the two-dimensional shapes and | * Include decomposing structures to see faces |

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|  | three-dimensional objects that these structures contain  C4. Mathematical Modelling  apply the process of mathematical modelling to represent, analyse, make predictions, and provide  insight into real-life situations |  |
| Lesson 8 Constructing Skeletons | E1.2 compose and decompose a variety of structures, and identify the two-dimensional shapes and three-dimensional objects that  these structures contain | √ |
| Lesson 9 Working with Nets | E1.1 sort, construct and  identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles | √ |
| Lesson 10 Consolidation | E1.2 compose and decompose a variety of structures, and identify the two-dimensional shapes and three-dimensional objects that these structures contain  E1.3 identify congruent lengths, angles, and faces of three- dimensional objects by mentally and physically matching them,  and determine if the objects are congruent | √ |
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| **Unit 3 Symmetry and Transformations** | | |
| Lesson 11 Identifying  Symmetrical Designs |  | Not required by ON |
| Lesson 12 Exploring Congruence | **E1.3** identify congruent lengths, angles, and faces of three- dimensional objects by mentally and physically matching them, and determine if the objects are  congruent | √ |
| Lesson 13 Exploring Transformations | **E1.4** give and follow multistep instructions involving movement from one location to another, including distances and half- and quarter-turns | Not specifically required by ON but will support coding lessons (Mapping and Coding Unit - 15: Describing location; 16: Describing movement on a map; 17: Coding on a  grid) |
| Lesson 14 Consolidation | **E1.3** identify [congruent](https://www.dcp.edu.gov.on.ca/en/) lengths, angles, and faces of three- dimensional objects by mentally and physically matching them, and determine if the objects are congruent | Not specifically required by ON |

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| **Unit 5 Angles** | | |
| Lesson 20 Investigating Angles | E1.1 sort, construct and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles | * Include 3D solids when ready |
| Lesson 21 Comparing Angles | E1.1 sort, construct and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles  E1.3 identify congruent lengths, angles, and faces of three-dimensional objects by mentally and physically matching them, and determine if the objects are  congruent | * Include 3D solids when ready |
| Lesson 22 Consolidation | E1.1 sort, construct and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles  E1.3 identify congruent lengths, angles, and faces of three-dimensional objects by mentally and physically matching them, and determine if the objects are congruent | * Include 3D solids to compare angles |
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| **Mathology Activity #** | **Ontario Curriculum Specific**  **Expectation** | **Match to Ontario Curriculum** |
| **Overall Expectation E2. Measurement**  **compare, estimate, and determine measurements in various contexts** | | |
| **Unit 1 Length and Perimeter** | | |
| Lesson 1 Estimating Length | E2.2 explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths | * Include millimetres and kilometres * Introduce benchmark for 1 mm (e.g. thickness of dime), 1 km (e.g. 10 min of walking) |
| Lesson 2 Relating Centimetres and Metres  . | E2.2 explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths | * include 1 km = 1000 m: and 1 cm = 10 mm. |
| Lesson 3 Measuring Length | E2.1 use appropriate units of length to estimate, measure, and compare the perimeters  of polygons and curved shapes, | * include curved shapes |

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|  | and construct polygons with a given perimeter |  |
| Lesson 4 Introducing Perimeter | E2.1 use appropriate units of length to estimate, measure, and compare the perimeters  of polygons and curved shapes, and construct polygons with a given perimeter  E2.5 use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains  the same | √ |
| Lesson 5 Measuring Perimeter | E2.1 use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a given perimeter | * include measuring perimeter of curved shapes, comparing and ordering perimeter |
| Lesson 6 How Many Can You Make? | E2.1 use appropriate units of length to estimate, measure, and compare the perimeters of polygons and curved shapes, and construct polygons with a  given perimeter | * Include bunny homes that are curved shapes |
| Lesson 7 Consolidation | E2.1 use appropriate units of length to estimate, measure, and compare the perimeters  of polygons and curved shapes, and construct polygons with a given perimeter  E2.5 use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains  the same | * Include millimetres, curved shapes, and comparing and ordering |
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| **Unit 2 Time and Temperature** | | |
| Lesson 8 Measuring the  Passage of Time |  | Not required by ON (Grade 4  expectations) |
| Lesson 9 Relationships Among Units of Time |  | Not required by ON (Grade 4 expectations) |
| Lesson 10 Telling Time | E2.6 use analog and digital clocks and timers to tell time in hours, minutes, and seconds | * include seconds, and notation, for example, 10:35:20. |
| Lesson 11 |  | Not required by ON |

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| Reading a Thermometer |  |  |
| Lesson 12 Consolidation | E2.6 use analog and digital clocks and timers to tell time in hours, minutes, and seconds | * Focus on parts of student card with clock (digital and analog) * Add additional times with seconds |
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| **Unit 3 Area, Mass, and Capacity** | | |
| Lesson 13 Measuring Area using non- standard units | E2.5 use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same  E2.8 use appropriate non- standard units to measure area, and explain the effect that gaps and overlaps have on accuracy | √ |
| Lesson 14 Measuring Area using standard units | E2.7 compare the areas of two- dimensional shapes by matching, covering, or decomposing and recomposing the shapes, and demonstrate that different shapes can have the same area  E2.8 use appropriate non- standard units to measure area, and explain the effect that gaps and overlaps have on accuracy  E2.9 use square centimetres (cm2) and square metres (m2) to estimate, measure, and compare the areas of various two-dimensional  shapes, including those with curved sides | * Include curved shapes when students are ready * Compare shapes and identify those that have the same area |
| Lesson 15 Measuring  Mass |  | Not required in ON |
| New  Lesson: Measuring Mass with Non- standard Units | E2.4 compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units  E2.5 use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized  units produces a different count, | Use Gr 2 Measurement Activity 4 Measuring Mass |

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|  | the size of the attribute remains  the same |  |
| Lesson 16 Measuring  Capacity |  | Not required in ON |
| New  Lesson: Measuring Capacity with Non- standard Units | E2.3 use non-standard units appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy  E2.5 use various units of different sizes to measure the same attribute of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains  the same | Use Gr 2 Measurement Activity 5 Measuring Capacity |
| Lesson 17 Consolidation | E2.3 use [non-standard units](https://www.dcp.edu.gov.on.ca/en/) appropriately to estimate, measure, and compare capacity, and explain the effect that overfilling or underfilling, and gaps between units, have on accuracy  E2.4 compare, estimate, and measure the [mass](https://www.dcp.edu.gov.on.ca/en/) of various objects, using a [pan balance](https://www.dcp.edu.gov.on.ca/en/) and non-standard units  E2.5 use various units of different sizes to measure the same [attribute](https://www.dcp.edu.gov.on.ca/en/) of a given item, and demonstrate that even though using different-sized units produces a different count, the size of the attribute remains the same  E2.7 compare the areas of two- dimensional shapes by matching, covering, or decomposing and recomposing the shapes, and demonstrate that different shapes can have the same area  E2.8 use appropriate non- standard units to measure area, and explain the effect that gaps  and overlaps have on accuracy | * focus on using non-standard units for mass and capacity |