

# Mathletics

## Quebec Program of Studies

### Skill Quests



**Grades 1 – 2**

March, 2022

**Mathletics**

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Quebec Program of Studies

Skill Quests

May 2022

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# Grade 1

## 1 Arithmetic

### 1.1 Understanding and writing numbers

Outcome	Quests	Content
Natural numbers less than 1000. 1. Counts or recites counting rhymes involving natural numbers a. counts forward from a given number b. counts forward or backward c. skip counts (e.g. by twos)	Count forward & back within 100	Counting forward & backward in ones within 100
	Skip count by 2, 5 & 10	Skip counting forward & backward by 2s up to 50
		Skip counting forward & backward by 5s up to 100
		Skip counting forward & backward by 10s to 100
		Skip counting by 2s, 5s & 10s up to 100
Natural numbers less than 1000 2. Counts collections (using objects or drawings) a. matches the gesture to the corresponding number word; recognizes the cardinal aspect of a number and the conservation of number in various combinations b. counts from a given number c. counts a collection by grouping or regrouping	Create & count collections to 100	Understanding conservation of numbers to 30
		Creating & counting collections to 20
	Find numbers before & after to 100	Creating & counting collections up to 100
Natural numbers less than 1000. 3. Reads and writes any natural number.	Read, write & represent 2-digit numbers	Finding numbers before & after to 100
Natural numbers less than 1000 4. Represents natural numbers in different ways or associates a number with a set of objects or drawings a. emphasis on apparent, accessible groupings using objects, drawings or unstructured materials	Represent 2-digit numbers different ways	Connecting number names & numerals to 100
Natural numbers less than 1000. 5. Composes and decomposes a natural number in a variety of ways.	Partition numbers to 100	Representing 2-digit numbers in different ways
		Standard partitioning of 2-digit numbers
Natural numbers less than 1000. 6. Identifies equivalent expressions (e.g. $52 = 40 + 12$ , $25 + 27 = 40 +$	Recognize equivalent number sentences	Non-standard partitioning of 2-digit numbers
		Recognizing equality in numbers up to 50

12, $52 = 104 \div 2$ )		
Natural numbers less than 1000. 7. Compares natural numbers	Compare numbers within 100	Comparing numbers up to 100
Natural numbers less than 1000. 8. Arranges natural numbers in increasing or decreasing order	Order numbers within 100	Ordering numbers & collections within 100
Natural numbers less than 1000. 9. Describes number patterns, using his/her own words and appropriate mathematical vocabulary (e.g. even numbers, odd numbers, square numbers, triangular numbers, prime numbers, composite numbers)	Describe patterns as odd or even	Recognizing odd & even number patterns
Natural numbers less than 1000. 12. Classifies natural numbers in various ways, based on their properties (e.g. even numbers, composite numbers)	Investigate properties of numbers	Investigating properties of odd & even numbers
Natural numbers less than 1000. 13. Approximates a collection, using objects or drawings (e.g. estimate, round up/down to a given value)	Round numbers	Rounding numbers up to 100
Fractions (using objects or drawings) 2. Represents a fraction in a variety of ways, based on a whole or a collection of objects	Fractions - halves	Finding halves

## 1.2 Meaning of operations involving numbers

Outcome	Quests	Content
Natural numbers less than 1000. 1. Determines the operation(s) to perform in a given situation	Solve addition & subtraction problems	Creating addition & subtraction problems within 20
Natural numbers less than 1000. 2. Uses objects, diagrams or equations to represent a situation and conversely, describes a situation represented by objects, diagrams or equations (use of different meanings of addition and subtraction) a. transformation (adding, taking away), uniting, comparing	Model addition to 10	Modelling & recording combinations to 10
Natural numbers less than 1000. 3. Uses object, diagrams or equations to represent a situation and	Multiply by equal grouping	Grouping & skip counting to multiply
		Sharing to divide up to 20

conversely, describes a situation represented by objects, diagrams or equations (use of different means of multiplication and division) a. rectangular arrays, repeated addition, Cartesian product, sharing, and number of times x goes into y (using objects and diagrams)	Divide by equal grouping	Grouping to divide
Natural numbers less than 1000. 4. Establishes equality relations between numerical expressions	Find equality in expressions	Recognizing equality in addition & subtraction
Natural numbers less than 1000. 5. Determines numerical equivalences using relationships between. a. operations (addition and subtraction) and the commutative property of addition	Commutative properties of addition	Introducing the commutative property of addition

