Mathematics scope and sequence – Foundation to Level 6

## Strand: Number

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
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| **Content descriptions** |
| *Students learn to:* |
| name, represent and order numbers, including zero to at least 20, using physical and virtual materials and numerals VC2MFN01 | recognise, represent and order numbers to at least 120 using physical and virtual materials, numerals, number lines and chartsVC2M1N01 | recognise, represent and order numbers to at least 1000 using physical and virtual materials, numerals and number linesVC2M2N01 | identify, explain and use the properties of odd and even numbersVC2M3N01 | recognise and extend the application of place value to tenths and hundredths and use the conventions of decimal notation to name and represent decimals VC2M4N01 | interpret, compare and order numbers with more than 2 decimal places, including numbers greater than one, using place value understanding; represent these on a number line VC2M5N01 | recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane VC2M6N01 |
| recognise and name the number of objects within a collection up to 5 using subitising VC2MFN02 |  |  | recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000 VC2M3N02 | investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 VC2M4N02 | express natural numbers as products of their factors, recognise multiples and determine if one number is divisible by another VC2M5N02 | identify and describe the properties of prime, composite, square and triangular numbers and use these properties to solve problems and simplify calculations VC2M6N02 |
| quantify and compare collections to at least 20 using counting and explain or demonstrate reasoning VC2MFN03 |  |  |  |  |  |  |
|  | partition one- and two-digit numbers in different ways using physical and virtual materials, including partitioning two-digit numbers into tens and onesVC2M1N02 | partition, rearrange, regroup and rename two- and three-digit numbers using standard and non-standard groupings; recognise the role of a zero digit in place value notation VC2M2N02 |  |  |  |  |
|  | quantify sets of objects, to at least 120, by partitioning collections into equal groups using number knowledge and skip counting VC2M1N03 |  |  |  |  |  |
|  |  | recognise and describe one-half as one of 2 equal parts of a whole and connect halves, quarters and eighths through repeated halvingVC2M2N03 | recognise and represent unit fractions including $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$ and their multiples in different ways; combine fractions with the same denominator to complete the whole VC2M3N03 | find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation VC2M4N03 | compare and order common unit fractions with the same and related denominators, including mixed numerals, applying knowledge of factors and multiples; represent these fractions on a number line VC2M5N03 | apply knowledge of equivalence to compare, order and represent common fractions, including halves, thirds and quarters, on the same number line and justify their order VC2M6N03 |
|  |  |  |  | count by multiples of quarters, halves and thirds, including mixed numerals; locate and represent these fractions as numbers on number lines VC2M4N04 | recognise that 100% represents the complete whole and use percentages to describe, represent and compare relative size; connect familiar percentages to their decimal and fraction equivalents VC2M5N04 |  |
| partition and combine collections up to 10 using part-part-whole relationships and subitising to recognise and name the partsVC2MFN04 | add and subtract numbers within 20, using physical and virtual materials, part-part-whole knowledge to 10 and a variety of calculation strategiesVC2M1N04 | add and subtract one- and two-digit numbers, represent problems using number sentences and solve using part-part-whole reasoning and a variety of calculation strategies VC2M2N04 | add and subtract two- and three-digit numbers using place value to partition, rearrange and regroup numbers to assist in calculations without a calculatorVC2M3N04 |  |  | apply knowledge of place value to add and subtract decimals, using digital tools where appropriate; use estimation and rounding to check the reasonableness of answers VC2M6N04 |
|  |  | multiply and divide by one-digit numbers using repeated addition, equal grouping, arrays and partitioning to support a variety of calculation strategies VC2M2N05 | multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies VC2M3N05 | solve problems involving multiplying or dividing natural numbers by multiples and powers of 10 without a calculator, using the multiplicative relationship between the place value of digits VC2M4N05 | solve problems involving addition and subtraction of fractions with the same or related denominators, using different strategies VC2M5N05 | solve problems involving addition and subtraction of fractions using knowledge of equivalent fractions VC2M6N05 |
|  |  |  |  | develop efficient mental and written strategies and use appropriate digital tools for solving problems involving addition and subtraction, and multiplication and division where there is no remainder VC2M4N06 | solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient mental and written calculation strategies and using digital tools where appropriate; check the reasonableness of answers VC2M5N06 | multiply and divide decimals by multiples of powers of 10 without a calculator, applying knowledge of place value and proficiency with multiplication facts, using estimation and rounding to check the reasonableness of answers VC2M6N06 |
|  |  |  |  |  | solve problems involving division, choosing efficient mental and written strategies and using digital tools where appropriate; interpret any remainder according to the context and express results as a whole number, decimal or fraction VC2M5N07 | solve problems that require finding a familiar fraction, decimal or percentage of a quantity, including percentage discounts, choosing efficient calculation strategies with and without digital tools VC2M6N07 |
|  |  |  | estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations VC2M3N06 | choose and use estimation and rounding to check and explain the reasonableness of calculations, including the results of financial transactions VC2M4N07 | check and explain the reasonableness of solutions to problems, including financial contexts using estimation strategies appropriate to the context VC2M5N08 | approximate numerical solutions to problems involving rational numbers and percentages, using appropriate estimation strategies VC2M6N08 |
|  |  |  | recognise the relationships between dollars and cents and represent money values in different ways VC2M3N07 | solve problems involving purchases and the calculation of change to the nearest 5 cents with and without digital tools VC2M4N08 |  |  |
