

Australian Years 7-10 Mathematics Curriculum v9.0

Tables showing which M1 Maths modules relate to each curriculum element

Year 7	Number	Algebra	Measurement	Space	Statistics	Probability
Year 8	Number	Algebra	Measurement	Space	Statistics	Probability
Year 9	Number	Algebra	Measurement	Space	Statistics	Probability
Year 10	Number	Algebra	Measurement	Space	Statistics	Probability
Year 10 (Optional)	Number	Algebra	Measurement	Space	Statistics	Probability

The syllabus element is in the left column and the relevant modules are in the right column.

Year 7

Year 7 Number		
AC9M7N01	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	N1-6 Powers
AC9M7N02	represent natural numbers as products of powers of prime numbers using exponent notation	N1-6 Powers
AC9M7N03	represent natural numbers in expanded notation using place value and powers of 10	N1-1 Whole Numbers
AC9M7N04	find equivalent representations of rational numbers and represent rational numbers on a number line	N1-2 Fraction meanings N1-3 Fraction conversions
AC9M7N05	round decimals to a given accuracy appropriate to the context and use appropriate rounding and estimation to check the reasonableness of solutions	N1-10 Rounding and Approximation
AC9M7N06	use the 4 operations with positive rational numbers including fractions, decimals and percentages to solve problems using efficient calculation strategies	N1-8 Common fraction operations 1 N2-7 Common fraction operations 2 N1-9 Decimal Operations 1 N2-5 Decimal Operations 2
AC9M7N07	compare, order and solve problems involving addition and subtraction of integers	N1-4 Negatives N2-6 Negative operations
AC9M7N08	recognise, represent and solve problems involving ratios	N2-4 Ratios

AC9M7N09	use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing representations and efficient calculation strategies, using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation	Skills – Problem Solving Skills – Mental Arithmetic Skills – Communicating Various Number modules
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Year 7 Algebra

AC9M7A0	recognise and use variables to represent everyday formulas algebraically and substitute values into formulas to determine an unknown	A1-1 Relations 1 A1-2 Relations 2 A1-5 Substitution
AC9M7A02	formulate algebraic expressions using constants, variables, operations and brackets	A1-1 Relations 1 A1-2 Relations 2 N1-7 Order of Operations
AC9M7A03	solve one-variable linear equations with natural number solutions; verify the solution by substitution	A1-6 Equations N1-7 Order of Operations
AC9M7A04	describe relationships between variables represented in graphs of functions from authentic data	A1-1 Relations 1 A1-2 Relations 2 A1-3 Patterns A1-4 Discrete vs Continuous
AC9M7A05	generate tables of values from visually growing patterns or the rule of a function; describe and plot these relationships on the Cartesian plane	A1-1 Relations 1 A1-2 Relations 2
AC9M7A06	manipulate formulas involving several variables using digital tools, and describe the effect of systematic variation in the values of the variables	A1-5 Substitution A1-6 Equations A3-4 Rearranging Formulae

Year 7 Measurement

AC9M7M01	solve problems involving the area of triangles and parallelograms using established formulas and appropriate units	M1-4 Length, area and volume 1 M2-3 Length, area and volume 2
AC9M7M02	solve problems involving the volume of right prisms including rectangular and triangular prisms, using established formulas and appropriate units	M1-4 Length, area and volume 1 M2-3 Length, area and volume 2
AC9M7M03	describe the relationship between π and the features of circles including the circumference, radius and diameter	M2-3 Length, area and volume 2
AC9M7M04	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	G2-2 Geometric Figures

AC9M7M05 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	G2-2 Geometric Figures
AC9M7M06 use mathematical modelling to solve practical problems involving ratios; formulate problems, interpret and communicate solutions in terms of the situation, justifying choices made about the representation	N2-4 Ratios Skills – Problem Solving Skills – Communicating