### 1.3 Operations involving numbers

Outcome	Quests	Content
Natural numbers (less than 1000). 2. Builds a repertoire of memorized addition and subtraction facts. a. Builds a memory of addition facts ( $0 + 0$ to $10 + 10$ ) and the corresponding subtraction facts, using objects, drawings, charts or tables b. Develops various strategies that promote mastery of number facts and relates them to the properties of addition c. Masters all addition facts ( $0 + 0$ to $10 + 10$ ) and the corresponding subtraction facts	Addition & subtraction facts to 10	Ways to make 10
		Adding & subtracting within 10
Natural numbers (less than 1000). 3. Develops processes for mental computation. a. Uses his/her own processes to determine the sum or difference of two natural numbers	Mental strategies addition & subtraction	Adding single numbers
		Adding & subtracting within 20
		Doubles & near doubles to 20
		Using a bar model to add & subtract to 20
		Adding & subtracting zero to 20
		Strategies to add 1-digit numbers

Natural numbers (less than 1000). 5. Determines the missing term in an equation (relationships between operations) $a + b = \square$ , $a + \square = c$ , $\square + b = c$ , $a - b = \square$ , $a - \square = c$ , $\square - b = c$	Find missing term in add/subtract	Finding the missing term in addition & subtraction
Natural numbers (less than 1000) 13. Using his/her own words and mathematical language that is at an appropriate level for the cycle, describes a. non-numerical patterns (e.g. series of colours, shapes, sounds, gestures) b. numerical patterns (e.g. number rhymes, tables and charts) c. series of numbers and family operations	Repeating patterns	Recognizing repeating patterns
		Creating repeating patterns
Natural numbers (less than 1000). 14. Adds new terms to a series when the first three terms or more are given	Extend & copy repeating patterns	Extending repeating patterns
		Copying a repeating pattern

## 1.4 Geometry

Outcome	Quests	Content
Space. 1. Gets his/her bearings and locates objects in space (spatial awareness)	Position & direction	Describing position & direction
Space. 2. Locates objects in a plane	Locate objects	Locating objects
Solids. 1. Compares objects or parts of objects in the environment with solids(e.g. spheres, cones, cubes, cylinders, prisms, pyramids)	Introduce 3D objects	Introducing spheres
		Introducing cones
		Introducing cubes
		Introducing cylinders
		Introducing prisms
		Introducing pyramids
Solids. 3. Identifies the main solids	Identify main solids	Naming main solids
Solids. 4. Identifies and represents the different faces of a prism or pyramid	Introduce surfaces in solids	Introducing surfaces
Plane figures. 1. Compares and constructs figures made with closed curved lines or closed straight lines	Compare plane shapes	Comparing plane shapes
Plane figures. 2. Identifies plane figures (square, rectangle, triangle, rhombus and circle)	Identify plane figures	Sorting quadrilaterals

## 1.5 Measurement

Outcome	Quests	Content
Lengths. 3. Estimates and measures the dimensions of an object using unconventional units	Measure lengths informally	Measuring lengths – informal
Time. 1. Estimates and measures time using conventional units	Measures of time	Introducing days & months

## 1.6 Statistics

Outcome	Quests	Content
Statistics. 1. Formulates questions for a survey (based on age-appropriate topics, students' language level, etc)	Choose questions for surveys	Choosing suitable questions for surveys
Statistics. 2. Collects, describes and organizes data (classifies or categorizes) using tables	Gather & record data	Gathering & recording data
		Introducing tally charts
Statistics. 3. Interprets data using a. a table, a bar graph and a pictograph	Interpret data	Reading simple data displays
Statistics. 4. Displays data using a. a table, a bar graph and a pictograph	Represent data	Representing data in a simple display

## 1.7 Probability

Outcome	Quests	Content
Probability. 1. When applicable, recognizes variability in possible outcomes (uncertainty)	Recognize variability	Exploring possible outcomes



