

Mathletics

Ontario Program of Studies

Understanding Practice and Fluency (UPF)



Grades 1 – 3

November, 2021

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Grade 1

1 Number

1.1 Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

	Outcome	Quests	Content
Whole Numbers	1. read and represent whole numbers up to and including 50, and describe various ways they are used in everyday life	Read and represent whole numbers to 50	Connect number names, numerals & collections to 50
	2. compose and decompose whole numbers up to and including 50, using a variety of tools and strategies, in various contexts	Compose and decompose numbers to 50	Partitioning 2-digit numbers to 50
			Non-standard partitioning: 2-digit numbers to 50
	3. compare and order whole numbers up to and including 50, in various contexts	Compare and order whole numbers to 50	Comparing collections and numerals to 50
			Ordering collections and numerals to 50
	4. estimate the number of objects in collections of up to 50, and verify their estimates by counting	Teacher directed	Teacher directed
	5. count to 50 by 1s, 2s, 5s, and 10s, using a variety of tools and strategies	Count to 50	Counting by 1s to 50, forward and backward
			Counting by 2s to 50, forward and backward
			Counting by 5s to 50, forward and backward
			Counting by 10s to 50, forward and backward
			Counting by 2s, 5s, 10s to 50
Fractions	6. use drawings to represent and solve fair-share problems that involve 2 and 4 sharers, respectively, and have remainders of 1 or 2	Fair-share problems, 2 and 4 sharers	Solving fair-share problems, 2 and 4 sharers

	7. recognize that one half and two fourths of the same whole are equal, in fair-sharing contexts	Equivalence, one half and two fourths	Introducing the concept of half
	8. use drawings to compare and order unit fractions representing the individual portions that result when a whole is shared by different numbers of sharers, up to a maximum of 10	Compare and order unit fractions	Comparing and ordering unit fractions with models

1.2 Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Outcome		Quests	Content
Properties and relationships	1. use the properties of addition and subtraction, and the relationship between addition and subtraction, to solve problems and check calculations	Add/subtract properties & relationship	Introducing the commutative property of addition
			Fact families: addition/subtraction, within 30
Math facts	2. recall and demonstrate addition facts for numbers up to 10, and related subtraction facts	Addition/subtraction facts to 10	Recognizing and recalling bonds to 10
			Adding and subtracting within 10 fluently
			Modelling and recording combinations to 5
			Modelling and recording combinations to 6
			Modelling and recording combinations to 7
			Modelling and recording combinations to 8
			Modelling and recording combinations to 9
Mental math	3. use mental math strategies, including estimation, to add and subtract whole numbers that add up to no more than 20,	Mental math: add/subtract to 20	Mental strategies: addition and subtraction to 18

	and explain the strategies used		
Addition and subtraction	4. use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 50	Add and subtract to 50	Bridging to ten to add, models
			Adding doubles or near doubles
			Adding using compatible numbers
			Adding 2-digit and 1-digit numbers, place value
			Bridging to ten to subtract, models
			Subtracting using doubles
			Addition and subtraction word problems within 20
Multiplication and division	5. represent and solve equal-group problems where the total number of items is no more than 10, including problems in which each group is a half, using tools and drawings	Represent and solve equal-group problems	Representing and solving equal-group problems

2 Algebra

2.1 Identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

	Outcome	Quests	Content
Patterns	1. identify and describe the regularities in a variety of patterns, including patterns found in real-life contexts	Identify and describe patterns	Identifying & describing repeating patterns Recognizing repeating patterns
	2. create and translate patterns using movements, sounds, objects, shapes, letters, and numbers	Create patterns	Creating repeating patterns
	3. determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns	Patterns: extend, predict, identify	Extending a simple repeating pattern Identifying errors & missing elements in patterns
	4. create and describe patterns to illustrate relationships among whole numbers up to 50	Create/describe patterns, numbers to 50	Copy/extend additive & subtractive number patterns

2.2 Demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

	Outcome	Quests	Content
Variables	1. identify quantities that can change and quantities that always remain the same in real-life contexts	Teacher directed	Teacher directed

Equalities and Inequalities	2. determine whether given pairs of addition and subtraction expressions are equivalent or not	Equivalence: addition and subtraction	Recognizing equality in addition and subtraction
	3. identify and use equivalent relationships for whole numbers up to 50, in various contexts	Identify & use equivalent relationships	Recognize the concept of equality, numbers to 50

