

Numeracy

Introduction

In the Australian Curriculum, students become numerate as they develop the knowledge and skills to use mathematics confidently across other learning areas at school and in their lives more broadly. Numeracy involves students in recognising and understanding the role of mathematics in the world and having the dispositions and capacities to use mathematical knowledge and skills purposefully.

The *Melbourne Declaration of Educational Goals for Young Australians* (MCEETYA 2008) recognises that numeracy is an essential skill for students in becoming successful learners at school and in life beyond school, and in preparing them for their future roles as family, community and workforce members. More broadly, a numerate population is critical in ensuring the nation's ongoing prosperity, productivity and workforce participation.

Scope of the Numeracy

Numeracy encompasses the knowledge, skills, behaviours and dispositions that students need to use mathematics in a wide range of situations. The Numeracy learning continuum identifies the related mathematical knowledge and skills, and contextualises these through learning area examples.

When teachers identify numeracy demands across the curriculum, students have opportunities to transfer their mathematical knowledge and skills to contexts outside the mathematics classroom. These opportunities assist students to recognise the interconnected nature of mathematical knowledge, other learning areas and the wider world, and encourage them to use their mathematical skills broadly.

For a description of the organising elements for Numeracy, go to [Organising elements](#).

Numeracy across the curriculum

In the Australian Curriculum, much of the explicit teaching of numeracy skills occurs in Mathematics. Being numerate involves more than the application of routine procedures within the mathematics classroom. Students need to recognise that mathematics is constantly used outside the mathematics classroom and that numerate people apply general mathematical skills in a wide range of familiar and unfamiliar situations.

Using mathematical skills across the curriculum both enriches the study of other learning areas and contributes to the development of a broader and deeper understanding of numeracy. Therefore, a commitment to numeracy development is an essential component of learning areas across the curriculum and a responsibility for all teachers. This requires that teachers:

- identify the specific numeracy demands of their learning area
- provide learning experiences and opportunities that support the application of students' general mathematical knowledge and skills
- use the language of numeracy in their teaching as appropriate.

Teachers should be aware of the correct use of mathematical language in their own learning areas. Understanding mathematical terminology and the specific uses of language in mathematics is essential for numeracy.

The Numeracy capability is addressed through the learning areas and is identified wherever it is developed or applied in content descriptions. It is also identified where it offers opportunities to add depth and richness to student learning in content elaborations. An icon indicates where Numeracy has been identified in learning area content descriptions and elaborations. A filter function on the Australian Curriculum website assists users to find where Numeracy has been identified in F–10 curriculum content. Teachers may find further opportunities to incorporate explicit teaching of Numeracy depending on their choice of activities. Students can also be encouraged to develop capability through personally relevant initiatives of their own design.

- [Numeracy in English
\(www.australiancurriculum.edu.au/English/General-capabilities\)](http://www.australiancurriculum.edu.au/English/General-capabilities)
- [Numeracy in Mathematics
\(www.australiancurriculum.edu.au/Mathematics/General-capabilities\)](http://www.australiancurriculum.edu.au/Mathematics/General-capabilities)
- [Numeracy in Science
\(www.australiancurriculum.edu.au/Science/General-capabilities\)](http://www.australiancurriculum.edu.au/Science/General-capabilities)
- [Numeracy in History
\(www.australiancurriculum.edu.au/History/General-capabilities\)](http://www.australiancurriculum.edu.au/History/General-capabilities)

Background

This background summarises the evidence base from which the Numeracy capability's introduction, organising elements and learning continuum have been developed. It draws on recent international and national research, as well as initiatives and programs that focus on numeracy across the curriculum.

The identification of numeracy as a general capability or competence to be addressed across the curriculum is supported by the literature. In Australia, the National Numeracy Review Report (Commonwealth of Australia 2008) argued for an emphasis both on mathematics as a distinct area of study and numeracy as an across-the-curriculum competency. In order to develop the ability to communicate numeric information effectively, students should engage in learning that involves using mathematics in the context of other disciplines. This requires a cross-curricular commitment and is not just the responsibility of the Mathematics Department (Miller 2010).

