

## Mapping tool – preamble for Mathematics

This mapping tool matches essential content elements from two curriculum frameworks: *Every chance to learn* ELA 16, ELA 17 and ELA 18 to the Australian Curriculum (Mathematics) V1.1. Teachers using this tool are reminded to consider the underlying principles and philosophy as well.

The **Overview** of each ELA in *Every chance to learn* discusses the scope, features, concepts, values and attitudes of

- ELA 16 *The student understands and applies number*
- ELA 17 *The student chooses and uses measures*
- ELA 18 *The student recognises and represents patterns and relationships*

The **Rationale** of the Australian Curriculum (Mathematics) reminds readers that the three interrelated strands have different intentions:

- The *Statistics and Probability* strand supports students recognising and analysing data and drawing inferences.
- The *Measurement and Geometry* strand supports students developing an increasingly sophisticated understanding of size, shape, relative position and movement of two-dimensional figures in the plane and three-dimensional objects in space.
- The *Number and Algebra* strand supports the exploration of number representation, computation, patterns and relationships.

Further information can be inferred from

- opening **hyperlinked codes** to the Australian Curriculum, and pasting them into the 'search' function to identify content elaborations, general capabilities and links to cross-curriculum priorities.

## Mathematics – Later Childhood

Every chance to learn		Australian Curriculum		
16. The student understands and applies number		Number and algebra		
		Year 3	Year 4	Year 5
<b>16.LC.1</b>	whole numbers to at least thousands and decimal fractions to at least hundredths	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Investigate the condition required for a number to be odd or even and identify odd and even numbers (<a href="#">ACMNA051</a>)</li> <li>Recognise, model, represent and order numbers to at least 10 000 (<a href="#">ACMNA052</a>)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Recognise that the place value system can be extended to tenths and hundredths. Make connections between fraction and decimal notation (<a href="#">ACMNA079</a>)</li> </ul>	
<b>16.LC.2</b>	the concept of place value for comparing and ordering numbers (e.g. place numbers on number lines) and how place value changes as numbers (including decimal fractions) are multiplied and divided by 10 and 100	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Recognise, model, represent and order numbers to at least 10 000 (<a href="#">ACMNA052</a>)</li> </ul>	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Recognise, represent and order numbers to at least tens of thousands (<a href="#">ACMNA072</a>)</li> </ul> <b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Recognise that the place value system can be extended to tenths and hundredths. Make connections between fraction and decimal notation (<a href="#">ACMNA079</a>)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Compare, order and represent decimals (<a href="#">ACMNA105</a>)</li> </ul>
<b>16.LC.3</b>	simple common fractions and mixed numbers involving denominators to	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Model and represent unit fractions including <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{5}</math> and their multiples to a</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Investigate equivalent fractions used in contexts (<a href="#">ACMNA077</a>)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Compare and order common unit fractions and locate and represent them on a number</li> </ul>

	tenths	complete whole (ACMNA058)		line (ACMNA102)
<b>16.LC.4</b>	operations of addition and subtraction using whole numbers to thousands and decimal fractions to hundredths in familiar contexts, and multiplication and division of whole numbers by whole numbers to 10	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</li> <li>Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055)</li> <li>Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056)</li> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul> <p><b>Money and financial mathematics</b></p> <ul style="list-style-type: none"> <li><i>Represent money values in multiple ways and count out the change of simple transactions to the nearest 5 cents (ACMNA059)</i></li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA073)</li> <li>Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075)</li> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)</li> </ul> <p><b>Money and financial mathematics</b></p> <ul style="list-style-type: none"> <li>Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (ACMNA080)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)</li> <li>Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)</li> </ul>
<b>16.LC.5</b>	factors of whole numbers and prime numbers	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Recall multiplication facts of two, three, five and 10 and</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Recall multiplication facts up to 10 x 10 and related division</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Identify and describe factors and multiples of whole numbers</li> </ul>