# Grade 2

## 1 Arithmetic

### 1.1 Understanding and writing numbers

Outcome	Quests	Content
Natural numbers less than 1000. 1. Counts or recites counting rhymes involving natural numbers a. counts forward from a given number b. counts forward or backward c. skip counts (e.g. by twos)	Count forward & backward within 1000	Counting forward & backward by 1s within 1000
		Skip counting forward & backward by 2s to 200
		Skip counting forward & backward by 5s to 200
		Skip counting forward & backward by 10s to 200
Natural numbers less than 1000. 2. Counts collections (using objects or drawings). b. counts from a given number. c. counts a collection by grouping or regrouping	Identify numbers before & after to 1000	Identifying numbers before & after within 1000
	Count in hundreds, tens & ones	Counting in hundreds, tens & ones
	Count collection by grouping	Counting large collections by grouping
Natural numbers less than 1000. 3. Reads and writes any natural number	Read, write & represent 3-digit numbers	Reading, writing & representing 3-digit numbers
Natural numbers less than 1000. 4. Represents natural numbers in different ways or associates a number with a set of objects or drawings. a. emphasis on apparent, accessible groupings using objects, drawings or unstructured materials, (e.g. tokens, nesting cubes, groups of ten objects placed inside a bag and ten of these bags placed inside another container) b. emphasis on exchanging apparent, non-accessible groupings, using structured materials (e.g. base ten blocks, number tables)	Represent numbers in different ways	Using groups to represent 3-digit numbers
Natural numbers less than 1000. 5. Composes and decomposes a natural number in a variety of ways (e.g. $123 = 100 + 23$ , $123 = 100 + 20 + 3$ , $123 = 50 + 50 + 20 + 3$ , $123 = 2 \times 50 + 30 - 7$ , $123 = 2 \times 60 + 3$ )	Partition numbers within 1000	Standard partitioning within 1000
		Non-standard partitioning within 1000

Natural numbers less than 1000. 6. Identifies equivalent expressions (e.g. $52 = 40 + 12$ , $25 + 27 = 40 + 12$ , $52 = 104 \div 2$ )	Equality & inequality	Recognizing equality
		Representing equality & inequality
Natural numbers less than 1000. 7. Compares natural numbers	Compare numbers within 1000	Comparing numbers within 1000
Natural numbers less than 1000. 8. Arranges natural numbers in increasing or decreasing order	Order numbers within 1000	Ordering numbers within 1000
Natural numbers less than 1000. 12. Classifies natural numbers in various ways, based on their properties (e.g. even numbers, composite numbers)	Investigate odd & even numbers	Investigating odd & even numbers
Natural numbers less than 1000. 13. Approximates a collection, using objects or drawings (e.g. estimate, round up/down to a given value)	Round up & down within 1000	Rounding up & down within 1000
Fractions (using objects or drawings). 2. Represents a fraction in a variety of ways, based on a whole or a collection of objects	Fractions	Recognizing & finding quarters
		Finding halves & quarters

## 1.2 Meaning of operations involving numbers

Outcome	Quests	Content
Natural numbers less than 1000. 1. Determines the operation(s) to perform in a given situation	Determine operation to use	Create & solve addition & subtraction problems
Natural numbers less than 1000. 3. Uses object, diagrams or equations to represent a situation and conversely, describes a situation represented by objects, diagrams or equations (use of different means of multiplication and division). a. rectangular arrays, repeated addition, Cartesian product, sharing, and number of times x goes into y (using objects and diagrams)	Multiply by equal grouping	Introducing arrays
	Divide by equal grouping	Using repeated addition
		Dividing by sharing & grouping Dividing by repeated subtraction
Natural numbers less than 1000 . 4. Establishes equality relations between numerical expressions	Find equality in expressions	Solving add & subtract equality problems to 20
Natural numbers less than 1000. 5. Determines numerical equivalences	Commutative properties of addition	Using the commutative property for addition to 20

using relationships between. a. operations (addition and subtraction) and the commutative property of addition		
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### 1.3 Operations involving numbers

Outcome	Quests	Content
Natural numbers (based on the benchmarks for each cycle). 1. Approximates the result of a. an addition or subtraction involving natural numbers	Use estimation in addition & subtraction	Estimating sums & differences
Natural numbers (based on the benchmarks for each cycle) 2. Builds a repertoire of memorized addition and subtraction facts a. Builds a memory of addition facts ( $0 + 0$ to $10 + 10$ ) and the corresponding subtraction facts, using objects, drawings, charts or tables b. Develops various strategies that promote mastery of number facts and relates them to the properties of addition c. Masters all addition facts ( $0 + 0$ to $10 + 10$ ) and the corresponding subtraction facts	Memorize addition & subtraction facts	Bonds to 10
Natural numbers (based on the benchmarks for each cycle). 3. Develops processes for mental computation. a. Uses his/her own processes to determine the sum or difference of two natural numbers	Addition using mental strategies	Adding 2-digit & 1-digit numbers using place value
		Adding by bridging to 10 with 2- & 1-digit numbers
		Adding tens to a 2-digit number using models
		Adding two 2-digit numbers using place value
		Adding by compensating
	Subtraction using mental strategies	Subtracting by bridging to 10
		Subtracting 2- & 1-digit numbers using place value
		Subtracting using mixed strategies
		Subtracting tens from a 2-digit number
		Subtracting two 2-digit numbers using place value
		Subtracting two 2-digit numbers on a number line

