Mathletics

NZ Curriculum Mathematics and Statistics (2025)

Activities (Courses) and Skill Quests

Phase 3, Years 7-8

February, 2025

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Year 7

1 Number

1.1 Number structure

Identify, read, write, compare, and order whole numbers using powers of 10 (e.g., 10,000 = 10 ^4)	
Course Topics	**Activities**
Number structure: Whole numbers	Numbers from Words to Digits 3
	Multiplying by 10, 100, 1000
Topics	**Skill Quests**
Teacher directed	

Find the highest common factor (HCF) of two numbers under 100, and find the least common multiple (LCM) of two numbers under 10	
Course Topics	**Activities**
Number structure: Factors, multiples, exponents	Prime or Composite Numbers
	Find the Factor
	Factors
	Multiples
	Highest Common Factor
	Lowest Common Multiple
Topics	**Skill Quests**
Factors & multiples	Finding factors of numbers up to 100
	Finding multiples of numbers up to 100
	Finding prime factors for numbers up to 100
HCF & LCM	Finding HCF & LCM

Use exponents to notate repeated multiplication, and identify square roots of square numbers up to at least 100	
Course Topics	**Activities**
Number structure: Factors, multiples, exponents	Index Notation/Exponent Notation
	Square Roots
Topics	**Skill Quests**
Exponents	Introducing exponents
Square & square roots	Finding square & square roots

1.2 Operations

Use rounding and estimation to predict and to check the reasonableness of calculations	
Course Topics	**Activities**
Operations: Rounding & estimation	Rounding Numbers for Division
	Estimation: Add and Subtract
	Estimation: Multiply and Divide
Topics	**Skill Quests**
Rounding & estimation	Using rounding & estimation

Round whole numbers to any specified multiple of powers of 10, and round decimals to the nearest tenth, hundredth, or whole number	
Course Topics	**Activities**
Operations: Rounding & estimation	Rounding Numbers
	Rounding Decimals
Topics	**Skill Quests**
Operations: Rounding numbers	Rounding numbers
	Rounding whole numbers
	Recognising place value in decimals
	Rounding decimals to hundredths

Recall multiplication facts to at least 10 × 10 and identify and describe the divisibility rules for 2, 3, 5, 9, and 10	
Course Topics	**Activities**
Operations: Multiplication & division	Missing Numbers: × and ÷ facts
	Divisibility Tests (2, 5, 10)
	Divisibility Tests (3, 4, 9)
Topics	**Skill Quests**
Multiplication facts & divisibility	Recalling multiplication facts
	Describing divisibility rules

Multiply whole numbers	
Course Topics	**Activities**
Operations: Multiplication & division	Contracted Multiplication
	Long Multiplication
	Grid Methods 1
	Multiply 2 Digits Area Model
	Problems: Times and Divide
	Multiply and Divide Problems 1
Topics	**Skill Quests**
Multiplication	Using strategies to multiply whole numbers
	Using standard algorithms to multiply

Divide whole numbers by 1- or 2-digit divisors (e.g., 327 ÷ 5 = 65.4 or 65 2/5)	
Course Topics	**Activities**
Operations: Multiplication & division	Dividing by 10, 100, 1000
	Short Division
	Long Division
	Problems: Times and Divide
	Multiply and Divide Problems 1
Topics	**Skill Quests**
Division	Dividing whole numbers using strategies & models
	Dividing whole numbers using strategies
	Using standard algorithms to divide
	Multiplying & dividing whole numbers in context

Use the order of operations	
Course Topics	**Activities**
Operations: Order of operations	Order of Operations 1 (BIDMAS)
	Identifying errors in applying the order of operations
Topics	**Skill Quests**
Order of operations	Understanding the distributive law & brackets
	Using the order of operations

Order, compare, and locate integers on a number line and explore adding and subtracting integers	
Course Topics	**Activities**
Operations: Integers	Ordering Integers (Number Line)
	Directed Numbers
	Negative or Positive?
	Adding Integers: Positive, Negative or Zero
Topics	**Skill Quests**
Integers	Ordering & comparing integers
	Adding & subtracting integers
	Investigating the use of integers in real-life

1.3 Rational numbers

Identify, read, write, and represent fractions, decimals (to three places), and percentages	
Course Topics	**Activities**
Rational numbers: Fractions	Shading Equivalent Fractions
	Fraction Wall Labelling 1
	Equivalent Fractions on a Number Line 1
	Equivalent Fractions
	Simplifying Fractions
	Mixed to Improper
	Improper to Mixed