		related division facts (ACMNA056)	facts (ACMNA075)	and solve problems involving these (ACMNA098)
<b>16.LC.6</b>	inverse operations	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Recognise and explain the connection between addition and subtraction (ACMNA054)</li> <li>Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055)</li> <li>Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075)</li> </ul>	
<b>16.LC.7</b>	mathematical situations and problems that involve any one of the four arithmetic operations—addition, subtraction, multiplication or division	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</li> <li>Recognise and explain the connection between addition and subtraction (ACMNA054)</li> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul> <p><b>Money and financial</b></p>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)</li> </ul> <p><b>Money and financial mathematics</b></p> <ul style="list-style-type: none"> <li>Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (ACMNA080)</li> </ul> <p><b>Patterns and algebra</b></p> <ul style="list-style-type: none"> <li>Solve word problems by using</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)</li> <li>Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)</li> </ul>

		<p><b>mathematics</b></p> <ul style="list-style-type: none"> <li>• Represent money values in multiple ways and count out the change of simple transactions to the nearest 5 cents (ACMNA059)</li> </ul>	<p>number sentences involving multiplication or division where there is no remainder (ACMNA082)</p> <ul style="list-style-type: none"> <li>• Write equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)</li> </ul>	
<p><b>16.LC.8</b></p>	<p>computation using mental, written and electronic methods, and forming estimates to check the reasonableness of answers</p>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>• Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</li> <li>• Recognise and explain the connection between addition and subtraction (ACMNA054)</li> <li>• Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055)</li> <li>• Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056)</li> <li>• Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>• Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA073)</li> <li>• Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075)</li> <li>• Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>• Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)</li> <li>• Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)</li> <li>• Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)</li> <li>• Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)</li> </ul>

<b>16.LC.9</b>	appropriate language for talking about whole numbers, decimals, fractions and operations carried out with them	<p style="text-align: center;">Not specifically addressed in Australian Curriculum</p> <p style="text-align: center;">It is useful for students to discuss their ideas involving number using appropriate terminology to share ideas and clarify understanding. This has an influence on most Australian Curriculum content.</p>		
<b>16.LC.10</b>	the history of whole numbers, counting and symbol systems in one or more cultures	<p style="text-align: center;">Not specifically addressed in Australian Curriculum, it does however feature in some elaborations</p>		
<b>16.LC.11</b>	represent and explore whole numbers, using concrete materials and calculators (e.g. list all their factors and identify prime numbers; create, interpret and solve practical problems)	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Investigate the condition required for a number to be odd or even and identify odd and even numbers (<a href="#">ACMNA051</a>)</li> </ul>		<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Identify and describe factors and multiples of whole numbers and solve problems involving these (<a href="#">ACMNA098</a>)</li> </ul>
<b>16.LC.12</b>	recognise and represent whole numbers and decimal fractions, and use them in familiar contexts (e.g. when measuring)	<p><b>Money and financial mathematics</b></p> <ul style="list-style-type: none"> <li>Represent money values in multiple ways and count out the change of simple transactions to the nearest five cents (<a href="#">ACMNA059</a>)</li> </ul>	<p><b>Money and financial mathematics</b></p> <ul style="list-style-type: none"> <li>Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (<a href="#">ACMNA080</a>)</li> </ul>	<p><b>Fractions and decimals</b></p> <ul style="list-style-type: none"> <li>(Compare, order) and represent decimals (<a href="#">ACMNA105</a>)</li> </ul>
<b>16.LC.13</b>	represent, describe and solve practical problems involving common fractions and mixed numbers		<p><b>Fractions and decimals</b></p> <ul style="list-style-type: none"> <li>Investigate equivalent fractions used in contexts (<a href="#">ACMNA077</a>)</li> <li>Count by quarters, halves and</li> </ul>	<p><b>Fractions and decimals</b></p> <ul style="list-style-type: none"> <li>Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominators</li> </ul>