2.3 Solve problems and create computational representations of mathematical situations using coding concepts and skills

Outcome		Quests	Content
Coding skills	1. solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events	Write/execute code: sequential events	Write/execute code: sequential events
	2. read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomes	Read/alter code: sequential events	Read/alter code: sequential events

3 Data

3.1 Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Outcome		Quests	Content
Data collection and organization	1. sort sets of data about people or things according to one attribute, and describe rules used for sorting	Sorting sets of data	Grouping simple data using 1 attribute
	2. collect data through observations, experiments, or interviews to answer questions of interest that focus on a single piece of information; record the data using methods of their choice; and organize the data in tally tables	Data collection and recording	Asking simple questions to gather data
Data visualization	3. display sets of data, using one-to-one correspondence, in concrete graphs and pictographs with proper sources, titles, and labels	Represent data using simple displays	Representing data using simple displays
Data analysis	4. order categories of data from greatest to least frequency for various data sets displayed in tally tables, concrete graphs, and pictographs	Order category data	Ordering category data
	5. analyse different sets of data presented in various ways, including in tally tables, concrete graphs, and pictographs, by asking and answering questions about the	Interpret basic data displays	Interpreting basic data displays

	data and drawing conclusions, then make convincing arguments and informed decisions		
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3.2 Describe the likelihood that events will happen, and use that information to make predictions

	Outcome	Quests	Content
Probability	1. use mathematical language, including the terms “impossible”, “possible”, and “certain”, to describe the likelihood of events happening, and use that likelihood to make predictions and informed decisions	Use the basic language of probability	Using the basic language of probability
	2. make and test predictions about the likelihood that the categories in a data set from one population will have the same frequencies in data collected from a different population of the same size	Teacher directed	Teacher directed

4 Spatial Sense

4.1 Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

	Outcome	Quests	Content
Geometric reasoning	1. sort three-dimensional objects and two-dimensional shapes according to one attribute at a time, and identify the sorting rule being used	Sort 3D objects and 2D shapes	Sorting 3D objects, 1 attribute
			Sorting 3D objects, more than 1 attribute
			Sorting basic 2D shapes, 1 attribute
			Sorting basic 2D shapes, more than 1 attribute
	2. construct three-dimensional objects, and identify two-dimensional shapes contained within structures and objects	Construct three-dimensional structures	Constructing three-dimensional structures
	3. construct and describe two-dimensional shapes and three-dimensional objects that have matching halves	Teacher directed	Teacher directed
Location and movement	4. describe the relative locations of objects or people, using positional language	Describe relative locations	Describing position and movement
			Distinguishing between left and right
	5. give and follow directions for moving from one location to another	Give and follow directions	Giving directions

4.2 Compare, estimate, and determine measurements in various contexts

	Outcome	Quests	Content
Attributes	1. identify measurable attributes of two-dimensional shapes and three-	Identify measurable attributes	Introducing the attribute of length
			Introducing the attribute of mass

	dimensional objects, including length, area, mass, capacity, and angle		Introducing the attributes of volume and capacity
			Introducing the attribute of area
			Introducing angles as a measurable attribute
	2. compare several everyday objects and order them according to length, area, mass, and capacity	Compare and order objects by attributes	Compare areas using direct comparison
			Compare/order mass of 2 objects, pan balance
			Compare/order volume and capacity, informal units
			Compare capacities, direct comparison
Time	3. read the date on a calendar, and use a calendar to identify days, weeks, months, holidays, and seasons	The calendar	Introducing the days of the week
			Introducing the months of the year
			Introducing the seasons
			Using calendars

5 Financial Literacy

5.1 Demonstrate an understanding of the value of Canadian currency

Outcome		Quests	Content
Money concepts	1. identify the various Canadian coins up to 50¢ and coins and bills up to \$50, and compare their values	Identifying coins and bills	Identifying coins
			Identifying bills