The Numeracy capability and learning continuum have been informed by a range of findings identified in the literature over a considerable period of time. Steen (2001) pointed out the ever-increasing gap between the quantitative needs of citizens and their quantitative capacity, while Miller (2010) continues to argue that quantitative literacy is a proficiency that is essential for people to be able to participate fully in a democratic society. Most recently, concerns about low levels of financial literacy shown by young people in Australia prompted the development of a National Consumer and Financial Literacy Framework to support the development of financial literacy skills in young people (MCEECDYA 2011).

The approach to the Numeracy capability, reflected in an optimal approach taken in schools, is informed by aspects of numeracy that were highlighted in the literature, including that:

- mathematics that people use in context is better understood than mathematics taught in isolation (Carragher, Carragher and Schliemann 1985; Zevenbergen and Zevenbergen 2009)
- knowledge is not automatically transferable from mathematics to other contexts (Lave 1988); numeracy requires contextual and strategic knowledge as well as mathematical skills (AAMT 1998)
- in numeracy there may be more than one suitable answer or method (Cohen 2001)
- numeracy moments often arise in unexpected situations (Thornton and Hogan 2005).

References

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Organising elements

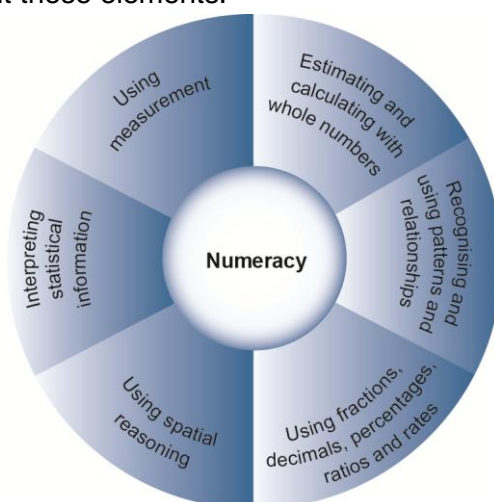
The Numeracy learning continuum is organised into six interrelated elements:

- Estimating and calculating with whole numbers
- Recognising and using patterns and relationships
- Using fractions, decimals, percentages, ratios and rates
- Using spatial reasoning
- Interpreting statistical information
- Using measurement

These elements are drawn from the strands of the Australian Curriculum: Mathematics as shown in the table below:

Numeracy Continuum	Australian Curriculum: Mathematics
Estimating and calculating with whole numbers	Number and Algebra Measurement and Geometry
Recognising and using patterns and relationships	Number and Algebra Statistics and Probability
Using fractions, decimals, percentages, ratios and rates	Number and Algebra Measurement and Geometry
Using spatial reasoning	Measurement and Geometry
Interpreting statistical information	Statistics and Probability
Using measurement	Measurement and Geometry

The diagram below sets out these elements.



Organising elements for Numeracy

Estimating and calculating with whole numbers

This element involves students using numbers for different purposes. Students apply skills in estimating and calculating with whole numbers to solve and model everyday problems in a wide range of authentic contexts using efficient mental, written and digital strategies. They identify situations where money is used and apply their knowledge of the value of money to purchasing, budgeting and justifying the use of money. In developing and acting with numeracy, students:

- understand and use numbers in context
- estimate and calculate
- use money.

Recognising and using patterns and relationships

This element involves students identifying trends and describing and using a wide range of rules and relationships to continue and predict patterns. Students apply their understanding of patterns and relationships when solving problems in authentic contexts.

Using fractions, decimals, percentages, ratios and rates

This element involves students developing an understanding of the meaning of fractions and decimals, their representations as ratios, rates and percentages, and how they can be applied in real-life situations. Students visualise, order and describe shapes and objects using their proportions and the relationships of ratios, rates and percentages to solve problems in authentic contexts. In developing and acting with numeracy, students:

- interpret proportional reasoning
- apply proportional reasoning.

