

Prep–Year 10 Mathematics

Australian Curriculum Version 9.0: Sequence of achievement standard aspects and related content descriptions

This resource provides a sequence of achievement standards with related content descriptions for Prep–Year 10 Mathematics, separated into aspects and organised by the elements and sub-elements of the Numeracy general capability.

By aligning aspects of the achievement standards to the Numeracy progression, teachers can see a logical sequence of mathematical concepts from Prep–Year 10. The inclusion of the content descriptions in the following table aligns each aspect of the achievement standard with the essential knowledge, understanding and skills that should be taught.

This supports teachers to:

- plan for the range of student abilities within a single year level
- determine appropriate curriculum access points for students working above or below year level
- plan teaching, learning and assessment for students in multi-age classrooms.

The following key has been used to help teachers identify the sub-strand for each content description.

Key	Number	Algebra	Measurement	Space	Statistics	Probability
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* indicates duplicated achievement standard aspect

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:	
Number sense and algebra	Number and place value	make connections between number names, numerals and position in the sequence of numbers from zero to at least 20 AC9MFN01 partition and combine collections up to 10 in different ways, representing these with numbers* AC9MFN02 AC9MFN04 compare the size of collections to at least 20* AC9MFN03 represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10* AC9MFN03 AC9MFN05 AC9MFN06 use subitising and counting strategies to quantify collections* AC9MFN02 AC9MFN03 AC9MFN04 AC9MFN05 collect, sort and compare data in response to questions in familiar contexts* AC9MFN03 AC9MFST01	connect number names, numerals and quantities, and order numbers to at least 120 AC9M1N01 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* AC9M1N02 AC9M1N04 partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120* AC9M1N03 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* AC9M1N04 AC9M1N05 AC9M1N06 collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies* AC9M1N01	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* AC9M2N01 AC9M2N02 AC9M2N04 AC9M2N05 use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies* AC9M2N04 AC9M2N05 AC9M2N06 recall and demonstrate proficiency with addition and subtraction facts within 20 and multiplication facts for twos* AC9M2N04 AC9M2A02 AC9M2A03	order and represent natural numbers beyond 10 000 AC9M3N01 partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations* AC9M3N03 AC9M3A01 AC9M3M06 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* AC9M3N03 AC9M3N06 AC9M3A02 use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies* AC9M3N04 AC9M3N06 AC9M3A03 make estimates and determine the reasonableness of financial and other calculations* AC9M3N05 AC9M3N06	use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10* AC9M4N01 AC9M4N05 use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation* AC9M4N06 AC9M4N08 use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently* AC9M4N06 AC9M4N08 AC9M4A02 recognise equivalent fractions and make connections between fraction and decimal notations* AC9M4N01 AC9M4N03 choose rounding and estimation strategies to	use place value to write and order decimals including decimals greater than one AC9M5N01 represent common percentages and connect them to their fraction and decimal equivalents* AC9M5N04	use integers to represent points on a number line and in the Cartesian plane* AC9M6N01 AC9M6SP02 use all 4 operations with decimals and connect decimal representations of measurements to the metric system* AC9M6N04 AC9M6N06 AC9M6M01 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* AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08 locate an ordered pair in any one of the 4 quadrants on the Cartesian plane* AC9M6N01 AC9M6SP02	represent natural numbers in expanded form and as products of prime factors, using exponent notation* AC9M7N02 AC9M7N03 solve problems involving addition and subtraction of integers* AC9M7N07 use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies* AC9M7N05 AC9M7N06 choose between equivalent representations of rational numbers and percentages to assist in calculations* AC9M7N04 AC9M7N06 use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation* AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06	recognise irrational numbers and terminating or recurring decimals* AC9M8N01 AC9M8N03 AC9M8M03 solve problems involving the 4 operations with integers and positive rational numbers* AC9M8N04 use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts* AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07 use appropriate metric units when solving measurement problems involving the perimeter and area of composite shapes, and volume of right prisms* AC9M8N04 AC9M8M01 AC9M8M02 use formulas to solve problems involving the area and circumference of circles* AC9M8N04 AC9M8M03	express small and large numbers in scientific notation* AC9M9M02 recognise and use rational and irrational numbers to solve problems* AC9M9N01	This aspect of the achievement standard concludes in Year 9.