Rational numbers: Decimals	Comparing Decimals
	Decimal Order
	Fraction to Terminating Decimal
	Fractions to Decimals
	Decimals to Fractions 2
	Decimals to Fractions 1
Rational numbers: Percentages	Modelling Percentages
	Quantities to Percentages (no units)
	Quantities to Percentages (with units)
	Percentage to Fraction
	Fractions to Percentages (Non-Calculator)
	Common Fractions as Percentages (AU)
	Decimal to Percentage
Topics	**Skill Quests**
Equivalent fractions	Calculating equivalent fractions
	Converting between mixed & improper fractions
Calculate a percentage of a quantity	Calculating a fraction of a quantity
	Calculating a percentage of a quantity
Convert rational numbers	Converting fractions to decimals
	Converting fractions to percentages
	Converting decimals to fractions
	Converting decimals to percentages
	Converting percentages to fractions
	Converting percentages to decimals
Compare & order rational numbers	Comparing & ordering proper fractions
	Comparing & ordering improper & mixed fraction
	Comparing & ordering decimals
	Comparing & ordering percentages
	Comparing & ordering FDP

Compare, order, and convert between fractions, decimals (to three places), and percentages	
Course Topics	**Activities**
Rational numbers: Fractions	Comparing Fractions 1
	Arranging Fractions
	Comparing Fractions with Signs
Rational numbers: Decimals	Comparing Decimals
	Decimal Order
	Fraction to Terminating Decimal
	Fractions to Decimals
	Decimals to Fractions 2
	Decimals to Fractions 1
Rational numbers: Percentages	Modelling Percentages
	Percentage to Fraction
	Fractions to Percentages (Non-Calculator)
	Common Fractions as Percentages (AU)
	Decimal to Percentage
	Match Decimals and Percentages
	Percentage Composition/What percentage?

Topics	Skill Quests
Convert rational numbers	Converting fractions to decimals
	Converting fractions to percentages
	Converting decimals to fractions
	Converting decimals to percentages
	Converting percentages to fractions
	Converting percentages to decimals
Compare & order rational numbers	Comparing & ordering proper fractions
	Comparing & ordering improper & mixed fraction
	Comparing & ordering decimals
	Comparing & ordering percentages
	Comparing & ordering FDP

Multiply and divide numbers by 10, 100, and 1000	
Course Topics	**Activities**
Rational numbers: Decimals	Place Value 2 (×10 and ÷10)
	Multiply Decimals: 10, 100, 1000
	Divide Decimals: 10, 100, 1000
Topics	**Skill Quests**
Multiply & divide by powers of 10	Multiplying decimals by 10, 100, & 1000
	Dividing decimals by 10, 100, & 1000

Find equivalent fractions, simplify fractions, and convert between improper fractions and mixed numbers	
Course Topics	**Activities**
Rational numbers: Fractions	Shading Equivalent Fractions
	Fraction Wall Labelling 1
	Equivalent Fractions on a Number Line 1
	Equivalent Fractions
	Simplifying Fractions
	Mixed to Improper
	Improper to Mixed
Topics	**Skill Quests**
Equivalent fractions	Calculating equivalent fractions
	Simplifying fractions
	Converting between mixed & improper fractions

Multiply fractions and decimals by whole numbers	
Course Topics	**Activities**
Rational numbers: Fractions	Model Fractions to Multiply
	Multiply Fraction by Whole Number
Rational numbers: Percentages	Calculating Percentages (Mental)
	Percentage of a Quantity
Topics	**Skill Quests**
Multiply decimals by whole numbers	Multiplying decimals

Find a percentage of a whole number, and find a whole amount, given a simple fraction or percentage (e.g., '25% is $100, what is the original amount?')	
Course Topics	**Activities**
Rational numbers: Percentages	Percentage Word Problems
Topics	**Skill Quests**
Calculate a percentage of a quantity	Calculating a fraction of a quantity
	Calculating a percentage of a quantity

Add and subtract fractions with different denominators up to tenths, using equivalent fractions (e.g., 3/4 + 1/3)	
Course Topics	**Activities**
Rational numbers: Fractions	Common Denominator
	No Common Denominator
	Add Like Mixed Numbers
	Subtract Like Mixed Numbers
Topics	**Skill Quests**
Operations involving fractions	Adding subtracting fractions - common denominator
	Adding subtracting fractions - related denominator

Add and subtract decimals to three decimal places, with an emphasis on estimating before calculating	
Course Topics	**Activities**
Rational numbers: Decimals	Decimal Complements
	Adding Decimals
	Subtracting Decimals
	Estimate Decimal Sums 1
	Estimate Decimal Differences 1
Topics	**Skill Quests**
Operations involving decimals	Adding decimals
	Subtracting decimals

