Mathology Grade 3 Ontario: Number

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 read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools 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, compose, and decompose whole numbers up to and including 1000, using a variety of tools 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	√
Unit 2 Number Relationships		
Lesson 5 Estimating Quantities		Not specifically required by ON
Lesson 6 Composing and Decomposing Quantities	B1.1 read, represent, compose, and decompose whole numbers up to and including 1000, using a variety of tools 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.

	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, compose, and decompose whole numbers up to and including 1000, using a variety of tools 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
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 when describing and representing multi-digit numbers in a variety of ways, including with base ten materials 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 when describing and representing multi-digit numbers in a variety of ways, including with base ten materials	√

	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 when describing and representing multi-digit numbers in a variety of ways, including with base ten materials	√
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 when describing and representing multi-digit numbers in a variety of ways, including with base ten materials	• Adapt Show What You Know to include 3-digit numbers that can be rounded to nearest ten and hundred
Unit 4 Fractions		
Lesson 14 Exploring Equal Parts	B1.6 use drawings to represent, solve, and compare the results of fair-share problems 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, 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.

Lesson 15 Comparing Fractions 1	B1.6 use drawings to represent, solve, and compare the results of fair-share problems 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, and fractional amounts B1.7 represent and solve fair-share problems that focus on determining and using equivalent fractions, 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, including problems that involve halves, fourths, and eighths; thirds and sixths; and fifths and tenths	√
Lesson 17 Partitioning Sets	B1.6 use drawings to represent, solve, and compare the results of fair-share problems 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, 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 to represent, solve, and compare the results of fair-share problems 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, and fractional amounts	Currently in development
Lesson 18 Consolidation	B1.6 use drawings to represent, solve, and compare the results of fair-share problems 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, and fractional amounts B1.7 represent and solve fair-share problems that focus on determining and using equivalent fractions, 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

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 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, including estimation, 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 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, including estimation, 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	√

	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, including estimation, 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 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
Unit 6 Multiplication and Division		

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	√
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 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	√
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 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

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 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	Currently in development
New Lesson: Investigating Ratios	B2.9 use the ratios of 1 to 2, 1 to 5, and 1 to 10 to scale 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 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
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 involving whole-dollar amounts and amounts of less than one dollar	√

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 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 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

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	√

	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 operations, 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	√

	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

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 <u>variables</u> 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 <u>variables</u> are used, and use them in various contexts as appropriate	√

Lesson 12 Consolidation	C2.1 describe how <u>variables</u> 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

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 <u>attributes</u>, using tables and logic diagrams, including <u>Venn</u>, <u>Carroll</u>, and <u>tree diagrams</u>, 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 operations, 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

	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	√

Mathology Activity #	Ontario Specific Curriculum Expectations	Match to Ontario Curriculum
	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

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Mathology Grade 3 Ontario: Data

Mathology Activity #	Ontario Specific Curriculum Expectations	Match to Ontario Curriculum

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, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, 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, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate D1.2 collect data through observations, experiments, and interviews to answer questions of interest that focus on qualitative and quantitative data, and organize the data using frequency tables	• 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-to-one correspondence, in pictographs and bar graphs 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 and identify the mode(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	• 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, using tables and logic diagrams, including Venn, Carroll, and tree diagrams, as appropriate	• Include identifying mean • Compare the two graphs, analyse, draw conclusions and make informed decisions

	D1.2 collect data through observations, experiments, and interviews to answer questions of interest that focus on qualitative and quantitative data, and organize the data using frequency tables	based on the data collected
	D1.3 display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales	
	D1.4 determine the mean and identify the mode(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	

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 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 of events happening, and use that likelihood to make predictions and informed decisions	√

| Lesson 8: Consolidation | D2.1 use mathematical language, including the terms "impossible", "unlikely", "equally likely", "likely", and "certain", to describe the likelihood 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 | 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

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 and spatial relationships 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 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	√

	diagrams, including Venn, Carroll, and tree diagrams as appropriate.	
Lesson 3 Composing Shapes	E1.2 compose and decompose various structures, and identify the two-dimensional shapes and three-dimensional objects 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 and decompose various 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	• Focus on sorting using various tables and diagrams • Include determining if an 2D shape is congruent while sorting or finding attributes
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

	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	√
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 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

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

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

	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
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

	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	

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 (cm^2) and square metres (m^2) 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

	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 <u>non-standard units</u> 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 <u>mass</u> of various objects, using a <u>pan balance</u> and non-standard units E2.5 use various units of different sizes to measure the same <u>attribute</u> 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