Using spatial reasoning

This element involves students in making sense of the space around them. Students visualise, identify and sort shapes and objects, describing their key features in the environment. They use symmetry, shapes and angles to solve problems in authentic contexts and interpret maps and diagrams, using scales, legends and directional language to identify and describe routes and locations. In developing and acting with numeracy, students:

- visualise 2D shapes and 3D objects
- interpret maps and diagrams.

Interpreting statistical information

This element involves students gaining familiarity with the way statistical information is represented through solving problems in authentic contexts that involve collecting, recording, displaying, comparing and evaluating the effectiveness of data displays of various types. Students use appropriate language and numerical representations when explaining the outcomes of chance events. In developing and acting with numeracy, students:

- interpret data displays
- interpret chance events.

Using measurement

This element involves students learning about measurement of length, area, volume, capacity, time and mass. Students estimate, measure, compare and calculate using metric units when solving problems in authentic contexts. They read clocks and convert between time systems, identify and sequence dates and events using a calendar and use timetables for a variety of purposes. In developing and acting with numeracy, students:

- estimate and measure with metric units
- operate with clocks, calendars and timetables.

Numeracy Learning Continuum

Estimating and calculating with whole numbers

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Understand and use numbers in context						
<p>demonstrate concepts of counting using every day experiences</p> <p>Examples</p> <ul style="list-style-type: none"> showing anticipation that something will happen on the count of 1, 2, 3 	<p>connect and order number names, numerals and groups of objects using numbers up to two digits</p> <p>Examples</p> <ul style="list-style-type: none"> sorting numbered objects into ascending order or identifying how many members there are in the school sport's team <p>Mathematics ACMNA001 Science ACSSU003 History ACHHS015</p>	<p>model, represent, order and use numbers up to four digits</p> <p>Examples</p> <ul style="list-style-type: none"> estimating growth of living things and representing prediction by making a chart <p>English ACELA1466 Mathematics ACMNA027 Science AC SIS038 History ACHHS047</p>	<p>model, represent, order and use numbers up to five digits</p> <p>Examples</p> <ul style="list-style-type: none"> estimating the quantity of supplies for the First Fleet <p>Mathematics ACMNA073 Science ACSSU075 History ACHHS081</p>	<p>identify, describe and use numbers larger than one million</p> <p>Examples</p> <ul style="list-style-type: none"> estimating and comparing population growth of the twentieth century in different countries or states of Australia <p>Mathematics ACMNA123 Science ACSSU078 History ACHHS116</p>	<p>compare, order and use positive and negative numbers to solve everyday problems</p> <p>Examples</p> <ul style="list-style-type: none"> recording different boiling and freezing points in an experiment <p>Mathematics ACMNA280 Science AC SIS141 History ACDSEH071</p>	<p>use different ways to represent very large and very small numbers including scientific notation</p> <p>Examples</p> <ul style="list-style-type: none"> comparing the Gross Domestic Product (GDP) of nations or representation of atoms in different materials <p>Mathematics ACMNA210 Science ACSSU184 History ACDSEH147</p>
Estimate and calculate						
<p>recognise the effects of adding to and taking away from a collection of objects</p>	<p>solve everyday addition and share stories</p>	<p>estimate the solution to a problem and then calculate the answer</p>	<p>estimate a solution to a problem and then check the solution by recalling addition, subtraction, multiplication and</p>	<p>solve problems and check calculations using efficient mental and written strategies</p>	<p>solve complex problems by estimating and calculating using efficient mental, written and digital</p>	<p>solve and model problems involving complex data by estimating and calculating using a variety of efficient</p>