Use proportional reasoning to explore multiplicative relationships between quantities (e.g., 'If there are 3 red for every 7 blue balls, how many balls are there altogether when there are 18 red balls?')	
Course Topics	**Activities**
Rational numbers: Fractions	Fraction Word Problems
Rational numbers: Percentages	Quantities to Percentages (no units)
	Quantities to Percentages (with units)
	Percentage Composition/What percentage?
	Percentage Word Problems
Topics	**Skill Quests**
Proportional reasoning	Using proportional reasoning

1.4 Financial maths

Calculate costs, and change for any amount of money	
Course Topics	**Activities**
Financial maths	Money Problems: Four Operations
	Purchase Options
	Best Buy
Topics	**Skill Quests**
Calculate cost & best buys	Calculating best buy amounts
	Calculating loss & profit

Apply percentage discounts to whole-dollar amounts	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Percent discounts	Calculating percentage discounts

2 Algebra

2.1 Equations and relationships

Form and solve 1-step linear equations (e.g., t + 7 = 12 ; 2s = 14)	
Course Topics	**Activities**
Linear equations & patterns	Write an Equation: Word Problems
	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Find the Missing Number 1
Topics	**Skill Quests**
Linear equations	Forming linear equations & expressions
	Solving linear equations using models
	Solving linear equations
	Solving linear equations with non-integer solution

Find the value of an expression or formula given the values of variables (e.g., calculate w + 12 when w = 4)	
Course Topics	**Activities**
Substitution of Values	Simple Substitution
	Simple Substitution 2
	Substitution in Formulae
Topics	**Skill Quests**
Substitution of values	Using substitution to solve/check answers

Describe and use the commutative, distributive, and associative properties of operations (e.g., a x b = b x a)	
Course Topics	**Activities**
Properties of Operations	Commutative Property of Addition
	Addition Properties
	Multiplication Properties
	Arithmetic Laws
Topics	**Skill Quests**
Properties of operations	Using the commutative properties of operations
	Using the distributive properties of operations
	Using the associative properties of operations

Identify the constant increase or decrease in a linear pattern, use variables and algebraic notation to represent the rule in an equation, and use the rule to make conjectures	
Course Topics	**Activities**
Linear equations & patterns	Describing Patterns
	Pattern Rules and Tables
Properties of Operations	Table of Values
Topics	**Skill Quests**
Linear patterns & relationships	Identifying linear patterns
	Using tables to describe linear patterns

2.2 Algorithmic thinking

Create, test, and revise algorithms involving a sequence of steps and decisions	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

3 Measurement

3.1 Measuring

Estimate and then measure length, area, volume, capacity, mass (weight), temperature, data storage, time, and angle, using appropriate metric units	
Course Topics	**Activities**
Measuring & converting	Using a Litre
	How Heavy?
	What's the Temperature (Celsius)?
	Measuring Angles
	Estimating Angles

Topics	Skill Quests
Measuring	Measuring length
	Measuring mass (weight)
	Measuring temperature

Select and use an appropriate base measure (e.g., metre, gram, litre) within the metric system, along with a prefix (e.g., kilo, centi) to show the size of units	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Measuring	Measuring length
	Measuring mass (weight)
	Measuring temperature

Convert between metric units of length, mass (weight), and capacity, using whole numbers and decimals to express parts of a unit (e.g., 724g = 0.724kg)	
Course Topics	**Activities**
Measuring & converting	Centimetres and Metres
	Kilometre Conversions
	Litre Conversions
	Millilitres and Litres
	Kilogram Conversions
	Grams and Milligrams
Topics	**Skill Quests**
Unit conversion	Converting between metric units of length
	Converting between metric units of weight/mass

Find speed given distance and time	
Course Topics	**Activities**
Speed, distance & time	Average Speed
Topics	**Skill Quests**
Rate: Speed	Calculating speed given distance & time

3.2 Time

- Read, interpret, and use timetables and charts that present measurement information - Convert between units of time and solve duration problems that involve fractions of time	
Course Topics	**Activities**
Speed, distance & time	What Time Will it Be?
	Time Mentals
	Elapsed Time

	Time Conversions: Whole Numbers 1
	Time Conversions: Whole Numbers 2
	Time Conversions: Simple Fractions
Topics	**Skill Quests**
Time: Interpretation	Using 12-hour & 24-hour time
	Calculating different time zones using a map
	Reading timetables to solve problems
Time: Conversion	Converting between units of time in fractions

