Mathematics Hub

Planning tool overview F–6

Coverage of the Australian Curriculum Version 9

This table shows the Australian Curriculum: Mathematics V9.0 content descriptions for each topic and year level from Foundation to Year 6, and also demonstrates when topics start, how they progress and when they finish, at relevant year levels.

Number

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number sequences	Name, represent and order numbers including zero to at least 20, using physical and virtual materials and numerals (AC9MFN01) Quantify and compare collections to at least 20 using counting and explain or demonstrate reasoning (AC9MFN03)	Recognise, represent and order numbers to at least 120 using physical and virtual materials, numerals, number lines and charts (AC9M1N01) Quantify sets of objects, to at least 120, by partitioning collections into equal groups using number knowledge and skip counting (AC9M1N03)	Recognise, represent and order numbers to at least 1000 using physical and virtual materials, numerals and number lines (AC9M2N01)	Recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000 (AC9M3N01)	Count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines (AC9M4N04)	Compare and order fractions with the same and related denominators including mixed numerals, applying knowledge of factors and multiples; represent these fractions on a number line (AC9M5N03)	Recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane (AC9M6N01)
Place value	Recognise and name the number of objects within a collection up to 5 using subitising (AC9MFN02) Partition and combine collections up to 10 using part-part-whole relationships and subitising to recognise and name the parts (AC9MFN04)	Partition one- and two-digit numbers in different ways using physical and virtual materials, including partitioning two-digit numbers into tens and ones (AC9M1N02)	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 (AC9M2N02)	Add and subtract two- and three-digit numbers using place value to partition, rearrange and regroup numbers to assist in calculations without a calculator (AC9M3N03)	Recognise and extend the application of place value to tenths and hundredths and use the conventions of decimal notation to name and represent decimals (AC9M4N01)	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 (AC9M5N01)	
Odd and even					Explain and use the properties of odd and even numbers (ACM9M4N02)		

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Number

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions			Recognise and describe one-half as one of 2 equal parts of a whole and connect halves, quarters and eighths through repeated halving (AC9M2N03)	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 (AC9M3N02)	Find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation (AC9M4N03)	Solve problems involving addition and subtraction of fractions with the same or related denominators, using different strategies (AC9M5N05)	Solve problems involving addition and subtraction of fractions using knowledge of equivalent fractions (AC9M6N05) 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 (AC9M6N03)
Fractions, decimals and percentages						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 (AC9M5N04)	Solve problems that require finding a familiar fraction, decimal or percentage of a quantity, including percentage discounts, choosing efficient calculation strategies and using digital tools where appropriate (AC9M6N07) Approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies (AC9M6N08)

Number

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition and subtraction	Represent practical situations involving addition, subtraction and quantification with physical and virtual materials and use counting or subitising strategies (AC9MFN05)	Add and subtract numbers within 20, using physical and virtual materials, part-part-whole knowledge to 10 and a variety of calculation strategies (AC9M1N04)	Add and subtract one- and two-digit numbers, representing problems using number sentences, and solve using part-part-whole reasoning and a variety of calculation strategies (AC9M2N04)		Develop efficient strategies and use appropriate digital tools for solving problems involving addition and subtraction, and multiplication and division where there is no remainder (AC9M4N06) Choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions (AC9M4N07)	Solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient calculation strategies and using digital tools where appropriate; check the reasonableness of answers (AC9M5N06) Solve problems involving division, choosing efficient strategies and using digital tools where appropriate; interpret any remainder according to the context and express results as a whole number, decimal or fraction (AC9M5N07)	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 (AC9M6N04) 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 (AC9M6N06)
Multiplication and division			Multiply and divide by one-digit numbers using repeated addition, equal grouping, arrays, and partitioning to support a variety of calculation strategies (AC9M2N05)	Multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies (AC9M3N04)			
Factors, multiples, primes					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 (AC9M4N05)	Express natural numbers as products of their factors, recognise multiples and determine if one number is divisible by another AC9M5N02 Solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient calculation strategies and using digital tools where appropriate; check the reasonableness of answers (AC9M5N06)	Identify and describe the properties of prime, composite and square numbers and use these properties to solve problems and simplify calculations (AC9M6N02)