		Subtracting by compensating
	Add & subtract using mental strategies	Using the relationship of addition & subtraction
		Adding & subtracting using mixed strategies
Natural numbers (based on the benchmarks for each cycle). 4. Develops processes for written computation (addition and subtraction). a. Uses his/her own processes as well as objects and drawings to determine the sum or difference of two natural numbers less than 1000	Add & subtract using a number line	Adding two 2-digit numbers using a number line
		Subtracting 2-digit numbers using a number line
Natural numbers (based on the benchmarks for each cycle). 5. Determines the missing term in an equation (relationships between operations) $a + b = \square$ , $a + \square = c$ , $\square + b = c$ , $a - b = \square$ , $a - \square = c$ , $\square - b = c$	Find a missing term	Finding missing number in add/sub up to 18
Natural numbers (based on the benchmarks for each cycle). 13. Using his/her own words and mathematical language that is at an appropriate level for the cycle, describes. a. non-numerical patterns (e.g. series of colours, shapes, sounds, gestures) b. numerical patterns (e.g. number rhymes, tables and charts) c. series of numbers and family operations	Non-numerical & numerical patterns	Exploring visual patterns
		Exploring patterns with transformations
		Identifying & describing number patterns to 100
Natural numbers (based on the benchmarks for each cycle). 14. Adds new terms to a series when the first three terms or more are given	Extend number patterns	Extending number patterns to 100

## 1.4 Geometry

Outcome	Quests	Content
Space. 1. Gets his/her bearings and locates objects in space (spatial awareness)	Describe position	Describing position
Space. 2. Locates objects in a plane	Locate objects on images	Locating objects using images
Solids. 1. Compares objects or parts of objects in the environment	Compare 3D objects in the environment	Comparing 3D objects in the environment

with solids(e.g. spheres, cones, cubes, cylinders, prisms, pyramids)		
Solids. 2. Compares and constructs solids(e.g. spheres, cones, cubes, cylinders, prisms, pyramids)	Compare 3D shapes	Comparing 3D shapes
Solids. 3. Identifies the main solids	Recognize main solids	Recognizing, sorting & naming main solids
Solids. 4. Identifies and represents the different faces of a prism or pyramid	Identify faces of prisms & pyramids	Identifying faces of prisms & pyramids
Solids. 8. Matches the net of a. a prism to the corresponding prism and vice versa. b. a pyramid to the corresponding pyramid and vice versa	Match nets to 3D objects	Matching nets to prisms
Plane figures. 1. Compares and constructs figures made with closed curved lines or closed straight lines	Compare plane shapes	Comparing 2D shapes

## 1.5 Measurement

Outcome	Quests	Content
Lengths. 1. Compares length	Compare non-standard lengths	Comparing non-standard lengths
Lengths. 4. Estimates and measures the dimensions of an object using conventional units. a. metre, decimetre and centimetre	Measure length	Measuring lengths - cm
Time. 1. Estimates and measures time using conventional units	Measure time using conventional units	Using calendars
		Introducing minutes
		Choosing appropriate units of time
		Reading digital time (hour & half-hour)

## 1.6 Statistics

Outcome	Quests	Content
Statistics. 2. Collects, describes and organizes data (classifies or categorizes) using tables	Collect & organize data	Collecting & organizing data
Statistics. 3. Interprets data using a. a table, a bar graph and a pictograph	Interpret graphs & tables	Data in pictographs
		Data in tally charts
		Data in tables
		Data in bar graphs

Statistics. 4. Displays data using. a. a table, a bar graph and a pictograph	Represent data	Representing & reading data
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## 1.7 Probability

Outcome	Quests	Content
Probability. 1. When applicable, recognizes variability in possible outcomes (uncertainty)	Understand language of probability	Understanding the language of probability
Probability. 6. Distinguishes between prediction and outcome	Describe predictions & outcomes	Describing predictions & outcomes



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