3.3 Perimeter, area and volume

Calculate the perimeter and area of compound shapes composed of triangles and rectangles	
Course Topics	**Activities**
Perimeter, area & volume	Perimeter: Squares and Rectangles
	Perimeter: Triangles
	Perimeter Detectives 2
	Area: Squares and Rectangles
	Area: Triangles
	Area: Right Angled Triangles
	Area: Composite Shapes
	Area: Parallelograms (Metric)
Topics	**Skill Quests**
Perimeter, area & volume	Calculating perimeters of 2D shapes
	Calculating perimeters of composite shapes
	Applying area of triangle formula
	Applying area of rectangle formula
	Calculating area of composite shapes

4 Geometry

4.1 Shapes

Classify and name shapes based on their attributes (e.g., triangles, pyramids)	
Course Topics	**Activities**
Shapes	Count Sides and Corners
	Shapes
	Triangle Tasters
	Collect Simple Shapes
Topics	**Skill Quests**
Shapes	Classifying shapes
	Classifying triangles by their properties
	Classifying quadrilaterals by their properties

Identify and describe angles at a point, angles on a straight line, and vertically opposite angles	
Course Topics	**Activities**
Angle properties	Labelling Angles
	Angles in a Revolution
	Equal, Complementary or Supplementary Angles
	Complementary, Supplementary or Neither
	Vertically Opposite: Value of x
Topics	**Skill Quests**
Angle properties	Identifying & using adjacent angles
	Calculating supplementary angles
	Calculating complementary angles
	Calculating angles at a point
	Exploring vertically opposite angles

4.2 Spatial reasoning

Visualise, construct and draw plan views for front, back, left, right, and top views of 3D shapes	
Course Topics	**Activities**
Spatial reasoning & pathways	Relate Shapes and Solids
Topics	**Skill Quests**
Spatial reasoning: Plan views	Connecting prisms & their plan views
	Connecting 3D objects & their plan views

Transform 2D shapes, including composite shapes, by resizing by a whole number	
Course Topics	**Activities**
Spatial reasoning & pathways	Scale Factor
Topics	**Skill Quests**
Spatial reasoning: Transformation	Using the coordinate system to construct shapes
	Resizing 2D shapes

4.3 Pathways

Interpret and communicate the location of positions and pathways using coordinates, angle measures, and the 8 main and halfway compass points (e.g., 45° E from N is NE)	
Course Topics	**Activities**
Spatial reasoning & pathways	Map Coordinates
	Coordinate Meeting Place
	What Direction was That?
	Following Directions

Topics	Skill Quests
Pathways	Introducing the Cartesian coordinate system
	Using intercardinal compass directions
	Using angle measures in directions

5 Statistics

5.1 Problem

Investigate, using multivariate datasets, summary, comparison, time-series, and relationship situations for paired categorical data by: – posing investigative questions about local community matters – making predictions or assertions about expected findings	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

5.2 Plan

Plan how to collect or source data to answer investigative questions, including – determining or identifying the variables needed – planning how to collect data for each variable (e.g., how to measure them when collecting) or finding out how provided data was collected – identifying the group of interest or who the data was collected from – building awareness of ethical practices by strategic questioning of data collection methods	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Statistics: Plan	Planning for statistical investigations

5.3 Data

Collect primary data or gather information about variables in sourced data, create a simple informal data dictionary, and check for errors	
Course Topics	**Activities**
Statistics: Data & data types	Line Graphs: Interpretation 1
	Sector Graphs
	Creating a Sector Graph
	Sector Graph Angles
	Sector Graph Calculations
	Divided Bar Graphs

	Frequency Histograms
	Data Types
Topics	**Skill Quests**
Statistics: Data	Collecting data

5.4 Analysis

- Create data visualisations for the investigation - Make statements about the data, including its features and context, in descriptions of distributions	
Course Topics	**Activities**
Statistics: Analysis	Mean
	Median
	Mode
	Data Extremes and Range
	Mean from Frequency Table
	Mode from Frequency Table
	Median from Frequency Table
Topics	**Skill Quests**
Statistics: Analysis	Interpreting pie charts
	Interpreting frequency, bar & divided bar graphs
	Interpreting histograms
	Interpreting dot plots
	Calculating central tendency: Mean, median, mode
	Understanding mean, median, mode
	Comparing means, medians & modes
	Calculating the spread: Range
	Selecting data displays

5.5 Conclusion

Communicate findings in context to answer an investigative question, using evidence from analysis and comparing findings to initial predictions or assertions and existing knowledge of the world	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

5.6 Statistical literacy

Examine the findings of others to check if their claims or statements are supported by the data visualisations they use	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

