Mathletics Newfoundland and Labrador Program of Studies

Skill Quests



Grades 3 – 6



May, 2022

Mathletics

Newfoundland and Labrador Program of Studies Skill Quests May 2022

Grade 3	5
1 Number	5
1.1 Develop number sense	5
2 Patterns and Relations (Patterns)	8
2.1 Use patterns to describe the world and to solve problems	8
3 Patterns and Relations (Variables and Equations)	9
3.1 Represent algebraic expressions in multiple ways	9
4 Shape and Space (Measurement)	10
4.1 Use direct and indirect measurement to solve problems	10
5 Shape and Space (3-D Objects and 2-D Shapes)	11
5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them	11
6 Statistics and Probability (Data Analysis)	12
6.1 Collect, display and analyze data to solve problems	12
Grade 4	13
1 Number	13
1.1 Develop number sense	13
2 Patterns and Relations (Patterns)	16
2.1 Use patterns to describe the world and to solve problems	16
3 Patterns and Relations (Variables and Equations)	17
3.1 Represent algebraic expressions in multiple ways	17
4 Shape and Space (Measurement)	18
4.1 Use direct and indirect measurement to solve problems	18
5 Shape and Space (3-D Objects and 2-D Shapes)	19
5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them	19
6 Shape and Space (Transformations)	20
6.1 Describe and analyze position and motion of objects and shapes	20
7 Statistics and Probability (Data Analysis)	21
7.1 Collect, display and analyze data to solve problems	21
Grade 5	22
1 Number	22
1.1 Develop number sense	22

	. 25
2.1 Use patterns to describe the world and to solve problems	. 25
3 Patterns & Relations (Variables & Equations)	. 26
3.1 Represent algebraic expressions in multiple ways	. 26
4 Shape & Space (Measurement)	. 27
4.1 Use direct and indirect measurement to solve problems	. 27
5 Shape & Space (3-D Objects & 2-D Shapes)	. 28
5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them	. 28
6 Shape & Space (Transformations)	. 29
6.1 Describe and analyze position and motion of objects and shapes	. 29
7 Statistics & Probability (Data Analysis)	. 30
7.1 Collect, display and analyze data to solve problems	. 30
8 Statistics & Probability (Chance & Uncertainty)	.31
8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty	31
5 ,	
Grade 6	.32
Grade 6 1 Number	32 . 32
Grade 6 1 Number 1.1 Develop number sense	. 32 . 32 .32
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns)	.32 .32 .32 .34
Grade 6	32 . 32 . 32 . 34 . 34
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations)	32 .32 .32 .34 .34 .35
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways	32 .32 .32 .34 .34 .35 .35
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement)	32 .32 .34 .34 .35 .35 .35
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems	32 .32 .34 .34 .35 .35 .36 .36
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes)	32 .32 .34 .34 .35 .35 .36 .36 .37
 Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes) 5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them 	32 .32 .34 .34 .35 .35 .36 .36 .37 .37
 Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes) 5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them. 	32 .32 .34 .34 .35 .35 .36 .36 .37 .37 .38
 Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes) 5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them 6 Shape & Space (Transformations) 6.1 Describe and analyze position and motion of objects and shapes 	32 .32 .34 .34 .35 .35 .36 .36 .37 .37 .38 .38
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways. 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes) 5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them. 6 Shape & Space (Transformations) 6.1 Describe and analyze position and motion of objects and shapes 7 Statistics & Probability (Data Analysis)	32 .32 .34 .34 .35 .35 .36 .36 .37 .37 .38 .38 .38 .38
Grade 6 1 Number 1.1 Develop number sense 2 Patterns & Relations (Patterns) 2.1 Use patterns to describe the world and to solve problems 3 Patterns & Relations (Variables & Equations) 3.1 Represent algebraic expressions in multiple ways 4 Shape & Space (Measurement) 4.1 Use direct and indirect measurement to solve problems 5 Shape & Space (3-D Objects & 2-D Shapes) 5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them 6 Shape & Space (Transformations) 6.1 Describe and analyze position and motion of objects and shapes 7 Statistics & Probability (Data Analysis) 7.1 Collect, display and analyze data to solve problems	32 .32 .34 .34 .35 .35 .36 .36 .36 .37 .37 .38 .38 .38 .39 .39