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:
		AC9M1ST01 AC9M1ST02		AC9M3M01 AC9M3M06 create algorithms to investigate numbers and explore simple patterns* AC9M3N07	determine whether results of calculations are reasonable* AC9M4N07						
Counting processes	partition and combine collections up to 10 in different ways, representing these with numbers* AC9MFN02 AC9MFN04 compare the size of collections to at least 20* AC9MFN03 represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10* AC9MFN03 AC9MFN05 AC9MFN06 use subitising and counting strategies to quantify collections* AC9MFN02 AC9MFN03 AC9MFN04 AC9MFN05 collect, sort and compare data in response to questions in familiar contexts* AC9MFN03 AC9MFST01	partition collections into equal groups and skip count in twos, fives or tens to quantify collections to at least 120* AC9M1N03 use numbers, symbols and objects to create skip counting and repeating patterns, identifying the repeating unit* AC9M1A01 AC9M1A02 measure the length of shapes and objects using uniform informal units* AC9M1M02 collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies* AC9M1N01 AC9M1ST01 AC9M1ST02	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* AC9M2M03 AC9M2M04	partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations* AC9M3N03 AC9M3A01 AC9M3M06	count and represent fractions on a number line* AC9M4N04	conduct repeated chance experiments, list the possible outcomes, estimate likelihoods and make comparisons between those with and without equally likely outcomes* AC9M5P01 AC9M5P02	This aspect of the achievement standard concludes in Year 5.				
Additive strategies	represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10* AC9MFN03 AC9MFN05 AC9MFN06 use subitising and counting strategies to quantify collections* AC9MFN02 AC9MFN03 AC9MFN04 AC9MFN05	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* AC9M1N02 AC9M1N04 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* AC9M1N04 AC9M1N05 AC9M1N06	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* AC9M2N01 AC9M2N02 AC9M2N04 AC9M2N05 use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies* AC9M2N04 AC9M2N05 AC9M2N06 describe and continue patterns that increase and decrease additively by a constant amount and identify missing elements in the pattern* AC9M2A01	partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations* AC9M3N03 AC9M3A01 AC9M3M06 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* AC9M3N03 AC9M3N06 AC9M3A02 make estimates and determine the reasonableness of financial and other calculations* AC9M3N05 AC9M3N06 AC9M3M01 AC9M3M06 use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives	use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation* AC9M4N06 AC9M4N08 use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently* AC9M4N06 AC9M4N08 AC9M4A02 follow and create algorithms that generate sets of numbers and identify emerging patterns* AC9M4N09 find unknown values in numerical equations involving addition and subtraction* AC9M4A01	order and represent, add and subtract fractions with the same or related denominators* AC9M5N03 AC9M5N05 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* AC9M5N07 AC9M5N09	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* AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08 use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices* AC9M6N09 use all 4 operations with decimals and connect decimal representations of measurements to the metric system* AC9M6N04 AC9M6N06 AC9M6M01 order common fractions, giving reasons, and add	solve problems involving addition and subtraction of integers* AC9M7N07 represent natural numbers in expanded form and as products of prime factors, using exponent notation* AC9M7N02 AC9M7N03 use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies* AC9M7N05 AC9M7N06 choose between equivalent representations of rational numbers and percentages to assist in calculations* AC9M7N04 AC9M7N06 use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation* AC9M7N04	solve problems involving the 4 operations with integers and positive rational numbers* AC9M8N04 use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts* AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07 use appropriate metric units when solving measurement problems involving the perimeter and area of composite shapes, and volume of right prisms* AC9M8N04 AC9M8M01 AC9M8M02 use formulas to solve problems involving the area and circumference of circles* AC9M8N04 AC9M8M03	This aspect of the achievement standard concludes in Year 8.	