6 Probability

6.1 Probability investigations

Plan and conduct probability experiments for chance-based situations, including undertaking a large number of trials using digital tools, by: – posing investigative questions - anticipating what outcomes are possible and which of them are more or less likely to occur - identifying and systematically listing possible answers to the investigative question – collecting and recording data – creating data visualisations for the distribution of observed outcomes – describing what these visualisations show – finding the probability estimates for the different outcomes - answering the investigative question – identifying similarities and differences between their findings and those of others – reflecting on anticipated outcomes - comparing findings from the probability experiment and associated theoretical probabilities, as appropriate	
Course Topics	**Activities**
Probability investigations	Counting Techniques 1
	Simple Probability
	Find the Probability
	Dice and Coins
Topics	**Skill Quests**
Probability investigations	Understanding the language of probability
	Applying basic probability language
	Understanding theoretical probability
	Understanding experimental probability
	Using frac/dec & percentages in probability

6.2 Critical thinking in probability

Identify, explain, and check others' statements about chance-based investigations, referring to evidence	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

Year 8

1 Number

1.1 Number structure

Identify, read, write, compare, and order whole numbers and decimals using powers of 10 (e.g., 0.01 = 1/100 = 10^-2)	
Course Topics	**Activities**
Number structure: Whole numbers & decimals	Comparing Numbers
	Decimals from Words to Digits 1
Topics	**Skill Quests**
Teacher directed	

Use prime factorisation to represent a number and to find the HCF of two numbers	
Course Topics	**Activities**
Number structure: HCF, square & cube numbers	Factors
	Product of Prime Factors
	Highest Common Factor
	Prime or Composite?
Topics	**Skill Quests**
Prime & composite	Prime & composite numbers
Prime factors	Using prime factorisation to represent a number
HCF	Finding the highest common factor

Identify prime and composite numbers up to at least 100 and cube numbers up to at least 125	
Course Topics	**Activities**
Number structure: HCF, square & cube numbers	Square and Cube Roots
Topics	**Skill Quests**
Prime & composite	Prime & composite numbers
Prime factors	Using prime factorisation to represent a number
Square & cube numbers	Finding square roots of perfect squares
	Finding square roots of non-perfect squares
	Finding cube roots of perfect cubes
	Finding cube roots of non-perfect cubes

1.2 Operations

Use rounding, estimation, and benchmarks to predict results and to check the reasonableness of calculations	
Course Topics	**Activities**
Operations: Rounding & estimation	Estimation: Multiply and Divide
	Estimating Square Roots
	Estimating Cube Roots
Topics	**Skill Quests**
Rounding	Rounding decimals to thousandth
Rounding & estimation	Using rounding & estimation

Round whole numbers to any specified power of 10, and round decimals to the nearest tenth, hundredth, thousandth, or whole number	
Course Topics	**Activities**
Operations: Rounding & estimation	Rounding Numbers
	Rounding Decimals 2
Topics	**Skill Quests**
Rounding	Rounding decimals to thousandth

Identify and describe the divisibility rules for 2–11	
Course Topics	**Activities**
Operations: Multiplication & division	Divisibility Tests
	Tests of Divisibility 1
Topics	**Skill Quests**
Divisibility	Describing divisibility rules

Divide whole numbers (e.g., 327 ÷ 15 = 21.8 or 21 4/5)	
Course Topics	**Activities**
Operations: Multiplication & division	Long Division
	Mental Methods Division 1
Topics	**Skill Quests**
Division	Using strategies to divide whole numbers
	Using standard algorithms to divide

Use the order of operations	
Course Topics	**Activities**
Operations: Order of Operations	Order of Operations 1 (BIDMAS)
	Identifying errors in applying the order of operations
	Order of Operations 2
Topics	**Skill Quests**
Order of operations	Using the order of operations

Order, compare, add, and subtract integers	
Course Topics	**Activities**
Operations: Integers	Comparing Integers (<, =, >)
	Integers: Subtraction
	Integers: Add and Subtract
	More with Integers
Topics	**Skill Quests**
Integers	Ordering & comparing integers
	Adding & subtracting integers
	Investigating the use of integers in real-life

1.3 Rational numbers

Identify, read, write, and represent fractions, decimals and percentages	
Course Topics	**Activities**
Rational numbers: Fractions	Fraction Wall Labelling 2
	Equivalent Fractions
	Converting Mixed and Improper
Topics	**Skill Quests**
Equivalent fractions	Calculating equivalent fractions
	Simplifying fractions
	Converting between mixed & improper fractions
Calculate a percentage of a quantity	Calculating a fraction of a quantity
	Calculating a percentage of a quantity
	Comparing quantities in percentages
Convert rational numbers	Converting fractions to decimals
	Converting fractions to percentages
	Converting decimals to fractions
	Converting decimals to percentages
	Converting percentages to fractions
	Converting percentages to decimals
	Converting fractions, decimals & percentages
Compare & order rational numbers	Comparing & ordering fractions
	Ordering & comparing decimals
	Comparing & ordering percentages
	Ordering fractions, decimals & percentages

