Mathletics

Victorian Mathematics V2.0

Activities (Courses) and Skill Quests

Levels 7 – 8

January, 2025

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Year 7

1 Number

VC2M7N01 describe the relationship between perfect square numbers and square roots, and use squares of numbers and square roots of perfect square numbers to solve problems	
Course Topics	**Activities**
Square roots	Square Roots
	Estimating Square Roots
Topics	**Skill Quests**
Squares & square roots	Squares of whole numbers
	Linking squares & square roots
	Determining non-perfect square roots
	Using squares & square roots to solve problems

VC2M7N02 represent natural numbers in expanded notation using powers of 10, and as products of powers of prime numbers using exponent notation	
Course Topics	**Activities**
Number properties	Expanded Notation
	Product of Prime Factors
	Lowest Common Multiple
	Highest Common Factor
Topics	**Skill Quests**
Exponent notation	Working with exponent notation
	Working with prime factors

VC2M7N03 find equivalent representations of rational numbers and represent positive and negative rational numbers and mixed numbers on a number line	
Course Topics	**Activities**
Equivalent representations	Equivalent Fraction Wall 2
	Equivalent Fractions on a Number Line 2
	Simplifying Fractions
	Converting Mixed and Improper
	Fraction to Terminating Decimal
	Decimals to Fractions 2
	Percentages to Fractions (with and without simplification)
	Percentages greater than 100% to Mixed Numerals
	Fractions to Percentages (Non-Calculator)
	Mixed Numerals to Percentages greater than 100%
	Decimals to Percentages
	Percentages to Decimals
	Match Decimals and Percentages
	Mixed decimal, percentage and fraction conversions
	Counting with Fractions on a Number Line
	Mixed and Improper Fractions on a Number Line

Topics	Skill Quests
Work with equivalent fractions	Equivalent fractions & simplifying
	Converting improper fractions & mixed numbers
	Comparing & ordering fractions
Fractions, decimals & percentages	Convert fractions & decimals
	Convert fractions to percentages
	Convert percentages to fractions
	Convert decimals to percentages
	Convert percentages to decimals
	Convert between fractions, decimals & percentages

VC2M7N04

round decimals to a given accuracy appropriate to the context and use appropriate rounding and estimation to check the reasonableness of computations

Course Topics	Activities
Round decimals	Rounding Decimals
	Estimate Decimal Differences 1
	Estimate Decimal Sums 1
	Estimate Decimal Differences 2
	Estimate Decimal Sums 2
	Rounding Numbers for Division
	Estimate Decimal Operations
Topics	**Skill Quests**
Round decimals	Rounding to a decimal place
	Introducing significant figures
	Rounding to a significant figure

VC2M7N05

multiply and divide fractions and decimals using efficient mental and written strategies, and digital tools

Course Topics	Activities
Multiply & divide fractions	Multiply Two Fractions 2
	Multiplying Fractions
	Divide Fractions by Fractions 2
	Fraction of an Amount
	More Fraction Problems
	Decimal by Whole Number
	Divide Decimal by Whole Number
	Multiply Decimals: Area Model
	Decimal by Decimal
	Divide Decimals
Topics	**Skill Quests**
Multiply & divide fractions	Multiplying a fraction by a whole
	Multiplying fractions
	Dividing a number by a fraction
	Dividing by an improper fraction or mixed number
	Dividing a fraction by an integer
	Dividing an improper fraction or mixed number
	Dividing fractions
	Dividing improper fractions & mixed numbers
Multiply & divide decimals	Multiplying decimals
	Understanding dividing by a decimal
	Dividing by a decimal

VC2M7N06 use the 4 operations with positive rational numbers, including fractions and decimals, to solve problems using efficient mental and written calculation strategies	
Course Topics	**Activities**
Add/subtract fractions & decimals	Add: No Common Denominator
	Add Unlike Mixed Numbers
	Subtract: No Common Denominator
	Subtract Unlike Mixed Numbers
	Add Mixed Numbers: Same Sign
	Add Mixed Numbers: Signs Can Differ
	Subtract Mixed Numbers: Renaming
	Adding and Subtracting Decimals
Topics	**Skill Quests**
Add/subtract fractions & decimals	Adding fractions - like denominators
	Adding fractions - unlike denominators
	Subtracting fractions - like denominators
	Subtracting fractions - unlike denominators
	Adding & subtracting fractions
	Adding & subtracting decimals
	Fraction of a quantity
	Decimal of a quantity
	Using the 4 operations with decimals