Year 7 Space

AC9M7SP01 represent objects in 2 dimensions; discuss and reason about the advantages and disadvantages of different representations	G1-1 Drawings
AC9M7SP02 classify triangles, quadrilaterals and other polygons according to their side and angle properties; identify and reason about relationships	G2-3 Properties of Polygons
AC9M7SP03 describe transformations of a set of points using coordinates in the Cartesian plane, translations and reflections on an axis, and rotations about a given point	G2-5 Transformations and Symmetry
AC9M7SP04 design and create 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	G2-5 Transformations and symmetry

Year 7 Statistics

AC9M7ST01 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	S2-1 Data collection S1-2 Data Summary
AC9M7ST02 create different types of numerical data displays including 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	S1-1 Data Displays 1 S3-1 Data Displays 2 S3-1 Spreadsheets S1-2 Data Summary
AC9M7ST03 plan and conduct statistical investigations involving data for discrete and continuous numerical variables; analyse and interpret distributions of data and report findings in terms of shape and summary statistics	S2-1 Data Collection S3-5 Data Distributions

Year 7 Probability

AC9M7P01	identify the sample space for single-stage events; assign probabilities to the outcomes of these events and predict relative frequencies for related events	P1-1 Probability
AC9M7P02	conduct repeated chance experiments and run simulations with a large number of trials using digital tools; compare predictions about outcomes with observed results, explaining the differences	P1-1 Probability

Year 8

Year 8 Number

AC9M8N01	recognise irrational numbers in applied contexts, including square roots and π	N2-1 Number sets
AC9M8N02	establish and apply the exponent laws with positive integer exponents and the zero-exponent, using exponent notation with numbers	A3-10 Index Laws 1-5
AC9M8N03	recognise terminating and recurring decimals, using digital tools as appropriate	N2-1 Number sets
AC9M8N04	use the 4 operations with integers and with rational numbers, choosing and using efficient strategies and digital tools where appropriate	N2-6 Negative Operations N1-8 Common Fraction Operations 1 N1-9 Decimal Operations 1 N2-7 Common Fraction Operations 2 N2-5 Decimal Operations 2
AC9M8N05	use mathematical modelling to solve practical problems involving rational numbers and percentages, including financial contexts; formulate problems, choosing efficient calculation strategies and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model	Skills – Problem Solving Skills – Mental Arithmetic Skills – Communicating Various Number modules

Year 8 Algebra

AC9M8A01	create, expand, factorise, rearrange and simplify linear expressions, applying the associative, commutative, identity, distributive and inverse properties	A2-1 Writing Equations A2-2 Collecting Terms A2-3 Expanding A3-4 Rearranging Formulae
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AC9M8A02	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	A3-7 Functions A3-8 Linear Functions A1-6 Equations A4-4 Inequalities
AC9M8A03	use mathematical modelling to solve applied problems involving linear relations, including financial contexts; formulate problems with linear functions, choosing a representation; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model	A3-8 Linear Functions Skills – Problem Solving Skills – Mental Arithmetic Skills – Communicating
AC9M8A04	experiment with linear functions and relations using digital tools, making and testing conjectures and generalising emerging patterns	A3-8 Linear functions

Year 8 Measurement

AC9M8M01	solve problems involving the area and perimeter of irregular and composite shapes using appropriate units	M1-4 Length, Area and Volume 1 M2-3 Length, Area and Volume 2
AC9M8M02	solve problems involving the volume and capacity of right prisms using appropriate units	M2-3 Length, area and volume 2
AC9M8M03	solve problems involving the circumference and area of a circle using formulas and appropriate units	M1-4 Length, Area and Volume 1 M2-3 Length, Area and Volume 2
AC9M8M04	solve problems involving duration, including using 12- and 24-hour time across multiple time zones	M2-2 Time 2
AC9M8M05	recognise and use rates to solve problems involving the comparison of 2 related quantities of different units of measure	M1-3 Unit conversion M4-1 Length, Area and Volume 4
AC9M8M06	use Pythagoras' theorem to solve problems involving the side lengths of right-angled triangles	M3-1 Pythagoras
AC9M8M07	use mathematical modelling to solve practical problems involving ratios and rates, including financial contexts; formulate problems; interpret and communicate solutions in terms of the situation, reviewing the appropriateness of the model	N2-3 Rates N2-4 Ratios Skills – Problem Solving Skills – Communicating

