

Mathletics

British Columbia Curriculum

Understanding Practice and Fluency (UPF)



Grades 3 – 6

December, 2021

Mathletics

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British Columbia Program of Studies
Understanding, Practice and Fluency (UPF)
December 2021

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Grade 3

1 Number

Outcome	Quests	Content
Number concepts to 1000	Number concepts to 1000	Reading and writing numbers, up to 3 digits
		Identifying numbers before and after within 1000
		Comparing and ordering up to 4-digit numbers
		Counting by hundreds, tens and ones to 1000
		Counting by tens, off the decade
		Place value, 3-digit numbers
		Using a number line to round to nearest 10
		Using a number line to round to nearest 100
		Solving place value number problems
Fraction concepts	Fraction concepts	Finding halves (no symbols)
		Finding halves
		Finding fourths (no symbols)
		Finding fourths
		Finding halves and fourths
		Finding thirds
		Finding sixths
		Finding thirds and sixths
		Finding halves, thirds, fourths

2 Computational Fluency

Outcome	Quests	Content
Addition and subtraction to 1000	Addition and subtraction to 1000	Adding up to 3-digit numbers: number line
		Adding up to 3-digit numbers: using models
		Adding up to 3-digit numbers: place value
		Adding up to 3-digit numbers: split strategy
		Adding up to 3-digits: bridging to ten
		Adding up to 3-digits: rounding and compensating
		Subtracting up to 3-digit numbers: number line
		Subtracting up to 3-digit numbers: using models
		Subtracting up to 3-digit numbers: place value
		Subtracting up to 3-digit numbers: split strategy
		Subtracting up to 3-digit numbers: bridging to ten
		Subtract up to 3-digits: rounding and compensating
		Add/subtract up to 3-digit: number line
		Add/subtract up to 3-digit: bridging to ten
		Add/subtract up to 3-digit: place value
		Add/subtract up to 3-digit: split strategy
		Add/subtract: rounding and compensating
		Solving addition and subtraction word problems
		Estimating sums and differences to 1000
Addition and subtraction facts to 20 (emerging computational fluency)	Addition and subtraction facts to 20	Adding and subtracting to 20
		Adding and subtracting to 20 using a bar model
Multiplication and division concepts	Multiplication and division concepts	Introducing multiplication through arrays
		Skip counting by 2s
		Skip counting by 3s
		Skip counting by 4s

		Skip counting by 5s
		Skip counting by 10s
		Using repeated addition to multiply
		Using repeated subtraction to divide
		Exploring multiplication by 2
		Exploring multiplication by 3
		Exploring multiplication by 4
		Exploring multiplication by 5
		Exploring multiplication by 10
		Dividing by 2
		Dividing by 3
		Dividing by 4
		Dividing by 5
		Dividing by 10
		Multiplication and division problems (x2, x5, x10)
One-step addition and subtraction equations with an unknown number	Add & subtract: one-step equations	One-step number problems with unknowns: 2-digits
		Modelling odd and even numbers

3 Patterning

Outcome	Quests	Content
Increasing and decreasing patterns	Increasing and decreasing patterns	Increasing and decreasing number patterns
		Increasing and decreasing shape patterns
Pattern rules using words and numbers, based on concrete experiences	Pattern rules	Pattern rules based on concrete experiences

4 Geometry and Measurement

Outcome	Quests	Content
Measurement, using standard units (linear, mass, and capacity)	Measurement, using standard units	Measuring in standard units: cm
		Selecting units of measurement: km, m, cm
		Ordering lengths in metres and centimetres
		Introducing capacity: litres and millilitres
		Selecting units of measure: capacity
		Measuring mass: kilograms and grams
		Selecting units of measure: mass
		Measuring area
Time concepts	Time concepts	Introducing months of the year
		Introducing seasons
		Using calendars
		Introducing time in hours, minutes and seconds
Construction of 3D objects	3D objects	Introducing the attributes of 3D objects
		Introducing cubes
		Introducing cylinders
		Introducing spheres
		Introducing cones
		Introducing prisms
		Introducing pyramids
		Describing the attributes of 3D objects
		Sorting 3D objects