VC2M7N07 find percentages of quantities and express one quantity as a percentage of another, with and without digital tools	
Course Topics	**Activities**
Percentage calculations	Percentage of a Quantity
	Percentages of a quantity (>100%)
	Percentage of an amount using fractions (<100%)
	Quantities to Percentages (no units)
	Quantities to Percentages (with units)
	Percentage Composition
Topics	**Skill Quests**
Percentage of a quantity	Calculating a percentage of a quantity
Quantity as a percentage of another	Expressing 1 quantity in terms of another

VC2M7N08 compare, order and solve problems involving addition and subtraction of integers	
Course Topics	**Activities**
Integers	Ordering Integers (Number Line)
	Comparing Integers (<, =, >)
	Integers: Add and Subtract
	Subtract Integers
	Integers: Subtraction
	More with Integers
Topics	**Skill Quests**
Work with integers	Comparing & ordering integers
	Adding & subtracting integers with tools
	Adding & subtracting integers without tools

VC2M7N09 recognise, represent and solve problems involving ratios	
Course Topics	**Activities**
Ratio problems	Simplify Ratios: 2 Whole Numbers
	Simplify Ratios: 3 Whole Numbers
	Simplify Ratios: Decimals
	Simplify Ratios: Fractions
	Simplify Ratios: Mixed Numbers
	Dividing a Quantity in a Ratio
	Ratio and Proportion
	Ratio Word Problems
Topics	**Skill Quests**
Work with ratios	Introducing ratios
	Comparing ratios
	Simplifying ratios
	Using the unitary method
	Solving ratio problems

VC2M7N10 use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts such as 'best buys'; formulate problems, choosing representations and efficient calculation strategies, designing algorithms and using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation	
Course Topics	**Activities**
Number Applications	Money Problems: Four Operations
	Percentage Word Problems
	Complementary Percentages
	Best Buy
	Profit and Loss
Topics	**Skill Quests**
Financial contexts	Best buys
	Discounts

2 Algebra

VC2M7A01 recognise and use variables to represent everyday formulas algebraically and substitute values into formulas to determine an unknown	
Course Topics	**Activities**
Substitution	Writing Algebraic Expressions
	Simple Substitution
	Simple Substitution 2
	Simple Substitution 3
	Complex Substitution
	Substitution in Formulae
	More Substitution in Formulae
Topics	**Skill Quests**
Algebraic expressions	Using equivalent algebraic expressions
	Writing algebraic expressions
	Checking expressing by substituting
	Substituting into algebraic expressions

VC2M7A02 apply the associative, commutative and distributive laws to aid mental and written computation, and formulate algebraic expressions using constants, variables, operations and brackets	
Course Topics	**Activities**
Simplify algebraic expressions	Recognising Like Terms
	Like Terms: Add and Subtract
	Algebraic Multiplication
	Algebraic Division
	Dividing Expressions
	Expanding Brackets
Topics	**Skill Quests**
Simplify algebraic expressions	Simplifying expressions: add/subtract
	Simplifying expressions: multiply/divide
	Commutative, associative & distributive laws

VC2M7A03 solve one-variable linear equations of increasing complexity with natural number solutions; verify equation solutions by substitution	
Course Topics	**Activities**
Solve linear equations	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Solving Simple Equations
Topics	**Skill Quests**
Solve linear equations	Solving linear equations
	Solving linear equations - mixed operations
	Verifying solutions by substituting

VC2M7A04 investigate, interpret and describe relationships between variables represented in graphs of functions developed from authentic data	
Course Topics	**Activities**
Distance-time relationships	Average Speed
	Time Taken
	Distance Travelled
	Travel Graphs
Topics	**Skill Quests**
Relationships between variables	Analysing graphs over time
	Constructing distance/time graphs
	Solving problems with travel graphs

VC2M7A05 generate tables of values from visually changing patterns or the rule of a function; describe and plot these relationships on the Cartesian plane	
Course Topics	**Activities**
Linear relationships	Table of Values
	Pattern Rules and Tables
	Find the Pattern Rule
	Graphing from a Table of Values

	Reading Values from a Line
	Determining a Rule for a Line
Topics	**Skill Quests**
Identify patterns	Identifying patterns
	Using a table of values
Cartesian coordinate system	Using the first quadrant
	Using 4 quadrants
	Plotting linear relationships

