Prep–Year 6 Mathematics

Australian Curriculum Version 9.0: Sequence of content descriptions

The following table provides a sequence of content descriptions aligned to the strands and sub-strands for Prep–Year 6 Mathematics. Content descriptions identify the learning area's essential knowledge, understanding and skills. This resource can be used to support curriculum planning. A similar resource is available for Years 7–10 Mathematics.

Strand: Number

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
name, represent and order numbers including zero to at least 20, using physical and virtual materials and numerals AC9MFN01	recognise, represent and order numbers to at least 120 using physical and virtual materials, numerals, number lines and charts AC9M1N01	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	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	recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane AC9M6N01
recognise and name the number of objects within a collection up to 5 using subitising AC9MFN02	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	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	explain and use the properties of odd and even numbers AC9M4N02	express natural numbers as products of their factors, recognise multiples and determine if one number is divisible by another AC9M5N02	identify and describe the properties of prime, composite and square numbers and use these properties to solve problems and simplify calculations AC9M6N02
quantify and compare collections to at least 20 using counting and explain or demonstrate reasoning AC9MFN03	quantify sets of objects to at least 120 by partitioning collections into equal groups using number knowledge and skip counting AC9M1N03	recognise and describe one-half as one of 2 equal parts of a whole and connect halves, quarters and eighths through repeated halving AC9M2N03	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	find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation AC9M4N03	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	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
partition and combine collections up to 10 using part-part-whole relationships and subitising to recognise and name the parts AC9MFN04	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	multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies AC9M3N04	count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines AC9M4N04	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	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
represent practical situations involving addition, subtraction and quantification with physical and virtual materials and use counting or subitising strategies AC9MFN05	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	multiply and divide by one-digit numbers using repeated addition, equal grouping, arrays, and partitioning to support a variety of calculation strategies AC9M2N05	estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations AC9M3N05	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	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

Strand: Number

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
represent practical situations that involve equal sharing and grouping with physical and virtual materials and use counting or subitising strategies AC9MFN06	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	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	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	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	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
			follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns AC9M3N07	choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions AC9M4N07	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	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
				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	check and explain the reasonableness of solutions to problems including financial contexts using estimation strategies appropriate to the context AC9M5N08	approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies AC9M6N08
				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	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 natural and 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
					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 AC9M5N010	

Strand: Algebra

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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, 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	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	recognise and explain the connection between multiplication and division as inverse operations and use this to develop families of number facts AC9M5A01	recognise and use rules that generate visually growing patterns and number patterns involving rational numbers AC9M6A01
	recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit AC9M1A02	recall and demonstrate proficiency with addition facts to 20; extend and apply facts to develop related subtraction facts AC9M2A02	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 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	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
		recall and demonstrate proficiency with multiplication facts for twos; extend and apply facts to develop the related division facts using doubling and halving AC9M2A03	recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts AC9M3A03			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

Strand: Measurement

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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	measure and compare objects based on length, capacity and mass using appropriate uniform informal units and smaller units for accuracy when necessary AC9M2M01	identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates AC9M3M01	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
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	measure the length of shapes and objects using informal units, recognising that units need to be uniform and used end-to-end AC9M1M02	identify common uses and represent halves, quarters and eighths in relation to shapes, objects and events AC9M2M02	measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings AC9M3M02	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
	describe the duration and sequence of events using years, months, weeks, days and hours AC9M1M03	identify the date and determine the number of days between events using calendars AC9M2M03	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	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
		recognise and read the time represented on an analog clock to the hour, half-hour and quarter-hour AC9M2M04	describe the relationship between the hours and minutes on analog and digital clocks, and read the time to the nearest minute AC9M3M04	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
		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			
			recognise the relationships between dollars and cents and represent money values in different ways AC9M3M06			

Strand: Space						
Prep	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
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
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
				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

Strand: Statistics

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
collect, sort and compare data represented by objects and images in response to given investigative questions that relate to familiar situations AC9MFST01	acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols AC9M1ST01	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	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	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 created AC9M4ST01	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	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
	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	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	create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context AC9M3ST02	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 AC9M4ST02	interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made AC9M5ST02	identify statistically informed arguments presented in traditional and digital media; discuss and critique methods, data representations and conclusions AC9M6ST02
			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	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	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

Strand: Probability

Prep	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			identify practical activities and everyday events involving 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 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; 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

More information

If you would like more information, please visit the QCAA website www.qcaa.qld.edu.au. Alternatively, email the K–10 Curriculum and Assessment branch at australiancurriculum@qcaa.qld.edu.au.