5 Data and Probability

Outcome	Quests	Content
One-to-one correspondence with bar graphs, pictographs, charts, and tables	One-to-one correspondence	Introducing bar graphs
		Introducing pictographs
		Introducing tally charts
		Introducing tables
		Interpreting results
Likelihood of simulated events, using comparative language	Probability	Exploring the language of probability

6 Financial Literacy

Outcome	Quests	Content
Financial literacy – fluency with coins and bills to 100 dollars, and earning and payment	Money	Recognizing and using bills and coins

Grade 4

1 Number

Outcome	Quests	Content
Number concepts to 10 000	Number concepts to 10 000	Reading and writing numbers, up to 4 digits
		Identifying numbers before and after within 10 000
		Comparing and ordering numbers to 10 000
		Understanding place value, 4-digit numbers
		Rounding to the nearest 1000
		Skip counting by 3s
		Skip counting by 4s
		Skip counting by 100s
		Skip counting by 50s
		Skip counting by 20s
		Skip counting by 25s
		Skip counting by 1000s
Decimals to hundredths	Decimals to hundredths	Introducing decimal tenths
		Introducing decimal hundredths
		Connecting fractions and decimals
Ordering and comparing fractions	Order and compare fractions	Ordering and comparing fractions

2 Computational Fluency

Outcome	Quests	Content
Addition and subtraction to 10 000	Addition and subtraction to 10 000	Adding up to 4-digit numbers: number line
		Adding up to 4-digit numbers: place value
		Adding up to 4-digit numbers: split strategy
		Adding up to 4-digit numbers: round and compensate
		Subtracting up to 4-digit numbers: number line
		Subtracting up to 4-digit numbers: place value
		Subtract up to 4-digit numbers: split strategy
		Subtract up to 4-digit numbers: round & compensate
		Choosing mixed addition strategies
		Choosing mixed subtraction strategies
		Solving addition and subtraction word problems
Multiplication and division of two- or three-digit numbers by one-digit numbers	Multiplication and division	Multiplying up to 3-digits by 1-digit, place value
		Multiplying up to 3-digits by 1-digit, doubling
		Multiplying up to 3-digits by 1-digit, area model
		Multiplying up to 3-digits by 1-digit, factorizing
		Multiplying by 10 or 100
		Dividing up to 3-digits by 1-digit, models
		Dividing up to 3-digits by 1-digit, halving
		Interpreting word problems: mult/div
		Solving word problems: multiplication/division
Addition and subtraction of decimals to hundredths	Add and subtract decimals to hundredths	Adding decimals to tenths
		Subtracting decimals to tenths
		Adding decimals to hundredths
		Subtracting decimals to hundredths

		Estimating decimal sums and differences
		Adding and subtracting decimal word problems
Addition and subtraction facts to 20 (developing computational fluency)	Addition and subtraction facts to 20	Finding fact families: multiplication/division
		Understanding number bonds to 20
		Adding doubles to 20
		Adding near doubles
		Using doubles to subtract
		Addition and subtraction word problems within 20
		Addition problems with start or change unknown
		Subtraction problems with start or change unknown
Multiplication and division facts to 100 (introductory computational strategies)	Multiplication & division facts to 100	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
		Exploring multiplication by 10
		Recalling multiplication facts for 2
		Recalling multiplication facts for 5
		Recalling multiplication facts for 10
		Recalling the division facts for 2
		Recalling the division facts for 5
		Recalling the division facts for 10
		Multiplying and dividing by 2
		Multiplying and dividing by 5
		Multiplying and dividing by 10
		Multiplying by 2s, 5s and 10s
		Dividing by 2s, 5s and 10s
		Multiplying and dividing by 2s, 5s and 10s
Algebraic relationships among quantities	Algebraic relationship among quantities	Matching equations to word problems
		Describing pattern rules
	One-step equations using all operations	One-step equations: addition and subtraction