	using collections of objects, lines and areas of shapes		thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)	(ACMNA103)
<b>16.LC.14</b>	estimate the position of common fractions on a number line using 0, $\frac{1}{2}$ and 1 as reference points	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Model and represent unit fractions including <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{5}</math> and their multiples to a complete whole (ACMNA058)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)</li> </ul>
<b>16.LC.15</b>	compare and order common fractions, recognise when they are equivalent and mentally calculate using fractions with the same or easily related denominators, using a variety of concrete models		<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Investigate equivalent fractions used in contexts (ACMNA077)</li> <li>Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)</li> </ul>	<b>Fractions and decimals</b> <ul style="list-style-type: none"> <li>Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)</li> <li>Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominators (ACMNA103)</li> </ul>
<b>16.LC.16</b>	recall addition and subtraction facts, recall or use suitable strategies to work out multiplication and related division facts and apply facts to calculate mentally with larger numbers	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Recognise and explain the connection between addition and subtraction (ACMNA054)</li> <li>Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055)</li> <li>Recall multiplication facts of two, three, five and 10 and</li> </ul>	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074)</li> <li>Recall multiplication facts up to <math>10 \times 10</math> and related division facts (ACMNA075)</li> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no</li> </ul>	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)</li> </ul>

		<p>related division facts (ACMNA056)</p> <ul style="list-style-type: none"> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul>	remainder (ACMNA076)	
<b>16.LC.17</b>	use calculators to explore, develop and refine strategies for multiplication and division and for calculations using numbers beyond their mental scope	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)</li> <li>Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)</li> </ul>
<b>16.LC.18</b>	explain the calculation approaches they use, compare them with other approaches and check the reasonableness of their answers	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)</li> </ul>	
<b>16.LC.19</b>	apply number properties to modify calculations so that they can more easily be carried out (e.g. doubling, halving and	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for</li> </ul>	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written</li> </ul>

	bridging to the nearest decade number) and use inverse operations to solve relevant problems	<p>problems (ACMNA053)</p> <ul style="list-style-type: none"> <li>Recognise and explain the connection between addition and subtraction (ACMNA054)</li> <li>Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055)</li> <li>Recall multiplication facts of 2, 3, 5 and 10 and related division facts (ACMNA056)</li> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul>	division where there is no remainder (ACMNA076)	<p>strategies and appropriate digital technologies (ACMNA100)</p> <ul style="list-style-type: none"> <li>Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)</li> </ul>
<b>16.LC.20</b>	choose when to use mental computation, written or electronic methods to calculate with numbers and form quick mental estimates to check calculations	<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</li> <li>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</li> </ul>		<p><b>Number and place value</b></p> <ul style="list-style-type: none"> <li>Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)</li> <li>Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)</li> </ul>

Every chance to learn		Australian Curriculum		
17. The student chooses and uses measures		Statistics and probability Measurement and geometry		
		Year 3	Year 4	Year 5
<b>17.LC.1</b>	measurement attributes of length, area, mass, capacity, volume, angle and time	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> <li>Compare objects using familiar metric units of area and volume (ACMMG290)</li> </ul> <p><b>Shape</b></p> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)</li> <li>Calculate perimeter and area of rectangles using familiar metric units (ACMMG109)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)</li> </ul>
<b>17.LC.2</b>	informal and standard units of measurement of these attributes, including metre, centimetre, millimetre, square	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> <li>Compare objects using familiar</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)</li> <li>Calculate perimeter and area of</li> </ul>

	metre, square centimetre, kilogram, gram, litre, millilitre, degrees, hours and minutes	investigate the relationship between units of time (ACMMG062) <b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul>	metric units of area and volume (ACMMG290) <b>Shape</b> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul>	rectangles using familiar metric units (ACMMG109) <b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)</li> </ul>
<b>17.LC.3</b>	the concept of conservation, including different ways of recording the same measurement (e.g. in metres, centimetres or millimetres)	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</li> </ul>	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> <li>Convert between units of time (ACMMG085)</li> </ul>	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)</li> </ul>
<b>17.LC.4</b>	the concept of measurements as approximations, with the measurement context influencing levels of precision required and ways of refining measurements (e.g. by changing units or instruments)	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</li> </ul>	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> </ul> <b>Shape</b> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul>	
<b>17.LC.5</b>	measurement units and instruments used by different civilisations in history	Not specifically addressed in Australian Curriculum content descriptions Within Year 5 the ELA is in the elaborations		

