

# Australian Curriculum Mathematics Alignment Document\_V8.2

Year 6

Content Descriptors	Elaborations	Math-U-See links
<b>Number and Algebra</b>		
<b>Number and Place Value</b>		
<p style="text-align: center;"><b>Honours pre-algebra lesson 30 – developing reasoning and problem solving</b>  <b>Honours algebra 1 lesson 1, 2, 3 – developing reasoning and problem solving</b></p>		
Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)	<ul style="list-style-type: none"> <li>Understanding that some numbers have special properties and that these properties can be used to solve problems</li> <li>Representing composite numbers as a product of their prime factors and using this form to simplify calculations by cancelling common primes</li> <li>Understanding that if a number is divisible by a composite number then it is also divisible by the prime factors of that number (for example 216 is divisible by 8 because the number represented by the last three digits is divisible by 8, and hence 216 is also divisible by 2 and 4)</li> </ul>	Epsilon lesson 11, 12, 13, 25  Gamma lesson 29  Zeta lesson 1  Pre-algebra lesson 21 <i>Honours pre-algebra lesson 12</i>  <i>Honours algebra 2 lesson 9</i>
Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)	<ul style="list-style-type: none"> <li>Applying strategies already developed for solving problems involving small numbers to those involving large numbers</li> <li>Applying a range of strategies to solve realistic problems and commenting on the efficiency of different strategies</li> </ul>	Delta lesson 18 – 25  Gamma lesson 17, 18  <i>Honours pre-algebra lesson 1</i>
Investigate everyday situations that use integers. Locate and represent these numbers on a number line (ACMNA124)	<ul style="list-style-type: none"> <li>Understanding that integers are ...-3, -2, -1, 0, 1, 2, 3 ...</li> <li>Solving everyday additive problems using a number line</li> <li>Investigating everyday situations that use integers, such as temperatures</li> <li>Using number lines to position and order integers around zero</li> </ul>	Pre-algebra lesson 1, 2, 4 (number lines) <i>Honours pre-algebra lesson 1, 2</i>  Algebra 1 lesson 5 <i>Honours algebra 1 lesson 5</i>
<b>Fractions and decimals</b>		
Compare fractions with related denominators and locate and represent them on a number line (ACMNA125)	<ul style="list-style-type: none"> <li>Demonstrating equivalence between fractions using drawings and models</li> </ul>	Epsilon lesson 3, 4, 7, 8, 12, 17 – 22
Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126)	<ul style="list-style-type: none"> <li>Understanding the processes for adding and subtracting fractions with related denominators and fractions as an operator, in preparation for calculating with all fractions</li> <li>Solving realistic additive (addition and subtraction) problems involving fractions to develop understanding of equivalent fractions and the use of fractions as operators</li> </ul>	Epsilon lesson 5, 6, 8, 17 – 22, 26, 28, 30  Zeta lesson 18

	<ul style="list-style-type: none"> <li>Modelling and solving additive problems involving fractions by using methods such as jumps on a number line, or by making diagrams of fractions as parts of shapes</li> </ul>	
Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies (ACMNA127)	<ul style="list-style-type: none"> <li>Recognising that finding one third of a quantity is the same as dividing by 3</li> </ul>	Delta lesson 27 Epsilon lesson 1 Zeta lesson 24 <i>Honours pre-algebra lesson 2</i>
Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128)	<ul style="list-style-type: none"> <li>Extending whole-number strategies to explore and develop meaningful written strategies for addition and subtraction of decimal numbers to thousandths</li> <li>Exploring and practising efficient methods for solving problems requiring operations on decimals, to gain fluency with calculating with decimals and with recognising appropriate operations</li> </ul>	Zeta lesson 4, 5, 6
Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies (ACMNA129)	<ul style="list-style-type: none"> <li>Interpreting the results of calculations to provide an answer appropriate to the context</li> </ul>	Zeta lesson 17, 18, 20, 21, 23
Multiply and divide decimals by powers of 10 (ACMNA130)	<ul style="list-style-type: none"> <li>Multiplying and dividing decimals by multiples of powers of 10</li> </ul>	Zeta lesson 3, 14, 17, 18, 19, 20
Make connections between equivalent fractions, decimals and percentages (ACMNA131)	<ul style="list-style-type: none"> <li>Connecting fractions, decimals and percentages as different representations of the same number, moving fluently between representations and choosing the appropriate one for the problem being solved</li> </ul>	Epsilon lesson 29 Zeta lesson 3, 7, 9 – 11, 13, 14, 17, 18, 21, 23, 24
<b>Money and financial mathematics</b>		
Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132)	<ul style="list-style-type: none"> <li>Using authentic information to calculate prices on sale goods</li> </ul>	Zeta lesson 11, 12 Pre-algebra lesson 29
<b>Patterns and algebra</b>		
Continue and create sequences involving whole numbers, fractions and decimals. Describe the rule used to create the sequence (ACMNA133)	<ul style="list-style-type: none"> <li>Identifying and generalising number patterns</li> <li>Investigating additive and multiplicative patterns such as the number of tiles in a geometric pattern, or the number of dots or other shapes in successive repeats of a strip or border pattern looking for patterns in the way the numbers increase/decrease</li> </ul>	Zeta lesson 3 <i>Honours pre-algebra lesson 6, 7, 17, 21</i>
Explore the use of brackets and order of operations to write number sentences	<ul style="list-style-type: none"> <li>Appreciating the need for rules to complete multiple operations within the same number sentence</li> </ul>	Pre-algebra lesson 14