One-step equations with an unknown number, using all operations		One-step equations: multiplication and division
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3 Patterning

Outcome	Quests	Content
Increasing and decreasing patterns, using tables and charts	Increasing and decreasing patterns	Exploring increasing and decreasing patterns
		Using increasing and decreasing number patterns

4 Geometry and Measurement

Outcome	Quests	Content
How to tell time with analog and digital clocks, using 12- and 24-hour clocks	How to tell time	Telling time to the hour and half hour
		Telling time to the quarter hour
		Relating halves and quarters to telling time
		Telling time to five minutes
		Telling time to the minute
		Recalling relationships between units of time
		Using am and pm notation
		Matching 12-hour and 24-hour times
Regular and irregular polygons	Regular and irregular polygons	Understanding regular and irregular polygons
Perimeter of regular and irregular shapes	Perimeter: regular and irregular shapes	Measuring perimeter: regular and irregular shapes
Line symmetry	Line symmetry	Recognizing line symmetry

5 Data and Probability

Outcome	Quests	Content
One-to-one correspondence and many-to-one correspondence, using bar graphs and pictographs	Bar graphs and pictographs	Using pictographs
		Using bar graphs
Probability experiments	Probability experiments	Introducing probability (with unequal outcomes)

6 Financial Literacy

Outcome	Quests	Content
Financial literacy – monetary calculations, including making change with amounts to 100 dollars and making simple financial decisions	Money	Estimating and calculating change
		Using decimals in money
		Solving word problems involving money

Grade 5

1 Number

Outcome	Quests	Content
Number concepts to 1 000 000	Number concepts to 1 000 000	Reading and writing numbers, up to 6 digits
		Comparing and ordering numbers up to 6 digits
		Identifying place value, 6-digit numbers
		Skip counting to 1 000 000
		Rounding 6-digit numbers
Decimals to thousandths	Decimals to thousandths	Understanding decimals to thousandths
		Rounding decimal thousandths
Equivalent fractions	Equivalent fractions	Finding equivalent fractions with models
		Finding equivalent fractions using multiplication
Whole-number, fraction, and decimal benchmarks	Fraction and decimal benchmarks	Comparing and ordering fractions
		Comparing and ordering decimals to thousandths

2 Computational Fluency

Outcome	Quests	Content
Addition and subtraction of whole numbers to 1 000 000	Addition and subtraction to 1 000 000	Adding numbers up to 1 000 000
		Subtracting numbers up to 1 000 000
		Estimating sums and differences to 10 000
		Solving addition and subtraction word problems
Multiplication and division to three digits, including division with remainders	Multiplication and division to 3 digits	Multiplying 3-digits by 1-digit, split method
		Multiplying 3-digits by 1-digit, area model
		Multiplying up to 3-digits, area model
		Multiplying 2-digits by 2-digits, factorizing
		Multiplying 2-digits by 2-digits, facts
		Multiplying up to 3-digits, commutative property
		Solving multiplication word problems
		Dividing 2 and 3 digits by 1-digit, partitioning
		Dividing 2 and 3 digit numbers by 1-digit, models
		Dividing 2 and 3 digit numbers by 2-digits, models
		Finding the remainder, 2 digits by 1 digit
		Solving division word problems
Addition and subtraction of decimals to thousandths	Add/subtract: decimals to thousandths	Adding decimals to thousandths
		Subtracting decimals to thousandths
		Adding and subtracting decimal word problems
		Estimating sums and differences to thousandths
		Adding decimals to thousandths, models
		Adding decimals to thousandths, compensation
		Subtracting decimals to thousandths, models