<p><b>17.LC.6</b></p>	<p>perimeter (as a linear measurement of the distance around a shape) as distinct from area (as a measure of the space within a shape) and the relationship between the length of sides and the perimeters of shapes</p>		<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Compare objects using familiar metric units of area and volume (ACMMG290)</li> </ul> <p><b>Shape</b></p> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Calculate perimeter and area of rectangles using familiar metric units (ACMMG109)</li> </ul>
<p><b>17.LC.7</b></p>	<p>collecting and using data to answer questions or respond to issues</p>	<p><b>Data representation and interpretation</b></p> <ul style="list-style-type: none"> <li>Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068)</li> <li>Collect data and organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)</li> </ul>	<p><b>Data representation and interpretation</b></p> <ul style="list-style-type: none"> <li>Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)</li> </ul>	<p><b>Data representation and interpretation</b></p> <ul style="list-style-type: none"> <li>Pose questions and collect categorical or numerical data by observation or survey (ACMSP118)</li> <li>Construct displays, including column graphs, appropriate for data types, with and without the use of digital technologies (ACMSP119)</li> </ul>
<p><b>17.LC.8</b></p>	<p>measure, compare and order lengths, areas, masses, capacities, volumes, angles and time by selecting and using suitable units and instruments, measuring to the nearest whole unit</p>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and investigate the relationship between units of time</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> <li>Compare objects using familiar metric units of area and volume (ACMMG290)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Estimate, measure and compare angles using degrees.</li> </ul>

	and arranging measurements of the same attribute in order of magnitude	<p>(ACMMG062)</p> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul>	<p><b>Shape</b></p> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)</li> </ul>	(Construct angles using a protractor) (ACMMG112)
17.LC.9	make reasonable estimates by applying strategies that suit the situations and objects		<p><b>Shape</b></p> <ul style="list-style-type: none"> <li>Compare the area of regular and irregular shapes by informal means (ACMMG087)</li> </ul>	
17.LC.10	interpret and read the graduated scales of units on a range of measuring instruments	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</li> <li>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</li> </ul>	<p><b>Using units of measurement</b></p> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)</li> </ul> <p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)</li> </ul>
17.LC.11	estimate, measure and compare angles (e.g. interpret angle as amount of turn involving multiples and parts of right angles)	<p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul>	<p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)</li> </ul>	<p><b>Geometric reasoning</b></p> <ul style="list-style-type: none"> <li>Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)</li> </ul>

17.LC.12	read the time of the day to the nearest minute using analogue and digital clocks, and recognise and use 'a.m.' and 'p.m.'	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</li> </ul>	<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Use am and pm notation and solve simple time problems (ACMMG086)</li> </ul>	
17.LC.13	estimate and calculate duration using starting and finishing times or dates		<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Use am and pm notation and solve simple time problems (ACMMG086)</li> </ul>	
17.LC.14	interpret times, calendars, timetables and timelines to seek specific information or to schedule and sequence events		<b>Using units of measurement</b> <ul style="list-style-type: none"> <li>Convert between units of time (ACMMG085)</li> <li>Use am and pm notation and solve simple time problems (ACMMG086)</li> </ul>	
17.LC.15	identify and describe possible outcomes for familiar events involving chance, make judgements about their likelihood and predict whether some are more likely than others	<b>Chance</b> <ul style="list-style-type: none"> <li>Conduct chance experiments, identify and describe possible outcomes (and recognise variation in results) (ACMSP067)</li> </ul>	<b>Chance</b> <ul style="list-style-type: none"> <li>Describe possible everyday events and order their chances of occurring (ACMSP092)</li> </ul>	<b>Chance</b> <ul style="list-style-type: none"> <li>List outcomes of chance experiments involving equally likely outcomes (and represent probabilities of those outcomes using fractions) (ACMSP116)</li> </ul>
17.LC.16	collect data from experiments or observation to justify or adjust predictions involving chance and distinguish situations	<b>Chance</b> <ul style="list-style-type: none"> <li>Conduct chance experiments, identify and describe possible outcomes and recognise variation in results</li> </ul>		