(ACMNA134)		Algebra 1 lesson 2
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<b>Measurement and Geometry</b>		
<b>Using units of measurement</b>		
Connect decimal representations to the metric system (ACMMG135)	<ul style="list-style-type: none"> <li>Recognising the equivalence of measurements such as 1.25 metres and 125 centimetres</li> </ul>	Gamma lesson 4, 18, 27, 30 Zeta lesson 7, 8, 14 <i>Honours pre-algebra lesson 24, 29</i>
Convert between common metric units of length, mass and capacity (ACMMG136)	<ul style="list-style-type: none"> <li>Identifying and using the correct operations when converting units including millimetres, centimetres, metres, kilometres, milligrams, grams, kilograms, tonnes, millilitres, litres, kilolitres and mega litres</li> <li>Recognising the significance of the prefixes in units of measurement</li> </ul>	Beta lesson 15, 19 Delta lesson 5 Gamma lesson 4, 18, 27, 30 Zeta lesson 7, 8, 14 <i>Honours pre-algebra lesson 2, 24, 29</i> Algebra 1 lesson 27
Solve problems involving the comparison of lengths and areas using appropriate units (ACMMG137)	<ul style="list-style-type: none"> <li>Recognising and investigating familiar objects using concrete materials and digital technologies</li> </ul>	<i>Honours geometry lesson 9, 10</i>
Connect volume and capacity and their units of measurement (ACMMG138)	<ul style="list-style-type: none"> <li>Recognising that 1ml is equivalent to 1cm<sup>3</sup></li> </ul>	Zeta lesson 6
Interpret and use timetables (ACMMG139)	<ul style="list-style-type: none"> <li>Planning a trip involving one or more modes of public transport</li> <li>Developing a timetable of daily activities</li> </ul>	Pre-algebra lesson 26, 28
<b>Shape</b>		
Construct simple prisms and pyramids (ACMMG140)	<ul style="list-style-type: none"> <li>Considering the history and significance of pyramids from a range of cultural perspectives including those structures found in China, Korea and Indonesia</li> <li>Constructing prisms and pyramids from nets, and skeletal models</li> </ul>	<i>Honours pre-algebra lesson 16</i>
<b>Location and transformation</b>		
Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)	<ul style="list-style-type: none"> <li>Designing a school or brand logo using transformation of one or more shapes</li> <li>Understanding that translations, rotations and reflections can change the position and orientation but not shape or size</li> </ul>	

Introduce the Cartesian coordinate system using all four quadrants (ACMMG143)	<ul style="list-style-type: none"> <li>Understanding that the Cartesian plane provides a graphical or visual way of describing location</li> </ul>	Algebra 1 lesson 5-4
<b>Geometric reasoning</b> <b>Geometry lessons 1 and 2 are good for review and setting the scene for develop geometric reasoning. Honours geometry lesson 1, 11, 22 support the development of logical thinking and reasoning</b>		
Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles (ACMMG141)	<ul style="list-style-type: none"> <li>Identifying the size of a right angle as <math>90^\circ</math> and defining acute, obtuse, straight and reflex angles</li> <li>Measuring, estimating and comparing angles in degrees and classifying angles according to their sizes</li> <li>Investigating the use of rotation and symmetry in the diagrammatic representations of kinship relationships of Central and Western Desert people</li> <li>Recognising and using the two alternate conventions for naming angles</li> </ul>	Zeta lesson 29  Geometry lesson 1, 3

## Statistics and Probability

### Chance

Describe probabilities using fractions, decimals and percentages (ACMSP144)	<ul style="list-style-type: none"><li>Investigating games of chance popular in different cultures and evaluating the relative benefits to the organisers and participants (for example Pachinko)</li></ul>	Zeta lesson 26
Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies (ACMSP145)	<ul style="list-style-type: none"><li>Conducting repeated trials of chance experiments, identifying the variation between trials and realising that the results tend to the prediction with larger numbers of trials</li></ul>	
Compare observed frequencies across experiments with expected frequencies (ACMSP146)	<ul style="list-style-type: none"><li>Predicting likely outcomes from a run of chance events and distinguishing these from surprising results</li></ul>	

### Data representation and interpretation

Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)	<ul style="list-style-type: none"><li>Comparing different student-generated diagrams, tables and graphs, describing their similarities and differences and commenting on the usefulness of each representation for interpreting the data</li><li>Understanding that data can be represented in different ways, sometimes with one symbol representing more than one piece of data, and that it is important to read all information about a representation before making judgments</li></ul>	Zeta lesson 13 <i>Honours algebra 1 lesson 4</i>
Interpret secondary data presented in digital media and elsewhere (ACMSP148)	<ul style="list-style-type: none"><li>Investigating data representations in the media and discussing what they illustrate and the messages the people who created them might want to convey</li><li>Identifying potentially misleading data representations in the media, such as graphs with broken axes or non-linear scales, graphics not drawn to scale, data not related to the population about which the claims are made, and pie charts in which the whole pie does not represent the entire population about which the claims are made</li></ul>	<i>Honours geometry lesson 2, 3 (Venn diagrams)</i>