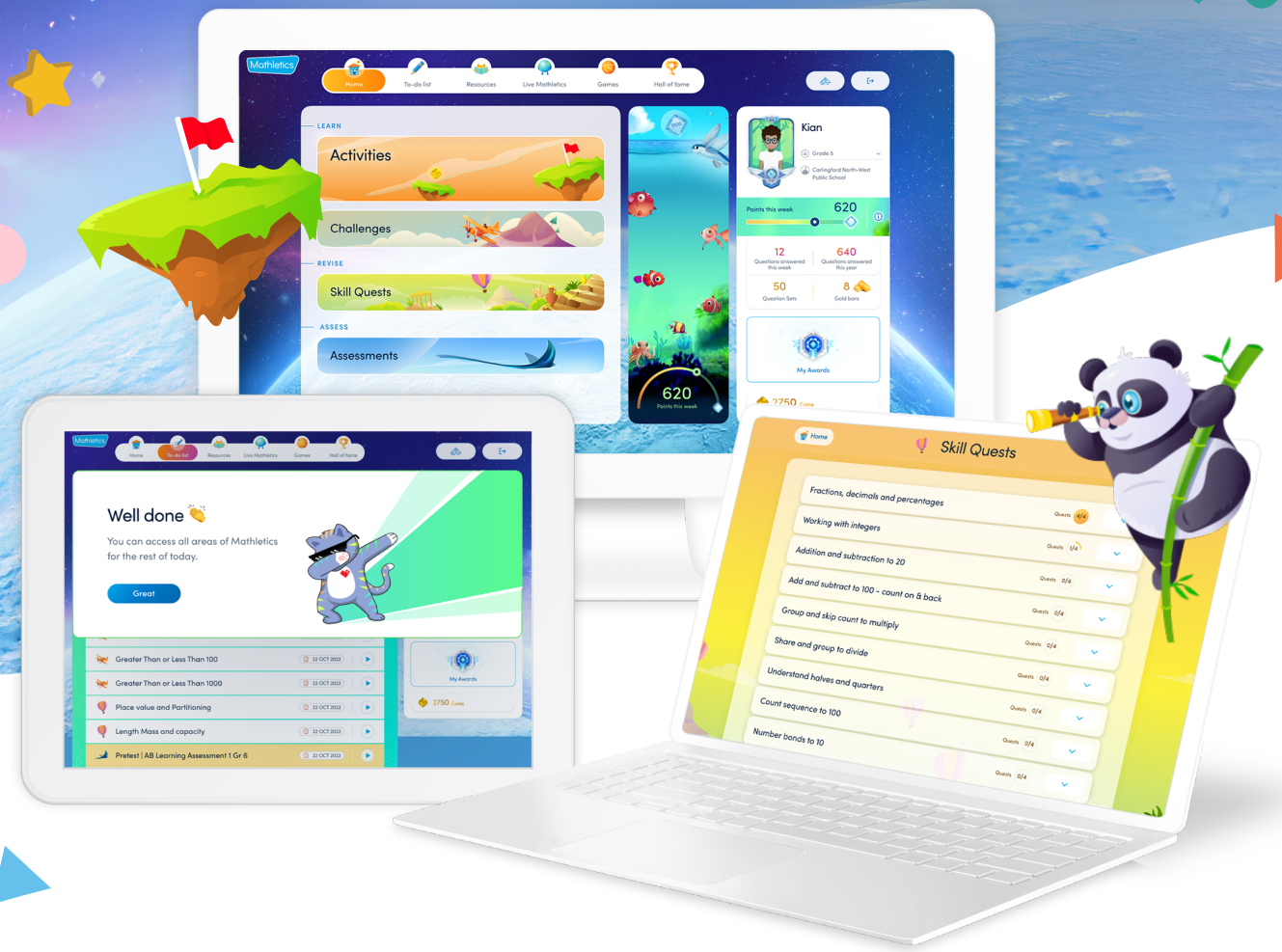
Mathletics

The Ontario Curriculum

Skill Quests & Activities



Grades 7-9

September 2023

Mathletics

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Skill Quests & Activities

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Grade 7

B. Number

B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

B1.1 Rational Numbers Represent and compare whole numbers up to and including one billion, including in expanded form using powers of ten, and describe various ways they are used in everyday life	
Quests	**Content**
Represent/compare numbers to one billion	Reading & writing numbers of any size
	Comparing & ordering numbers of any size
	Identifying the place value of numbers of any size
	Using place value to partition numbers of any size
	Rounding 6-digit numbers
Course Topic	**Activities Title**
Rational Numbers	Place Value to Billions
	Equal, Less or Greater than?

B1.2 Rational Numbers Identify and represent perfect squares, and determine their square roots, in various context	
Quests	**Content**
Perfect squares & square roots	Finding square roots of perfect squares
	Identifying & representing perfect squares
Course Topic	**Activities Title**
Rational Numbers	Square Roots 1
	Square Roots

B1.3 Rational Numbers Read, represent, compare, and order rational numbers, including positive and negative fractions and decimal numbers to thousandths, in various contexts	
Quests	**Content**
Represent/compare/order rational numbers	Comparing & ordering rational numbers
	Understanding rational numbers
Course Topic	**Activities Title**
Rational Numbers	Integers on a Number Line
	Ordering Integers (Number Line)
	Identifying Fractions on a Number Line
	Mixed and Improper Fractions on a Number Line
	Compare Fractions 2
	Comparing Fractions with Signs

	Decimals on a Number Line
	Decimal Order 1
	Comparing Decimals 1

B1.4 Fractions, Decimals, and Percents Use equivalent fractions to simplify fractions, when appropriate, in various contexts	
Quests	**Content**
Simplify fractions	Simplifying fractions
Course Topic	**Activities Title**
B1 Fractions, decimals & percents	Simplify Fractions

B1.5 Fractions, Decimals, and Percents Generate fractions and decimal numbers between any two quantities	
Quests	**Content**
Fractions/decimals between 2 quantities	Fractions & decimals between two quantities
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B1.6 Fractions, Decimals, and Percents Round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts	
Quests	**Content**
Round decimals	Rounding decimals to any place
Course Topic	**Activities Title**
B1 Fractions, decimals & percents	Nearest Whole Number
	Rounding Decimals 1

B1.7 Fractions, Decimals, and Percents Convert between fractions, decimal numbers, and percents, in various contexts	
Quests	**Content**
Convert fractions, decimals, percents	Equivalent fractions, decimals & percents
	Representing percents & decimals
	Representing common fractions as percents
Course Topic	**Activities Title**
B1 Fractions, decimals & percents	Fractions to Decimals
	Decimals to Fractions 1
	Convert Decimals to Fractions 2
	Percents to Fractions
	Percents and Decimals
	Fraction to Terminating Decimal