Year 8 Space

AC9M8SP01	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	G2-6 Congruence G3-1 Similarity
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AC9M8SP02	establish properties of quadrilaterals using congruent triangles and angle properties, and solve related problems explaining reasoning	G2-3 Properties of Polygons
AC9M8SP03	describe the position and location of objects in 3 dimensions in different ways, including using a three-dimensional coordinate system with the use of dynamic geometric software and other digital tools	G1-3 Position
AC9M8SP04	design, create and test algorithms involving a sequence of steps and decisions that identify congruency or similarity of shapes, and describe how the algorithm works	G2-6 Congruence G3-1 Similarity

Year 8 Statistics

AC9M8ST01	investigate techniques for data collection including census, sampling, experiment and observation, and explain the practicalities and implications of obtaining data through these techniques	S2-1 Data Collection
AC9M8ST02	analyse and report on the distribution of data from primary and secondary sources using random and non-random sampling techniques to select and study samples	S3-5 Data Distributions S4-1 Quantiles and Spread
AC9M8ST03	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	
AC9M8ST04	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	S2-1 Data collection

Year 8 Probability

AC9M8P01	recognise that complementary events have a combined probability of one; use this relationship to calculate probabilities in applied contexts	P2-1 Compound events
AC9M8P02	determine all possible combinations for 2 events, using two-way tables, tree diagrams and Venn diagrams, and use these to determine probabilities of specific outcomes in practical situations	P2-1 Compound events P2-2 Two-way Tables P2-3 Venn Diagrams P3-1 Tree Diagrams
AC9M8P03	conduct repeated chance experiments and simulations, using digital tools to determine probabilities for compound events, and describe results	P2-1 Compound Events

Year 9

Year 9 Number

AC9M9N01	recognise that the real number system includes the rational numbers and the irrational numbers, and solve problems involving real numbers using digital tools	N2-1 Number Sets
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Year 9 Algebra

AC9M9A01	apply the exponent laws to numerical expressions with integer exponents and extend to variables	A3-10 Index Laws 1 to 5 A5-2 Index Laws 6 to 10
AC9M9A02	simplify algebraic expressions, expand binomial products and factorise monic quadratic expressions	A2-2 Collecting Terms A2-3 Expanding A4-1 Factorising A4-2 Quadratic Functions
AC9M9A03	find the gradient of a line segment, the midpoint of the line interval and the distance between 2 distinct points on the Cartesian plane	M3-3 Slope A3-8 Linear Functions M3-1 Pythagoras
AC9M9A04	identify and graph quadratic functions, solve quadratic equations graphically and numerically, and solve monic quadratic equations with integer roots algebraically, using graphing software and digital tools as appropriate	A4-2 Quadratic Functions
AC9M9A05	use mathematical modelling to solve applied problems involving change including financial contexts; formulate problems, choosing to use either linear or quadratic functions; interpret solutions in terms of the situation; evaluate the model and report methods and findings	A3-8 Linear Functions A4-2 Quadratic Functions Skills – Problem Solving Skills – Mental Arithmetic Skills – Communicating
AC9M9A06	experiment with the effects of the variation of parameters on graphs of related functions, using digital tools, making connections between graphical and algebraic representations, and generalising emerging patterns	A3-7 Functions A3-8 Linear Functions A3-9 Reciprocal Functions A4-2 Quadratic Functions A5-1 Polynomial Functions A5-5 Power Functions A5-f Exponential Functions and Logs

Year 9 Measurement

AC9M9M01	solve problems involving the volume and surface area of right prisms and cylinders using appropriate units	M2-3 Length, area and volume 2
AC9M9M02	solve problems involving very small and very large measurements, time scales and intervals expressed in scientific notation	N3-1 Scientific Notation