Grade 2

1 Number

1.1 Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

Outcome		Quests	Content
Whole numbers	1. read, represent, compose, and decompose whole numbers up to and including 200, using a variety of tools and strategies, and describe various ways they are used in everyday life	Numbers up to 200	Reading and writing 3-digit numbers to 200
			Reading and writing 2-digit numbers
			Using place value to partition 2-digit numbers
			Identifying place value: 2-digit numbers
			Partitioning 3-digit numbers to 200
			Identifying place value: 3-digit numbers to 200
			Non-standard partitioning: 2-digit numbers
			Non-standard partitioning: 3-digit numbers to 200
	2. compare and order whole numbers up to and including 200, in various contexts	Compare and order numbers to 200	Comparing and ordering numbers to 200
	3. estimate the number of objects in collections of up to 200 and verify their estimates by counting	Teacher directed	Teacher directed
	4. count to 200, including by 20s, 25s, and 50s, using a variety of tools and strategies	Count to 200	Counting by 1s to 200, forward and backward
			Counting by 10s to 200, forward and backward
			Counting by 2s to 200, forward and backward
			Counting by 5s to 200, forward and backward
			Counting by 20s to 200, forward and backward
			Counting by 25s to 200, forward and backward

			Counting by 50s to 200, forward and backward
	5. describe what makes a number even or odd	Odd and even numbers	Modelling odd and even number patterns up to 20
Fractions	6. use drawings to represent, solve, and compare the results of fair-share problems that involve sharing up to 10 items among 2, 3, 4, and 6 sharers, including problems that result in whole numbers, mixed numbers, and fractional amounts	Fair-share problems: 2, 3, 4, 6 sharers	Fair-share problems with models, 2 or 4 sharers
			Fair-share problems with models, 3 sharers
			Fair-share problems with models, 6 sharers
	7. recognize that one third and two sixths of the same whole are equal, in fair-sharing contexts	Equivalence, one third and two sixths	Equivalence, one third and two sixths

1.2 Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Outcome		Quests	Content
Properties and relationships	1. use the properties of addition and subtraction, and the relationships between addition and multiplication and between subtraction and division, to solve problems and check calculations	Properties and operational relationships	Using the commutative property of addition to 20
			Using repeated addition to multiply
			Using repeated subtraction to divide
Math facts	2. recall and demonstrate addition facts for numbers up to 20, and related subtraction facts	Addition/subtraction facts to 20	Adding and subtracting within 20 fluently
Mental math	3. use mental math strategies, including estimation, to add and subtract whole numbers that add up	Mental math: add/subtract to 50	Bridging to ten to mentally add or subtract
			Using place value to mentally add numbers

	to no more than 50, and explain the strategies used		
Addition and subtraction	4. use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of whole numbers that add up to no more than 100	Add and subtract to 100	Add/subtract numbers using efficient strategies
			Add 2-digit numbers, number line
			Subtract 2-digit numbers, number line
			Add tens to a 2-digit number, models
			Subtract tens from a 2-digit number, models
Multiplication and division	5. represent multiplication as repeated equal groups, including groups of one half and one fourth, and solve related problems, using various tools and drawings	Multiplication as repeated equal groups	Use repeated addition with arrays (2, 5, 10)
			Connect multiplication, arrays, repeated addition
			Repeated addition with one half and one fourth
Multiplication and division	6. represent division of up to 12 items as the equal sharing of a quantity, and solve related problems, using various tools and drawings	Represent division up to 12	Sharing objects to divide up to 12, models

2 Algebra

2.1 Identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

	Outcome	Quests	Content
Patterns	1. identify and describe a variety of patterns involving geometric designs, including patterns found in real-life contexts	Identify/describe geometric patterns	Exploring visual patterns
			Exploring simple patterns with transformations
	2. create and translate patterns using various representations, including shapes and numbers	Create patterns with shapes and numbers	Create repeating shape patterns
			Identify/extend/describe repeating number patterns
	3. determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns represented with shapes and numbers	Pattern rules, repeating patterns	ID errors/missing elements, repeating patterns
			Identify the structure of repeating patterns
			Extend repeating patterns
	4. create and describe patterns to illustrate relationships among whole numbers up to 100	Create/describe patterns, numbers to 100	Growing/shrinking/repeating number patterns to 100
			Identify and describe number patterns to 100

2.2 Demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

	Outcome	Quests	Content
Variables	1. identify when symbols are being used as variables, and describe how they are being used	Teacher directed	Teacher directed

Equalities and inequalities	2. determine what needs to be added to or subtracted from addition and subtraction expressions to make them equivalent	Explore equality, addition/subtraction	Exploring equality, addition/subtraction
	3. identify and use equivalent relationships for whole numbers up to 100, in various contexts	Equivalent relationships to 100	Equivalent addition/subtraction relationships

