

Mathletics

Alberta Program of Studies

Skill Quests

Grades 1 – 3
August, 2022

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Grade 1

Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Outcome	Quests	Content
Students interpret and explain quantity to 100.	Number sequences to 100	Counting by 1s to 100
		Skip counting by 2s to 20
		Skip counting by 10s to 100
	Counting strategies	Counting collections to 20
		Counting collections to 50
		Counting collections to 100
	Understand the conservation of number	Understanding the conservation of number
	Numbers more than & less than	Numbers more than & less than
	Compare & order sets up to 20	Comparing & ordering sets up to 20
	Compare & order numbers to 100	Comparing & ordering numbers to 100
		Exploring change in quantity up to 20
Equality & inequality	Exploring equality & inequality	
	Sharing objects to divide	
Students examine addition and subtraction within 20.	Addition & subtraction to 20	Adding to 20
		Adding to 20 by bridging to 10
		Subtracting within 20
		Subtracting within 20 by bridging to 10
		Adding & subtracting using a bar model
		Creating addition & subtraction word problems
		Finding fact families for addition & subtraction
		Adding & subtracting within 20 fluently
	Addition combinations	Adding to 5
		Adding to 6
		Adding to 7
		Adding to 8
		Adding to 9
		Adding 0 to a number
	Addition & subtraction strategies	Making a 10
		Adding & subtracting to 20

		Adding & subtracting using doubles
		Adding & subtracting 0
	Record equalities	Recording equalities
		Solving addition & subtraction equality problems
Students examine one-half as a part-whole relationship.	Fraction concepts	Finding halves

Geometry: Shapes are defined and related by geometric attributes

Outcome	Quests	Content
Students interpret shape in two and three dimensions	Sort 2-D shapes & 3-D objects	Sorting 2-D shapes
		Sorting 3-D objects
	Replicate composite 2-D shapes	Replicating composite 2-D shapes
	Replicate composite 3-D objects	Replicating composite 3-D objects
	Compare 2-D shapes to 3-D objects	Comparing 2-D shapes to parts of 3-D objects
	3-D objects	Introducing spheres
		Introducing cones
		Introducing cubes
		Introducing cylinders
		Introducing pyramids
		Introducing prisms
		Identifying 3-D objects
		Identifying attributes of 3-D objects
	2-D shapes	Comparing 3-D objects
Building 3-D structures		
	Naming 2-D shapes	
	Comparing 2-D shapes	

Measurement: Attributes such as length, area, volume, and angle are quantified by measurement

Outcome	Quests	Content
Students relate length to the understanding of size.	Measurement	Exploring length
		Exploring volume
		Comparing area

Patterns: Awareness of patterns supports problem solving in various situations

Outcome	Quests	Content
Students examine patterns in cycles.	Awareness of patterns	Recognizing repeating patterns
		Reproducing repeating patterns
		Manipulating repeating patterns
		Extending repeating patterns
		Describing & creating repeating patterns
		Relating patterns
	Translate repeating patterns	Translating repeating patterns
		Creating & extending repeating patterns
		Identifying repeating patterns
		Numeric patterns

Time: Duration is described and quantified by time.

Outcome	Quests	Content
Students explain time in relation to cycles	Duration – calendars	Using calendars
	Seasons	Introducing seasons

Statistics: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.

Outcome	Quests	Content
Students investigate and represent data.	Sort objects using 1 attribute	Sorting objects using 1 attribute
	Gather & record data	Gathering, sorting & recording data
		Collecting simple data

Grade 2

Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Outcome	Quests	Content
Students analyze quantity to 1000.	Number sequences to 100	Counting by 2s to 100
		Counting by 10s from multiples of 10
		Counting by 10s to 100 from any number
		Counting a sum of money to 100¢
	Even & odd numbers	Even & odd numbers
	Equality & inequality	Introducing equality & inequality
	Use the equal & not equal symbol	Using the equal & not equal symbol
	Skip counting sequences to 1000	Counting by 5s to 1000, forward & backward
		Counting by 10s to 1000, forward & backward
		Counting by 100s to 1000, forward & backward
		Counting by 1s to 1000
		Counting by 2s, 3s & 5s from any number
	Compare & order numbers to 1000	Identifying numbers before & after within 1000
		Comparing numbers to 1000
		Ordering numbers to 1000
	Represent & describe numbers to 1000	Representing & describing numbers to 1000
		Connecting multiples of 10 & 100 to number words
		Finding numbers 10 or 100 before/after a 3-digit
	Place value of numbers up to 1000	Identifying place value of numbers to 1000
		Using place value to partition 3-digit numbers
		Non-standard partitioning, 3-digit numbers
		Solving place value number problems

