

# Mathletics

## British Columbia Program of Studies

### Skill Quests



**Grades 7 – 8**

May, 2022

**Mathletics**

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Skill Quests

May 2022

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# Grade 7

## 1 Number

Outcome	Quests	Content
Relationships between decimals, fractions, ratios, and percents	Decimals, fractions, ratios, percents	Investigating terminating and repeating decimals
		Ordering fractions and decimals on a number line
		Converting decimals to percents
		Converting terminating decimals to fractions
		Converting repeating decimals to fractions
		Converting fractions to terminating decimals
		Converting fractions to repeating decimals
		Converting fractions to percents
		Converting fractions to repeating percents
		Comparing/ordering: fractions, decimals, percents
		Converting percents to fractions and mixed numbers
		Converting percents to decimals
		Converting repeating percents to decimals
		Equivalence: decimals, fractions, ratios, percents

## 2 Computational Fluency

Outcome	Quests	Content
Multiplication and division facts to 100 (extending computational fluency)	Multiplication and division facts to 100	Multiplying using known facts
		Using factors to multiply
		Using place value to divide
		Multiplying by 10 then halving
		Dividing using known facts
Operations with integers (addition, subtraction, multiplication, division, and order of operations)	Operations with integers	Investigating integers
		Comparing and ordering integers
		Adding and subtracting integers
		Adding integers, two-sided counters
		Adding and subtracting integers, number line
		Understanding opposites in context
		Adding integers
		Subtracting integers
		Adding & subtracting integers, order of operations
		Multiplying integers
		Dividing integers
		Multiplying and dividing integers
		Order of operations, integers
		Using the 4 operations with integers
Operations with decimals (addition, subtraction, multiplication, division, and order of operations)	Operations with decimals	Solving decimal word problems, 4 operations
		Adding decimals
		Subtracting decimals
		Multiplying decimals
		Multiplying decimals, place value
		Dividing decimals
		Order of operations, decimals
Two-step equations with whole-number coefficients, constants, and solutions	Two-step equations	Preserving equality
		Solving two-step equations
		Model and solve two-step equations, algebra tiles
		Modelling real-life scenarios using equations
		Checking solutions of two-step equations

### 3 Patterning

Outcome	Quests	Content
Discrete linear relations, using expressions, tables, and graphs	Discrete linear relations	Graphing discrete linear relations
		Deriving the expression, discrete linear relations

## 4 Geometry and Measurement

Outcome	Quests	Content
Circumference and area of circles	Circumference and area of circles	Finding the area of circles
		Finding the circumference of circles
		Introducing the parts of a circle
		Introducing circumference
Volume of rectangular prisms and cylinders	Volume: rectangular prisms and cylinders	Finding the volume of rectangular prisms
		Finding the missing dimension, rectangular prisms
		Finding the volume of cylinders
		Finding the missing dimension, cylinders
		Volume: cylinder, word problems
Cartesian coordinates and graphing	Cartesian coordinates and graphing	Introducing Cartesian coordinates
		Drawing shapes on the coordinate plane
Combinations of transformations	Combinations of transformations	Successive translations on the coordinate plane
		Rotations on the coordinate plane
		Reflections on the coordinate plane
		Combinations of transformations
		Investigating tessellations using transformations

## 5 Data and Probability

Outcome	Quests	Content
Circle graphs	Circle graphs	Interpreting and constructing circle graphs
Experimental probability with two independent events	Experimental probability	Understanding independent events



## 6 Financial Literacy

Outcome	Quests	Content
Financial literacy – financial percentage	Financial percentage	Calculating percentage discounts
		Calculating tips
		Calculating tax

# Grade 8

## 1 Number

Outcome	Quests	Content
Perfect squares and cubes	Perfect squares and cubes	Perfect squares
		Perfect cubes
		Finding perfect squares and cubes
Square and cube roots	Square and cube roots	Finding square roots
		Finding square roots, fractions
		Finding cube roots
		Finding cube roots, fractions
		Finding square and cube roots
		Estimating square roots
		Estimating cube roots
Percents less than 1 and greater than 100 (decimal and fractional percents)	Percents less than 1 & greater than 100	Percents greater than 100
		Percents less than 1
Numerical proportional reasoning (rates, ratio, proportions, and percent)	Numerical proportional reasoning	Unit rate
		Simplifying and comparing rates
		Solving rate problems
		Dividing a quantity in a given ratio
		Solving ratio problems
		Proportions
		Percents

## 2 Computational Fluency

Outcome	Quests	Content
Operations with fractions (addition, subtraction, multiplication, division, and order of operations)	Operations with fractions	Adding fractions, same denominator
		Adding a whole number and a fraction
		Adding improper fractions, same denominator
		Adding with mixed numbers, same denominator
		Adding fractions, unlike denominator
		Adding improper fractions, unlike denominator
		Adding with mixed numbers, unlike denominator
		Subtracting fractions, same denominator
		Subtracting a fraction from a whole number
		Subtracting improper fractions, same denominator
		Subtracting with mixed numbers, same denominator
		Subtracting fractions, unlike denominator
		Subtracting improper fractions, unlike denominator
		Subtracting with mixed numbers, unlike denominator
		Adding/subtracting fractions, word problems
		Multiplying fractions by whole numbers
		Multiplying mixed numbers by whole numbers
		Multiplying fractions
		Multiplying improper fractions
		Multiplying mixed numbers
		Multiplying fractions and mixed numbers
		Dividing fractions and whole numbers
		Dividing fractions
		Dividing whole numbers and improper fractions
		Dividing whole numbers and mixed numbers

		Dividing mixed numbers and fractions
		Dividing mixed numbers
		Dividing improper fractions and mixed numbers
		Dividing fractions, word problems
		Order of operations with fractions
Expressions – writing and evaluating using substitution	Writing and evaluating expressions	Writing expressions
		Evaluating expressions using substitution
		Writing and evaluating expressions
Two-step equations with integer coefficients, constants, and solutions	Two-step equations	Two-step equations
		Equation word problems

### 3 Patterning

Outcome	Quests	Content
Discrete linear relations (extended to larger numbers, limited to integers)	Discrete linear relations	Discrete linear relations
		Identifying the equation from a graph

## 4 Geometry and Measurement

Outcome	Quests	Content
Surface area and volume of regular solids, including triangular and other right prisms and cylinders	Surface area and volume: regular solids	Finding the surface area of regular solids
		Finding the surface area of rectangular prisms
		Finding the surface area of triangular prisms
		Finding the surface area of cylinders
		Finding the surface area of pyramids
		Solving surface area and volume problems, cylinder
		Finding the volume of pyramids
		Finding the volume of cubes and rectangular prisms
		Finding the volume of triangular prisms
		Finding the volume of cylinders
Pythagorean theorem	Pythagorean theorem	Identifying the sides of a right triangle
		Proving right triangles, Pythagorean theorem
		Finding the length of the missing side, short side
		Finding the length of the missing side, hypotenuse
		Finding the length of the missing side
		Matching right triangles to word problems
		Pythagorean triples
Construction, views, and nets of 3D objects	Construction, views, & nets: 3D objects	Top, front, and side views of 3D objects
		Connecting prisms with their nets
		Connecting prisms and pyramids with their nets
		Connecting 3D objects with their nets

## 5 Data and Probability

Outcome	Quests	Content
Central tendency	Central tendency	Mean
		Median
		Mode
Theoretical probability with two independent events	Theoretical probability	Determining theoretical probability, tree diagrams
		Identifying the sample space
		Exploring fair games

## 6 Financial Literacy

Outcome	Quests	Content
Best buys	Best buys	Best buys





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