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:
			recall and demonstrate proficiency with addition and subtraction facts within 20 and multiplication facts for twos* AC9M2N04 AC9M2A02 AC9M2A03	and tens, and using a range of strategies* AC9M3N04 AC9M3N06 AC9M3A03 find unknown values in number sentences involving addition and subtraction* AC9M3A01			and subtract fractions with related denominators* AC9M6N03 AC9M6N05 find unknown values in numerical equations involving combinations of arithmetic operations* AC9M6A02	AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06			
Multiplicative strategies	represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10* AC9MFN03 AC9MFN05 AC9MFN06	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* AC9M1N04 AC9M1N05 AC9M1N06	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* AC9M2N01 AC9M2N02 AC9M2N04 AC9M2N05 use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies* AC9M2N04 AC9M2N05 AC9M2N06 recall and demonstrate proficiency with addition and subtraction facts within 20 and multiplication facts for twos* AC9M2N04 AC9M2A02 AC9M2A03	use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies* AC9M3N04 AC9M3N06 AC9M3A03	use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently* AC9M4N06 AC9M4N08 AC9M4A02 use the properties of odd and even numbers AC9M4N02 use their understanding of place value to represent tenths and hundredths in decimal form and to multiply natural numbers by multiples of 10* AC9M4N01 AC9M4N05 use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation* AC9M4N06 AC9M4N08 follow and create algorithms that generate sets of numbers and identify emerging patterns* AC9M4N09	express natural numbers as products of factors and identify multiples AC9M5N02 use their proficiency with multiplication facts and efficient calculation strategies to multiply large numbers by one- and two-digit numbers and divide by single-digit numbers* AC9M5N06 AC9M5N07 AC9M5A01 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* AC9M5N07 AC9M5N09 apply properties of numbers and operations to find unknown values in numerical equations involving multiplication and division* AC9M5A01 AC9M5A02 create and use algorithms to identify and explain patterns in the factors and multiples of numbers* AC9M5N010	solve problems using the properties of prime, composite and square numbers AC9M6N02 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* AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08 use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices* AC9M6N09 use all 4 operations with decimals and connect decimal representations to the metric system* AC9M6N04 AC9M6N06 AC9M6M01 find unknown values in numerical equations involving combinations of arithmetic operations* AC9M6A02	solve problems involving squares of numbers and square roots of perfect square numbers AC9M7N01 represent natural numbers in expanded form and as products of prime factors, using exponent notation* AC9M7N02 AC9M7N03 use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies* AC9M7N05 AC9M7N06 choose between equivalent representations of rational numbers and percentages to assist in calculations* AC9M7N04 AC9M7N06 use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation* AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06	apply the exponent laws to calculations with numbers involving positive integer exponents AC9M8N02 solve problems involving the 4 operations with integers and positive rational numbers* AC9M8N04 use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts* AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07 use appropriate metric units when solving measurement problems involving the perimeter and area of composite shapes, and volume of right prisms* AC9M8N04 AC9M8M01 AC9M8M02 use formulas to solve problems involving the area and circumference of circles* AC9M8N04 AC9M8M03 use Pythagoras' theorem to solve measurement problems involving unknown lengths of right-angle triangles* AC9M8M06	extend and apply the exponent laws with positive integers to variables AC9M9A01 express small and large numbers in scientific notation* AC9M9M02	interpret and use logarithmic scales representing small or large quantities or change in applied contexts AC9M10M02 identify the impact of measurement errors on the accuracy of results* AC9M10M04
Interpreting fractions	This aspect of the achievement standard begins in Year 2.	identify and represent part-whole relationships of halves, quarters and eighths in measurement contexts* AC9M2N03 AC9M2M02 AC9M2M04 AC9M2M05 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* AC9M2M03 AC9M2M04	represent unit fractions and their multiples in different ways AC9M3N02	recognise equivalent fractions and make connections between fraction and decimal notations* AC9M4N01 AC9M4N03 count and represent fractions on a number line* AC9M4N04	order and represent, add and subtract fractions with the same or related denominators* AC9M5N03 AC9M5N05 represent common percentages and connect them to their fraction and decimal equivalents* AC9M5N04 use their proficiency with multiplication facts and efficient calculation strategies to multiply large numbers by one- and two-digit numbers and divide by single-digit numbers*	order common fractions, giving reasons, and add and subtract fractions with related denominators* AC9M6N03 AC9M6N05 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* AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08	use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies* AC9M7N05 AC9M7N06 choose between equivalent representations of rational numbers and percentages to assist in calculations* AC9M7N04 AC9M7N06 use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other	solve problems involving the 4 operations with integers and positive rational numbers* AC9M8N04 use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts* AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07 use appropriate metric units when solving measurement problems	recognise and use rational and irrational numbers to solve problems* AC9M9N01	This aspect of the achievement standard concludes in Year 9.	