Number

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mathematical modelling	Represent practical situations involving equal sharing and grouping with physical and virtual materials and use counting or subitising strategies (AC9MFN06)	Use mathematical modelling to solve practical problems involving additive situations including simple money transactions; represent the situations with diagrams, physical and virtual materials, and use calculation strategies to solve the problem (AC9M1N05) 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 (AC9M1N06)	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 situation (AC9M2N06) Multiply and divide by one-digit numbers using repeated addition, equal grouping, arrays, and partitioning to support a variety of calculation strategies (AC9M2N05)	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 (AC9M3N06) Estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations (AC9M3N05)	Use mathematical modelling to solve practical problems involving 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 (AC9M4N08) Choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions (AC9M4N07)	Check and explain the reasonableness of solutions to problems including financial contexts using estimation strategies appropriate to the context (AC9M5N08) Use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems, choosing operations and efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation (AC9M5N09)	Use mathematical modelling to solve practical problems, involving rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and efficient calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made (AC9M6N09) Approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies (AC9M6N08)
Follow and create algorithms				Follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns (AC9M3N07)	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 patterns (AC9M4N09)	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 (AC9M5N10)	

Algebra

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Repeating patterns	Recognise, copy and continue repeating patterns represented in different ways (AC9MFA01)	Recognise, continue and create pattern sequences, with numbers, symbols, shapes and objects, formed by skip counting, initially by twos, fives and tens (AC9M1A01) Recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit (AC9M1A02)	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 pattern (AC9M2A01)				
Find unknown values				Recognise and explain the connection between addition and subtraction as inverse operations, apply to partition numbers and find unknown values in number sentences (AC9M3A01)	Find unknown values in numerical equations involving addition and subtraction, using the properties of numbers and operations (AC9M4A01)	Find unknown values in numerical equations involving multiplication and division using the properties of numbers and operations (AC9M5A02)	Find unknown values in numerical equations involving brackets and combinations of arithmetic operations, using the properties of numbers and operations (AC9M6A02)
Patterns and number facts			Recall and demonstrate proficiency with addition facts to 20; extend and apply facts to develop related subtraction facts (AC9M2A02) Recall and demonstrate proficiency with multiplication facts for twos; extend and apply facts to develop the related division facts using doubling and halving (AC9M2A03)	Extend and apply knowledge of addition and subtraction facts to 20 to develop efficient mental strategies for computation with larger numbers without a calculator (AC9M3A02) Recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts (AC9M3A03)	Recall and demonstrate proficiency with multiplication facts up to 10 x 10 and related division facts; extend and apply facts to develop efficient mental strategies for computation with larger numbers without a calculator (AC9M4A02)	Recognise and explain the connection between multiplication and division as inverse operations and use this to develop families of number facts (AC9M5A01)	

Algebra

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use rules and algorithms							Recognise and use rules that generate visually growing patterns and number patterns involving rational numbers (AC9M6A01) Create and use algorithms involving a sequence of steps and decisions that use rules to generate sets of numbers; identify, interpret and explain emerging patterns (AC9M6A03)

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Measurement

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Direct and indirect comparisons	Identify and compare attributes of objects and events, including length, capacity, mass and duration, using direct comparisons and communicating reasoning (AC9MFM01)	Compare directly and indirectly and order objects and events using attributes of length, mass, capacity and duration, communicating reasoning (AC9M1M01)					
Informal units		Measure the length of shapes and objects using informal units, recognising that units need to be uniform and used end-to-end (AC9M1M02)	Measure and compare objects based on length, capacity and mass using appropriate uniform informal units and smaller units for accuracy when necessary (AC9M2M01)				
Metric units and using instruments				Identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates (AC9M3M01) Measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings (AC9M3M02)	Interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units (AC9M4M01)	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 (AC9M5M01)	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 (AC9M6M01)
Perimeter and area					Recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units (AC9M4M02)	Solve practical problems involving the perimeter and area of regular and irregular shapes using appropriate metric units (AC9M5M02)	Establish the formula for the area of a rectangle and use it to solve practical problems (AC9M6M02)

Measurement

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Time and duration	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 (AC9MFM02)	Describe the duration and sequence of events using years, months, weeks, days and hours (AC9M1M03)	Describe the duration and sequence of events using years, months, weeks, days and hours (AC9M1M03) Recognise and read the time represented on an analog clock to the hour, half-hour and quarter-hour (AC9M2M04)	Recognise and use the relationship between formal units of time including days, hours, minutes and seconds to estimate and compare the duration of events (AC9M3M03) Describe the relationship between the hours and minutes on analog and digital clocks, and read the time to the nearest minute (AC9M3M04)	Solve problems involving the duration of time including situations involving "am" and "pm" and conversions between units of time (AC9M4M03)	Compare 12- and 24-hour time systems and solve practical problems involving the conversion between them (AC9M5M03)	Interpret and use timetables and itineraries to plan activities and determine the duration of events and journeys (AC9M6M03)
Measures of turn (angles)			Identify, describe and demonstrate quarter, half, three-quarter and full measures of turn in everyday situations (AC9M2M05)	Identify angles as measures of turn and compare angles with right angles in everyday situations (AC9M3M05)	Estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle (AC9M4M04)	Estimate, construct and measure angles in degrees, using appropriate tools including a protractor, and relate these measures to angle names (AC9M5M04)	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 (AC9M6M04)
Money				Recognise the relationships between dollars and cents and represent money values in different ways (AC9M3M06)			