Compare, order, and convert between fractions, decimals, and percentages	
Course Topics	**Activities**
Rational numbers: Fractions	Comparing Fractions 2
	Comparing Fractions with Signs
	Arranging Fractions
Rational numbers: Decimals	Comparing Decimals
	Decimal Order
	Fractions to Decimals 2
Rational numbers: Percentages	Mixed Numerals to Percentages greater than 100%
	Percentages greater than 100% to Mixed Numerals
	Decimals to percentages

	Percentages to Decimals
Topics	**Skill Quests**
Convert rational numbers	Converting fractions to decimals
	Converting fractions to percentages
	Converting decimals to fractions
	Converting decimals to percentages
	Converting percentages to fractions
	Converting percentages to decimals
	Converting fractions, decimals & percentages
Compare & order rational numbers	Comparing & ordering fractions
	Ordering & comparing decimals
	Comparing & ordering percentages
	Ordering fractions, decimals & percentages

Multiply and divide numbers by powers of 10	
Course Topics	**Activities**
Rational numbers: Decimals	Multiply Decimals: 10, 100, 1000
	Divide Decimals: 10, 100, 1000
Topics	**Skill Quests**
Multiply & divide by powers of 10	Multiplying decimals by 10, 100 & 1000
	Dividing decimals by 10, 100 & 1000

Find equivalent fractions, simplify fractions, and convert between improper fractions and mixed numbers	
Course Topics	**Activities**
Rational numbers: Fractions	Simplifying Fractions
Topics	**Skill Quests**
Equivalent fractions	Calculating equivalent fractions
	Simplifying fractions
	Converting between mixed & improper fractions

Multiply fractions and decimals by whole numbers	
Course Topics	**Activities**
Rational numbers: Decimals	Multiply Decimal by Whole Number
Rational numbers: Percentages	Percentage of an amount using Fractions (<100%)
	Percentage of an amount using Decimals (calculator)
	Percentages of a quantity (>100%)
Topics	**Skill Quests**
Multiply fractions by whole numbers	Multiplying fractions by whole numbers
Multiply decimals by whole numbers	Multiplying decimals

Find a percentage of a whole number, and find a whole amount, given a simple fraction or percentage (e.g., '75% is $45, what is the original amount?')	
Course Topics	**Activities**
Rational numbers: Percentages	Percentage Word Problems
Topics	**Skill Quests**
Multiply fractions by whole numbers	Multiplying fractions by whole numbers
Calculate a percentage of a quantity	Calculating a fraction of a quantity
	Calculating a percentage of a quantity
	Comparing quantities in percentages

Add and subtract fractions with different denominators by using equivalent fractions	
Course Topics	**Activities**
Rational numbers: Fractions	Subtract Mixed Numbers: Renaming
	Add Unlike Mixed Numbers
	Subtract Unlike Mixed Numbers
	Mixed Numerals
Topics	**Skill Quests**
Operations involving fractions	Adding & subtracting fractions
	Adding & subtracting fractions involving integers

Add, subtract, and multiply decimals, with an emphasis on estimating before calculating	
Course Topics	**Activities**
Rational numbers: Decimals	Estimate Decimal Sums 1
	Estimate Decimal Differences 1
	Estimate Decimal Sums 2
	Estimate Decimal Differences 2
	Adding and Subtracting Decimals
	Multiply Decimals 1
	Multiply Decimals: Area Model
	Decimal by Decimal
Topics	**Skill Quests**
Operations involving decimals	Adding & subtracting decimals

Use proportional reasoning to share with unequal proportions (e.g., 'We have 100 stickers to share. for every 1 sticker I get, you get 3 stickers. How many do we each get?')	
Course Topics	**Activities**
Rational numbers: Fractions	More Fraction Problems
Topics	**Skill Quests**
Proportional reasoning	Using proportional reasoning

1.4 Financial maths

Create and compare weekly, monthly, and yearly finance plans (e.g., saving plans, phone plans, budgets, and 'buy now, pay later' services	
Course Topics	**Activities**
Financial maths	Wages and Salaries
	Working Overtime
	Commission
	Net Pay
Topics	**Skill Quests**
Financial maths	Understanding hire purchase
	Calculating taxation: GST

Apply percentage discounts	
Course Topics	**Activities**
Financial maths	Budgeting
	Profit and Loss
	Successive Discounts
	GST
Topics	**Skill Quests**
Percentage discounts	Calculating percentage discounts