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:
						<p>AC9M5N06 AC9M5N07 AC9M5A01</p> <p>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* AC9M5N07 AC9M5N09</p>	<p>use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices* AC9M6N09</p>	<p>applied contexts, justifying choices of representation* AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06</p>	<p>involving the perimeter and area of composite shapes, and volume of right prisms* AC9M8N04 AC9M8M01 AC9M8M02</p> <p>use formulas to solve problems involving the area and circumference of circles* AC9M8N04 AC9M8M03</p>		
Proportional thinking	This aspect of the achievement standard begins in Year 5.					<p>represent common percentages and connect them to their fraction and decimal equivalents* AC9M5N04</p>	<p>assign probabilities using common fractions, decimal and percentages* AC9M6P01</p> <p>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* AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08</p>	<p>use all 4 operations in calculations involving positive fractions and decimals, choosing efficient calculation strategies* AC9M7N05 AC9M7N06</p> <p>choose between equivalent representations of rational numbers and percentages to assist in calculations* AC9M7N04 AC9M7N06</p> <p>use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation* AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06</p>	<p>use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts* AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07</p> <p>use Pythagoras' theorem to solve measurement problems involving unknown lengths of right-angle triangles* AC9M8M06</p> <p>identify conditions for congruency and similarity in shapes and create and test algorithms designed to test for congruency and similarity* AC9M8SP01 AC9M8SP04</p>	<p>use mathematical modelling to solve practical problems involving direct proportion, ratio and scale, evaluating the model and communicating their methods and findings* AC9M9M03 AC9M9M05 AC9M9SP01 AC9M9SP02</p> <p>apply Pythagoras' theorem and use trigonometric ratios to solve problems involving right-angled triangles* AC9M9M03 AC9M9SP01</p> <p>solve problems involving ratio, similarity and scale in two-dimensional situations* AC9M9M03</p> <p>apply the enlargement transformation to images of shapes and objects, and interpret results* AC9M9SP02</p> <p>determine percentage errors in measurements* AC9M9M04</p>	<p>use mathematical modelling to solve practical problems involving proportion and scaling, evaluating and modifying models, and reporting assumptions, methods and findings AC9M10M05</p>
Number patterns and algebraic thinking	<p>copy and continue repeating patterns AC9MFA01</p> <p>represent practical situations that involve quantifying, equal sharing, adding to and taking away from collections to at least 10* AC9MFN03 AC9MFN05 AC9MFN06</p>	<p>use numbers, symbols and objects to create skip counting and repeating patterns, identifying the repeating unit* AC9M1A01 AC9M1A02</p>	<p>describe and continue patterns that increase and decrease additively by a constant amount and identify missing elements in the pattern* AC9M2A01</p>	<p>partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations* AC9M3N03 AC9M3A01 AC9M3M06</p> <p>create algorithms to investigate numbers and explore simple patterns* AC9M3N07</p> <p>find unknown values in number sentences involving addition and subtraction* AC9M3A01</p> <p>make estimates and determine the reasonableness of financial and other calculations* AC9M3N05 AC9M3N06 AC9M3M01 AC9M3M06</p>	<p>find unknown values in numerical equations involving addition and subtraction* AC9M3A01</p> <p>follow and create algorithms that generate sets of numbers and identify emerging patterns* AC9M4N09</p>	<p>apply properties of numbers and operations to find unknown values in numerical equations involving multiplication and division* AC9M5A01 AC9M5A02</p> <p>create and use algorithms to identify and explain patterns in the factors and multiples of numbers* AC9M5N010</p>	<p>identify and explain rules used to create growing patterns AC9M6A01</p> <p>find unknown values in numerical equations involving combinations of arithmetic operations* AC9M6A02</p> <p>create and use algorithms to generate sets of numbers, using a rule AC9M6A03</p>	<p>use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values* AC9M7A01 AC9M7A02 AC9M7A04 AC9M7A06</p> <p>solve linear equations with natural number solutions AC9M7A03</p> <p>create tables of values related to algebraic expressions and formulas, and describe the effect of variation AC9M7A05 AC9M7A06</p> <p>use formulas for the areas of triangles and parallelograms and the</p>	<p>apply algebraic properties to rearrange, expand and factorise linear expressions AC9M8A01</p> <p>graph linear relations and solve linear equations with rational solutions and one-variable inequalities, graphically and algebraically AC9M8A02</p> <p>use mathematical modelling to solve problems using linear relations, interpreting and reviewing the model in context AC9M8A01 AC9M8A02 AC9M8A03</p> <p>make and test conjectures involving linear relations using digital tools AC9M8A02 AC9M8A04</p>	<p>use mathematical modelling to solve problems involving change in financial and other applied contexts, choosing to use linear and quadratic functions* AC9M9A02 AC9M9A04 AC9M9A05</p> <p>expand binomial products, and factorise monic quadratic expressions AC9M9A02</p> <p>graph quadratic functions and solve monic quadratic equations with integer roots algebraically AC9M9A02 AC9M9A04 AC9M9A04</p> <p>describe the effects of variation of parameters on functions and relations, using digital tools, and make connections between</p>	<p>use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying linear, quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically* AC9M10A01 AC9M10A03 AC9M10A04</p> <p>make and test conjectures involving functions and relations using digital tools AC9M10A05</p> <p>solve problems involving simultaneous linear equations and linear inequalities in 2 variables graphically and justify solutions AC9M10A02</p>