B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

B2.1 Properties and Relationships Use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations	
Quests	**Content**
Properties & order of operations	The commutative property
	The associative property
	The distributive property
	Order of operations
Course Topic	**Activities Title**
B2 Order of operations	Addition Properties
	Multiplication Properties
	Order of Operations 1 (BEDMAS)
	Money Problems: Four Operations
	What Percentage?
	Percentage Word Problems

B2.2 Math Facts Understand and recall commonly used percents, fractions, and decimal equivalents	
Quests	**Content**
Percent/fraction/decimal equivalents	Common percents, fractions, & decimal equivalents
Course Topic	**Activities Title**
B2 Order of operations	Match Decimals and Percentages
	Common Fractions as Percentages
	Fractions to Percentages (Non-Calculator)

B2.3 Mental Math Use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used	
Quests	**Content**
Mental math: percents	Use 50%, 10% & 1% to mentally calculate amounts
	Finding the percent of a number
	Increasing & decreasing amounts by percents
Course Topic	**Activities Title**
B2 Order of operations	Percent of a Number (Mental)
	Percentage Change: Increase and Decrease
	Percent Increase and Decrease

B2.4 Addition and Subtraction Use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of integers	
Quests	**Content**
Understand integers	Investigating integers
	Comparing & ordering integers
Add & subtract integers	Adding & subtracting integers
	Adding & subtracting integers with models
Course Topic	**Activities Title**
B2 Addition & subtraction of integers	Add Integers
	Subtract Integers
	Integers: Add and Subtract
	Negative or Positive?
	More with Integers

B2.5 Addition and Subtraction Add and subtract fractions, including by creating equivalent fractions, in various contexts	
Quests	**Content**
Add fractions & mixed numbers	Adding fractions, like denominator
	Adding a whole number & a fraction
	Adding fractions, unlike denominator
Subtract fractions & mixed numbers	Subtracting fractions, like denominator
	Subtracting a fraction from a whole number
	Subtracting fractions, unlike denominator
Add & subtract fractions, word problems	Adding & subtracting fractions, word problems
Course Topic	**Activities Title**
B2 Addition & subtraction of fractions	Equivalent Fractions
	Add: Common Denominator
	Add: No Common Denominator
	One Take Fraction
	Subtract: Common Denominator
	Subtract: No Common Denominator

B2.6 Multiplication and Division Determine the greatest common factor for a variety of whole numbers up to 144 and the lowest common multiple for two and three whole numbers	
Quests	**Content**
GCF & LCM	Finding factors & the greatest common factor
	Finding multiples & the lowest common multiple
Course Topic	**Activities Title**
B2 Multiplication & division	Greatest Common Factor
	Lowest Common Multiple

B2.7 Multiplication and Division Evaluate and express repeated multiplication of whole numbers using exponential notation, in various contexts	
Quests	**Content**
Exponential notation	Expressing numbers in exponential notation
	Describe/evaluate numbers in exponential notation
Course Topic	**Activities Title**
B2 Multiplication & division	Exponent Notation
	Exponent Form to Numbers

B2.8 Multiplication and Division Multiply and divide fractions by fractions, using tools in various contexts	
Quests	**Content**
Multiply & divide fractions	Multiplying fractions
	Dividing fractions
Course Topic	**Activities Title**
B2 Multiplication & division	Model Fractions to Multiply
	Multiply Fraction by Whole Number
	Multiply Fraction by Fraction
	Multiplying Fractions
	Divide by a Unit Fraction
	Divide Whole Number by Fraction
	Divide Fractions Visual Model
	Dividing Fractions

B2.9 Multiplication and Division Multiply and divide decimal numbers by decimal numbers, in various contexts	
Quests	**Content**
Multiply & divide decimals	Multiplying decimals
	Dividing decimals
	Decimal word problems, multiplying & dividing
Course Topic	**Activities Title**
B2 Multiplication & division	Multiply Decimals: 10, 100, 1000
	Multiply Decimal by Whole Number
	Multiply Decimals: Area Model
	Multiply Decimals 1
	Divide Decimals: 10, 100, 1000
	Divide Decimal by Whole Number
	Divide Decimals

B2.10 Multiplication and Division Identify proportional and non-proportional situations and apply proportional reasoning to solve problems	
Quests	**Content**
Proportional/non-proportional situations	Identifying proportional relationships
	Graphing proportional relationships
	Identifying the constant of proportionality, table
	Solving proportions problems
Course Topic	**Activities Title**
B2 Ratio & rates	Ratio Word Problems
	Solve Proportions
	Ratio and Proportion
	Best Buy
	Average Speed
	Rate Word Problems
	Rates

C. Algebra

C1. Patterns and Relationships: identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

C1.1 Patterns Identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values	
Quests	**Content**
ID/compare patterns, including linear	Comparing pattern rules
	Identifying geometric patterns
Course Topic	**Activities Title**
C1 Patterns	Table of Values

C1.2 Patterns Create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns	
Quests	**Content**
Create patterns, whole numbers/decimals	Create patterns, whole numbers/fractions/decimals
	Linear growing patterns
Course Topic	**Activities Title**
C1 Patterns	Describing Patterns
	Increasing Patterns
	Decreasing Patterns

C1.3 Patterns Determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve	
Quests	**Content**
Pattern rules, whole numbers & decimals	Investigate/extend patterns represented in a table
	Find & use the nth term, linear patterns
	Making predictions about linear growing patterns
Course Topic	**Activities Title**
C1 Patterns	Find the Pattern Rule
	Pattern Rules and Tables

C1.4 Patterns Create and describe patterns to illustrate relationships among integers	
Quests	**Content**
Patterns with integers	Patterns with integers, adding & subtracting
Course Topic	**Activities Title**

Teacher directed	Teacher directed

C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

C2.1 Variables and Expressions Add and subtract monomials with a degree of 1 that involve whole numbers, using tools	
Quests	**Content**
Add & subtract monomials	Adding & subtracting monomials
Course Topic	**Activities Title**
C2 Variables & expressions	Like Terms: Add and Subtract

C2.2 Variables and Expressions Evaluate algebraic expressions that involve whole numbers and decimal numbers	
Quests	**Content**
Evaluate algebraic expressions	Evaluating algebraic expressions
Course Topic	**Activities Title**
C2 Variables & expressions	Simple Substitution 1
	Simple Substitution
	Simple Substitution 2
	Simple Substitution 3

C2.3 Equations and Inequalities Solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions	
Quests	**Content**
Solve equations: whole numbers, decimals	Solving 1-step addition & subtraction equations
	Solving 1-step multiplication & division equations
	Solving 1-step equations, mixed operations
	Solving 2-step equations, mixed operations
	Solving linear equations, variables on both sides
	Solving linear equations with grouping symbols
	Using substitution to verify solutions
Course Topic	**Activities Title**
C2 Equations & inequalities	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Solving Simple Equations
	Solve Two-Step Equations
	Solving More Equations
	Checking Solutions