AC9M9M03	solve spatial problems, applying angle properties, scale, similarity, Pythagoras' theorem and trigonometry in right-angled triangles	G2-2 Geometric Figures G2-1 Maps and Scales G3-1 Similarity M3-1 Pythagoras M3-2 Trigonometry
AC9M9M04	calculate and interpret absolute, relative and percentage errors in measurements, recognising that all measurements are estimates	N4-2 Errors
AC9M9M05	use mathematical modelling to solve practical problems involving direct proportion, rates, ratio and scale, including financial contexts; formulate the problems and interpret solutions in terms of the situation; evaluate the model and report methods and findings	N2-3 Rates N2-4 Ratios Skills – Problem Solving Skills – Communicating

Year 9 Space

AC9M9SP01	recognise the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles using properties of similarity	M3-2 Trigonometry
AC9M9SP02	apply the enlargement transformation to shapes and objects using dynamic geometry software as appropriate; identify and explain aspects that remain the same and those that change	G2-5 Transformations and Symmetry
AC9M9SP03	design, test and refine algorithms involving a sequence of steps and decisions based on geometric constructions and theorems; discuss and evaluate refinements	

Year 9 Statistics

AC9M9ST01	analyse reports of surveys in digital media and elsewhere for information on how data was obtained to estimate population means and medians	S3-3 Critiquing S1-2 Data Summary
AC9M9ST02	analyse how different sampling methods can affect the results of surveys and how choice of representation can be used to support a particular point of view	S1-2 Data Summary S3-3 Critiquing
AC9M9ST03	represent the distribution of multiple data sets for numerical variables using comparative representations; compare data distributions with consideration of centre, spread and shape, and the effect of outliers on these measures	S3-2 Data Displays 2 S3-5 Data Distributions
AC9M9ST04	choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context	S1-1 Data Displays 1 S3-2 Data Displays 2 S3-4 Data types S3-3 Critiquing

AC9M9ST05 plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions	S2-1 Data Collection S3-3 Critiquing
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Year 9 Probability

AC9M9P01 list all outcomes for compound events both with and without replacement, using lists, tree diagrams, tables or arrays; assign probabilities to outcomes	P2-1 Compound events P2-2 Two-way Tables P3-1 Tree Diagrams
AC9M9P02 calculate relative frequencies from given or collected data to estimate probabilities of events involving “and”, inclusive “or” and exclusive “or”	P2-1 Compound Events
AC9M9P03 design and conduct repeated chance experiments and simulations, using digital tools to compare probabilities of simple events to related compound events, and describe results	P2-1 Compound Events

Year 10

Year 10 Number

AC9M10N01 recognise the effect of using approximations of real numbers in repeated calculations and compare the results when using exact representations	N4-2 Errors
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Year 10 Algebra

AC9M10A01 expand, factorise and simplify expressions and solve equations algebraically, applying exponent laws involving products, quotients and powers of variables, and the distributive property	A1-6 Equations A2-2 Collecting Terms A2-3 Expanding A3-1 Undoing the Unknown A3-3 Squares and Fractions A3-10 Index Laws 1-5 A4-1 Factorising A5-2 Index Laws 6-10
AC9M10A02 solve linear inequalities and simultaneous linear equations in 2 variables; interpret solutions graphically and communicate solutions in terms of the situation	A4-3 Simultaneous Equations – Linear A4-4 Inequalities

AC9M10A03	recognise the connection between algebraic and graphical representations of exponential relations and solve related exponential equations, using digital tools where appropriate	A5-4 Exponential Equations and Logs
AC9M10A04	use mathematical modelling to solve applied problems involving growth and decay, including financial contexts; formulate problems, choosing to apply linear, quadratic or exponential models; interpret solutions in terms of the situation; evaluate and modify models as necessary and report assumptions, methods and findings	A3-8 Linear Functions A4-2 Quadratic Functions A5-4 Exponential Functions and Logs Skills – Problem Solving Skills – Communicating
AC9M10A05	experiment with functions and relations using digital tools, making and testing conjectures and generalising emerging patterns	A3-7 Functions