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:
				<p>use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies*</p> <p>AC9M3N04 AC9M3N06 AC9M3A03</p> <p>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*</p> <p>AC9M3N03 AC9M3N06 AC9M3A02</p>				<p>volumes of rectangular and triangular prisms to solve problems*</p> <p>AC9M7A01 AC9M7M01 AC9M7M02</p>		<p>their graphical and algebraic representations</p> <p>AC9M9A06</p> <p>find the distance between 2 points on the Cartesian plane, and the gradient and midpoint of a line segment</p> <p>AC9M9A03</p>	
Understanding money	No related achievement standard aspect for Prep.	<p>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*</p> <p>AC9M1N04 AC9M1N05 AC9M1N06</p>	<p>use mathematical modelling to solve practical additive and multiplicative problems, including money transactions, representing the situation and choosing calculation strategies*</p> <p>AC9M2N04 AC9M2N05 AC9M2N06</p>	<p>partition, rearrange and regroup two- and three-digit numbers in different ways to assist in calculations*</p> <p>AC9M3N03 AC9M3A01 AC9M3M06</p> <p>represent money values in different ways</p> <p>AC9M3M06</p> <p>make estimates and determine the reasonableness of financial and other calculations*</p> <p>AC9M3N05 AC9M3N06 AC9M3M01 AC9M3M06</p> <p>use mathematical modelling to solve practical problems involving single-digit multiplication and division, recalling multiplication facts for twos, threes, fours, fives and tens, and using a range of strategies*</p> <p>AC9M3N04 AC9M3N06 AC9M3A03</p>	<p>use mathematical modelling to solve financial and other practical problems, formulating the problem using number sentences, solving the problem choosing efficient strategies and interpreting results in terms of the situation*</p> <p>AC9M4N06 AC9M4N08</p> <p>use their proficiency with addition and multiplication facts to add and subtract, multiply and divide numbers efficiently*</p> <p>AC9M4N06 AC9M4N08 AC9M4A02</p>	<p>check the reasonableness of their calculations using estimation</p> <p>AC9M5N08</p> <p>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*</p> <p>AC9M5N07 AC9M5N09</p>	<p>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*</p> <p>AC9M6N04 AC9M6N06 AC9M6N07 AC9M6N08</p> <p>use mathematical modelling to solve financial and other practical problems involving percentages and rational numbers, formulating and solving the problem, and justifying choices*</p> <p>AC9M6N09</p>	<p>use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation*</p> <p>AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06</p>	<p>use mathematical modelling to solve practical problems involving ratios, percentages and rates in measurement and financial contexts*</p> <p>AC9M8N04 AC9M8N05 AC9M8M05 AC9M8M07</p>	<p>use mathematical modelling to solve problems involving change in financial and other applied contexts, choosing to use linear and quadratic functions*</p> <p>AC9M9A02 AC9M9A04 AC9M9A05</p>	<p>use mathematical modelling to solve problems involving growth and decay in financial and other applied situations, applying linear, quadratic and exponential functions as appropriate, and solve related equations, numerically and graphically*</p> <p>AC9M10A01 AC9M10A03 AC9M10A04</p>