| represent practical situations, including simple financial situations, involving addition, subtraction and quantification with physical and virtual materials and use counting or subitising strategiesVC2MFN05 | use mathematical modelling to solve practical problems involving additive situations, including simple money transactions; represent the situations with diagrams, physical and virtual materials; use calculation strategies to solve the problemVC2M1N05 |  |  |  |  |  |
| represent practical situations that involve equal sharing and grouping with physical and virtual materials and use counting or subitising strategiesVC2MFN06 | use mathematical modelling to solve practical problems involving equal sharing and grouping; represent the situations with diagrams, physical and virtual materials, and use calculation strategies to solve the problem VC2M1N06 | use mathematical modelling to solve practical problems involving additive and multiplicative situations, including money transactions; represent situations and choose calculation strategies; interpret and communicate solutions in terms of the context VC2M2N06 | use mathematical modelling to solve practical problems involving additive and multiplicative situations, including financial contexts; formulate problems using number sentences and choose calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation VC2M3N08 | use mathematical modelling to solve practical problems that involve additive and multiplicative situations, including financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation VC2M4N09 | use mathematical modelling to solve practical problems involving additive and multiplicative situations, including simple financial planning contexts; formulate the problems, choosing operations and efficient mental and written calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation VC2M5N09 | use mathematical modelling to solve practical problems involving rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and using efficient mental and written calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made VC2M6N09 |
|  |  |  | follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns VC2M3N09 | follow and create algorithms involving a sequence of steps and decisions that use addition or multiplication to generate sets of numbers; identify and describe any emerging patternsVC2M4N10 | follow a mathematical algorithm involving branching and repetition (iteration); create and use algorithms involving a sequence of steps and decisions and digital tools to experiment with factors, multiples and divisibility; identify, interpret and describe emerging patterns VC2M5N10 |  |
| **Achievement standards** |
| By the end of Foundation, students make connections between number names, numerals and position in the sequence of numbers from zero to at least 20. They use subitising and counting strategies to quantify collections. Students compare the size of collections to at least 20. They partition and combine collections up to 10 in different ways, representing these with numbers. Students represent practical situations, including simple financial situations involving money, that involve quantifying, equal sharing, adding to and taking away from collections to at least 10.  | By the end of Level 1, students connect number names, numerals and quantities, and order numbers to at least 120. They demonstrate how one- and two-digit numbers can be partitioned in different ways and that two-digit numbers can be partitioned into tens and ones. Students partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120. They solve problems involving addition and subtraction of numbers to 20 and use mathematical modelling to solve practical problems involving addition, subtraction, equal sharing and grouping, using calculation strategies.  | By the end of Level 2, students order and represent numbers to at least 1000; apply knowledge of place value to partition, rearrange and rename two- and three-digit numbers in terms of their parts; and regroup partitioned numbers to assist in calculations. They use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies. Students identify and represent part-whole relationships of halves, quarters and eighths in measurement contexts. | By the end of Level 3, students order and represent natural numbers beyond 10 000, classify numbers as either odd or even, and use the properties of odd and even numbers. They partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations. Students extend and use single-digit addition and related subtraction facts and apply additive strategies to model and solve problems involving two- and three-digit numbers. They use a range of strategies to apply mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens. Students represent unit fractions and their multiples in different ways. They represent money values in different ways. They make estimates and determine the reasonableness of financial and other calculations. | By the end of Level 4, students use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10. Students use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting the results in terms of the situation. They use their proficiency with addition, subtraction, multiplication facts for tens (× 10) and related division facts to perform arithmetic operations to add and subtract, and multiply and divide numbers efficiently. They choose rounding and estimation strategies to determine whether results of calculations are reasonable. They recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations. Students count and represent familiar fractions on a number line.  | By the end of Level 5, students use place value to write and order decimals including decimals greater than one. They express natural numbers as products of factors and identify multiples and divisors. Students order and represent, add and subtract fractions with the same or related denominators. They represent common percentages and connect them to their fraction and decimal equivalents. Students use their proficiency with multiplication facts and efficient mental and written calculation strategies to multiply large numbers by one- and two-digit numbers and divide by one-digit numbers. They check the reasonableness of their calculations using estimation. Students use mathematical modelling to solve financial and other practical problems, formulating and solving problems, choosing arithmetic operations and interpreting results in terms of the situation.  | By the end of Level 6, students use integers to represent points on a number line and on the Cartesian plane. They solve problems using the properties of prime, composite, square and triangular numbers. Students order common fractions, giving reasons, and add and subtract fractions with related denominators. They use all 4 operations with decimals and connect decimal representations of measurements to the metric system. Students solve problems involving finding a fraction, decimal or percentage of a quantity and use estimation to find approximate solutions to problems involving rational numbers and percentages. They use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices.  |