2.3 Solve problems and create computational representations of mathematical situations using coding concepts and skills

Outcome		Quests	Content
Coding skills	1. solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential and concurrent events	Write code: sequential/concurrent events	Write/execute code: sequential/concurrent events
	2. read and alter existing code, including code that involves sequential and concurrent events, and describe how changes to the code affect the outcomes	Read code: sequential/concurrent events	Read/alter code: sequential/concurrent events

3 Data

3.1 Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Outcome		Quests	Content
Data collection and organization	1. sort sets of data about people or things according to two attributes, using tables and logic diagrams, including Venn and Carroll diagrams	Sort data according to 2 attributes	Introducing Venn diagrams
			Introducing Carroll diagrams
			Relating Carroll and Venn diagrams
			Sorting data using logic diagrams
	2. collect data through observations, experiments, or interviews to answer questions of interest that focus on two pieces of information, and organize the data in two-way tally tables	Collect/organize data, two-way tables	Organizing data in a two-way tally table
Data visualization	3. display sets of data, using one-to-one correspondence, in concrete graphs, pictographs, line plots, and bar graphs with proper sources, titles, and labels	Pictographs, line plots, and bar graphs	Representing and reading data in pictographs
			Representing and reading data in line plots
			Representing and reading data in bar graphs
Data analysis	4. identify the mode(s), if any, for various data sets presented in concrete graphs, pictographs, line plots, bar graphs, and tables, and explain what this measure indicates about the data	Identify and explain the mode	Identifying and explaining the mode
	5. analyse different sets of data presented in various ways, including in logic diagrams, line plots, and bar graphs,	Analyse data	Analysing data in a line plot
			Analysing data in a bar graph
			Analysing data in a logic diagram

	by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions		
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3.2 Describe the likelihood that events will happen, and use that information to make predictions

Outcome		Quests	Content
Probability	1. use mathematical language, including the terms “impossible”, “possible”, and “certain”, to describe the likelihood of complementary events happening, and use that likelihood to make predictions and informed decisions	Probability: complementary events	Exploring complementary events
			Using probability language, complementary events
	2. make and test predictions about the likelihood that the mode(s) of a data set from one population will be the same for data collected from a different population	Teacher directed	Teacher directed

4 Spatial Sense

4.1 Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

	Outcome	Quests	Content
Geometric reasoning	1. sort and identify two-dimensional shapes by comparing number of sides, side lengths, angles, and number of lines of symmetry	Sort and identify two-dimensional shapes	Comparing two-dimensional shapes
			Identifying and naming two-dimensional shapes
			Sorting two-dimensional shapes
			Recognizing line symmetry
	2. compose and decompose two-dimensional shapes, and show that the area of a shape remains constant regardless of how its parts are rearranged	Teacher directed	Teacher directed
	3. identify congruent lengths and angles in two-dimensional shapes by mentally and physically matching them, and determine if the shapes are congruent	Introduce congruent shapes	Introducing congruent shapes
Location and movement	4. create and interpret simple maps of familiar places	Create and interpret simple maps	Creating and interpreting simple maps
	5. describe the relative positions of several objects and the movements needed to get from one object to another	Describe relative positions & movements	Describing relative positions & movements

4.2 Compare, estimate, and determine measurements in various contexts

Outcome		Quests	Content
Length	1. choose and use non-standard units appropriately to measure lengths, and describe the inverse relationship between the size of a unit and the number of units needed	Measure length, non-standard units	Measuring length, non-standard units Measuring length using unit iteration
	2. explain the relationship between centimetres and metres as units of length, and use benchmarks for these units to estimate lengths	Introduce centimetres and metres	Introducing formal units for length: centimetres
	3. measure and draw lengths in centimetres and metres, using a measuring tool, and recognize the impact of starting at points other than zero	Measure in metres and centimetres	Measuring in metres and centimetres
Time	4. use units of time, including seconds, minutes, hours, and non-standard units, to describe the duration of various events	Use units of time to describe duration	Introducing formal units for time: hours
			Introducing formal units for time: minutes
			Introducing formal units for time: seconds

5 Financial Literacy

5.1 Demonstrate an understanding of the value of Canadian currency

Outcome		Quests	Content
Money concepts	1. identify different ways of representing the same amount of money up to Canadian 200¢ using various combinations of coins, and up to \$200 using various combinations of \$1 and \$2 coins and \$5, \$10, \$20, \$50, and \$100 bills	Represent amounts of money	Using bills and coins to make amounts