	Prep Students:	Year 1 Students:	Year 2 Students:	Year 3 Students:	Year 4 Students:	Year 5 Students:	Year 6 Students:	Year 7 Students:	Year 8 Students:	Year 9 Students:	Year 10 Students:	
Measurement and geometry	Understanding units of measurement	identify the attributes of mass, capacity, length and duration, and use direct comparison strategies to compare objects and events AC9MFM01	compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating reasoning* AC9M1M01 AC9M1M03 measure the length of shapes and objects using uniform informal units* AC9M1M02	identify and represent part-whole relationships of halves, quarters and eighths in measurement contexts* AC9M2N03 AC9M2M02 AC9M2M04 AC9M2M05 use uniform informal units to measure and compare shapes and objects AC9M2M01	use familiar metric units when estimating, comparing and measuring the attributes of objects and events* AC9M3M01 AC9M3M02 AC9M3M03 identify angles as measures of turn and compare them to right angles* AC9M3M05 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* AC9M3N03 AC9M3N06 AC9M3A02 make estimates and determine the reasonableness of financial and other calculations* AC9M3N05 AC9M3N06 AC9M3M01 AC9M3M06	use scaled instruments and appropriate units to measure length, mass, capacity and temperature AC9M4M01 measure and approximate perimeters and areas AC9M4M02	choose and use appropriate metric units to measure the attributes of length, mass and capacity, and to solve problems involving perimeter and area AC9M5M01 AC9M5M02 estimate, construct and measure angles in degrees AC9M5M04	use all 4 operations with decimals and connect decimal representations of measurements to the metric system* AC9M6N04 AC9M6N06 AC9M6M01 convert between common units of length, mass and capacity AC9M6M01 use the formula for the area of a rectangle and angle properties to solve problems* AC9M6M02 AC9M6M04	use mathematical modelling to solve practical problems involving rational numbers, percentages and ratios, in financial and other applied contexts, justifying choices of representation* AC9M7N04 AC9M7N06 AC9M7N08 AC9M7N09 AC9M7M06 use formulas for the areas of triangles and parallelograms and the volumes of rectangular and triangular prisms to solve problems* AC9M7A01 AC9M7M01 AC9M7M02 describe the relationships between the radius, diameter and circumference of a circle AC9M7M03	recognise irrational numbers and terminating or recurring decimals* AC9M8N01 AC9M8N03 AC9M8M03 use appropriate metric units when solving measurement problems involving the perimeter and area of composite shapes, and volume of right prisms* AC9M8N04 AC9M8M01 AC9M8M02 use Pythagoras' theorem to solve measurement problems involving unknown lengths of right-angle triangles* AC9M8M06 use formulas to solve problems involving the area and circumference of circles* AC9M8N04 AC9M8M03	apply formulas to solve problems involving the surface area and volume of right prisms and cylinders AC9M9M01 determine percentage errors in measurements* AC9M9M04 solve problems involving ratio, similarity and scale in two-dimensional situations* AC9M9M03 apply Pythagoras' theorem and use trigonometric ratios to solve problems involving right-angled triangles* AC9M9M03 AC9M9SP01 use mathematical modelling to solve practical problems involving direct proportion, ratio and scale, evaluating the model and communicating their methods and findings* AC9M9M03 AC9M9M05 AC9M9SP01 AC9M9SP02	recognise the effect of approximations of real numbers in repeated calculations* AC9M10N01 AC9M10M03 identify the impact of measurement errors on the accuracy of results* AC9M10M04 apply Pythagoras' theorem and trigonometry to solve practical problems involving right-angled triangles* AC9M10M03
		Understanding geometric properties	name, create and sort familiar shapes and give their reasoning AC9MFSP01	make, compare and classify shapes and objects using obvious features AC9M1SP01	compare and classify shapes, describing features using formal spatial terms AC9M2SP01	make, compare and classify objects using key features AC9M3SP01 identify angles as measures of turn and compare them to right angles* AC9M3M05	represent and approximate shapes and objects in the environment AC9M4SP01 identify line and rotational symmetry in plane shapes and create symmetrical patterns AC9M4SP03 compare angles relative to a right angle using angle names AC9M4M04	connect objects to their two-dimensional nets AC9M5SP01 perform and describe the results of transformations and identify any symmetries AC9M5SP03	identify the parallel cross-section for right prisms AC9M6SP01 create tessellating patterns using combinations of transformations AC9M6SP03 use the formula for the area of a rectangle and angle properties to solve problems* AC9M6M02 AC9M6M04	apply knowledge of angle relationships and the sum of angles in a triangle to solve problems, giving reasons AC9M7M04 AC9M7M05 use formulas for the areas of triangles and parallelograms and the volumes of rectangular and triangular prisms to solve problems* AC9M7A01 AC9M7M01 AC9M7M02 classify polygons according to their features and create an algorithm designed to sort and classify shapes AC9M7SP02 AC9M7SP04 use coordinates to describe transformations of points in the plane* AC9M7SP03	use Pythagoras' theorem to solve measurement problems involving unknown lengths of right-angle triangles* AC9M8M06 identify conditions for congruency and similarity in shapes and create and test algorithms designed to test for congruency and similarity* AC9M8SP01 AC9M8SP04 apply the properties of quadrilaterals to solve problems AC9M8SP02	solve problems involving ratio, similarity and scale in two-dimensional situations* AC9M9M03 design, use and test algorithms based on geometric constructions or theorems AC9M9SP03 apply Pythagoras' theorem and use trigonometric ratios to solve problems involving right-angled triangles* AC9M9M03 AC9M9SP01 apply the enlargement transformation to images of shapes and objects, and interpret results* AC9M9SP02 use mathematical modelling to solve practical problems involving direct proportion, ratio and scale, evaluating the model and communicating their methods and findings* AC9M9M03 AC9M9M05 AC9M9SP01 AC9M9SP02