## Strand: Algebra

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
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| **Content descriptions** |
| *Students learn to:* |
|  | recognise, continue and create pattern sequences, with numbers, symbols, shapes and objects including Australian coins, formed by skip counting, initially by twos, fives and tens VC2M1A01 | recognise, describe and create additive patterns that increase or decrease by a constant amount, using numbers, shapes and objects, and identify missing elements in the patternVC2M2A01 | recognise and explain the connection between addition and subtraction as inverse operations, apply to partition numbers and find unknown values in number sentences VC2M3A01 | find unknown values in numerical equations involving addition and subtraction, using the properties of numbers and operations VC2M4A01 | recognise and explain the connection between multiplication and division as inverse operations and use this to develop families of number facts VC2M5A01 | recognise and use rules that generate visually growing patterns and number patterns involving rational numbers VC2M6A01 |
|  |  | recall and demonstrate proficiency with addition facts to 20; extend and apply facts to develop related subtraction facts VC2M2A02 | extend and apply knowledge of addition and subtraction facts to 20 to develop efficient mental strategies for computation with larger numbers without a calculator VC2M3A02 | recall and demonstrate proficiency with multiplication facts up to 10 × 10 and related division facts, and explain the patterns in these; extend and apply facts to develop efficient mental and written strategies for computation with larger numbers without a calculatorVC2M4A02 | find unknown values in numerical equations involving multiplication and division using the properties of numbers and operations VC2M5A02 | find unknown values in numerical equations involving brackets and combinations of arithmetic operations, using the properties of numbers and operations VC2M6A02 |
|  |  | recall and demonstrate proficiency with multiplication facts for twos; extend and apply facts to develop the related division facts using doubling and halving  VC2M2A03  | recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts VC2M3A03 |  |  |  |
| follow a short sequence of instructions; recognise, copy, continue and create repeating patterns represented in different waysVC2MFA01 | recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit and recognising the importance of repetition in solving problemsVC2M1A02  | apply repetition in arithmetic operations, including multiplication as repeated addition and division as repeated subtraction VC2M2A04 |  |  |  | design and use algorithms involving a sequence of steps and decisions that use rules to generate sets of numbers; identify, interpret and explain emerging patterns VC2M6A03 |
| **Achievement standards** |
| Students represent, continue and create simple repeating patterns. | Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.  | Students describe and continue patterns that increase and decrease additively by a constant amount and identify missing elements in the pattern. They recall and demonstrate proficiency with addition and subtraction facts within 20 and multiplication facts for twos. | Students find unknown values in number sentences involving addition and subtraction. They create algorithms to investigate numbers and explore simple patterns.  | Students find unknown values in numerical equations involving addition and subtraction. They follow and create algorithms that generate sets of numbers and identify emerging patterns. | Students apply properties of numbers and operations to find unknown values in numerical equations involving multiplication and division. They design and use algorithms to identify and explain patterns in the factors and multiples of numbers. | Students find unknown values in numerical equations involving combinations of arithmetic operations. They identify and explain rules used to create growing patterns. They design and use algorithms to generate sets of numbers, using a rule. |