Grade 3

1 Number

1.1 Demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

Outcome		Quests	Content
Whole numbers	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	Numbers up to 1000	Reading and writing 3-digit numbers
			Using place value to partition 3-digit numbers
			Non-standard partitioning, 3-digit numbers
	2. compare and order whole numbers up to and including 1000, in various contexts	Compare and order numbers to 1000	Comparing numbers to 1000
			Ordering numbers to 1000
	3. round whole numbers to the nearest ten or hundred, in various contexts	Round numbers up to 1000	Rounding numbers to the nearest ten
			Rounding numbers to the nearest hundred
	4. count to 1000, including by 50s, 100s, and 200s, using a variety of tools and strategies	Count to 1000	Counting by 10s to 1000, forward and backward
			Counting by 2s to 1000, forward and backward
			Counting by 5s to 1000, forward and backward
			Counting by 100s to 1000, forward and backward
			Counting by 20s to 1000, forward and backward
			Counting by 50s to 1000, forward and backward
	5. use place value when describing and representing multi-digit numbers in a	Place value to 1000	Identifying place value: 3-digit numbers
			Solving place value problems: 3-digit numbers

	variety of ways, including with base ten materials		
Fractions	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	Fair-share problems	Fair-share problems
	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	Equivalent fraction fair-share problems	Equivalent fraction fair-share problems Investigating equivalent fractions

1.2 Use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Outcome		Quests	Content
Properties and relationships	1. use the properties of operations, and the relationships between multiplication and division, to solve problems and check calculations	Multiplication & division relationships	Properties of multiplication
			Understanding division, unknown-factor problem
			Modelling multiplication & division relationships
Math facts	2. recall and demonstrate multiplication facts of 2, 5, and 10, and related division facts	Multiplication/division facts: 2, 5, 10	Multiplication facts: 2
			Multiplication facts: 5
			Multiplication facts: 10
			Division facts: 2
			Division facts: 5
			Division facts: 10
Mental math	3. use mental math strategies, including	Mental math: add/subtract to 1000	Add 2-/3-digit numbers mentally, place value

	estimation, to add and subtract whole numbers that add up to no more than 1000, and explain the strategies used		Subtract 2-/3-digit numbers mentally, place value
			Add and subtract 2-/3-digit number, place value
			Subtract two 3-digit numbers mentally, place value
			Estimation: addition/subtraction
Addition and subtraction	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	Teacher directed	Teacher directed
	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	Add and subtract within 1000	Create/solve addition & subtraction word problems
			Add/subtract using the number line
			Add/subtract using place value
			Add/subtract using rounding and compensating
			Add/subtract using expanded form
			Represent add/subtract problems using a bar model
			Add/subtract using an algorithm
Multiplication and division	6. represent multiplication of numbers up to 10×10 and division up to $100 \div 10$, using a variety of tools and drawings, including arrays	Represent multiplication/division to 100	Introducing and describing arrays
			Using arrays to add or subtract another group
			Representing multiplication up to 10×10 , models
			Representing division up to $100 \div 10$, models
	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	Solve multiplication/division problems	Use repeated addition to multiply
			Divide by sharing and grouping
			Create/solve problems, sharing and grouping
			Use repeated subtraction to divide
			Multiply/divide, models (2x, 5x, 10x)

			Solve multiplication problems, sharing/grouping
			Solve multiplication/division problems, arrays
			Repeated addition/subtraction, unit fractions
	8. represent the connection between the numerator of a fraction and the repeated addition of the unit fraction with the same denominator using various tools and drawings, and standard fractional notation	Understand the numerator	Using models to add unit fractions
	9. use the ratios of 1 to 2, 1 to 5, and 1 to 10 to scale up numbers and to solve problems	Use ratios to scale up numbers	Using ratios to scale up numbers with models

2 Algebra

2.1 Identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

	Outcome	Quests	Content
Patterns	1. identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts	Identify/describe repeating patterns	Identify/describe repeating number patterns
	2. create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values	Create repeating patterns	Creating repeating patterns using given attributes
			Identifying and creating number patterns
	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	Create/extend/describe repeating pattern	Creating/extending/describing repeating patterns
	4. create and describe patterns to illustrate relationships among whole numbers up to 1000	Describe patterns in numbers to 1000	Describing/recognizing patterns in numbers to 1000