	that involve equally likely events from those that do not	(ACMSP067)		
<b>17.LC.17</b>	select and use a range of ways to collect data, including surveys, observations and experiments, choose suitable tables or graphs to present the information (e.g. using ICT) and use these to support statements or predictions made about the data	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068)</li> <li>Collect data and organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)</li> </ul>	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)</li> <li>Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values (ACMSP096)</li> </ul>	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Pose questions and collect categorical or numerical data by observation or survey (ACMSP118)</li> <li>Construct displays, including column graphs, appropriate for data types, with and without the use of digital technologies (ACMSP119)</li> </ul>
<b>17.LC.18</b>	read data from tables and graphs, compare information from related data sets, look for and describe expected or unexpected variation within the sets of data and decide whether additional data should be collected to draw reasonable conclusions	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Interpret and compare data displays (ACMSP070)</li> </ul>	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Evaluate the effectiveness of different displays in terms of illustrating data features including variability (ACMSP097)</li> </ul>	<b>Data representation and interpretation</b> <ul style="list-style-type: none"> <li>Describe and interpret different data sets in context (ACMSP120)</li> </ul>

Every chance to learn		Australian Curriculum		
18. The student recognises and represents patterns and relationships		Number and algebra Measurement and geometry		
		Year 3	Year 4	Year 5
<b>18.LC.1</b>	patterns in number and space (e.g. multiple copies of shapes, tessellation) and the role that position plays in patterns	<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Describe, continue and create number patterns resulting from performing addition and subtraction (<a href="#">ACMNA060</a>)</li> </ul>	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (<a href="#">ACMNA074</a>)</li> </ul> <b>Location and transformation</b> <ul style="list-style-type: none"> <li>Create symmetrical patterns, pictures and shapes with and without digital technologies (<a href="#">ACMMG091</a>)</li> </ul> <b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Explore and describe number patterns resulting from performing multiplication (<a href="#">ACMNA081</a>)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (<a href="#">ACMMG114</a>)</li> </ul> <b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Describe, continue and create patterns with (fractions, decimals) and whole numbers resulting from addition and subtraction (<a href="#">ACMNA107</a>)</li> </ul>
<b>18.LC.2</b>	symmetry in shapes and designs	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Identify symmetry in the environment (<a href="#">ACMMG066</a>)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Create symmetrical patterns, pictures and shapes with and without digital technologies (<a href="#">ACMMG091</a>)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (<a href="#">ACMMG114</a>)</li> </ul>
<b>18.LC.3</b>	angles, both as characteristics of	<b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Identify angles as measures of</li> </ul>	<ul style="list-style-type: none"> <li>Compare angles and classify them as equal to, greater than</li> </ul>	<b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Estimate, measure and</li> </ul>