## Strand: Measurement

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content descriptions** |
| *Students learn to:* |
| identify and compare attributes of objects and events, including length, capacity, mass and duration, use direct comparisons and communicate reasoning VC2MFM01 | compare directly and indirectly and order objects and events using attributes of length, mass, capacity and duration, communicating reasoning VC2M1M01  | measure and compare objects based on length, capacity and mass using appropriate uniform informal units and smaller units for accuracy when necessary VC2M2M01 | identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates VC2M3M01 | use scaled and digital instruments to interpret unmarked and partial units to measure and compare lengths, masses, capacities, durations and temperatures, using appropriate units VC2M4M01 | choose appropriate metric units when measuring the length, mass and capacity of objects; use smaller units or a combination of units to obtain a more accurate measure VC2M5M01 | convert between common metric units of length, mass and capacity; choose and use decimal representations of metric measurements relevant to the context of a problem VC2M6M01 |
|  | measure the length of shapes and objects using informal units, recognising that units need to be uniform and used end-to-endVC2M1M02 | identify common uses and represent halves, quarters and eighths in relation to shapes, objects and events VC2M2M02 | measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings VC2M3M02 | recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units VC2M4M02 | solve practical problems involving the perimeter and area of regular and irregular shapes using appropriate metric units VC2M5M02 | establish the formula for the area of a rectangle and use it to solve practical problems VC2M6M02 |
| sequence days of the week and times of the day, including morning, lunchtime, afternoon and night-time, and connect them to familiar events and actions VC2MFM02 | describe the duration and sequence of events using years, months, weeks, days and hours VC2M1M03 | identify the date and determine the number of days between events using calendars VC2M2M03 | recognise and use the relationship between formal units of time, including days, hours, minutes and seconds, to estimate and compare the duration of events VC2M3M03 | solve problems involving the duration of time including situations involving ‘am’ and ‘pm’ and conversions between units of time VC2M4M03 | compare 12- and 24-hour time systems and solve practical problems involving the conversion between them VC2M5M03 | measure, calculate and compare elapsed time; interpret and use timetables and itineraries to plan activities and determine the duration of events and journeys VC2M6M03  |
|  |  | recognise and read the time represented on an analog clock to the hour, half-hour and quarter hour VC2M2M04 | describe the relationship between the hours and minutes on analog and digital clocks, and read the time to the nearest minute VC2M3M04 |  |  |  |
|  |  | identify, describe and demonstrate quarter, half, three-quarter and full measures of turn in everyday situations VC2M2M05 | identify angles as measures of turn and use right angles as a reference to compare angles in everyday situations VC2M3M05 | estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle VC2M4M04 | estimate, construct and measure angles in degrees, using appropriate tools, including a protractor, and relate these measures to angle names VC2M5M04 | identify the relationships between angles on a straight line, angles at a point and vertically opposite angles; use these to determine unknown angles, communicating reasoning VC2M6M04 |
| **Achievement standards** |
| Students identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events. They sequence and connect familiar events to the time of day. | Students compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating their reasoning. They measure the length of shapes and objects using uniform informal units.  | Students use uniform informal units to measure and compare shapes and objects. They determine the number of days between events using a calendar and read time on an analog clock to the hour, half-hour and quarter hour. Students use quarter, half, three-quarter and full measures of turn in everyday situations. | Students use familiar metric units when estimating, comparing and measuring the attributes of objects and events. They identify angles as measures of turn and compare them to right angles. Students estimate and compare measures of duration using formal units of time.  | Students use appropriate scaled instruments and appropriate units to measure length, mass, capacity and temperature. They measure and approximate perimeters and areas for regular and irregular shapes. They convert between units of time when solving problems involving duration. Students compare angles relative to a right angle using angle names.  | Students choose and use appropriate metric units to measure the attributes of length, mass and capacity, and to solve problems involving perimeter and area. Students convert between 12- and 24-hour time. They estimate, construct and measure angles in degrees.  | Students interpret and use timetables, and measure, calculate and compare elapsed time. They convert between common units of length, mass and capacity. They use the formula for the area of a rectangle and angle properties to solve problems.  |