C2.4 Equations and Inequalities Solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions	
Quests	**Content**
Solve inequalities	Solving inequalities
Course Topic	**Activities Title**
C2 Equations & inequalities	Solve One-Step Inequalities 1
	Solve One-Step Inequalities 2
	Graphing Inequalities 2
	Graphing Inequalities on a Number Line

C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills

C3.1 Coding Skills Solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C3.2 Coding Skills Read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D. Data

D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

D1.1 Data Collection and Organization Explain why percentages are used to represent the distribution of a variable for a population or sample in large sets of data, and provide examples	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.2 Data Collection and Organization Collect qualitative data and discrete and continuous quantitative data to answer questions of interest, and organize the sets of data as appropriate, including using percentages	
Quests	**Content**
Qualitative & quantitative data	Statistical investigations using sampling
	Relative frequency
	Classifying data
Course Topic	**Activities Title**
D1 Data literacy	Tally Charts
	Grouped Frequency

D1.3 Data Visualization Select from among a variety of graphs, including circle graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs	
Quests	**Content**
Select graphs & display data	Constructing histograms
	Constructing line plots
	Constructing stacked-bar graphs
	Constructing broken-line graphs
	Constructing circle graphs
	Selecting appropriate data displays
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.4 Data Visualization Create an infographic about a data set, representing the data in appropriate ways, including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data	
Quests	**Content**
Teacher directed	Teacher directed

Course Topic	Activities Title
D1 Data literacy	Mean from Frequency Table
	Median from Frequency Table
	Mode from Frequency Table

D1.5 Data Analysis Determine the impact of adding or removing data from a data set on a measure of central tendency, and describe how these changes alter the shape and distribution of the data	
Quests	**Content**
Measures of central tendency	Investigating the effect of outliers
	The effect of adding or removing data
Course Topic	**Activities Title**
D1 Data literacy	Which Measure of Central Tendency?

D1.6 Data Analysis Analyse different sets of data presented in various ways, including in circle graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	
Quests	**Content**
Analyse data displays	Identifying skewed & symmetrical sets of data
	Analysing misleading data displays
Course Topic	**Activities Title**
D1 Data literacy	Interpreting Data Tables
	Bar Graphs 1
	Divided Bar Graphs
	Frequency Histograms
	Histograms
	Line Graphs: Interpretation
	Circle Graphs
	Stem and Leaf Plots: Concept
	Double Stem and Leaf Plots

D2. Probability: describe the likelihood that events will happen, and use that information to make predictions

D2.1 Probability Describe the difference between independent and dependent events, and explain how their probabilities differ, providing examples	
Quests	**Content**
Understand independent/dependent events	Understanding independent & dependent events
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D2.2 Probability Determine and compare the theoretical and experimental probabilities of two independent events happening and of two dependent events happening	
Quests	**Content**
Probability independent/dependent events	Finding experimental & theoretical probabilities
	Identifying the sample space, 2 independent events
	Comparing experimental & theoretical probability
Course Topic	**Activities Title**
D2 Probability	Simple Probability
	Introductory Probability
	Find the Probability
	Relative Frequency
	Probability With Replacement
	Dice and Coins

E. Spatial Sense

E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

E1.1 Geometric Reasoning Describe and classify cylinders, pyramids, and prisms according to their geometric properties, including plane and rotational symmetry	
Quests	**Content**
Cylinders, pyramids & prisms	Comparing, describing & naming prisms & pyramids
	Properties of cylinders, prisms & pyramids
Course Topic	**Activities Title**
E1 Geometry & Spatial reasoning	Match the Object
	Collect the Objects 2
	Properties of Solids

E1.2 Geometric Reasoning Draw top, front, and side views, as well as perspective views, of objects and physical spaces, using appropriate scales	
Quests	**Content**
Top, front & side views of 3-D objects	Drawing top, front & side views of 3-D objects
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.3 Location and Movement Perform dilations and describe the similarity between the image and the original shape	
Quests	**Content**
Dilations & similarity	Exploring the effects of dilations
Course Topic	**Activities Title**
E1 Geometry & Spatial reasoning	Scale Factor
	Similar Figures
	Similar Figures 1

E1.4 Location and Movement Describe and perform translations, reflections, and rotations on a Cartesian plane, and predict the results of these transformations	
Quests	**Content**
Transformations on the Cartesian plane	Transformations of shapes on the Cartesian plane
	Translations on the Cartesian plane
	Reflections on the Cartesian plane

	Rotations on the Cartesian plane
Course Topic	**Activities Title**
E1 Geometry & Spatial reasoning	Transformations
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
	Rotational Symmetry

E2. Measurement: compare, estimate, and determine measurements in various contexts

E2.1 The Metric System Describe the differences and similarities between volume and capacity, and apply the relationship between millilitres (mL) and cubic centimetres (cm^3) to solve problems	
Quests	**Content**
Volume & capacity	Solving volume & capacity problems
Course Topic	**Activities Title**
E2 Measurement	Capacity Word Problems

E2.2 The Metric System Solve problems involving perimeter, area, and volume that require converting from one metric unit of measurement to another	
Quests	**Content**
Convert units of length, area, volume	Converting units of length
	Converting units of area
	Converting units of volume
Course Topic	**Activities Title**
E2 Measurement	Converting cm and mm
	Metres and Kilometres
	Converting Units of Length
	Converting Units of Mass
	Converting Units of Area
	Converting Volume
	Perimeter: Squares and Rectangles
	Perimeter: Triangles
	Calculate Areas of Squares and Rectangles
	Area: Quadrilaterals
	Surface Area: Rectangular Prisms
	Volume: Rectangular Prisms 1

E2.3 Circles Use the relationships between the radius, diameter, and circumference of a circle to explain the formula for finding the circumference and to solve related problems	
Quests	**Content**
Circumference of a circle	Finding the circumference of a circle
	Introducing the parts of a circle

Course Topic	Activities Title
E2 Measurement	Identify Parts of Circles 1
	Calculate Circumference of Circles

E2.4 Circles Construct circles when given the radius, diameter, or circumference	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E2.5 Circles Show the relationships between the radius, diameter, and area of a circle, and use these relationships to explain the formula for measuring the area of a circle and to solve related problems	
Quests	**Content**
Area of a circle	Finding the area of a circle, formula
	Finding the radius or diameter given the area
Course Topic	**Activities Title**
E2 Measurement	Area: Circles 1

E2.6 Volume and Surface Area Represent cylinders as nets and determine their surface area by adding the areas of their parts	
Quests	**Content**
Surface area: cylinders	Finding the surface area of a cylinder
Course Topic	**Activities Title**
E2 Measurement	Surface Area: Cylinders