8.1 Use experimenta	l or theoretical probabilities to represent and solve problems	
involving uncertainty	Δ	10

Grade 3

1 Number

1.1 Develop number sense

Outcome	Quests	Content
1. Say the number sequence 0 to	Count to 1000	Counting by 5s to 1000,
1000 forward and backward by: 5s,		forward & backward
10s or 100s, using any starting		Counting by 10s to 1000,
point; 3s, using starting points that		forward & backward
are multiples of 3; 4s, using starting		Counting by 100s to 1000,
points that are multiples of 4; 25s,		forward & backward
using starting points that are		Counting by 1s to 1000
multiples of 25.		Skip counting by 3s
		Skip counting by 4s
		Skip counting by 25s
2. Represent and describe numbers	Represent & describe	Representing & describing
to 1000, concretely, pictorially and	numbers to 1000	numbers to 1000
symbolically.		Connecting multiples of 10 &
		100 to number words
3. Compare and order numbers to	Compare & order	Identifying numbers before &
1000.	numbers to 1000	after within 1000
		Comparing numbers to 1000
		Ordering numbers to 1000
4. Estimate quantities less than	Estimate quantities less	Estimating quantities using
1000, using referents.	than 1000	referents
5. Illustrate, concretely and	Place value of numbers	Identifying place value of
pictorially, the meaning of place	up to 1000	numbers to 1000
value for numerals to 1000.		Using place value to partition
		3-digit numbers
		Non-standard partitioning, 3-
		digit numbers
		Solving place value number
		problems
6. Describe and apply mental	Add 2-digit numbers,	Adding 2-digit numbers, jump
mathematics strategies for adding	mental strategies	strategy
two two-digit numerals.		Adding 2-digit numbers, split
		strategy
		Adding 2-digit numbers,
		bridge to ten
		Adding 2-digit numbers, using
		place value
		Adding 2-digit numbers,
		rounding & compensating

		Adding tens to a 2-digit number, models
7. Describe and apply mental mathematics strategies for	Subtract 2-digit numbers, mental	Subtracting 2-digit numbers, jump strategy
subtracting two two-digit numerals.	methods	Subtracting 2-digit numbers, split strategy
		Subtracting 2-digit numbers, bridging to ten
		Subtracting 2-digit numbers, round & compensate
		Subtracting tens from a 2-digit number, models
8. Apply estimation strategies to predict sums and differences of two two-digit numerals in a problem solving context.	Estimate: two 2-digit number problems	Estimating with two 2-digit number problems
9. Demonstrate an understanding of addition and subtraction of	Addition & subtraction to 1000	Adding up to 1000 using jump strategy
numbers with answers to 1000 (limited to one-, two- and three-		Adding up to 1000 using bridging to ten
digit numerals), concretely, pictorially and symbolically, by:		Adding up to 1000 using split strategy
using personal strategies for adding and subtracting with and		Adding up to 1000 using rounding & compensating
without the support of manipulatives; creating and solving		Adding up to 1000 using formal algorithm
addition and subtraction of		Subtracting up to 1000 using jump strategy
numbers.		Subtracting up to 1000 using split strategy
		Subtracting up to 1000 using bridging to ten
		Subtracting up to 1000 - rounding & compensating
		Subtracting up to 1000 using formal algorithm
		Adding & subtracting to 1000 using jump strategy
		Adding & subtracting to 1000 using split strategy
		Representing add/subtract problems using bar model
		Solving addition & subtraction word problems
10. Apply mental mathematics	Mental strategies -	Using the commutative
order to understand and recall	udd/sub facts to 18	Adding 3 single-digit numbers
basic addition facts and related		Finding the difference
subtraction facts to 18.		between 2 numbers

11. Demonstrate an understanding	Multiplication concepts	Using doubles & near doubles to add & subtract Mental strategies for addition & subtraction facts Adding & subtracting zero
of multiplication to 5×5 by:	to 5 × 5	Using repeated addition to
multiplication using equal grouping		Exploring multiplication by 2
and arrays; creating and solving		Exploring multiplication by 3
problems in context that involve		Exploring multiplication by 4
multiplication; modelling		Exploring multiplication by 5
multiplication using concrete and visual representations, and recording the process symbolically; relating multiplication to repeated addition; relating multiplication to division.		Multiplication facts to 5 × 5
12. Demonstrate an understanding of division (limited to division	Division concepts (up to 5 × 5 facts)	Using repeated subtraction to divide
related to multiplication facts up to	,	Dividing by 2
5×5) by: representing and		Dividing by 3
explaining division using equal		Dividing by 4
sharing and equal grouping;	-	Dividing by 5
context that involve equal sharing	Relating multiplication & division	Modelling multiplication &
and equal grouping; modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication.		Solving problems using arrays
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication.		Multiplication & division word problems
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding	Fraction concepts	Finding halves
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a	Fraction concepts	Finding halves Finding fourths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole: describing situations in	Fraction concepts	Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used:	Fraction concepts	Finding halves Finding fourths Working with halves & fourths Working with thirds
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same	Fraction concepts	Finding halves Finding fourths Working with halves & fourths Working with thirds Working with sixths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Finding halves Finding fourths Working with halves & fourths Working with thirds Working with thirds Working with fifths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Finding halves Finding fourths Working with halves & fourths Working with sixths Working with firths Working with fifths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths Working with thirds Working with sixths Working with fifths Working with fifths Working with halves, fourths & Sixths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Finding halves Finding fourths Working with halves & fourths Working with thirds Working with thirds Working with fifths Working with fifths Working with halves, fourths & eighths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Solving problems using undys Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths Working with thirds Working with sixths Working with thirds & sixths Working with fifths Working with eighths Working with halves, fourths & eighths Working with halves, thirds,
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Solving problems using undys Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths Working with thirds Working with thirds Working with thirds & sixths Working with fifths Working with fifths Working with halves, fourths & eighths Working with halves, thirds, fourths
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Solving problems using undys Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths Working with thirds Working with sixths Working with thirds & sixths Working with fifths Working with eighths Working with halves, fourths & eighths Working with halves, thirds, fourths Representing simple fractions
equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication. 13. Demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole that have like denominators.	Fraction concepts	Solving problems using undys Multiplication & division word problems Finding halves Finding fourths Working with halves & fourths Working with thirds Working with sixths Working with fifths Working with fifths Working with halves, fourths & eighths Working with halves, fourths & eighths Working with halves, thirds, fourths Representing simple fractions Ordering & comparing