		Subtracting decimals to thousandths, compensation
Addition and subtraction facts to 20 (extending computational fluency)	Addition and subtraction facts to 20	Using addition and subtraction facts to 20
Multiplication and division facts to 100 (emerging computational fluency)	Multiplication and division facts to 100	Finding the missing number
		Recalling and using multiplication facts for 2
		Recalling and using multiplication facts for 10
		Recalling and using multiplication facts for 5
		Multiplying by 2s, 5s and 10s
		Recalling and using multiplication facts for 3
		Recalling and using multiplication facts for 4
		Multiplying by 2, 5, 3 and 4
		Recalling multiplication facts to 5 x 5
		Relating multiplication and division facts
		Recalling and using multiplication facts for 6
		Recalling and using multiplication facts for 7
		Recalling and using multiplication facts for 8
		Recalling and using multiplication facts for 9
		Using multiplication properties
		Representing and using known facts to multiply
		Multiplying using doubling
		Recalling and using division facts for 2
		Recalling and using division facts for 10
		Recalling and using division facts for 5
		Dividing by 2s, 5s and 10s
		Recalling and using division facts for 3
		Recalling and using division facts for 4
		Dividing by 2, 5, 3 and 4
		Recalling and using division facts for 6
		Recalling and using division facts for 7

		Recalling and using division facts for 8
		Recalling and using division facts for 9
		Representing and using known facts to divide
One-step equations with variables	One-step equations with variables	Writing 1-step equations using variables
		Solving 1-step equations
		Introducing variables

3 Patterning

Outcome	Quests	Content
Rules for increasing and decreasing patterns with words, numbers, symbols, and variables	Rules for increasing/decreasing patterns	Describing and continuing patterns
		Writing pattern rules as algebraic expressions

4 Geometry and Measurement

Outcome	Quests	Content
Area measurement of squares and rectangles	Area measurement of squares & rectangles	Area of a rectangle, additive formula
		Estimating & measuring area of rectangles
Relationships between area and perimeter	Relationships between area and perimeter	Solving perimeter and area problems
Duration, using measurement of time	Duration, using measurement of time	Calculating elapsed time
		Using timetables (12-hour and 24-hour time)
Classification of prisms and pyramids	Classification of prisms and pyramids	Classifying quadrilaterals
		Identifying prisms and pyramids in the environment
		Introducing rectangular prisms
		Investigating properties of prisms and pyramids
Single transformations	Single transformations	Introducing slides/translations
		Introducing flips/reflections
		Introducing turns/rotations

5 Data and Probability

Outcome	Quests	Content
One-to-one correspondence and many-to-one correspondence, using double bar graphs	Double bar graphs	Interpreting/representing data, double bar graphs
Probability experiments, single events or outcomes	Probability experiments, single events	Probability experiments, single events

6 Financial Literacy

Outcome	Quests	Content
Financial literacy – monetary calculations, including making change with amounts to 1000 dollars and developing simple financial plans	Financial mathematics	Solving money problems
		Creating simple financial plans

Grade 6

1 Number

Outcome	Quests	Content
Small to large numbers (thousandths to billions)	Number concepts to billions	Reading and writing numbers up to billions
		Comparing and ordering numbers up to millions
		Identifying place value, numbers up to billions
Small to large numbers (thousandths to billions)	Decimal concepts to thousandths	Comparing and ordering decimals to thousandths
		Understanding decimal concepts to thousandths
Small to large numbers (thousandths to billions)	Operations, thousandths to billions	Solving add/sub word problems: decimals
		Multiplying up to 4 digits by 1 and 2 digits
		Multiplying 4 digits by 2 digits, algorithm
		Dividing up to 4 digits by 1 digit
		Dividing 3 digits by 2 digits, algorithm
		Dividing up to 4 digits by 2 digits, place value
		Dividing up to 4 digits by 2 digits, algorithm
		Solving multiplication and division word problems
		Adding decimals to thousandths
		Subtracting decimals to thousandths
Factors and multiples – greatest common factor and least common multiple	Prime and composite numbers	Introducing prime and composite numbers
	Factors and multiples	Finding multiples up to 100, including LCM
		Finding factors up to 100, including GCF
	Divisibility rules	Introducing divisibility rules for dividing by 2
		Introducing divisibility rules for dividing by 3
		Introducing divisibility rules for dividing by 4