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Positioning and locating	describe the position and the location of themselves and objects in relation to other objects and people within a familiar space AC9MFSP02	give and follow directions to move people and objects within a space AC9M1SP02	locate and identify positions of features in two-dimensional representations and move position by following directions and pathways AC9M2SP02	interpret and create two-dimensional representations of familiar environments AC9M3SP02	create and interpret grid references AC9M4SP02	use grid coordinates to locate and move positions AC9M5SP02	locate an ordered pair in any one of the 4 quadrants on the Cartesian plane* AC9M6N01 AC9M6SP02 use integers to represent points on a number line and in the Cartesian plane* AC9M6N01 AC9M6SP02	represent objects two-dimensionally in different ways, describing the usefulness of these representations AC9M7SP01 use coordinates to describe transformations of points in the plane* AC9M7SP03	use 3 dimensions to locate and describe position AC9M8SP03	This aspect of the achievement standard concludes in Year 8.	
	sequence and connect familiar events to the time of day AC9MFM02	compare and order objects and events based on the attributes of length, mass, capacity and duration, communicating reasoning* AC9M1M01 AC9M1M03	identify and represent part-whole relationships of halves, quarters and eighths in measurement contexts* AC9M2N03 AC9M2M02 AC9M2M04 AC9M2M05 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* AC9M2M03 AC9M2M04	estimate and compare measures of duration using formal units of time AC9M3M03 AC9M3M04 use familiar metric units when estimating, comparing and measuring the attributes of objects and events* AC9M3M01 AC9M3M02 AC9M3M03	convert between units of time when solving problems involving duration AC9M4M03	convert between 12- and 24-hour time AC9M5M03 interpret and compare data represented in line graphs* AC9M5ST02	interpret and use timetables AC9M6M03	use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values* AC9M7A01 AC9M7A02 AC9M7A04 AC9M7A06	solve problems of duration involving 12- and 24-hour cycles across multiple time zones AC9M8M04	express small and large numbers in scientific notation* AC9M9M02	This aspect of the achievement standard concludes in Year 9.
Understanding chance	This aspect of the achievement standard begins in Year 3.			conduct repeated chance experiments and discuss variation in results AC9M3P02 use practical activities, observation or experiment to identify and describe outcomes and the likelihood of everyday events explaining reasoning AC9M3P01 AC9M3P02	conduct repeated chance experiments and describe the variation in results AC9M4P02 order events or the outcomes of chance experiments in terms of likelihood and identify whether events are independent or dependent AC9M4P01	conduct repeated chance experiments, list the possible outcomes, estimate likelihoods and make comparisons between those with and without equally likely outcomes* AC9M5P01 AC9M5P02	conduct simulations using digital tools, to generate and record the outcomes from many trials of a chance experiment AC9M6P02 compare observed frequencies to the expected frequencies of the outcomes of chance experiments AC9M6P02 assign probabilities using common fractions, decimal and percentages* AC9M6P01	conduct repeated single-step chance experiments and run simulations using digital tools, giving reasons for differences between predicted and observed results AC9M7P01 AC9M7P02 list sample spaces for single step experiments, assign probabilities to outcomes and predict relative frequencies for related events AC9M7P01	conduct experiments and simulations using digital tools to determine related probabilities of compound events AC9M8P01 AC9M8P02 AC9M8P03 represent the possible combinations of 2 events with tables and diagrams, and determine related probabilities to solve practical problems AC9M8P01 AC9M8P02	design and conduct experiments or simulations for combined events using digital tools AC9M9P01 AC9M9P02 AC9M9P03 assign probabilities to the outcomes of compound events AC9M9P01 AC9M9P02 determine sets of outcomes for compound events and represent these in various ways AC9M9P01	design and conduct simulations involving conditional probability, using digital tools AC9M10P01 AC9M10P02 apply conditional probability to solve problems involving compound events AC9M10P01 AC9M10P02