2 Patterns and Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Demonstrate an understanding	Increasing patterns	Working with increasing
of increasing patterns by:		number patterns to 100
describing; extending; comparing;		Working with increasing
creating patterns using		number patterns to 1000
manipulatives, diagrams, sounds		Working with visual patterns
and actions (numbers to 1000).		
2. Demonstrate an understanding	Decreasing patterns	Working with decreasing
of decreasing patterns by:		number patterns within 100
describing; extending; comparing;		Working with decreasing
creating patterns using		number pattern within 1000
manipulatives, diagrams, sounds		
and actions (numbers to 1000).		

3 Patterns and Relations (Variables and Equations)

3.1 Represent algebraic expressions in multiple ways

Outcome	Quests	Content
3. Solve one-step addition and subtraction equations involving a	One-step add/sub problems with	One-step number problems with unknowns up to 20
symbol to represent an unknown number.	unknowns	One-step number problems with unknowns up to 100

4 Shape and Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Relate the passage of time to common activities, using non-	Understand passage of time	Understanding passage of time concepts
standard and standard units (minutes, hours, days, weeks, months, years).		Introducing time in hours, minutes & seconds
2. Relate the number of seconds to	Understand measures	Using calendars
a minute, the number of minutes to an hour and the number of days to a month in a problem solving context.	of time	Solving problems related to units of time
3. Demonstrate an understanding of measuring length (cm, m) by:	Understand & measure length (m, cm)	Measuring in standard units: cm & m
selecting and justifying referents for the units cm and m; modelling and		Selecting units of measurement: m, cm
describing the relationship between the units cm and m; estimating		Ordering & comparing lengths: m, cm
length, using referents; measuring		Converting between m & cm
and recording length, width and		Estimating & measuring in cm
height.		Measuring length of 3D objects
4. Demonstrate an understanding	Understand & measure	Measuring mass: kilograms
of measuring mass (g, kg) by:	mass (kg, g)	Measuring mass: grams
selecting and justifying referents for		Selecting units of
the units g and kg; modelling and		measurement: kg, g
the units a and ka: estimating		Understanding relationships
mass, using referents: measuring		between kg & g
and recording mass.		
and recording mass. 5. Demonstrate an understanding	Understand & measure	Understanding & calculating
of perimeter of regular and irregular	perimeter	perimeter
shapes by: estimating perimeter,		
using referents for cm or m;		
(cm m): constructing different		
shapes for a given perimeter (cm		
m) to demonstrate that many		
shapes are possible for a perimeter.		

5 Shape and Space (3-D Objects and 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

Outcome	Quests	Content
6. Describe 3-D objects according to the shape of the faces and the	3-D objects	Introducing the attributes of 3- D objects
number of edges and vertices.		Introducing cubes
		Introducing cylinders
		Introducing spheres
		Introducing cones
		Introducing prisms & pyramids
		Describing the attributes of 3-
		D objects
		Comparing & sorting 3-D
		objects
		Making basic models of 3-D
		objects
7. Sort regular and irregular	Sort & identify 2-D	Comparing 2-D shapes
polygons, including: triangles;	shapes	Identifying & naming 2-D
quadrilaterals; pentagons; hexagons; octagons according to		shapes
		Sorting 2-D shapes
the number of sides.	Regular & irregular	Understanding regular &
	polygons	irregular polygons

6 Statistics and Probability (Data Analysis)

6.1 Collect, display and analyze data to solve problems

Outcome	Quests	Content
1. Collect first-hand data and	Organize first-hand	Understanding & using line
organize it using: tally mark; line	data	
plots; charts; lists to answer		Understanding & using data in
questions.		lists & tables
		Understanding the statistical
		process
2. Construct, label and interpret bar	Bar graphs	Understanding & using bar
graphs to solve problems.		graphs