Space

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Shapes and objects	Sort, name and create familiar shapes; recognise and describe familiar shapes within objects in the environment, giving reasons (AC9MFSP01)	Make, compare and classify familiar shapes; recognise familiar shapes and objects in the environment, identifying the similarities and differences between them (AC9M1SP01)	Recognise, compare and classify shapes, referencing the number of sides and using spatial terms such as "opposite", "parallel", "curved" and "straight" (AC9M2SP01)	Make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses (AC9M3SP01)	Represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects (AC9M4SP01)	Connect objects to their nets and build objects from their nets using spatial and geometric reasoning (AC9M5SP01)	Compare the parallel cross-sections of objects and recognise their relationships to right prisms (AC9M6SP01)
Position and location	Describe the position and location of themselves and objects in relation to other people and objects within a familiar space (AC9MFSP02)	Give and follow directions to move people and objects to different locations within a space (AC9M1SP02)	Locate positions in two-dimensional representations of a familiar space; move positions by following directions and pathways (AC9M2SP02)	Interpret and create two-dimensional representations of familiar environments, locating key landmarks and objects relative to each other (AC9M3SP02)	Create and interpret grid reference systems using grid references and directions to locate and describe positions and pathways (AC9M4SP02)	Construct a grid coordinate system that uses coordinates to locate positions within a space; use coordinates and directional language to describe position and movement (AC9M5SP02)	Locate points in the 4 quadrants of a Cartesian plane; describe changes to the coordinates when a point is moved to a different position in the plane (AC9M6SP02)
Transformations					Recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometric software where appropriate (AC9M4SP03)	Describe and perform translations, reflections and rotations of shapes, using dynamic geometric software where appropriate; recognise what changes and what remains the same, and identify any symmetries (AC9M5SP03)	Recognise and use combinations of transformations to create tessellations and other geometric patterns, using dynamic geometric software where appropriate (AC9M6SP03)

Statistics

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Collect, sort and compare data	Collect, sort and compare data represented by objects and images in response to given investigative questions that relate to familiar situations (AC9MFST01)						
Aquire, record and represent data		Acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols (AC9M1ST01) 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 (AC9M1ST02)	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 (AC9M2ST01) Create different graphical representations of data using software where appropriate; compare the different representations, identify and describe common and distinctive features in response to questions (AC9M2ST02)				
Interpret and discuss data displays				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 spreadsheets (AC9M3ST01) Create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context (AC9M3ST02)	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 (AC9M2ST01) Create different graphical representations of data using software where appropriate; compare the different representations, identify and describe common and distinctive features in response to questions (AC9M2ST02)	Interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made (AC9M5ST02)	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 (AC9M6ST01)

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Statistics

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Conduct statistical investigations				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 spreadsheets (AC9M3ST01) Conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest (AC9M3ST03)	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 (AC9M2ST01) 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 (AC9M4ST03)	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 (AC9M5ST01) 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 (AC9M5ST03)	Plan and conduct statistical investigations by posing and refining questions or identifying a problem and collecting relevant data; analyse and interpret the data and communicate findings within the context of the investigation (AC9M6ST03)
Statistics in the media							Identify statistically informed arguments presented in traditional and digital media; discuss and critique methods, data representations and conclusions (AC9M6ST02)

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Probability

Topic	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Possible outcomes				Identify practical activities and everyday events that involve chance; describe possible outcomes and events as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' explaining reasoning (AC9M3P01)	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 (AC9M4P01)	List the possible outcomes of chance experiments involving equally likely outcomes and compare to those which are not equally likely (AC9M5P01)	Recognise that probabilities lie on numerical scales of 0 – 1 or 0% – 100% and use estimation to assign probabilities that events occur in a given context, using common fractions, percentages and decimals (AC9M6P01)
Conduct chance experiments				Conduct repeated chance experiments; identify and describe possible outcomes, record the results, recognise and discuss the variation (AC9M3P02)	Conduct repeated chance experiments to observe relationships between outcomes in games and other chance situations, and identify and describe the variation in results (AC9M4P02)	Conduct repeated chance experiments including those with and without equally likely outcomes, observe and record the results; use frequency to compare outcomes and estimate their likelihoods (AC9M5P02)	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 (AC9M6P02)