	Estimate quantities less than 1000	Estimating quantities using referents
Students investigate addition and subtraction within 100.	Compare & order numbers to 1000	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 two 2-digit numbers using a number line
		Adding by compensating
		Adding using compatible numbers
		Using number bonds to 100
		Adjusting addends
	Subtraction within 100	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, number line
		Subtracting by compensating
	Addition & subtraction	Addition & subtraction to 18
		Adding using doubles
		Subtracting using doubles
		Adding doubles or near doubles
		Finding fact families for addition & subtraction
Using the commutative property of addition		
Counting on by bridging to 10		
Addition & subtraction facts - word problems		
Students interpret part-whole relationships using unit fractions.	Introducing fractions	Finding halves & fourths
		Counting in halves & fourths
		Recognizing equivalence

Geometry: Shapes are defined and related by geometric attributes.

Outcome	Quests	Content
Students analyze and explain geometric attributes of shape.	2-D objects	Sorting 2-D objects
	3-D objects	Sorting 3-D objects
		Making models
		Describing attributes
	Single transformations of 2-D shapes	Introducing slides/translations
		Introducing flips/reflections
		Introducing turns/rotations
		One-step translations, reflections & rotations

Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.

Outcome	Quests	Content
Students communicate length using units.	Measure length	Measuring length using non-standard units
		Introducing formal units for length
	Compare & order objects	Comparing & ordering objects by length

Patterns: Awareness of patterns supports problem solving in various situations

Outcome	Quests	Content
Students explain and analyze patterns in a variety of contexts.	Explore patterns	Visual patterns
		Patterns with transformations
		Manipulating repeating patterns
		Number patterns

Time: Duration is described and quantified by time.

Outcome	Quests	Content
Students relate duration to time.	Explore the passing of time	Calendars Days of the week & months of the year

Statistics: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.

Outcome	Quests	Content
Students relate data to a variety of representations.	Gather & record data	Gathering data
		Sorting & recording data
	Interpret data	Using basic graphs
		Making a graph
		Using pictographs
		Using a tally chart
		Using line plots
		Using Venn diagrams
		Interpreting data

Grade 3

Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.

Outcome	Quests	Content
Students interpret place value within 100 000.	Number concepts to 10 000	Reading & writing numbers to 10 000
		Understanding place value, 4-digit numbers
		Counting by tens & hundreds
		Partitioning 4-digit numbers
	Number concepts up to 5 digits	Reading & writing numbers up to 5 digits
		Identifying place value up to 5 digits
		Partitioning 5-digit numbers
	Compare & order numbers to 10 000	Identifying numbers before & after to 10 000
		Identifying missing numbers to 10 000
Comparing & ordering numbers to 10 000		
Students apply strategies for addition and subtraction within 1000	Estimate - two 2-digit number problems	Estimating with two 2-digit number problems
	Addition & subtraction to 100	Adding multiple single-digit numbers
		Adding to make 100
	Addition & subtraction to 1000	Estimating addition & subtraction
		Adding using split strategy
		Adding using formal algorithm
		Subtracting using split strategy
		Adding & subtracting using expanded form
		Subtracting using formal algorithm
		Adding & subtracting using split strategy
		Add & subtract using non-standard partitioning
		Choosing efficient strategies
		Solving addition & subtraction word problems