Grade 4

1 Number

1.1 Develop number sense

Outcome	Quests	Content
1. Represent and describe whole numbers to 10 000, concretely,	Number concepts to 10 000	Reading & writing numbers to 10 000
pictorially and symbolically.		Understanding place value, 4- digit numbers
		Partitioning 4-digit numbers
2. Compare and order whole numbers to 10 000.	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
3. Demonstrate an understanding of addition of whole numbers with	Addition to 10 000	Adding up to 10 000 using number line
answers to 10 000 and their corresponding subtractions (limited		Adding up to 10 000 using place value
to 3- and 4-digit numerals) by: using personal strategies for		Adding up to 10 000 using a split strategy
adding and subtracting; estimating sums and differences; solving		Adding up to 10 000 using rounding & compensating
problems involving addition and subtraction.		Choosing mixed addition strategies
	Subtraction to 10 000	Subtracting up to 10 000 using number line
		Subtracting up to 10 000 using place value
		Subtracting up to 10 000 using a split strategy
		Subtracting up to 10 000 using round & compensate
		Subtracting up to 10 000 using algorithms
		Choosing mixed subtraction strategies
	Add & subtract word problems to 10 000	Solving addition & subtraction word problems

4. Explain and apply the properties	Multiply by 0 & 1, divide	Multiplying by 1 or 0
of 0 and 1 for multiplication and the property of 1 for division.	by 1	Dividing by 1
5. Describe and apply mental	Multiplication facts to	Exploring multiplication by 2
mathematics strategies, such as:	9 × 9	Exploring multiplication by 3
skip counting from a known fact;		Exploring multiplication by 4
doubling or balving and adding or		Exploring multiplication by 5
subtracting one more group: using		Exploring multiplication by 6
natterns in the 9s facts: using		Exploring multiplication by 7
repeated doubling to determine		Exploring multiplication by 8
basic multiplication facts to 9 x 9		Exploring multiplication by 9
and related division facts.		to 7 x 7
	Division facts to 81 ÷ 9	Dividing by 2 & 5
		Dividing by 3 & 6
		Dividing by 4 and 8
		Dividing by 9
	Multiplication & division	Recall multiplication & division
	facts	facts to 7 x 7
		Understand relationship,
		multiplication & division
6. Demonstrate an understanding	Multiplication, 2- or 3-	Multiplying 2- or 3-digits by 1-
of multiplication (2- or 3-digit by 1-	digit by 1-digit	digit, place value
digit) to solve problems by: using		Multiplying 2- or 3-digits by 1-
personal strategies for multiplication with and without concrete materials; using arrays to represent multiplication: connecting		digit, doubling
		Multiplying 2- or 3-digits by 1-
		Aultinking 2 or 2 digits by 1
concrete representations to		digit, factoring
symbolic representations;		Multiplying 2- or 3-digits by 1-
distributive property		digit, digorithm
alstillsative property.		expanded algorithm
		Multiply to 3-digits x 1-digit
		round to estimate
		Multiplying by multiples of 10
		& 100
7. Demonstrate an understanding	Division, 2-digit by 1-	Dividing 2-digits by 1-digit,
of division (1-digit divisor and 2-	aigit	Models
using personal strategies for		billing 2-digits by 1-digit,
dividing with and without concrete		Dividing 2 digits by 1 digit
materials; estimatina auotients:		related facts
relating division to multiplication.		Dividing 2-digits by 1-digit
5 1		inverse relationship
		Dividing 2-digit by 1-digit,
		extended algorithm
		Dividing 2-digit by 1-digit,
		algorithm

		Dividing 2-digit by 1-digit,
		round to estimate
8. Demonstrate an understanding	Represent fractions	Introducing the terms
of fractions less than or equal to	less than/equal to 1	numerator & denominator
one by using concrete, pictorial and		Understanding fractions
symbolic representations to: name		Representing halves, fourths &
and record fractions for the parts of		eighths
a whole or a set; compare and		Representing thirds & sixths
order fractions; model and explain		Representing fifths
that for different wholes, two		Representing tenths
identical fractions may not		Representing eighths
represent the same quantity;	Compare & order	Comparing & ordering unit
provide examples of where	fractions	fractions with models
fractions are used.		Comparing & ordering
		common fractions with models
		Comparing fractions with the
		same numerator
		Compare fractions with the
		same denominator
9. Represent and describe decimals	Decimals to hundredths	Introducing decimal notation
(tenths and hundredths), concretely,		Introducing decimal tenths
pictorially and symbolically.		Introducing decimal
		hundredths
10. Relate decimals to fractions and	Connect decimals &	Connecting decimals &
fractions to decimals (to	fractions	fractions, tenths
hundredths).		Connecting decimals &
		fractions, hundredths
		Connecting decimals &
		fractions, up to hundredths
11. Demonstrate an understanding	Add & subtract	Adding decimals to tenths
of addition and subtraction of	decimals to hundredths	Subtracting decimals to tenths
decimals (limited to hundredths).		Adding decimals to
		hundredths
		Subtracting decimals to
		hundredths
		Estimating decimal sums &
		differences
		Adding & subtracting decimal
		word problems
	Use decimals in the	Using decimals in money
	context of money	Estimating & calculating
		change
		Solving word problems
		involving money