E2.7 Volume and Surface Area Show that the volume of a prism or cylinder can be determined by multiplying the area of its base by its height, and apply this relationship to find the area of the base, volume, and height of prisms and cylinders when given two of the three measurements	
Quests	**Content**
Volume: prisms & cylinders	Finding the volume of a cube
	Finding the volume of a prism
	Finding the height or area, rectangular prism
	Finding the volume of a triangular prism
	Finding a missing dimension, triangular prism
	Finding the volume of a cylinder
	Finding a missing dimension, cylinder
	Solving volume problems, right prisms & cylinders
Course Topic	**Activities Title**
E2 Measurement	Volume: Cylinders

F. Financial Literacy

F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions

F1.1 Money Concepts Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

F1.2 Financial Management Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

F1.3 Financial Management Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Simple financial plans	Creating simple financial plans
Course Topic	**Activities Title**
F1 Money & finances	Budgeting

F1.4 Financial Management Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

F1.5 Consumer and Civic Awareness Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Money & finances	Effective Interest Rate
	Simple Interest
	Compound Interest
	Credit Card Repayments

F1.6 Consumer and Civic Awareness Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Money & finances	Comparing Loans
	Comparing Home Loans

Grade 8

B. Number

B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

B1.1 Rational and Irrational Numbers Represent and compare very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life	
Quests	**Content**
Scientific notation	Introducing scientific notation
	Writing & comparing numbers in scientific notation
Course Topic	**Activities Title**
B1 Rational & irrational numbers	Scientific Notation 1
	Scientific Notation
	Scientific Notation 2

B1.2 Rational and Irrational Numbers Describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various contexts	
Quests	**Content**
The real number system	Classifying real numbers
	Comparing rational & irrational numbers
Course Topic	**Activities Title**
B1 Rational & irrational numbers	Irrational Numbers
	Ordering Integers (Number Line)
	Mixed and Improper Fractions on a Number Line
	Comparing Fractions with Signs
	Decimals on the Number Line
	Decimal Order 1
	Comparing Decimals 1

B1.3 Rational and Irrational Numbers Estimate and calculate square roots, in various contexts	
Quests	**Content**
Square roots	Square roots of non-perfect squares
	Finding square roots
Course Topic	**Activities Title**
B1 Rational & irrational numbers	Square Roots 1
	Square Roots
	Estimating Square Roots

B1.4 Fractions, Decimals, and Percents Use fractions, decimal numbers, and percents, including percents of more than 100% or less than 1%, interchangeably and flexibly to solve a variety of problems	
Quests	**Content**
Fractions, decimals & percents	Converting decimals to percents & fractions
	Converting fractions to decimals & percents
	Converting percents to fractions
	Converting percents to decimals
	Solving word problems involving percents
	Percents greater than 100%
	Solving problems involving consecutive percents
	Increasing & decreasing amounts by percents
	Solving problems involving combined percents
Course Topic	**Activities Title**
B1 Fractions, decimals & percents	Adding and Subtracting Decimals
	Decimal by Decimal
	Divide Decimals
	Percentage Word Problems
	Percentage of an amount using fractions (<100%)
	Percentages of a quantity (>100%)
	Quantities to Percentages (no units)
	Percentage of an amount using decimals (calculator)
	Solve Percent Equations
	Percent Increase and Decrease
	Successive Discounts
	Commission
	Profit and Loss

B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

B2.1 Properties and Relationships Use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations	
Quests	**Content**
Properties & order of operations	The commutative property
	The associative property
	The distributive property
	Order of operations, integers
	Order of operations, decimals & fractions
Course Topic	**Activities Title**
B2 Operations	Addition Properties
	Multiplication Properties
	Order of Operations 1 (BEDMAS)

B2.2 Math Facts Understand and recall commonly used square numbers and their square roots	
Quests	**Content**
Recall square numbers & square roots	Recalling square numbers & their square roots
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B2.3 Mental Math Use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used	
Quests	**Content**
Multiply & divide by powers of 10	Multiplying decimals by powers of 10
	Dividing decimals by powers of 10
Course Topic	**Activities Title**
B2 Operations	Mental Methods Multiplication 1
	Mental Methods Multiplication 2
	Mental Methods Multiplication 3
	Mental Methods Division 1
	Mental Methods Division 2
	Mental Methods Division 3

B2.4 Addition and Subtraction Add and subtract integers, using appropriate strategies, in various contexts	
Quests	**Content**
Add & subtract integers	Adding & subtracting integers
	Adding & subtracting integers with models
Course Topic	**Activities Title**
B2 Addition & subtraction of integers	Add Integers
	Subtract Integers
	Integers: Add and Subtract
	Negative or Positive?
	More with Integers

B2.5 Addition and Subtraction Add and subtract fractions, using appropriate strategies, in various contexts	
Quests	**Content**
Add fractions & mixed numbers	Adding fractions, like denominator
	Adding a whole number & a fraction
	Adding fractions, unlike denominator
Subtract fractions & mixed numbers	Subtracting fractions, like denominator
	Subtracting a fraction from a whole number
	Subtracting fractions, unlike denominator
Add & subtract fractions, word problems	Adding & subtracting fractions, word problems

Course Topic	Activities Title
B2 Addition & subtraction of fractions	Add: Common Denominator
	Add: No Common Denominator
	Add Mixed Numbers: Same Sign
	Add Unlike Mixed Numbers
	One Take Fraction
	Subtract: Common Denominator
	Subtract: No Common Denominator
	Subtract Like Mixed Numbers
	Subtract Mixed Numbers: Signs Differ

B2.6 Multiplication and Division Multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts	
Quests	**Content**
Multiply fractions & mixed numbers	Multiplying fractions by whole numbers
	Multiplying fractions & mixed numbers
Divide fractions & mixed numbers	Dividing fractions & whole numbers
	Dividing fractions & mixed numbers
Course Topic	**Activities Title**
B2 Multiplication & division	Multiply Fraction by Whole Number
	Multiply Fraction by Fraction
	Multiplying Fractions
	Dividing Fractions

B2.7 Multiplication and Division Multiply and divide integers, using appropriate strategies, in various contexts	
Quests	**Content**
Multiply & divide integers	Multiplying integers
	Dividing integers
	Multiplying & dividing integers
Course Topic	**Activities Title**
B2 Multiplication & division	Multiplying and Dividing Integers
	Integers: Multiply and Divide

B2.8 Multiplication and Division Compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts	
Quests	**Content**
Proportional reasoning	Solving proportions problems
	Comparing rates
	Identifying the constant of proportionality
	Comparing proportional relationships
	Graphs of proportional relationships