## Strand: Space

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content descriptions** |
| *Students learn to:* |
| sort, name and create familiar shapes; recognise and describe familiar shapes within objects in the environment, giving reasonsVC2MFSP01 | make, compare and classify familiar shapes; recognise familiar shapes and objects in the environment, identifying the similarities and differences between them VC2M1SP01 | recognise, compare and classify shapes, referencing the number of sides and using spatial terms such as ‘opposite’, ‘parallel’, ‘curved’ and ‘straight’ VC2M2SP01 | make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses VC2M3SP01 | explain and compare the geometric properties of two-dimensional shapes and three-dimensional objects VC2M4SP01 | connect objects to their nets and build objects from their nets using spatial and geometric reasoning VC2M5SP01 | compare the parallel cross-sections of objects and recognise their relationships to right prisms VC2M6SP01 |
|  |  |  |  | represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects VC2M4SP02 |  |  |
| describe the position and location of themselves and objects in relation to other people and objects within a familiar spaceVC2MFSP02 | give and follow directions to move people and objects to different locations within a space VC2M1SP02 | locate positions in two-dimensional representations of a familiar space; move positions by following directions and pathways VC2M2SP02 | interpret and create two-dimensional representations of familiar environments, locating key landmarks and objects relative to each other VC2M3SP02 | create and interpret grid reference systems using grid references and directions to locate and describe positions and pathways VC2M4SP03 | construct a grid coordinate system that uses coordinates to locate positions within a space; use coordinates and directional language to describe position and movement VC2M5SP02 | locate points in the 4 quadrants of the Cartesian plane; describe changes to the coordinates when a point is moved to a different position in the plane VC2M6SP02 |
|  |  |  |  | recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometry software where appropriate VC2M4SP04 | describe and perform translations, reflections and rotations of shapes, using dynamic geometry software where appropriate; recognise what changes and what remains the same, and identify any symmetries VC2M5SP03 | recognise and use combinations of transformations to create tessellations and other geometric patterns, using dynamic geometry software where appropriate VC2M6SP03 |
| **Achievement standards** |
| Students name, create and sort familiar shapes and give their reasoning. They describe the position and the location of themselves and objects in relation to other objects and people within a familiar space.  | Students make, compare and classify shapes and objects using identifiable features. They give and follow directions to move people and objects within a space. | Students compare and classify shapes, describing features using formal spatial terms. They locate and identify positions of features in two-dimensional representations and move position by following directions and pathways.  | Students make, compare and classify objects using key features. They interpret and create two-dimensional representations of familiar environments. | Students represent and approximate shapes and objects from their environment. Students create and interpret grid references. They identify line and rotational symmetry in plane shapes and create symmetrical patterns. | Students connect objects to their two-dimensional nets. Students use grid coordinates to locate and move positions. They perform and describe the results of transformations and identify any symmetries. | Students identify the parallel cross-section for right prisms. They create tessellating patterns using combinations of transformations. They locate an ordered pair in any one of the 4 quadrants on the Cartesian plane. |