2 Patterns and Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Identify and describe patterns	Patterns in tables &	Exploring increasing number
found in tables and charts,	charts	patterns
including a multiplication chart.		Identifying number patterns
		up to 1000
		Investigating number
		sequences
2. Translate among different	Different	Relating patterns to tables or
representations of a pattern, such	representations in	charts
as a table, a chart or concrete	patterns	Creating addition patterns
materials.		from a given rule
		Creating multiplication
		patterns from a given rule
3. Represent, describe and extend	Use patterns to solve	Using patterns to solve
patterns and relationships, using	problems	problems
charts and tables, to solve		Identifying & describing
problems.		additive number patterns
4. Identify and explain	Use Venn & Carroll	Introducing Venn diagrams
mathematical relationships, using	diagrams	Introducing Carroll diagrams
charts and diagrams, to solve		Relating Carroll & Venn
problems.		diagrams
		Describing pattern rules

3 Patterns and Relations (Variables and Equations)

3.1 Represent algebraic expressions in multiple ways

Outcome	Quests	Content
5. Express a given problem as an	Express a problem as	Matching equations to word
equation in which a symbol is used	an equation	problems
to represent an unknown number.		Using symbols to represent
		unknown numbers
6. Solve one-step equations	One-step equations	Finding missing numbers: add
involving a symbol to represent an	using all operations	& subtract equations
unknown number.		One-step equations: addition
		and subtraction
		One-step equations:
		multiplication and division
		One-step equations: balancing
		number sentences

4 Shape and Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Read and record time, using	Read & record time	Telling time to the hour & half
24-hour clocks		Telling time to the quarter
		hour
		Telling time to 5 minutes
		Telling time to the minute
		Using am & pm notation
		Using 24-hour time
2. Read and record calendar dates	Read & record calendar	Reading & writing calendar
in a variety of formats.	dates	dates
3. Demonstrate an understanding	Understand area	Measuring area using non-
of area of regular and irregular 2-D	ular and irregular 2-D cognizing that area is square units; selecting referents for the units	standard units
shapes by: recognizing that area is		Introducing formal units for
measured in square units; selecting		area: cm²
and justifying referents for the units		Introducing formal units for
cm2 or m2; estimating area, using		area: m²
eterents for cm2 or m2;	Measure the area of rectangles	Estimating & measuring areas
determining and recording area		of rectangles
(cm2 or m2); constructing different		Comparing & ordering
rectangles for a given area (cm2 or		rectangular areas
m2) in order to demonstrate that		Finding the area of a
many different rectangles may		rectangle, arrays
have the same area.		Finding the area of a
		rectangle, area model
		Finding the area of rectangles,
		formula
	Approximate area,	Approximating areas, non-
	non-rectilinear shapes	rectilinear shapes

5 Shape and Space (3-D Objects and 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

Outcome	Quests	Content
4. Describe and construct right rectangular and right triangular	Understand prisms	Identifying prisms in the environment
prisms.		Introducing rectangular & triangular prisms
		Comparing & describing prisms
		Connecting nets to rectangular & triangular prisms

6 Shape and Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
5. Demonstrate an understanding	Congruent shapes	Understanding congruent
of congruency, concretely and		shapes
pictorially.		
6. Demonstrate an understanding	Recognize and draw	Recognizing line symmetry
of line symmetry by: identifying	line symmetry	Identifying & drawing lines of
symmetrical		symmetry
2-D shapes; creating symmetrical		
2-D shapes; drawing one or more		
lines of symmetry in a 2-D shape.		

7 Statistics and Probability (Data Analysis)

7.1 Collect,	display an	id analyze	data to so	olve problems
		ia anaiy 20		

Outcome	Quests	Content
1. Demonstrate an understanding	Understand many-to-	Comparing pictographs -
of many-to-one correspondence.	one correspondence	different correspondence
2. Construct and interpret	Graphs using many-to-	Using pictographs with many-
pictographs and bar graphs	one correspondence	to-one correspondence
involving many-to-one		Compare pictographs with
correspondence to draw		different correspondence
conclusions.		Using bar graphs with many-
		to-one correspondence