VC2M7A06 manipulate formulas involving several variables using digital tools, and describe the effect of systematic variation in the values of the variables	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

3 Measurement

VC2M7M01 establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem-solving	
Course Topics	**Activities**
Calculate area	Area: Triangles
	Area: Right Angled Triangles
	Area: Parallelograms (Metric)
	Area: Quadrilaterals
Topics	**Skill Quests**
Calculate area	Calculating area of rectangles
	Calculating area of triangles
	Calculating area of parallelograms
	Solving problems with area

VC2M7M02 solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units	
Course Topics	**Activities**
Calculate volume	Volume: Rectangular Prisms 1
	Volume: Rectangular Prisms 2
	Volume: Triangular Prisms
Topics	**Skill Quests**
Calculate volume	Calculating volume of rectangular prisms
	Calculating volume from cross-sections
	Calculating volume of triangular prisms
	Solving volume problems with prisms

VC2M7M03 describe the relationship between pi and the circumference, radius and diameter of a circle	
Course Topics	**Activities**
Calculate circumference	Labelling Circles
	Calculate Circumference of Circles
Topics	**Skill Quests**
Work with circles	Identifying parts of a circle
	Calculating circumference

VC2M7M04 identify corresponding, alternate and co-interior relationships between angles formed when parallel lines are crossed by a transversal; use them to solve problems and explain reasons	
Course Topics	**Activities**
Angle relationships	Introduction to Angles on Parallel Lines 1
	Parallel Lines
	Angles and Parallel Lines
	Are the Lines Parallel?
	Vertically Opposite Angles: Unknown Values
Topics	**Skill Quests**
Explore angles on parallel lines	Parallel & perpendicular lines
	Corresponding, co-interior & alternate angles
	Proving lines are parallel

VC2M7M05 demonstrate that the interior angle sum of a triangle in the plane is 180° and apply this to determine the interior angle sum of other shapes and the size of unknown angles	
Course Topics	**Activities**
Angle relationships	Angle Sum of a Triangle
	Quadrilaterals: Angle Sum with Equations
	Interior Angles
Topics	**Skill Quests**
Interior angle sum of polygons	Interior angle sum of a triangle
	Interior angle sum of a quadrilateral
	Interior angle sum of polygons

VC2M7M06 use mathematical modelling to solve practical problems involving ratios of lengths, areas and volumes; formulate problems, interpret and communicate solutions in terms of the situation, justifying choices made about the representation	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

4 Space

VC2M7SP01 represent three-dimensional objects in 2 dimensions; discuss and reason about the advantages and disadvantages of different representations	
Course Topics	**Activities**
Work with nets	Nets
Topics	**Skill Quests**
Represent 3D objects in 2D	Connecting nets with prisms
	Drawing prisms from different views
	Cross-sections of prisms

VC2M7SP02 classify triangles, quadrilaterals and other polygons according to their side and angle properties; identify and reason about relationships	
Course Topics	**Activities**
Classify shapes	Triangle Tasters
	Properties of Quadrilaterals
	Plane Figure Terms
Topics	**Skill Quests**
Geometric conventions	Understanding geometric conventions
Classify 2D shapes	Classifying triangles
	Classifying quadrilaterals
	Classifying more quadrilaterals

VC2M7SP03 describe the effect of transformations of a set of points using coordinates in the Cartesian plane, including translations, reflections in an axis, and rotations about the origin	
Course Topics	**Activities**
Transformations	Rotational Symmetry
	Horizontal and Vertical Change
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	**Skill Quests**
Transformations on the Cartesian plane	Understanding the language of transformations
	Performing translations
	Performing reflections
	Performing rotations
	Performing combinations of transformations
	Identifying symmetry

VC2M7SP04 design algorithms involving a sequence of steps and decisions that will sort and classify sets of shapes according to their attributes, and describe how the algorithms work	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Algorithms to sort & classify shapes	Using algorithms to sort & classify shapes

5 Statistics

VC2M7ST01 acquire data sets for discrete and continuous numerical variables and calculate the range, median, mean and mode; make and justify decisions about which measures of central tendency provide useful insights into the nature of the distribution of data	
Course Topics	**Activities**
Summary statistics	Mode from Frequency Table
	Mode from Stem and Leaf Plot
	Median from Frequency Table
	Median from Stem and Leaf Plot
	Mean from Frequency Table
	Stem and Leaf Plots with Range
	Data Extremes and Range
	Which Measure of Central Tendency?
Topics	**Skill Quests**
Calculate a measure for centre & spread	Calculating mean, median, mode & range
	Calculating a measure for centre & spread
	Justifying the choice for centre & spread
	The effect of outliers