Course Topic	Activities Title
B2 Multiplication & division	Ratio Word Problems
	Solve Proportions
	Ratio and Proportion

C. Algebra

C1. Patterns and Relationships: identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

C1.1 Patterns Identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values	
Quests	**Content**
Identify & compare patterns	Comparing linear growing & shrinking patterns
Course Topic	**Activities Title**
C1 Patterns	Table of Values
	Describing Patterns
	Increasing Patterns

C1.2 Patterns Create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns	
Quests	**Content**
Create patterns, rational numbers	Modelling real-life relationships
	Continuing & creating sequences, rational numbers
	Representing linear growing patterns
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C1.3 Patterns Determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear	
Quests	**Content**
Pattern rules, rational numbers	Finding the nth term, rational coefficients
	Use the nth term rule for a linear pattern
	Investigate linear relationships, Cartesian plane
Course Topic	**Activities Title**
C1 Patterns	Decreasing Patterns
	Find the Pattern Rule
	Pattern Rules and Tables

C1.4 Patterns Create and describe patterns to illustrate relationships among rational numbers	
Quests	**Content**
Create & describe patterns	Creating & describing patterns in rational numbers

Course Topic	Activities Title
Teacher directed	Teacher directed

C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equations, and inequalities, and apply this understanding in various contexts

C2.1 Variables and Expressions Add and subtract monomials with a degree of 1, and add binomials with a degree of 1 that involve integers, using tools	
Quests	**Content**
Add & subtract monomials & binomials	Adding & subtracting monomials & binomials
Course Topic	**Activities Title**
C2 Variables & expressions	Like Terms: Add and Subtract

C2.2 Variables and Expressions Evaluate algebraic expressions that involve rational numbers	
Quests	**Content**
Evaluate algebraic expressions	Evaluating algebraic expressions
Course Topic	**Activities Title**
C2 Variables & expressions	Substitution with Fractions
	Complex Substitution

C2.3 Equalities and Inequalities Solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions	
Quests	**Content**
Solve equations: integers, decimals	Solving 1-step equations, add & subtract
	Solving 1-step equations, multiply & divide
	Solving 1 & 2-step equations, mixed operations
	Solving 3-step equations, mixed operations
	Solving linear equations, variables on both sides
	Solving linear equations, expanding brackets
	Checking solutions to equations by substituting
Course Topic	**Activities Title**
C2 Equations & inequalities	Equations with Grouping Symbols
	Solve Multi-Step Equations
	Equations with Decimals
	Equations: Variables, Both Sides
	Solving More Equations
	Equations to Solve Problems
	Checking Solutions

C2.4 Equalities and Inequalities Solve inequalities that involve integers, and verify and graph the solutions	
Quests	**Content**
Solve inequalities involving integers	Solving 1-step inequalities
	Solving 2-step inequalities
	Solving inequalities with variables on both sides
	Graphing solutions of inequalities, number line
	Checking solutions of inequalities
	Graphing inequalities with two variables
Course Topic	**Activities Title**
C2 Equations & inequalities	Solving Inequalities 1
	Solve Two-Step Inequalities
	Solving Inequalities 2
	Solving Inequalities 3
	Graphing Inequalities 3

C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills

C3.1 Coding Skills Solve problems and create computational representations of mathematical situations by writing	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C3.2 Coding Skills Read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D. Data

D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

D1.1 Data Collection and Organization Identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed	
Quests	**Content**
Identify one & two-variable data	Identifying one & two-variable data
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.2 Data Collection and Organization Collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.3 Data Visualization Select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs	
Quests	**Content**
Select graphs & display data	Constructing line plots
	Constructing histograms
	Constructing line graphs
	Constructing scatter plots
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.4 Data Visualization Create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
D1 Bivariate data	Line Graphs: Interpretation
	Travel Graphs
	Data Analysis: Scatter Plots

D1.5 Data Analysis Use mathematical language, including the terms “strong”, “weak”, “none”, “positive”, and “negative”, to describe the relationship between two variables for various data sets with and without outliers	
Quests	**Content**
Relationships in two-variable data	Describing relationships in scatter plots
Course Topic	**Activities Title**
D1 Bivariate data	Scatter Plots
	Correlation

D1.6 Data Analysis Analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed	
Quests	**Content**
Analyse & interpret graphs	Interpreting information from secondary sources
	Interpreting data in various graphs
	Analyzing misleading graphs
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D2. Probability: describe the likelihood that events will happen, and use that information to make predictions

D2.1 Probability Solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams	
Quests	**Content**
Probability with Venn & tree diagrams	Theoretical probability with tree diagrams
	Identifying & representing the sample space
	Probability: independent/dependent combined events
	Using data presented in Venn diagrams
	The counting principle
Course Topic	**Activities Title**
D2 Probability	Venn Diagrams
	Venn Diagrams 1
	Tree Diagrams
	Tree Diagram
	Probability Tables
	Two-way Table Probability

D2.2 Probability Determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening	
Quests	**Content**
Probability independent/dependent events	Comparing experimental & theoretical probability
	Finding the probability of independent events
	Finding the probability of dependent events
Course Topic	**Activities Title**
D2 Probability	Relative Frequency

E. Spatial Sense

E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them

E1.1 Geometric Reasoning Identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations	
Quests	**Content**
Tessellations	Recognizing tessellations
	Rotational symmetry
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.2 Geometric Reasoning Make objects and models using appropriate scales, given their top, front, and side views or their perspective views	
Quests	**Content**
Top, front & side views of 3-D objects	Drawing top, front & side views of 3-D objects
Nets of 3-D objects	Connecting 3-D objects with their nets
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.3 Geometric Reasoning Use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios	
Quests	**Content**
Scale drawings	Using scales on maps
	Solving problems using scale drawings
Course Topic	**Activities Title**
E1 Spatial reasoning	Floor Plans
	Similar Triangles
	Ratio of Intercepts

E1.4 Location and Movement Describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations	
Quests	**Content**
Transformations on a Cartesian plane	Plotting transformations on the Cartesian plane
	Dilations with mapping rules
	Translations with mapping rules

	Rotations with mapping rules
	Reflections with mapping rules
	Combinations of transformations with mapping rules
	Congruency
	Similarity
	Identifying the scale factor
Course Topic	**Activities Title**
E1 Spatial reasoning	Transformations: Coordinate Plane
	Rotations: Coordinate Plane

E2. Measurement: compare, estimate, and determine measurements in various contexts

E2.1 The Metric System Represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation	
Quests	**Content**
Very large & small metric units	Very large & small metric units, exponents
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E2.2 Lines and Angles Solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons	
Quests	**Content**
Solve problems using angle properties	Calculating the interior angles of polygons
	Calculating supplementary & complementary angles
	Angles on parallel lines cut by a transversal
Course Topic	**Activities Title**
E2 Angle relationships	Angle Measures in a Triangle
	Exterior Angles of a Triangle
	Interior and Exterior Angles
	Quadrilaterals: Angle Sum with Equations
	Plane Figure Theorems
	Vertically Opposite: Value of x
	Equal, Complementary or Supplementary Angles
	Complementary, Supplementary or Neither
	Angles of revolution: Unknown Values
	Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Angles on Parallel Lines
	Introduction to Angles on Parallel Lines 3
	Are the Lines Parallel?