Grade 5

1 Number

1.1 Develop number sense

Outcome	Quests	Content
1. Represent and describe whole numbers to 1 000 000.	Number concepts to 1 000 000	Reading & writing numbers up to 6 digits
		Comparing & ordering
		numbers up to 6 digits
		Identifying place value of 6- digit numbers
		Using place value to partition
		6-digit numbers
2. Use estimation strategies, including: front-end estimation;	Strategies for estimation &	Rounding numbers up to 6- digits
compensation; compatible numbers; rounding in problem-	computation	Round numbers to estimate - addition & subtraction
solving contexts.		Checking calculations when
		adding & subtracting
		Using compensation to add & subtract
		Rounding numbers to estimate
		- multiply & divide
		Checking calculations when
		multiplying & dividing
3. Apply mental mathematics	Multiplication facts to	Multiplication facts for 2
strategies and number properties,	9 X 9	Multiplication facts for 3
such as: skip counting from a		Multiplication facts for 4
known ruct, using doubling of balving: using patterns in the 9s		Multiplication facts for 5
facts: using repeated doubling or		Multiplication facts for 6
halving in order to understand		Multiplication facts for 2
apply and recall basic multiplication		Multiplication facts for 8
facts to 9 x 9 and related division		Multiplication facts for 9
facts.		Recalling multiplication facts
		to 9 x 9
		Relationship between
		multiplication & division
	Division facts to 81 ÷ 9	Dividing by 2 & 5
		Dividing by 3 & 6
		Dividing by 4 & 8
		Dividing by 9

		Recall multiplication & division facts to 9 x 9
4. Apply mental mathematics strategies for multiplication, such	Mental strategies to multiply	Multiplying by multiples of 10, 100 & 1000
as: annexing (adding) zero; halving		Multiplying using doubling
and doubling; using the distributive property.		Multiplying using doubling & halving
		Multiplying using distributive property
5. Demonstrate, with and without concrete materials, an	Multiply 2-digits by up to 2-digits	Multiplying 2-digits by 2-digits, area model
understanding of multiplication (two-digit by two-digit) to solve		Multiplying 2-digits by 2-digits, factorizing
problems.		Multiplying 2-digits by 2-digits, use known facts
		Multiplying 2-digits by 2-digits, formal algorithm
		Solving multiplication word problems
6. Demonstrate, with and without concrete materials, an	Divide up to 3-digits by 1-digit	Dividing up to 3-digit by 1-digit, no remainders
understanding of division (three- digit by one-digit), and interpret		Dividing by partitioning, no remainders
remainders to solve problems.		Dividing 3-digits by 1-digit, factoring
		Finding the remainder, 2-digits by 1-digit
		Dividing by partitioning with remainders
		Dividing 3-digits by 1-digit, formal algorithm
7. Demonstrate an understanding of fractions by using concrete,	Equivalent fractions	Finding equivalent fractions with models
pictorial and symbolic representations to: create sets of		Finding equivalent fractions using multiplication
equivalent fractions; compare fractions with like and unlike		Finding equivalent fractions using a number line
denominators.	Compare & order fractions	Comparing unit fractions, different denominators
		Comparing & ordering proper fractions
8. Describe and represent decimals (tenths, hundredths, thousandths)	Decimals to thousandths	Understanding decimals to thousandths
concretely, pictorially and symbolically.		Partitioning decimal numbers to thousandths
9. Relate decimals to fractions and	Relate decimals &	Relating decimals & fractions
fractions to decimals (to thousandths).	fractions	up to thousandths

10. Compare and order decimals (to	Compare & order	Comparing & ordering
thousanaths) by using: benchmarks: place value:	thousandths	decimals to thousandths
equivalent decimals.		
11. Demonstrate an understanding	Add & subtract	Adding decimals to
of addition and subtraction of	decimals to	thousandths
decimals (limited to thousandths).	thousandths	Subtracting decimals to
		thousandths
		Adding & subtracting decimal
		word problems
		Estimating sums & differences
		to thousandths

2 Patterns & Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Determine the pattern rule to	Represent, analyze &	Additive & subtractive number
make predictions about subsequent	apply patterns	patterns
elements.		Generating add/subtract
		patterns from a given rule
		Working with repeating
		number & shape patterns
		Multiplication & division
		number patterns
		Modelling number patterns
		from a table of values
		Writing pattern rules as
		algebraic expressions
		Working with shape patterns
		& rules

3 Patterns & Relations (Variables & Equations)

3.1 Represent algebraic expressions in multiple ways

Outcome	Quests	Content
2. Solve problems involving single- variable, one-step equations with	One-step equations with variables	Writing one-step equations using variables
whole number coefficients and whole number solutions.		Solving one-step equations & word problems
		Solving one-step equations using bar model
	Equations with letter	Expressing word problems as
	variables	equations

4 Shape & Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Design and construct different	Perimeter of rectangles	Introducing perimeter
rectangles, given either perimeter or	Area of rectangles,	Finding the area of rectangles,
area, or both (whole numbers), and	formula	formula
draw conclusions.	Relationship between	Solving perimeter & area
	area & perimeter	problems
2. Demonstrate an understanding	Measure length in	Introducing millimetres
of measuring length (mm and km)	millimetres	
by: selecting and justifying referents	Measure length in	Introducing kilometres
for the unit mm; modelling and	kilometres	
describing the relationship between	Relationship between	Recording length in decimal
mm and cm units, and between mm	mm, cm, m & km	notation
and m units; selecting and justifying		Comparing lengths in mm, cm,
and describing the relationship		m & km
between m and km units		Ordering lengths in mm, cm, m
between in and kin dhits.		& KM
		Converting between mm, cm,
		Selecting units of lengths mm
3 Demonstrate an understanding	Measure volume in	Using unit cubes to measure
of volume by: selecting and	cubic units	volume
justifying referents for cm3 or m3		Using cubic cm & m to
units: estimating volume, using		measure volume
referents for cm3 or m3; measuring		Estimating volume using cubic
and recording volume (cm3 or m3);		cm & m
constructing right rectangular		
prisms for a given volume.		
4. Demonstrate an understanding	Measure capacity in L &	Introducing litres & millilitres
of capacity by: describing the	mL	Using millilitres & litres as
relationship between mL and L;		references
selecting and justifying referents for		Measuring capacity in mL
mL or L units; estimating capacity,		Estimating capacity using mL
using referents for mL or L;		& L
measuring and recording capacity		Selecting units to measure
(mL or L).		capacity (mL, L)