2.2 Demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

	Outcome	Quests	Content
Variables	1. describe how variables are used, and use them in various contexts as appropriate	Teacher directed	Teacher directed
	2. determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not	Recognize equivalent expressions	Recognizing equivalent expressions, 4 operations
Equalities and inequalities	3. identify and use equivalent relationships for whole numbers up to 1000, in various contexts	Use equivalent relationships to 1000	Using equivalent relationships to 1000

2.3 Solve problems and create computational representations of mathematical situations using coding concepts and skills

	Outcome	Quests	Content
Coding skills	1. solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events	Write code for different types of events	Write code for different types of events
	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	Read code for different types of events	Read code for different types of events

3 Data

3.1 Manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Outcome		Quests	Content
Data collection and organization	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	Sort data according to 2–3 attributes	Carroll and Venn diagrams
			Tree diagrams Sorting data in logic diagrams
	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	Collect and organize data in tables	Collecting and organizing data in tables
Data visualization	3. display sets of data, using many-to-one correspondence, in pictographs and bar graphs with proper sources, titles, and labels, and appropriate scales	Graphs: pictographs, bar graphs	Bar graphs, many-to-one correspondence
			Pictographs, many-to-one correspondence
Data analysis	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	Mean and mode	Determining and explaining the mean Determining and explaining the mode
	5. analyse different sets of data presented in various ways, including in	Analyse data, various data displays	Analysing data in pictographs, different scales Analysing data in bar graphs, different scales

	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		Analysing data in tables and lists
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3.2 Describe the likelihood that events will happen, and use that information to make predictions

	Outcome	Quests	Content
Probability	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	Use the language of probability	Using the language of probability
	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	Teacher directed	Teacher directed

4 Spatial Sense

4.1 Describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

	Outcome	Quests	Content
Geometric reasoning	1. sort, construct, and identify cubes, prisms, pyramids, cylinders, and cones by comparing their faces, edges, vertices, and angles	Three-dimensional objects	Introducing cones
			Introducing cubes
			Introducing cylinders
			Introducing prisms
			Introducing pyramids
			Comparing, sorting, and naming prisms and pyramids
			Making basic models of three-dimensional objects
			Faces, edges, and vertices
			Sorting three-dimensional objects
			Comparing three-dimensional objects
	2. compose and decompose various structures, and identify the two-dimensional shapes and three-dimensional objects that these structures contain	Teacher directed	Teacher directed
	3. identify congruent lengths, angles, and faces of three-dimensional objects by mentally and physically matching them, and determine if the objects are congruent	Identify congruency in 3D objects	Identifying congruency in 3D objects
Location and movement	4. give and follow multistep instructions involving movement from one location to another, including distances and half- and quarter-turns	Give and follow multistep instructions	Giving instructions

4.2 Compare, estimate, and determine measurements in various contexts

Outcome		Quests	Content
Length, mass, and capacity	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	Perimeter: polygons and curved shapes	Introducing perimeter Calculating the perimeters of regular polygons
	2. explain the relationships between millimetres, centimetres, metres, and kilometres as metric units of length, and use benchmarks for these units to estimate lengths	Length: mm, cm, m, km	Introducing formal units for length: millimetres
			Introducing formal units for length: kilometres
			Metres and centimetres
	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	Capacity: non-standard units	Comparing and ordering capacity
	4. compare, estimate, and measure the mass of various objects, using a pan balance and non-standard units	Compare, estimate, and measure mass	Compare and order mass, informal units
			Compare, describe, and order mass, pan balance
	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	Teacher directed	Teacher directed

	attribute remains the same		
Time	6. use analog and digital clocks and timers to tell time in hours, minutes, and seconds	Tell time	Telling time to the hour
			Telling time to the hour and half hour
			Telling time to the quarter hour
			Telling time to five minutes
			Telling time to the minute
Area	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	Compare areas using direct comparison	Comparing areas using direct comparison
	8. use appropriate non-standard units to measure area, and explain the effect that gaps and overlaps have on accuracy	Measure area using non-standard units	Measuring area using non-standard units
	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	Estimate/measure/compare area: cm ² , m ²	Introducing formal units for area: cm ²
			Introducing formal units for area: m ²
			Estimate and measure areas of rectangles
			Compare and order rectangular areas
			Approximate/compare areas, non-rectilinear shapes

5 Financial Literacy

5.1 Demonstrate an understanding of the value and use of Canadian currency

Outcome		Quests	Content
Money concepts	1. estimate and calculate the change required for various simple cash transactions involving whole-dollar amounts and amounts of less than one dollar	Estimate and calculate change	Estimating and calculating change



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