	shapes and objects and as turns	turn and compare angle sizes in everyday situations (ACMMG064)	or less than a right angle (ACMMG089)	compare angles using degrees. Construct angles using a protractor (ACMMG112)
<b>18.LC.4</b>	basic transformations (flips, slides and turns) of shapes and description of the changes that occur			<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)</li> </ul>
<b>18.LC.5</b>	the language of turns (e.g. 'half', 'full', 'quarter', 'three-quarter') for giving directions for moving around a familiar environment or for locating specific features	<b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul>		<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)</li> </ul>
<b>18.LC.6</b>	features of shapes and objects and their description using spatial language (e.g. 'parallel', 'perpendicular', 'vertex', 'face', 'edge', 'base' and 'acute', 'right', 'obtuse' and 'reflex' angles)	<b>Shape</b> <ul style="list-style-type: none"> <li>Make models of three dimensional objects and describe key features (ACMMG063)</li> </ul>	<b>Shape</b> <ul style="list-style-type: none"> <li>Compare and describe two dimensional shapes which result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)</li> </ul>	
<b>18.LC.7</b>	simple relationships between elements of shapes (e.g. between the length, width and perimeter of a	Not specifically addressed in Australian Curriculum		

	rectangle)			
<b>18.LC.8</b>	lists, tables and graphs to represent relationships and to analyse and predict change (e.g. petrol prices on different days of the month)	Not specifically addressed in Australian Curriculum		
<b>18.LC.9</b>	inverse and equivalence relationships, including how inverse operations enable them to work out related number facts and solve unknown elements of simple equations involving addition and subtraction		<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Write equivalent number sentences involving addition and subtraction to find unknown quantities (<a href="#">ACMNA083</a>)</li> </ul>	
<b>18.LC.10</b>	drawing conventions for 2D representations of 3D objects			<b>Shape</b> <ul style="list-style-type: none"> <li>Connect three dimensional objects with their nets and other two dimensional representations (<a href="#">ACMMG111</a>)</li> </ul>
<b>18.LC.11</b>	equations (number sentences) and models to represent mathematical problems and situations based around a single operation		<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Solve word problems by using number sentences involving multiplication or division where there is no remainder (<a href="#">ACMNA082</a>)</li> <li>Write equivalent number sentences involving addition</li> </ul>	<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Use equivalent number sentences involving multiplication and division to find unknown quantities (<a href="#">ACMNA121</a>)</li> </ul>

			and subtraction to find unknown quantities (ACMNA083)	
<b>18.LC.12</b>	symbols and conventions used on maps, plans and grids (e.g. north symbol, symbols within the legend, alpha-numeric grids)	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Create and interpret simple grid maps to show position and pathways (ACMMG065)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)</li> </ul>
<b>18.LC.13</b>	the relationship between the four major compass points and the amount of turn (quarter, half, three-quarter and full turns) and how these can be used when giving directions	<b>Geometric reasoning</b> <ul style="list-style-type: none"> <li>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</li> </ul> <b>Location and transformation</b> <ul style="list-style-type: none"> <li>Create and interpret simple grid maps to show position and pathways (ACMMG065)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)</li> </ul>
<b>18.LC.14</b>	simple scales to estimate distances on maps and plans	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Create and interpret simple grid maps to show position and pathways (ACMMG065)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)</li> </ul>	<b>Location and transformation</b> <ul style="list-style-type: none"> <li>Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)</li> </ul>
<b>18.LC.15</b>	concept maps, flow charts, diagrams and bar, column and line graphs to represent ideas, processes and relationships	Not specifically addressed in Australian Curriculum		