E2.3 Length, Area, and Volume Solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas	
Quests	**Content**
Composite shapes & objects	Calculating the area of composite shapes
	Calculating the perimeter of composite shapes
	Calculating the volume of composite shapes
	Calculating the surface area of composite shapes
Course Topic	**Activities Title**
E2 Perimeter, area & volume	Perimeter Detectives 1
	Perimeter Detectives 2
	Calculate Circumference of Circles
	Area: Triangles
	Area: Composite Shapes
	Area: Sectors (Degrees)
	Surface Area: Triangular Prisms 1
	Volume: Prisms
	Volume of Triangular prisms
	Volume: Composite Figures
	Similar Areas and Volumes

E2.4 Length, Area, and Volume Describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle	
Quests	**Content**
The Pythagorean theorem	Identifying the sides of a right triangle
	Identifying right triangles, Pythagorean Theorem
	Identifying Pythagorean triples
	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
Course Topic	**Activities Title**
E2 Pythagoras' Theorem	Pythagorean Theorem
	Pythagoras' Theorem
	Pythagorean Triads
	Pythagoras: Find a Short Side (integers only)
	Pythagoras: Find a Short Side (rounding needed)
	Pythagoras: Find a Short Side (decimal values)

F. Financial Literacy

F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions

F1.1 Money Concepts Describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

F1.2 Financial Management Create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications	
Quests	**Content**
Create simple financial plans	Creating simple financial plans
Course Topic	**Activities Title**
F1 Money & finances	Calculating Income Tax
	Net Pay
	Deductions and Net Pay
	Wages and Salaries

F1.3 Financial Management Identify different ways to maintain a balanced budget, and use appropriate tools to track all income and spending, for several different scenarios	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Money & finances	Budgeting

F1.4 Financial Management Determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning	
Quests	**Content**
Simple & compound interest	Solving problems involving simple interest
	Solving problems involving compound interest
	Comparing simple & compound interest
Course Topic	**Activities Title**
F1 Money & finances	Simple Interest
	Compound Interest

F1.5 Consumer and Civic Awareness Compare various ways for consumers to get more value for their money when spending, including taking advantage of sales and customer loyalty and incentive programs, and determine the best choice for different scenarios	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Money & finances	Purchase Options
	Best Buy

F1.6 Consumer and Civic Awareness Compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Money & finances	Credit Card Repayments

Grade 9

B. Number

B1 Development of Numbers and Number Sets: demonstrate an understanding of the development and use of numbers, and make connections between sets of numbers

B1.1 Development and Use of Numbers Research a number concept to tell a story about its development and use in a specific culture, and describe its relevance in a current context	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B1.2 Number Sets Describe how various subsets of a number system are defined, and describe similarities and differences between these subsets	
Quests	**Content**
Real numbers	Distinguishing between different sets of numbers
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B1.3 Number Sets Use patterns and number relationships to explain density, infinity, and limit as they relate to number sets	
Quests	**Content**
Infinite nature of sets of real numbers	Understanding the infinite nature of number sets
Pattern & number relationships	Finding the nth term of a linear sequence
	Recognizing geometric sequences & common ratios
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B2 Powers: represent numbers in various ways, evaluate powers, and simplify expressions by using the relationships between powers and their exponents

B2.1 Powers Analyse, through the use of patterning, the relationship between the sign and size of an exponent and the value of a power, and use this relationship to express numbers in scientific notation and evaluate powers	
Quests	**Content**
Investigate exponent notation	Investigating exponent notation
Scientific notation	Writing numbers in scientific notation
	Scientific notation: small numbers
	Scientific notation: large numbers
Course Topic	**Activities Title**
B2 Scientific notation	Scientific Notation 1
	Scientific Notation
	Scientific Notation 2
	Scientific Notation to Decimal
	Ordering Scientific Notation

B2.2 Powers Analyse, through the use of patterning, the relationships between the exponents of powers and the operations with powers, and use these relationships to simplify numeric and algebraic expressions	
Quests	**Content**
Exponent laws	Applying exponent laws with negative exponents
	Applying exponent laws for multiplication
	Applying exponent laws for division
	Applying exponent laws for power of a power
	Applying the zero exponent law
	Applying mixed exponent laws
	Exponent laws for multiplication: algebraic bases
	Exponent laws for division: algebraic bases
	Exponent laws, power of a power: algebraic bases
	Simplifying expressions with negative powers
	Exponent laws for zero exponent: algebraic bases
	Mixed exponent laws: algebraic bases
	Numerical expressions: negative exponents
Course Topic	**Activities Title**
B2 Powers	Exponent Notation
	Powers of Integers
	Exponent Form to Numbers
	Properties of Exponents
	Simplifying with Exponent Laws 1
	Simplifying with Exponential Laws 2
	Integer Exponents
	The Zero Exponent

	Zero Exponent and Algebra
	Exponent Notation and Algebra
	Multiplication with Exponents
	Exponent Laws and Algebra
	Exponent Laws with Brackets

B3 Number Sense and Operations: apply an understanding of rational numbers, ratios, rates, percentages, and proportions, in various mathematical contexts, and to solve problems

B3.1 Rational Numbers Apply an understanding of integers to describe location, direction, amount, and changes in any of these, in various contexts	
Quests	**Content**
Integers	Investigating & interpreting integers
Opposites on the number line	Opposites on the number line
Graph in the 4 quadrants	Graphing coordinates in the 4 quadrants
	Graphing coordinates across the x-axis & y-axis
Graph rational numbers	Placing rational numbers on the number line
	Graphing rational numbers on the coordinate plane
Order rational numbers	Exploring the everyday language of integers
	Statements of order: rational numbers
	Interpreting meanings of integers in context
Course Topic	**Activities Title**
Teacher directed	Teacher directed

B3.2 Rational Numbers Apply an understanding of unit fractions and their relationship to other fractional amounts, in various contexts, including the use of measuring tools	
Quests	**Content**
Calculate unit rates	Calculating unit rates
Course Topic	**Activities Title**
B3 Fractions	Unit Fractions
	Divide by a Unit Fraction
	Fraction Length Models 1