		Introducing divisibility rules for dividing by 5
		Introducing divisibility rules for dividing by 6
		Introducing divisibility rules for dividing by 8
		Introducing divisibility rules for dividing by 9
		Introducing divisibility rules for dividing by 10
	Prime factors	Using prime factors
Improper fractions and mixed numbers	Improper fractions and mixed numbers	Comparing and ordering fractions
		Comparing and ordering mixed numbers
		Comparing and ordering improper fractions
		Comparing and ordering fractions and mixed numbers
Introduction to ratios	Introduction to ratios	Introducing ratios
		Simplifying ratios
		Dividing a quantity into a given ratio
		Identifying equivalent ratios
Whole-number percents and percentage discounts	Introducing whole-number percents	Introducing percents
		Representing percent and fraction equivalents
		Representing percent and decimal equivalents
		Fraction, decimal and percent equivalents
Whole-number percents and percentage discounts	Calculating percentage discounts	Calculating percentage discounts

2 Computational Fluency

Outcome	Quests	Content
Multiplication and division facts to 100 (developing computational fluency)	Multiplication and division facts to 100	Multiplying using doubling and repeated doubling
		Multiplying using place value understanding
		Dividing using the inverse relationship
		Dividing using halving and repeated halving
Order of operations with whole numbers	Order of operations with whole numbers	Order of operations, addition and subtraction
		Order of operations, multiplication and division
		Order of operations, 4 operations
		Order of operations, grouping symbols
		Applying order of operations to real-life contexts
Multiplication and division of decimals	Multiply decimals to thousandths	Multiplying decimals and whole numbers
		Multiplying decimals by 10 and 100
		Multiplying decimals to thousandths, base 10
	Divide decimals to thousandths	Dividing decimals to thousandths, base 10
		Dividing whole numbers and decimals to thousandths
		Dividing decimals by 10 and 100
One-step equations with whole number coefficients and solutions	Solve one-step equations	Solving 1-step equations
		Solving 1-step equations using a balance
		Solving 1-step equations using algebra tiles

3 Patterning

Outcome	Quests	Content
Increasing and decreasing patterns, using expressions, tables, and graphs as functional relationships	Increasing and decreasing patterns	Recording number patterns with shapes using tables
		Interpreting tables with number patterns
		Representing linear growing patterns, rules

4 Geometry and Measurement

Outcome	Quests	Content
Perimeter of complex shapes	Perimeter of complex shapes	Calculating the perimeter of rectilinear shapes
Area of triangles, parallelograms, and trapezoids	Area: triangle, parallelogram, trapezoid	Calculating area of a triangle
		Calculating area of a parallelogram
		Calculating area of a trapezoid
Angle measurement and classification	Angle measurement and classification	Classifying angles
		Finding the missing angle of a triangle
		Finding the missing angle of a quadrilateral
		Exploring interior angles in regular polygons
Volume and capacity	Volume and capacity	Using unit cubes to measure volume
		Using millilitres and litres as references
		Using cubic metres/centimetres as references
Triangles	Triangles	Classifying triangles by their sides and angles
Combinations of transformations	Combinations of transformations	Investigating translations in the first quadrant
		Identifying reflections in the first quadrant
		Identifying rotations in the first quadrant
		Identifying combinations of transformations
		Plotting points in the first quadrant
		Finding the missing coordinate of a figure
Line graphs	Line graphs	Constructing a line graph
		Interpreting data in a line graph

5 Data and Probability

Outcome	Quests	Content
Single-outcome probability, both theoretical and experimental	Theoretical and experimental probability	Comparing observed and expected frequencies
		Describing probability, fraction/decimal/percent

6 Financial Literacy

Outcome	Quests	Content
Financial literacy – simple budgeting and consumer math	Creating simple budgets	Creating simple budgets

7 Reasoning and Analyzing

Outcome	Quests	Content
Use logic and patterns to solve puzzles and play games	Logic and patterns	Introducing coding concepts
		Introducing logical reasoning



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