18.LC.16	represent and interpret patterns in number and space, identify the rules that describe the pattern, work out further elements and use materials to model and continue spatial patterns	<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Describe, continue and create number patterns resulting from performing addition and subtraction (<a href="#">ACMNA060</a>)</li> </ul>	<b>Number and place value</b> <ul style="list-style-type: none"> <li>Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (<a href="#">ACMNA074</a>)</li> </ul> <b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Explore and describe number patterns resulting from performing multiplication (<a href="#">ACMNA081</a>)</li> </ul>	<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Describe, continue and create patterns with (fractions, decimals) and whole numbers resulting from addition and subtraction (<a href="#">ACMNA107</a>)</li> </ul>
18.LC.17	recognise, name, sort and represent a range of 2D shapes and 3D objects according to their essential features (e.g. number of sides and edges, sizes of angles, parallel lines, equal sides, lines of symmetry)	<b>Shape</b> <ul style="list-style-type: none"> <li>Make models of three dimensional objects and describe key features (<a href="#">ACMMG063</a>)</li> </ul>	<b>Shape</b> <ul style="list-style-type: none"> <li>Compare and describe two dimensional shapes which result from combining and splitting common shapes, with and without the use of digital technologies (<a href="#">ACMMG088</a>)</li> </ul>	
18.LC.18	identify particular features and give more specific names to shapes and objects within broad groups (e.g. isosceles triangle)	Not specifically addressed in Australian Curriculum		
18.LC.19	sketch representations of objects from different viewpoints, knowing that the same two-dimensional shapes			<b>Shape</b> <ul style="list-style-type: none"> <li>Connect three dimensional objects with their nets and other two dimensional representations (<a href="#">ACMMG111</a>)</li> </ul>

	can be drawn in different orientations			
<b>18.LC.20</b>	make models (e.g. skeletal models using straws, solid models using clay) and nets of common three-dimensional objects	<b>Shape</b> <ul style="list-style-type: none"> <li>Make models of three dimensional objects and describe key features (ACMMG063)</li> </ul>		
<b>18.LC.21</b>	recognise and describe relationships and represent them using concrete materials, drawings, lists, tables and some mathematical symbols	Not specifically addressed in Australian Curriculum		
<b>18.LC.22</b>	analyse simple relationships and make predictions based on the information they have	Not specifically addressed in Australian Curriculum		
<b>18.LC.23</b>	create relationships in relevant situations and make up rules or criteria for sorting, ordering and arranging data and objects	Not specifically addressed in Australian Curriculum		
<b>18.LC.24</b>	interpret and use some of the symbols and conventions used to represent		<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Solve word problems by using number sentences involving multiplication or division where</li> </ul>	<b>Patterns and algebra</b> <ul style="list-style-type: none"> <li>Use equivalent number sentences involving multiplication and division to</li> </ul>

	mathematical situations (e.g. concrete materials, words, drawings, diagrams, physical models and a range of mathematical symbols)		there is no remainder (ACMNA082)  <ul style="list-style-type: none"> <li>Write equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)</li> </ul>	find unknown quantities (ACMNA121)
<b>18.LC.25</b>	recognise the links between different representations of the same situation and use those which make most sense to them	Not specifically addressed in Australian Curriculum		
<b>18.LC.26</b>	make reasonable sketches of familiar local environments (e.g. the school grounds or a particular room)	<b>Location and transformation</b>  <ul style="list-style-type: none"> <li>Create and interpret simple grid maps to show position and pathways (ACMMG065)</li> </ul>		
<b>18.LC.27</b>	recognise and interpret symbols and conventions used on different maps, plans and grids to locate key features and landmarks and to plan movement around environments	<b>Location and transformation</b>  <ul style="list-style-type: none"> <li>Create and interpret simple grid maps to show position and pathways (ACMMG065)</li> </ul>	<b>Location and transformation</b>  <ul style="list-style-type: none"> <li>Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)</li> </ul>	<b>Location and transformation</b>  <ul style="list-style-type: none"> <li>Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)</li> </ul>

**Australian curriculum content not previously required at this band of development in *Every chance to learn*:**

**Year 3**

None

## Year 4

- Investigate and use the properties of odd and even number ([ACMNA071](#))
- Identify everyday events where one cannot happen if the other happens ([ACMSP093](#))
- Identify events where the chance of one will not be affected by the occurrence of the other ([ACMSP094](#))

## Year 5

- Compare 12 and 24 hour time and convert between them ([ACMMG110](#))
- Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original ([ACMMG115](#))
- Recognise the number system can be extended beyond hundredths ([ACMNA104](#))
- Create financial simple plans and examine financial records ([ACMNA106](#))
- Recognise that probabilities range from 0 to 1 ([ACMSP117](#))