	collect, sort and compare data in response to questions in familiar contexts* AC9MFN03 AC9MFST01	collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies* AC9M1N01 AC9M1ST01 AC9M1ST02	use a range of methods to collect, record, represent and interpret categorical data in response to questions AC9M2ST01 AC9M2ST02	conduct guided statistical investigations involving categorical and discrete numerical data, and interpret their results in terms of the context AC9M3ST01 AC9M3ST02 AC9M3ST03 record, represent and compare data they have collected AC9M3ST01 AC9M3ST02	use surveys and digital tools to generate categorical or discrete numerical data in statistical investigations and communicate their findings in context AC9M4ST01 AC9M4ST03 create many-to-one data displays, assess the suitability of displays for representing data and discuss the shape of distributions and variation in data AC9M4ST01 AC9M4ST02	plan and conduct statistical investigations that collect nominal and ordinal categorical and discrete numerical data using digital tools AC9M5ST01 AC9M5ST03 identify the mode and interpret the shape of distributions of data in context AC9M5ST01 interpret and compare data represented in line graphs* AC9M5ST02	compare distributions of discrete and continuous numerical and ordinal categorical data sets as part of their statistical investigations, using digital tools AC9M6ST01 AC9M6ST03 critique arguments presented in the media based on statistics AC9M6ST02	use algebraic expressions to represent situations, describe the relationships between variables from authentic data and substitute values into formulas to determine unknown values* AC9M7A01 AC9M7A02 AC9M7A04 AC9M7A06 plan and conduct statistical investigations involving discrete and continuous numerical data, using appropriate displays AC9M7ST01 AC9M7ST02 AC9M7ST03 interpret data in terms of the shape of distribution and summary statistics, identifying possible outliers	conduct statistical investigations and explain the implications of obtaining data through sampling AC9M8ST01 AC9M8ST02 AC9M8ST03 AC9M8ST04 analyse and describe the distribution of data AC9M8ST02 compare the variation in distributions of random samples of the same and different size from a given population with respect to shape, measures of central tendency and range AC9M8ST03	compare and analyse the distributions of multiple numerical data sets, choose representations, describe features of these data sets using summary statistics and the shape of distributions, and consider the effect of outliers AC9M9ST03 AC9M9ST04 AC9M9ST05 explain how sampling techniques and representation can be used to support or question conclusions or to promote a point of view AC9M9ST01 AC9M9ST02	plan and conduct statistical investigations involving bivariate data AC9M10ST03 AC9M10ST04 AC9M10ST05 represent the distribution of data involving 2 variables, using tables and scatter plots, and comment on possible association AC9M10ST03 AC9M10ST04 analyse inferences and conclusions in the media, noting potential sources of bias AC9M10ST01 compare the distribution of continuous numerical data using various displays, and discuss distributions in

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								AC9M7ST01 AC9M7ST02 decide which measure of central tendency is most suitable and explain their reasoning AC9M7ST01 AC9M7ST02			terms of centre, spread, shape and outliers AC9M10ST02 AC9M10ST03

Additional resources

The following resources are also available:

- Prep–Year 6 Mathematics: Sequence of achievement standards
- Years 7–10 Mathematics: Sequence of achievement standards
- Prep–Year 10 Mathematics: Sequence of achievement standard aspects
- Prep–Year 6 English: Sequence of achievement standards
- Years 7–10 English: Sequence of achievement standards
- Prep–Year 10 English: Sequence of achievement standard aspects
- Prep–Year 10 English: Sequence of achievement standard aspects and related content descriptions
- Prep–Year 10 Advice: Planning for teaching, learning and assessment.

More information

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

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