VC2M7ST02 create different types of displays of numerical data, including dot plots and stem-and-leaf plots, using software where appropriate; describe and compare the distribution of data, commenting on the shape, centre and spread including outliers and determining the range, median, mean and mode	
Course Topics	**Activities**
Statistical displays	Reading from a Column Graph
	Line Graphs: Interpretation
	Sector Graphs
	Creating a Sector Graph
	Divided Bar Graphs
	Dot Plots
	Bar Graphs 1
Topics	**Skill Quests**
Construct numerical data displays	Tally charts, dot plots & stem-and-leaf plots
	Bar graphs & histograms
	Pie charts & line graphs
Interpret data displays	Interpreting numerical data displays
	Interpreting more data displays
Describe & compare distributions	Describe shape, clusters & outliers

VC2M7ST03 plan and conduct statistical investigations for issues involving discrete and continuous numerical data, and data collected from primary and secondary sources; analyse and interpret distributions of data and report findings in terms of shape and summary statistics	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Data collected from secondary sources	Identifying issues from secondary sources
Conduct surveys	Issues that may arise from conducting surveys

6 Probability

VC2M7P01 identify the sample space for single-stage experiments; assign probabilities to the possible outcomes and predict relative frequencies for related experiments	
Course Topics	**Activities**
Probability	What are the Chances?
	Probability Scale
	Simple Probability
	Relative Frequency
Topics	**Skill Quests**
Language of chance	Using the language of chance
Chance experiments	Equally likely outcomes
	Theoretical probability
Identify the sample space	Identifying the sample space
Relative frequency	Predicting relative frequency

VC2M7P02 conduct repeated chance experiments and run simulations with a large number of trials using digital tools; compare predicted with observed results, explaining the differences and the effect of sample size on the outcomes	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Conduct chance experiments	Conducting chance experiments

Year 8

1 Number

VC2M8N01 recognise irrational numbers in applied contexts, including π and numbers that develop from the square root of positive real numbers that are not perfect squares, and recognise that irrational numbers cannot develop from the division of integer values by natural numbers	
Course Topics	**Activities**
Number properties	Irrational Numbers
Topics	**Skill Quests**
Irrational numbers	Investigating irrational numbers
	Approximating irrational numbers

VC2M8N02 establish and apply the exponent laws with positive integer exponents and the zero exponent, using exponent notation with numbers	
Course Topics	**Activities**
Number properties	Index Form to Numbers
	Index Notation
	Properties of Exponents
	Simplifying with Index Laws 1
	The Zero Index
Topics	**Skill Quests**
Investigate exponent laws	Investigating exponents
	Exponent law for multiplying
	Exponent law for dividing
	Exponent law for raising to a power
	Negative exponents
	Exponent laws: mixed
	Zero exponent law

VC2M8N03 convert between fractions and terminating or recurring decimals, using digital tools as appropriate	
Course Topics	**Activities**
Number properties	Recurring Decimals
Topics	**Skill Quests**
Terminating & recurring decimals	Investigating recurring & terminating decimals
	Converting fractions to decimals
	Converting decimals to fractions

VC2M8N04 use the 4 operations with integers and with rational numbers, choosing and using efficient mental and written strategies, and digital tools where appropriate, and making estimates for these computations	
Course Topics	**Activities**
Integers	Adding Integers: Positive, Negative or Zero
	Integers: Multiply and Divide
	Integers: Order of Operations (BIDMAS)

	Multiplying and Dividing Integers
	Powers of Integers
Topics	**Skill Quests**
Multiply & divide integers	Multiplying integers
	Dividing integers
Apply the four operations to integers	Applying the four operations to integers

VC2M8N05 solve problems involving the use of percentages, including percentage increases and decreases and percentage error, with and without digital tools	
Course Topics	**Activities**
Number applications & operations	Percentage of an amount using decimals (calculator)
	Percentage Change: Increase and Decrease
	Percent Increase and Decrease
	Solve Percent Equations
Topics	**Skill Quests**
Work with percentages	Increasing & decreasing amounts
	Solving problems involving percentages
	Percentage error