## Strand: Statistics

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content descriptions** |
| *Students learn to:* |
| collect, sort and compare data represented by objects and images in response to given investigative questions that have only 2 outcomes and relate to familiar situations VC2MFST01 | acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols VC2M1ST01 | acquire data for categorical variables through surveys, observation, experiment and using digital tools; sort data into relevant categories and display data using lists and tables VC2M2ST01 | acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods, including frequency tables and spreadsheetsVC2M3ST01 | acquire data for categorical and discrete numerical variables to address a question of interest or purpose using digital tools; represent data using many-to-one pictographs, column graphs and other displays or visualisations; interpret and discuss the information that has been createdVC2M4ST01 | acquire, validate and represent data for nominal and ordinal categorical and discrete numerical variables to address a question of interest or purpose using software including spreadsheets; discuss and report on data distributions in terms of highest frequency (mode) and shape, in the context of the data VC2M5ST01 | interpret and compare data sets for ordinal and nominal categorical, discrete and continuous numerical variables using comparative displays or visualisations and digital tools; compare distributions in terms of mode, range and shape VC2M6ST01 |
|  | represent collected data for a categorical variable using one-to-one displays and digital tools where appropriate; compare the data using frequencies and discuss the findings VC2M1ST02 | create different graphical representations of data using software where appropriate; compare the different representations, and identify and describe common and distinctive features in response to questions VC2M2ST02 | create and compare different graphical representations of data sets, including using software where appropriate; interpret the data in terms of the context VC2M3ST02 | analyse the effectiveness of different displays or visualisations in illustrating and comparing data distributions, then discuss the shape of distributions and the variation in the data VC2M4ST02 | interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made VC2M5ST02 | identify statistically informed arguments presented in traditional and digital media; discuss and critique methods, data representations and conclusions VC2M6ST02 |
|  |  |  | conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest VC2M3ST03 | conduct statistical investigations, collecting data through survey responses and other methods; record and display data using digital tools; interpret the data and communicate the results VC2M4ST03 | plan and conduct statistical investigations by posing questions or identifying a problem and collecting relevant data; choose appropriate displays and interpret the data; communicate findings within the context of the investigation VC2M5ST03 | plan and conduct statistical investigations by posing and refining questions to collect categorical or numerical data by observation or survey, or identifying a problem and collecting relevant data; analyse and interpret the data and communicate findings within the context of the investigation VC2M6ST03  |
| **Achievement standards** |
| Students collect, sort and compare data in response to questions in familiar contexts.  | Students collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies. | Students use a range of methods to collect, record, represent and interpret categorical data in response to questions.  | Students conduct guided statistical investigations involving categorical and discrete numerical data and interpret their results in terms of the context. They record, represent and compare data they have collected.  | Students create many-to-one data displays, assess the suitability of displays for representing data and informally discuss the shape of distributions and variation in data. They use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context.  | Students plan and conduct statistical investigations that collect nominal and ordinal categorical and discrete numerical data with and without digital tools. Students identify the mode and interpret the shape of distributions of data in context. They interpret and compare data represented in line graphs.  | Students compare distributions of discrete and continuous numerical and ordinal categorical data sets as part of their statistical investigations, using digital tools. They critique arguments presented in the media based on statistics.  |

## Strand: Probability

| **Foundation** | **Level 1** | **Level 2** | **Level 3** | **Level 4**  | **Level 5** | **Level 6** |
| --- | --- | --- | --- | --- | --- | --- |
| **Content descriptions** |
| *Students learn to:* |
| No content | No content | No content | identify practical activities and everyday events that involve chance, and describe possible outcomes and events as ‘likely’ or ‘unlikely’ and identify some events as ‘certain’ or ‘impossible’, explaining reasoningVC2M3P01 | describe possible everyday events and the possible outcomes of chance experiments and order outcomes or events based on their likelihood of occurring; identify independent or dependent events VC2M4P01 | list the possible outcomes of chance experiments involving equally likely outcomes and compare to those that are not equally likely VC2M5P01 | describe probabilities using fractions, decimals and percentages; recognise that probabilities lie on numerical scales of 0–‍1 or 0%–100%; use estimation to assign probabilities that events occur in a given context, using common fractions, percentages and decimals VC2M6P01  |
| No content | No content | No content | conduct repeated chance experiments; identify and describe possible outcomes, record the results, and recognise and discuss the variation VC2M3P02 | conduct repeated chance experiments to observe relationships between outcomes in games and other chance situations, and identify and describe the variation in resultsVC2M4P02 | conduct repeated chance experiments, including those with and without equally likely outcomes, and observe and record the results; use frequency to compare outcomes and estimate their likelihoods VC2M5P02 | conduct repeated chance experiments and run simulations with an increasing number of trials using digital tools; compare observations with expected results and discuss the effect on variation of increasing the number of trials VC2M6P02 |
| **Achievement standards** |
| No achievement standard | No achievement standard | No achievement standard | Students use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning. Students conduct repeated chance experiments and discuss variation in results. | Students order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent. They conduct repeated chance experiments and describe the variation in results. | Students conduct repeated chance experiments, list the possible outcomes, estimate likelihoods and make comparisons between those with and without equally likely outcomes.  | Students assign probabilities using common fractions, decimals and percentages. They conduct simulations using digital tools, to generate and record the outcomes from many trials of a chance experiment. They compare observed frequencies to the expected frequencies of the outcomes of chance experiments. |