Year 10 Measurement

AC9M10M01	solve problems involving the surface area and volume of composite objects using appropriate units	M4-1 Length, area and volume 4
AC9M10M02	interpret and use logarithmic scales in applied contexts involving small and large quantities and change	A5-13 Logs
AC9M10M03	solve practical problems applying Pythagoras' theorem and trigonometry of right-angled triangles, including problems involving direction and angles of elevation and depression	M3-1 Pythagoras M3-2 Trigonometry
AC9M10M04	identify the impact of measurement errors on the accuracy of results in practical contexts	N4-2 Errors
AC9M10M05	use mathematical modelling to solve practical problems involving proportion and scaling of objects; formulate problems and interpret solutions in terms of the situation; evaluate and modify models as necessary, and report assumptions, methods and findings	N2-4 Ratios G2-1 Maps and Scales G3-1 Similarity Skills – Problem Solving Skills – Communicating

Year 10 Space

AC9M10SP01	apply deductive reasoning to proofs involving shapes in the plane and use theorems to solve spatial problems	G4-1 Geometric Proofs
AC9M10SP02	interpret networks and network diagrams used to represent relationships in practical situations and describe connectedness	G4-2 Networks
AC9M10SP03	design, test and refine solutions to spatial problems using algorithms and digital tools; communicate and justify solutions	G1-1 Drawings G2-1 Maps and Scales G4-2 Networks

Year 10 Statistics

AC9M10ST01	analyse claims, inferences and conclusions of statistical reports in the media, including ethical considerations and identification of potential sources of bias	S3-3 Critiquing
AC9M10ST02	compare data distributions for continuous numerical variables using appropriate data displays including boxplots; discuss the shapes of these distributions in terms of centre, spread, shape and outliers in the context of the data	S3-2 Data Displays 2 S1-2 Data Summary S3-5 Data Distributions S4-1 Quantiles and Spread
AC9M10ST03	construct scatterplots and comment on the association between the 2 numerical variables in terms of strength, direction and linearity	S1-1 Data Displays 1 S4-2 Linear Regression
AC9M10ST04	construct two-way tables and discuss possible relationship between categorical variables	P2-2 Two-way Tables
AC9M10ST05	plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences	S4-2 Linear Regression

Year 10 Probability

AC9M10P01	use the language of “if then”, “given”, “of”, “knowing that” to describe and interpret situations involving conditional probability	P6-2 Conditional Probability
AC9M10P02	design and conduct repeated chance experiments and simulations using digital tools to model conditional probability and interpret results	P6-2 Conditional Probability

Year 10 Optional

Optional content for post-Year 10 mathematics pathways

Year 10 Optional – Number

operations on numbers involving fractional exponents and surds	A5-2 Index Laws 6-10 N5-1 Simplifying Surds
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Year 10 Optional – Algebra

simplification of combinations of linear expressions with rational coefficients and the solution of related equations	A4-5 Algebraic Fractions
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algebraic representations of quadratic functions of the form $f(x) = ax^2 + bx + c$	A4-2 Quadratic Functions
where a , b and c are non-zero integers, and their transformation to the form $f(x) = a(x + h)^2 + k$ where h and k are non-zero rational numbers, and the solution of related equations	A4-2 Quadratic Functions
the graphs of $y = \sin(x)$ and $y = \cos(x)$ as functions of a real variable and the solution of related equations	A5-11 Trigonometric Functions A5-12 Trigonometric Equations
the inverse relationship between exponential functions and logarithmic functions and the solution of related equations	A5-4 Exponential Functions and Logs A5-13 Logs

Year 10 Optional – Measurement

the effect of increasingly small changes in the value of variables on the average rate of change and in relation to limiting values	C6-1 Velocity Graphically C6-2 Velocity Algebraically
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Year 10 Optional – Space

relationships between angles and various lines associated with circles (radii, diameters, chords, tangents)	G4-1 Geometric Proofs
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Year 10 Optional – Statistics

measures of spread, their interpretation and usefulness with respect to different data distributions	S4-1 Quantiles and Spread
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Year 10 Optional – Probability

counting principles, and factorial notation as a representation that provides efficient counting in multiplicative contexts, including calculations of probabilities	A6-1 Combinations and the Binomial Expansion
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