VC2M8N06 use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts involving profit and loss; formulate problems, choosing efficient mental and written calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the context, reviewing the appropriateness of the model	
Course Topics	**Activities**
Number applications & operations	GST
	Successive Discounts
	Deductions and Tax Instalments
	Net Pay
Topics	**Skill Quests**
Solve problems involving profit & loss	Solving problems involving profit & loss

2 Algebra

VC2M8A01 create, expand, factorise, rearrange and simplify linear expressions, applying the associative, commutative, identity, distributive and inverse properties	
Course Topics	**Activities**
Algebraic expressions	Expand then Simplify
	Expanding with Negatives
	Simplifying Expressions
	Highest Common Algebraic Factor
	Factorising Expressions
	Factorising
	Factorising with Negatives
Topics	**Skill Quests**
Work with expressions	Applying the distributive law

	Expanding expressions
	Factorising expressions
	Simplifying expressions
	Rearranging formula

VC2M8A02 graph linear relations on the Cartesian plane using digital tools where appropriate; solve linear equations and one-variable inequalities using graphical and algebraic techniques; verify solutions by substitution	
Course Topics	**Activities**
Linear equations & inequalities	Which Straight Line?
	Intercepts
	Horizontal and Vertical Lines
	Checking Solutions
	Solve One-Step Inequalities 1
	Solve One-Step Inequalities 2
Topics	**Skill Quests**
Work with linear relationships	Graphing linear relationships
	Finding x & y-intercepts
	Horizontal & vertical lines
	Determining linear relationships
Solve linear equations	Solving 3-step equations
	Solving equations: variables on both sides
	Solving equations involving brackets
Solve linear equations & inequalities	Solving linear equations graphically
	Solving linear inequalities
	Verifying solutions

VC2M8A03 use mathematical modelling to solve applied problems involving linear relations, including financial contexts involving profit and loss; formulate problems with linear functions, and choose a representation; interpret and communicate solutions in terms of the context, and review the appropriateness of the model	
Course Topics	**Activities**
Linear equations & inequalities	Direct Linear Variation
	Linear Modelling
	Breakeven Point
Topics	**Skill Quests**
Teacher directed	

VC2M8A04 use algorithms and related testing procedures to identify and correct errors	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

VC2M8A05 experiment with linear functions and relations using digital tools, making and testing conjectures and generalising emerging patterns	
Course Topics	**Activities**
Teacher directed	

Topics	Skill Quests
Teacher directed	

3 Measurement

VC2M8M01 solve problems involving the area and perimeter of irregular and composite shapes using appropriate units	
Course Topics	**Activities**
Perimeter, Area & Volume	Perimeter: Composite Shapes
	Area: Composite Shapes
Topics	**Skill Quests**
Perimeter of composite shapes	Calculating the perimeter of composite shapes
Units of area	Choosing & converting between units of area
Area of composite shapes	Calculating area of a trapezium
	Calculating area of a rhombus
	Calculating area of a kite
	Calculating area of composite shapes

VC2M8M02 solve problems involving the volume and capacity of right prisms using appropriate units	
Course Topics	**Activities**
Perimeter, Area & Volume	Volume: Prisms
	Capacity Word Problems
Topics	**Skill Quests**
Volume of rectangular prisms	Calculating volume of rectangular prisms
	Calculating height/area given volume
Volume of triangular prisms	Calculating volume of triangular prisms
	Calculating dimensions given the volume
Solve problems involving volume	Solving problems involving volume

VC2M8M03 solve problems involving the circumference and area of a circle using formulas and appropriate units	
Course Topics	**Activities**
Work with circles	Arc Length
	Perimeter and Circles
	Area: Circles 1
	Area: Sectors (Degrees)
	Area: Annulus
Topics	**Skill Quests**
Work with circles	Identifying parts of circles
	Calculating circumference of a circle
	Perimeter of quadrants, semicircles & sectors
	Calculating area of a circle
	Finding area of parts of a circle
	Solving composite shape problems with circles
	Finding area of an annulus

VC2M8M04 solve problems involving time and duration, including using 12- and 24-hour time across multiple time zones	
Course Topics	**Activities**
Time problems	Elapsed Time
	What Time Will it Be?
	Using Timetables
	Australian Time Zones
	Time Zones
	Time Differences
Topics	**Skill Quests**
Solve problems involving time	Solving problems involving 12-hour time
	Solving problems involving 24-hour time
	Rounding time
	Using different time zones