B3.3 Rational Numbers Apply an understanding of integers to explain the effects that positive and negative signs have on the values of ratios, rates, fractions, and decimals, in various contexts	
Quests	**Content**
Compare & order integers	Comparing & ordering integers
Course Topic	**Activities Title**
B3 Fractions	Add: No Common Denominator
	Add Unlike Mixed Numbers

	Subtract: No Common Denominator
	Subtract Mixed Numbers: Signs Differ

B3.4 Applications Solve problems involving operations with positive and negative fractions and mixed numbers, including problems involving formulas, measurements, and linear relations, using technology when appropriate	
Quests	**Content**
Positive & negative fractions	Adding & subtracting signed fractions
	Multiplying & dividing signed fractions
Course Topic	**Activities Title**
B3 Fractions	Multiply Two Fractions 2
	Divide Fractions by Fractions 2
	Divide Mixed Numbers with Signs
	Operations with Fractions

B3.5 Applications Pose and solve problems involving rates, percentages, and proportions in various contexts, including contexts connected to real-life applications of data, measurement, geometry, linear relations, and financial literacy	
Quests	**Content**
Pose & solve real-life problems	Solving real-life percentage problems
	Solving real-life ratio problems
	Real-life ratio & proportions problems, bar models
Course Topic	**Activities Title**
B3 Rates, ratio & percents	Rates Word Problems
	Converting Rates
	Rates Calculations
	Rates of Change
	Ratio Word Problems
	Word Problems: Ratio
	Best Buy
	Unitary Method
	Percentage Word Problems
	Percentage Change: Increase and Decrease
	Percent Increase and Decrease
	Solve Percent Equations
	Successive Discounts
	Commission
	Profit and Loss

C. Algebra

C1. Algebraic Expressions and Equations: demonstrate an understanding of the development and use of algebraic concepts and of their connection to numbers, using various tools and representations

C1.1 Development and Use of Algebra Research an algebraic concept to tell a story about its development and use in a specific culture, and describe its relevance in a current context	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C1.2 Algebraic Expressions and Equations Create algebraic expressions to generalize relationships expressed in words, numbers, and visual representations, in various contexts	
Quests	**Content**
Write algebraic expressions	Writing algebraic expressions
Course Topic	**Activities Title**
C1 Expressions & operations	Writing Algebraic Expressions
	Find the Pattern Rule
	Pattern Rules and Tables

C1.3 Algebraic Expressions and Equations Compare algebraic expressions using concrete, numerical, graphical, and algebraic methods to identify those that are equivalent, and justify their choices	
Quests	**Content**
Equivalent expressions	Verifying equivalent expressions: linear sequences
	Equivalent algebraic expressions
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C1.4 Algebraic Expressions and Equations Simplify algebraic expressions by applying properties of operations of numbers, using various representations and tools, in different contexts	
Quests	**Content**
Apply properties to simplify expressions	Applying properties to simplify expressions
Course Topic	**Activities Title**
C1 Expressions & operations	Algebraic Multiplication
	Dividing Expressions

	Expanding Brackets
	Expanding with Negatives
	Expand then Simplify

C1.5 Algebraic Expressions and Equations Create and solve equations for various contexts, and verify their solutions	
Quests	**Content**
Create & solve equations	Translating & solving word problems
	2-step linear equations, integer solutions
	2-step linear equations, non-integer solutions
	3-step linear equations
	Linear equations with variables on both sides
	Linear equations with grouping symbols
Course Topic	**Activities Title**
C1 Equations	Equations with Grouping Symbols
	Solve Multi-Step Equations
	Equations with Decimals
	Equations: Variables, Both Sides
	Equations with Fractions
	Equations to Solve Problems
	Checking Solutions

C2. Coding: apply coding skills to represent mathematical concepts and relationships dynamically, and to solve problems, in algebra and across the other strands

C2.1 Coding Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C2.2 Coding Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C2.3 Coding Outcome text (bold outcome text if no outcome code present)	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C3. Application of Relations: represent and compare linear and non-linear relations that model real-life situations, and use these representations to make predictions

C3.1 Application of Linear and Non-Linear Relations Compare the shapes of graphs of linear and non-linear relations to describe their rates of change, to make connections to growing and shrinking patterns, and to make predictions	
Quests	**Content**
Graphs of linear & non-linear relations	Exploring graphs of non-linear relationships
	Graphs of linear & non-linear relationships
Course Topic	**Activities Title**
C3 Linear & non-linear graphs	Identifying Graphs
	Non Linear Graphs
	Graphing Parabolas
	Graphing Cubics
	Graphing Exponentials
	Graphing Circles
	Graphing Hyperbolas

C3.2 Application of Linear and Non-Linear Relations Represent linear relations using concrete materials, tables of values, graphs, and equations, and make connections between the various representations to demonstrate an understanding of rates of change and initial values	
Quests	**Content**
Linear relations	Graphing a linear relation by making a table
	Equations in the form y = ax + b
	Determining rate of change & initial value
Course Topic	**Activities Title**
C3 Linear & non-linear graphs	Graphing from a Table of Values
	Reading Values from a Line
	Determining a Rule for a Line

C3.3 Application of Linear and Non-Linear Relations Compare two linear relations of the form y = ax + b graphically and algebraically, and interpret the meaning of their point of intersection in terms of a given context	
Quests	**Content**
Simultaneous equations	Understanding simultaneous equations
	Solving simultaneous equations graphically

	Solving simultaneous equations algebraically
	Checking answers to simultaneous equations
Course Topic	**Activities Title**
C3 Linear & non-linear graphs	Intersecting Linear Regions
	Modelling Linear Relationships
	Gradients for Real
	Simultaneous Linear Equations

C4. Characteristics of Relations: demonstrate an understanding of the characteristics of various representations of linear and non-linear relations, using tools, including coding when appropriate

C4.1 Characteristics of Linear and Non-Linear Relations Compare characteristics of graphs, tables of values, and equations of linear and non-linear relations	
Quests	**Content**
Compare linear relationships	Comparing linear relationships, Cartesian plane
Course Topic	**Activities Title**
Teacher directed	Teacher directed

C4.2 Characteristics of Linear and Non-Linear Relations Graph relations represented as algebraic equations of the forms $x = k$, $y = k$, $x + y = k$, $x - y = k$, $ax + by = k$, and $xy = k$, and their associated inequalities, where a, b, and k are constants, to identify various characteristics and the points and/or regions defined by these equations and inequalities	
Quests	**Content**
Graph horizontal & vertical lines	Graphing horizontal & vertical lines
Course Topic	**Activities Title**
C4 Linear & non-linear equations	Horizontal and Vertical Lines

C4.3 Characteristics of Linear and Non-Linear Relations Translate, reflect, and rotate lines defined by $y = ax$, where a is a constant, and describe how each transformation affects the graphs and equations of the defined lines	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
C4 Linear & non-linear equations	Are they Parallel?
	Perpendicular and Parallel Lines
	Are they Perpendicular?