2 Algebra

2.1 Equations and relationships

Form and solve 1- or 2-step linear equations (e.g., 5s – 3 = 17)	
Course Topics	**Activities**
Linear equations, patterns & relationships	I am Thinking of a Number!
	Writing Equations
	Find the Missing Number 2
	Missing Values: Decimals
	Solving Simple Equations
Topics	**Skill Quests**
Linear equations	Forming linear equations
	Solving 1-step linear equations
	Solving 2-step linear equations

Find the value of an expression or formula given the values of variables	
Course Topics	**Activities**
Substitution of Values	Simple Substitution 3
	More Substitution in Formulae
	Real Formulae

Topics	Skill Quests
Substitution of values	Using substitution to solve/check answers

Simplify algebraic expressions involving sums, products, differences, and single brackets (e.g., using the distributive property, 2(x + 3) + 1 = 2x + 6 + 1 = 2x + 7)	
Course Topics	**Activities**
Simplify algebraic expressions	Like Terms: Add and Subtract
	Using the Distributive Property
	Expanding Brackets
Topics	**Skill Quests**
Simplify algebraic expressions	Simplifying algebraic expressions

Determine if a pattern is linear and, if it is, write the equation for the pattern and use the equation	
Course Topics	**Activities**
Linear equations, patterns & relationships	Pattern Rules and Tables
	Find the Pattern Rule
Topics	**Skill Quests**
Linear patterns & relationships	Identifying linear patterns
	Using graphs to describe linear patterns
	Deriving the linear equation of a pattern
	Comparing graphs of linear equations

2.2 Algorithmic thinking

Create, test, revise, and use algorithms to identify, interpret, and explain patterns	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

3 Measurement

3.1 Measuring

Estimate and then measure length, area, volume, capacity, mass (weight), temperature, data storage, time, and angle, using appropriate metric units	
Course Topics	**Activities**
Teacher directed	

Topics	Skill Quests
Units of measurement	Ordering units of measurement
Measuring	Measuring volume
	Measuring capacity

Select and use an appropriate base measure (e.g., metre, gram, litre) within the metric system, along with a prefix to show the size of units	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Units of measurement	Ordering units of measurement
Measuring	Measuring volume
	Measuring capacity

Convert between metric units, including square units	
Course Topics	**Activities**
Measurement: Converting	Converting cm and mm
	Metres and Kilometres
	Converting Units of Length
	Floor Plans
	Converting Units of Area
	Millilitres and Litres
	Converting Volume
	Grams and Kilograms
	Converting Units of Mass
Topics	**Skill Quests**
Unit conversion	Converting between units of area
	Converting between metric units: Capacity/volume

Find distance given speed and time, or time given distance and speed	
Course Topics	**Activities**
Speed, distance & time	Average Speed
	Distance Travelled
	Time Taken
Topics	**Skill Quests**
Rate: Speed	Finding distance travelled

3.2 Time

- Read, interpret, and use timetables and charts that present measurement information - Convert times to a common unit, such as seconds or minutes, and use decimal units of time (milliseconds)	
Course Topics	**Activities**
Speed, distance & time	Time Zones

	Using Timetables
	Time Conversions: Simple Decimals
	Hours and Minutes
Topics	**Skill Quests**
Time: Interpretation	Reading scales & timetables to solve problems
	Solving problems involving different time zones
Time: Conversion	Converting between units of time in decimals

3.3 Perimeter, area and volume

Calculate the volume of triangular prisms and shapes composed of rectangular prisms	
Course Topics	**Activities**
Perimeter, area & volume	Area: Quadrilaterals
	Volume: Rectangular Prisms 1
	Volume: Rectangular Prisms 2
	Volume: Prisms
Topics	**Skill Quests**
Perimeter, area & volume	Applying formula of volume of rectangular prism
	Applying formula of volume of triangular prism

4 Geometry

4.1 Shapes

Describe triangles, quadrilaterals, and other polygons in relation to their side, diagonal, and angle properties	
Course Topics	**Activities**
Shapes	Triangle Tasters
	Properties of Quadrilaterals
	Plane Figure Terms
	Plane Figure Theorems
Topics	**Skill Quests**
Shapes	Applying geometric reasoning in triangles
	Applying geometric reasoning in quadrilaterals
	Applying geometric reasoning in various polygons

Reason about unknown angles in situations involving angles at a point, angles on a straight line, vertically opposite angles, interior angles of triangles, and polygons	
Course Topics	**Activities**
Angle properties	Angles of Revolution: Value of x
	Vertically Opposite: Value of x
	Angle Sum of a Triangle

	Quadrilaterals: Angle Sum with Equations
	Interior Angles
	Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Angles and Parallel Lines
Topics	**Skill Quests**
Angle properties	Introducing geometric reasoning in parallel lines
	Applying geometric reasoning in parallel lines