VC2M8M05 recognise and use rates to solve problems involving the comparison of 2 related quantities of different units of measure	
Course Topics	**Activities**
Rate problems	Rates Word Problems
	Rates Calculations
Topics	**Skill Quests**
Use rates to solve problems	Introducing rates
	Using rates to solve problems

VC2M8M06 use Pythagoras' theorem to solve problems involving the side lengths of right-angled triangles	
Course Topics	**Activities**
Pythagoras' theorem	Pythagoras' Theorem
	Pythagoras: Find a Short Side (integers only)
	Pythagoras: Find a Short Side (rounding needed)
	Pythagoras: Find a Short Side (decimal values)
	Pythagorean Triads
	Pythagoras and Perimeter
Topics	**Skill Quests**
Pythagoras' theorem	Identifying sides on right-angled triangles
	Calculating a length using Pythagoras' theorem
	Identifying Pythagorean triples

VC2M8M07 use mathematical modelling to solve practical problems involving ratios and rates, including distance-time problems for travel at a constant speed and financial contexts; formulate problems; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model	
Course Topics	**Activities**
Rates & Ratio problems	Scale Measurement
	Scale
	Converting Rates
	Floor Plans
	Conversion Graphs

Topics	Skill Quests
Ratios & rates	Solving problems involving ratios
	Ratios involving more than 2 parts
	Converting ratios

4 Space

VC2M8SP01 identify the conditions for congruence and similarity of triangles and explain the conditions for other sets of common shapes to be congruent or similar, including those formed by transformations	
Course Topics	**Activities**
Congruent & similar triangles	Congruent Triangles
	Similar Triangles
	Similarity Proofs
	Plane Figure Theorems
Topics	**Skill Quests**
Congruence, patterns & tessellations	Using the language around transformations
	Identifying congruent figures
	Patterns & tessellation: congruent shapes
	Determining congruence in triangles
	Using properties of congruent triangles
Similar triangles	Identifying similar triangles
	Using scale factors
	Testing for similar triangles

VC2M8SP02 establish properties of quadrilaterals using congruent triangles and angle properties, and solve related problems explaining reasoning	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Solve problems using shape properties	Solving problems using shape properties

VC2M8SP03 describe in different ways the position and location of three-dimensional objects in 3 dimensions, including using a three-dimensional Cartesian coordinate system with the use of dynamic geometry software or other digital tools	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

VC2M8SP04 design and test algorithms involving a sequence of steps and decisions that identify congruency or similarity of shapes, and describe how the algorithm works	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**

Algorithms to identify congruence	Using algorithms to identify congruence

5 Statistics

VC2M8ST01 distinguish between a population and a sample, and investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques	
Course Topics	**Activities**
Statistical investigations	Methods of Data Sampling
	Data sampling
Topics	**Skill Quests**
Distinguish between population & sample	Distinguishing between population & sample
	Understanding sampling
	Identifying issues that may arise from sampling

VC2M8ST02 analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Identifying issues that may arise from sampling	Collecting data
	Using samples to make predictions

VC2M8ST03 compare variations in distributions and proportions obtained from random samples of the same size drawn from a population and recognise the effect of sample size on this variation	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Compare distributions	Calculating summary statistics
	Clusters, gaps & outliers

VC2M8ST04 plan and conduct statistical investigations involving samples of a population; use ethical and fair methods to make inferences about the population and report findings, acknowledging uncertainty	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

6 Probability

VC2M8P01 recognise that complementary events have a combined probability of one; use this relationship to calculate probabilities in applied contexts	
Course Topics	**Activities**
Probability	Complementary Events
	Dice and Coins
Topics	**Skill Quests**
Complementary events	Understanding complementary events

VC2M8P02 determine all possible outcome combinations for 2 events, using two-way tables, tree diagrams and Venn diagrams, and use these to determine probabilities of specific events in practical situations	
Course Topics	**Activities**
Probability	Venn Diagram 1
	Venn Diagrams
	Probability Tables
Topics	**Skill Quests**
Describe probability events	Using language of "at least", "or" & "and"
Venn diagrams & two-way tables	Understanding & constructing Venn diagrams
	Using Venn diagrams to solve problems
	Interpreting & constructing two-way tables
	Using two-way tables to solve problems
	Two-way tables & Venn diagrams

VC2M8P03 conduct repeated chance experiments and simulations, using digital tools to determine probabilities for compound events, and describe results	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

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