C4.4 Characteristics of Linear and Non-Linear Relations Determine the equations of lines from graphs, tables of values, and concrete representations of linear relations by making connections between rates of change and slopes, and between initial values and y-intercepts, and use these equations to solve problems	
Quests	**Content**
Model real-life relationships	Modelling real-life relationships: constant rates
	Determining the equation from a graph
Course Topic	**Activities Title**
C4 Linear & non-linear equations	Slope of a Line
	Equation of a Line 1
	Intercepts
	Which Straight Line?
	Equation from Point and Gradient
	Equation from Two Points
	General Form of a Line
	Solve Systems by Graphing
	Breakeven Point

D. Data

D1. Collection, Representation, and Analysis of Data: describe the collection and use of data, and represent and analyse data involving one and two variables

D1.1 Application of Data Identify a current context involving a large amount of data, and describe potential implications and consequences of its collection, storage, representation, and use	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

D1.2 Representation and Analysis of Data Represent and statistically analyse data from a real-life situation involving a single variable in various ways, including the use of quartile values and box plots	
Quests	**Content**
Box plots	Constructing box plots
	Analysing box plots
Define quartiles & interquartile range	Defining quartiles & interquartile range
Course Topic	**Activities Title**
D1 Data analysis & D2 Data sampling	Calculating Interquartile Range
	Box-and-Whisker Plots 1
	Box-and-Whisker Plots 2

D1.3 Representation and Analysis of Data Create a scatter plot to represent the relationship between two variables, determine the correlation between these variables by testing different regression models using technology, and use a model to	
Quests	**Content**
Scatter plots	Constructing scatter plots
	Analysing scatter plots
Course Topic	**Activities Title**
D1 Data analysis & D2 Data sampling	Data Analysis: Scatter Plots
	Scatter Plots
	Correlation

D2. Mathematical Modelling: apply the process of mathematical modelling, using data and mathematical concepts from other strands, to represent, analyse, make predictions, and provide insight into real-life situations

D2.3 Process of Mathematical Modelling Create a plan to collect the necessary data on the question of interest from an appropriate source, identify assumptions, identify what may vary and what may remain the same in the situation, and then carry out the plan	
Quests	**Content**
Construct & conduct a survey	Constructing & conducting a survey
Construct & conduct a survey	Constructing & conducting a survey
Course Topic	**Activities Title**
D1 Data analysis & D2 Data sampling	Methods of Data Sampling
	Data sampling

E. Geometry and Measurement

E1. Geometric and Measurement Relationships: demonstrate an understanding of the development and use of geometric and measurement relationships, and apply these relationships to solve problems, including problems involving real-life situations

E1.1 Geometric and Measurement Relationships Research a geometric concept or a measurement system to tell a story about its development and use in a specific culture or community, and describe its relevance in connection to careers and to other disciplines	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.2 Geometric and Measurement Relationships Create and analyse designs involving geometric relationships and circle and triangle properties, using various tools	
Quests	**Content**
Tessellations	Investigating tessellations using transformations
Course Topic	**Activities Title**
E1 Angle relationships	Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Angles on Parallel Lines
	Introduction to Angles on Parallel Lines 3
	Are the Lines Parallel?
	Circle Theorems

E1.3 Geometric and Measurement Relationships Solve problems involving different units within a measurement system and between measurement systems, including those from various cultures or communities, using various representations and technology, when appropriate	
Quests	**Content**
Unit conversions	Converting between metric & imperial units: length
	Converting between metric & imperial units: mass
Solve problems using scale drawings	Solving problems using scale drawings
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.4 Geometric and Measurement Relationships Show how changing one or more dimensions of a two-dimensional shape and a three-dimensional object affects perimeter/circumference, area, surface area, and volume, using technology when appropriate	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
E1 Surface area & volume	Perimeter, Area, Dimension Change
	Surface Area: Square Pyramids
	Surface Area: Rectangular Pyramids
	Surface Area: Cones
	Surface Area: Rearrange Formula

E1.5 Geometric and Measurement Relationships Solve problems involving the side-length relationship for right triangles in real-life situations, including problems that involve composite shapes	
Quests	**Content**
Real-life problems, Pythagorean Theorem	Pythagorean Theorem: bearings
	Solving real-life problems, Pythagorean Theorem
Course Topic	**Activities Title**
Teacher directed	Teacher directed

E1.6 Geometric and Measurement Relationships Solve problems using the relationships between the volume of prisms and pyramids and between the volume of cylinders and cones, involving various units of measure	
Quests	**Content**
Volume of pyramids & prisms	Finding the volume of pyramids
	Finding the volume of any prisms
	Finding the volume of composite/irregular prisms
	Finding the volume of rectangular prisms
	Finding the height of prisms
	Finding missing dimensions of rectangular prisms
	Finding the volume of triangular prisms
	Finding the missing dimension of triangular prisms
Volume of cylinders & cones	Developing the formula for the volume of cylinders
	Finding the volume of cones
Course Topic	**Activities Title**
E1 Surface area & volume	Volume: Composite Figures
	Volume: Pyramids
	Volume: Cylinders
	Volume: Cones

F. Financial Literacy

F1. Financial Decisions: demonstrate the knowledge and skills needed to make informed financial decisions

F1.1 Financial Decisions Identify a past or current financial situation and explain how it can inform financial decisions, by applying an understanding of the context of the situation and related mathematical knowledge	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
Teacher directed	Teacher directed

F1.2 Financial Decisions Identify financial situations that involve appreciation and depreciation, and use associated graphs to answer related questions	
Quests	**Content**
Appreciation & depreciation	Understanding appreciation & depreciation
Course Topic	**Activities Title**
F1 Appreciation & depreciation	Future Value of Investments 1
	Future Value of Investments 2
	Depreciation
	Straight Line Depreciation
	Declining Balance Depreciation

F1.3 Financial Decisions Compare the effects that different interest rates, lengths of borrowing time, ways in which interest is calculated, and amounts of down payments have on the overall costs associated with purchasing goods or services, using appropriate tools	
Quests	**Content**
Calculate interest	Calculating simple interest
	Calculating compound interest
	Comparing simple & compound interest
Course Topic	**Activities Title**
F1 Interest rates, loans & budgets	Simple Interest
	Compound Interest
	Compound Interest by Formula
	Purchase Options
	Successive Discounts
	Credit Card Repayments
	Comparing Loans
	Comparing Home Loans

F1.4 Financial Decisions Modify budgets displayed in various ways to reflect specific changes in circumstances, and provide a rationale for the modifications	
Quests	**Content**
Teacher directed	Teacher directed
Course Topic	**Activities Title**
F1 Interest rates, loans & budgets	Budgeting

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