4.2 Spatial reasoning

Visualise and draw nets for prisms with a fixed cross section	
Course Topics	**Activities**
Spatial reasoning: Nets	What Prism am I?
	Collect the Objects 2
	Nets
Topics	**Skill Quests**
Spatial reasoning: Nets	Identifying cross-sections of prisms
	Connecting prisms to their nets
	Connecting 3D objects to their nets

Recognise the invariant properties of 2D and 3D shapes under different transformations	
Course Topics	**Activities**
Spatial reasoning: Transformation & pathways	Vertical and horizontal shift
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	**Skill Quests**
Spatial reasoning: Transformation	Performing enlargements & identify scale factors
	Performing translations
	Performing reflections
	Performing rotations
	Understanding line & rotational symmetry
	Using a combination of transformations
	Recognising invariant properties

4.3 Pathways

Use map scales, compass points, distance, and turn to interpret and communicate positions and pathways in coordinate systems and grid reference systems	
Course Topics	**Activities**
Spatial reasoning: Transformation & pathways	More Directions!
	Scale

Topics	Skill Quests
Pathways	Communicating pathways on grid reference
	Using the Cartesian coordinate system for position
	Using scale drawings on maps
	Using compass points in directions
	Using distance to communicate positions

5 Statistics

5.1 Problem

Investigate, using multivariate datasets, summary, comparison, time-series, and relationship situations for paired categorical data by: – posing investigative questions about local community matters – making predictions or assertions about expected findings	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

5.2 Plan

Plan how to collect or source data to answer investigative questions, including: – determining or identifying the variables needed – planning how to collect data for each variable (e.g., how to measure them when collecting) or finding out how provided data was collected – identifying the group of interest or who the data was collected from – building awareness of ethical practices by strategic questioning of data collection methods	
Course Topics	**Activities**
Statistics: Data & data samples	Data sampling
	Cumulative Frequency Table
Topics	**Skill Quests**
Statistics: Plan	Planning for statistical investigations

5.3 Data

Collect or source data, including: - checking for errors and following up and correcting them when possible - creating an informal data dictionary with information that will help others know about the context	
Course Topics	**Activities**
Statistics: Data & data samples	Dot Plots
	Stem and Leaf Plots: Concept
	Double Stem and Leaf Plots
	Methods of Data Sampling
Topics	**Skill Quests**
Statistics: Data	Interpreting secondary data

5.4 Analysis

- Create data visualisations for the investigation, using multiple visualisations to provide different views of the data - Make statements about the data, including its features and context, in descriptions of distributions	
Course Topics	**Activities**
Statistics: Analysis	Mean
	Median
	Mode
	Data Extremes and Range
	Median from Stem and Leaf Plot
	Mode from Stem and Leaf Plot
	Stem and Leaf Plots with Range
	Median and Cumulative Frequency
	Grouping data and modal class/Grouped frequency (US)
	Which Measure of Central Tendency?
	Correlation
Topics	**Skill Quests**
Statistics: Analysis	Interpreting stem & leaf plots
	Interpreting line graphs
	Interpreting 2-way tables
	Interpreting scatter plot
	Calculating the central tendency & spread
	Investigating measures of variation
	Applying central tendency & spread
	Interpreting data in various displays

5.5 Conclusion

Communicate findings in context to answer an investigative question, using evidence from analysis, considering possible explanations for findings, and comparing findings to initial predictions or assertions and existing knowledge of the world	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Statistics: Conclusion	Drawing conclusions to answer the investigation

5.6 Statistical literacy

Examine the data-collection methods, data visualisations, and findings of others' statistical investigations to see if their claims are reasonable	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

6 Probability

6.1 Probability investigations

Plan and conduct probability experiments for chance-based situations, including undertaking a large number of trials using digital tools, by: – posing investigative questions - anticipating what outcomes are possible and which of them are more or less likely to occur - identifying and systematically listing possible answers to the investigative question – collecting and recording data - creating data visualisations for the distribution of observed outcomes and for all possible outcomes for theoretical probability models, where they exist – describing what these visualisations show – finding the probability estimates for the different outcomes - answering the investigative question – identifying similarities and differences between their findings and those of others – reflecting on anticipated outcomes - comparing findings from the probability experiment and associated theoretical probabilities, as appropriate	
Course Topics	**Activities**
Probability investigations	Two-way Table Probability
	Venn Diagrams
	Probability Tables
	Complementary Events
Topics	**Skill Quests**
Probability investigations	Understanding the language of probability
	Understanding theoretical probability

	Understanding experimental probability
	Using frac/dec & percentages in probability

6.2 Critical thinking in probability

Identify, explain, and check others' statements about chance-based investigations, referring to evidence	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

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