

Mathletics British Columbia Program of Studies

Skill Quests

Grades 7 – 8
May, 2022

Mathletics

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British Columbia Program of Studies

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 |
| Two-step equations with whole-number coefficients, constants, and solutions | Two-step equations | Order of operations, decimals |
| | | 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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