5 Shape & Space (3-D Objects & 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

Outcome	Quests	Content
5. Describe and provide examples	Features of 2-D shapes	Identifying features on 3-D
of edges and faces of 3-D objects,	& 3-D objects	objects
and sides of 2-D shapes that are:		Identifying features on 2-D
parallel; intersecting; perpendicular;		shapes
vertical; horizontal.		
6. Identify and sort quadrilaterals,	Identify & sort	Sorting & naming
including: rectangles; squares;	quadrilaterals	quadrilaterals
trapezoids; parallelograms; rhombi		Classifying quadrilaterals
(or rhombuses) according to their		
attributes.		

6 Shape & Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
8. Identify and describe a single	Single transformations	Introducing slides/translations
transformation, including a	of 2-D shapes	Introducing flips/reflections
translation, rotation and reflection		Introducing turns/rotations
of 2-D shapes.		One-step translations,
		reflections & rotations

7 Statistics & Probability (Data Analysis)

7.1 Collect, display and analyze data to solve problems

Outcome	Quests	Content
2. Construct and interpret double bar graphs to draw conclusions.	Double bar graphs	Interpreting data, double bar graphs
		Representing data, double bar graphs

8 Statistics & Probability (Chance & Uncertainty)

8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

Outcome	Quests	Content
3. Describe the likelihood of a single outcome occurring, using words such as: impossible; possible; certain.	Likelihood of single outcomes	Exploring the language of probability
4. Compare the likelihood of two possible outcomes occurring, using	Likelihood of 2 possible outcomes	Describing chances of everyday events
words such as: less likely; equally likely; more likely.		Understanding chance experiments, equal outcomes
		Understanding chance experiments, unequal outcomes
		Understand chance experiments, independent events

Grade 6

1 Number

1.1 Develop number sense

Outcome	Quests	Content
1. Demonstrate an understanding of place value, including numbers	Place value to billions	Reading & writing numbers up to billions
that are: greater than one million; less than one thousandth.		Identifying place value up to billions
	Place value smaller than thousandths	Place value smaller than thousandths
	Situational questions	Situational questions, larger than one million
		Situational questions, smaller than one thousandth
2. Solve problems involving whole numbers and decimal numbers.	Solve problems: whole numbers & decimals	Multiplying decimals & whole numbers
		Dividing decimals & whole numbers
		Adding decimals & whole numbers
		Subtracting decimals & whole numbers
3. Demonstrate an understanding of factors and multiples by:	Prime & composite numbers	Introducing prime & composite numbers
determining multiples and factors	Prime factors	Using prime factors
of numbers less than 100; identifying prime and composite	Find factors & multiples	Finding multiples up to 100, including LCM
numbers; solving problems using multiples and factors.		Finding factors up to 100, including GCF
		Situational questions, factors & multiples
4. Relate improper fractions to mixed numbers.	Improper fractions & mixed numbers	Comparing & ordering mixed numbers
		Comparing & ordering improper fractions
		Comparing & ordering fractions & mixed numbers
		Converting improper fractions to mixed numbers
		Converting mixed numbers to improper fractions
	Introduction to ratios	Introducing ratios

5. Demonstrate an understanding		Simplifying ratios
of ratio, concretely, pictorially and		Dividing a quantity into a
symbolically.		given ratio
		Identifying equivalent ratios
6. Demonstrate an understanding	Whole-number	Introducing percentages
of percent (limited to whole	percentages	
numbers), concretely, pictorially and	Percentage equivalents	Representing percentage &
symbolically.		fraction equivalents
		Representing percentage &
		decimal equivalents
		Fraction, decimal &
		percentage equivalents
	Calculate percentage	Calculating percentage
	discounts	discounts
	Calculate percentages	Calculating simple
	of whole numbers	percentages
7. Demonstrate an understanding	Read & represent	Investigating integers
of integers, concretely, pictorially	integers	Understanding integers in
and symbolically.		real-life contexts
		Comparing & ordering integers
8. Demonstrate an understanding of multiplication and division of	Multiply decimals to thousandths	Multiplying decimals to
		thousandths
decimals (1-digit whole number		Multiplying decimals & whole
multipliers and		numbers, base 10
1-digit natural number divisors).	Divide decimals to	Dividing decimals & whole
	thousandths	numbers, base 10
		Dividing decimals to
		thousandths
9. Explain and apply the order of	Order of operations	Order of operations, addition &
operations, excluding exponents,	with whole numbers	subtraction
with and without technology		Order of operations,
(limited to whole numbers).		multiplication & division
		Order of operations, 4
		operations
		Order of operations, grouping
		symbols
		Situational questions, order of
		operations