Students analyze and apply strategies for multiplication and division within 100.	Multiplication facts to 5 x 5	Using repeated addition to multiply
		Exploring multiplication by 2
		Skip counting by 3
		Exploring multiplication by 3
		Skip counting by 4
		Exploring multiplication by 4
		Exploring multiplication by 5
	Division facts to 5	Multiplication facts to 5 x 5
		Using tools & drawings to divide
		Using repeated subtraction to divide
		Dividing by 2
		Dividing by 3
		Dividing by 4
	Multiply & divide by 10	Dividing by 5
		Exploring multiplication by 10
		Exploring division by 10
	Multiply by 0 & 1, divide by 1	Multiply & divide by 10
		Multiplying by 1 or 0
	Multiplication facts to 9 x 9	Dividing by 1
		Exploring multiplication by 2
		Exploring multiplication by 3
		Exploring multiplication by 4
		Exploring multiplication by 5
		Exploring multiplication by 6
		Exploring multiplication by 7
		Exploring multiplication by 8
		Exploring multiplication by 9
	Recalling multiplication facts to 7 x 7	
	Multiplication facts to 10	Recalling multiplication facts 2, 5 & 10
	Division facts to 9	Dividing by 2
Dividing by 5		
Dividing by 2 & 5		
Dividing by 3 & 6		
Dividing by 4 & 8		
Division facts to 10	Dividing by 9	
	Dividing by 2, 5 & 10	
Multiplication & division facts	Using arrays	
	Recalling multiplication & division facts	
	Understand relationship, multiplication & division	
Multiplication & division word problems	Solving multiplication & division word problems	

Students interpret fractions in relation to one whole	Compare & order fractions	Comparing & ordering unit fractions with models
		Comparing & ordering common fractions with models
		Comparing fractions with the same numerator
	Represent fractions less than/equal to 1	Introducing the terms numerator & denominator
		Understanding fractions
		Representing halves, fourths & eighths
		Representing thirds & sixths
		Representing fifths
		Representing tenths
	Identify equivalent fractions	Identifying equivalent fractions
	Express whole numbers	Expressing whole numbers as fractions

Algebra: Equations express relationships between quantities.

Outcome	Quests	Content
Students illustrate equality with equations.	One-step add/sub problems with unknowns	One-step number problems with unknowns up to 20
		One-step number problems with unknowns up to 100
	One-step equations using all operations	Finding missing numbers: add & subtract equations
		One-step equations: addition & subtraction
		One-step equations: multiplication & division
		One-step equations: balancing number sentences

Geometry: Shapes are defined and related by geometric attributes

Outcome	Quests	Content
Students relate geometric properties to shape.	Regular & irregular polygons	Understanding regular & irregular polygons
	Introduce & explore 3-D shapes	Exploring prisms
		Introducing rectangular prisms
		Comparing 3-D shapes
	Sort & identify two-dimensional shapes	Making 3-D shapes
		Sorting 2-D shapes
Comparing 2-D shapes		

Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.

Outcome	Quests	Content
Students determine length using standard units	Understand & measure perimeter	Understanding & calculating perimeter
	Understand & measure length (m, cm)	Measuring in standard units: cm & m
		Selecting units of measurement: m, cm, mm
		Ordering & comparing lengths: m, cm
		Converting between m & cm
		Estimating & measuring in cm
Students interpret angles	Identify angles	Introduce angles up to 180°
		Introducing right angles
		Identifying right angles in quadrilaterals
		Comparing angles informally

Patterns: Awareness of patterns supports problem solving in various situations.

Outcome	Quests	Content
Students analyze patterns in numerical sequences.	Increasing patterns	Working with increasing number patterns to 100
		Working with increasing number patterns to 1000
	Decreasing patterns	Working with decreasing number patterns within 100
		Working with decreasing number pattern within 1000
	Skip counting patterns	Skip counting by 25s
	Exploring number patterns	Identifying odd & even patterns
	Recognising visual patterns up to 1000	Visual patterns - add, subtract or multiply
	Number patterns to 1000	Add, sub or multiplicative patterns

Time: Duration is described and quantified by time.

Outcome	Quests	Content
Students tell time using clocks	Understand passage of time	Introducing time in hours, minutes & seconds
		Recalling relationships between units of time
	Read & record time	Telling time to the hour & half hour
		Telling time to the quarter hour
		Telling time to 5 minutes
		Telling time to the minute
		Using am & pm notation
	Ordering time	Comparing & ordering time

Statistics: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.

Outcome	Quests	Content
Students interpret and explain representations of data	Graphs using many-to-one correspondence	Using graphs with many-to-one correspondence
		Using bar graphs with many-to-one correspondence
		Comparing graphs with different correspondence
		Interpreting data from tables
		Interpreting data from a stem & leaf plot
		Explaining the mode of a data set



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