2 Patterns & Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Demonstrate an understanding	Relationships within	Determining missing values in
of the relationships within tables of	tables	a table of values
values to solve problems.		Making predictions about
		linear growing patterns
2. Represent and describe patterns	Patterns in tables of	Creating a table of values,
and relationships, using graphs and	values & graphs	visual pattern
tables.		Representing linear patterns,
		tables & graphs

3 Patterns & Relations (Variables & Equations)

3.1 Represent algebraic expressions in multiple ways

Outcome	Quests	Content
3. Represent generalizations arising	Patterns, expressions &	Writing an equation to
from number relationships, using	equations	represent a table of values
equations with letter variables.		Writing expressions, rule for a
		pattern
4. Demonstrate and explain the	Preservation of equality	Solving 1-step equations
meaning of preservation of equality,		Solving 1-step equations using
concretely and pictorially.		a balance
		Solving 1-step equations using
		algebra tiles
		Understanding the
		preservation of equality
		Creating equivalent forms of
		an equation

4 Shape & Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Demonstrate an understanding	Angle measurement &	Classifying angles
of angles by: identifying examples	classification	Measuring angles with a
of angles in the environment;		circular protractor
classifying angles according to their		
measure; estimating the measure of		
reference angles: determining angle		
measures in degrees: drawing and		
labelling angles when the measure		
is specified.		
2. Demonstrate that the sum of	Sum of interior angles	Finding the missing angle of a
interior angles is: 180° in a triangle;		triangle
360° in a quadrilateral.		Finding the missing angle of a quadrilateral
3. Develop and apply a formula for	Relationships between	Solving perimeter & greg
determining the: perimeter of	area & perimeter	problems
polygons; area of rectangles;	Volume of rectangular	Finding the volume of
volume of right rectangular prisms.	prisms	rectangular prisms
		Finding the missing dimension,
		rectangular prisms
	Area of rectangles	Finding the area of rectangles
	Perimeter of polygons	Determining the perimeter of
		polygons

5 Shape & Space (3-D Objects & 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

Outcome	Quests	Content
4. Construct and compare triangles, including: scalene; isosceles; equilateral; right; obtuse; acute in different orientations.	Classification of triangles	Classifying triangles by their sides & angles
5. Describe and compare the sides and angles of regular and irregular polygons.	Regular & irregular polygons	Understanding regular & irregular polygons

6 Shape & Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
6. Perform a combination of	Combinations of	Identifying combinations of
translations, rotations and/or	transformations	transformations
reflections on a single 2-D shape,		
with and without technology, and		
draw and describe the image.		
7. Perform a combination of	Recognize tessellations	Recognizing tessellations
successive transformations of 2-D		
shapes to create a design, and		
identify and describe the		
transformations.		
8. Identify and plot points in the first	The Cartesian plane,	Plotting points in the first
quadrant of a Cartesian plane,	first quadrant	quadrant
using whole number ordered pairs.		Plotting points that create a
		shape
9. Perform and describe single	Transformations in the	Investigating translations in
transformations of a 2-D shape in	first quadrant	the first quadrant
the first quadrant of a Cartesian		Identifying reflections in the
plane (limited to whole number		first quadrant
vertices).		Identifying rotations in the first
		quadrant

7 Statistics & Probability (Data Analysis)

7.1 Collect, display and analyze data to solve problems

Outcome	Quests	Content
1. Create, label and interpret line	Construct line graphs	Constructing a line graph
graphs to draw conclusions		Interpreting data in a line
		graph
		Choosing graphs, continuous
		vs discrete data
2. Select, justify and use	Data collection	Collecting data: questionnaires
appropriate methods of collecting		
data, including: questionnaires;		
experiments; databases; electronic		
media.		
3. Graph collected data, and	Select data displays	Selecting data displays
analyze the graph to solve		
problems.		

8 Statistics & Probability (Chance & Uncertainty)

8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

Outcome	Quests	Content
4. Demonstrate an understanding of probability by: identifying all possible outcomes of a probability experiment; differentiating between experimental and theoretical probability; determining the theoretical probability of outcomes in a probability experiment;	Theoretical & experimental probability	Content Comparing observed & expected frequencies Probability of 0 and 1 Predicting the probability of a specific outcome Listing the sample space for an event
determining the experimental probability of outcomes in a probability experiment; comparing experimental results with the theoretical probability for an experiment.		



For more information about Mathletics, contact our friendly team.

www.mathletics.com/contact