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Examples <ul style="list-style-type: none"> recognising that a pile of books gets bigger when adding to it 	Examples <ul style="list-style-type: none"> modelling a number story on a favourite book or multimedia presentation Mathematics ACMNA004	Examples <ul style="list-style-type: none"> calculating the total for two purchases at the school canteen Mathematics ACMNA030	division facts Examples <ul style="list-style-type: none"> calculating the difference between the number of convicts who left Britain on the First Fleet and the number who arrived in Australia Mathematics ACMNA076	Examples <ul style="list-style-type: none"> measuring and estimating the growth of plants Mathematics ACMNA128	strategies Examples <ul style="list-style-type: none"> calculating the running costs of a range of household appliances with different energy ratings Mathematics ACMNA183	mental, written and digital strategies Examples <ul style="list-style-type: none"> using statistics to predict trends such as the use of social media in different age groups Mathematics ACMNA232
Use money						
identify situations that involve the use of money Example <ul style="list-style-type: none"> using pictures of the local community to identify places where money can be used 	recognise the different value of coins and notes in the Australian monetary system Examples <ul style="list-style-type: none"> naming the value of different coins and notes Mathematics ACMNA001	identify and use combinations of coins and notes for simple purchases Examples <ul style="list-style-type: none"> selecting the right money to buy lunch from the school canteen Mathematics ACMNA034	estimate the change from simple purchases Examples <ul style="list-style-type: none"> working out change from \$5 when buying a drink Mathematics ACMNA080	create simple financial plans, budgets and cost predictions Examples <ul style="list-style-type: none"> creating a simple budget for a birthday party for 10 friends Mathematics ACMNA106	identify and justify 'best value for money' decisions Examples <ul style="list-style-type: none"> comparing different phone plans and presenting a reason for purchasing the chosen plan Mathematics ACMNA174	evaluate financial plans to support specific financial goals Examples <ul style="list-style-type: none"> developing a budget/ financial plan to save for a desired item taking into account the interest earned Mathematics ACMNA211

Recognising and using patterns and relationships

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Recognise and use patterns and relationships						
<p>recognise simple patterns in everyday contexts</p> <p>Example</p> <ul style="list-style-type: none"> recognising patterns in games, music, artwork 	<p>describe and continue patterns</p> <p>Examples</p> <ul style="list-style-type: none"> continuing simple patterns using different colours or repeating a pattern in music <p>English ACELT1579 Mathematics ACMNA005 Science ACSSU004 History ACHHK001</p>	<p>identify, describe and create everyday patterns</p> <p>Examples</p> <ul style="list-style-type: none"> creating a pattern based on the petal structure of a flower <p>English ACELT1592 Mathematics ACMNA035 Science ACSSU019 History ACHHS047</p>	<p>identify and describe trends in everyday patterns</p> <p>Examples</p> <ul style="list-style-type: none"> creating a pattern that could be used to produce a mosaic <p>Mathematics ACMNA081 Science ACSHE061 History ACHHS081</p>	<p>identify and describe pattern rules and relationships that help to identify trends</p> <p>Examples</p> <ul style="list-style-type: none"> survey dates in a local cemetery to find clues about patterns of settlement <p>Mathematics ACMNA133 Science AC SIS107 History ACHHS117</p>	<p>identify trends using number rules and relationships</p> <p>Examples</p> <ul style="list-style-type: none"> using fuel consumptions vs. distance data to determine patterns of a vehicle's fuel consumption <p>Science AC SIS145 History ACHHS148</p>	<p>explain how the practical application of patterns can be used to identify trends</p> <p>Examples</p> <ul style="list-style-type: none"> using mobile phone bills to identify usage trends <p>Mathematics ACMNA208 Science AC SIS169 History ACDSEH145</p>

Using fractions, decimals, percentages, ratios and rates

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Interpret proportional reasoning						
<p>recognise a 'whole' and 'parts of a whole' within everyday contexts</p> <p>Example</p> <ul style="list-style-type: none"> separating objects or dividing materials into non-equal parts 	<p>recognise that a whole object can be divided into equal parts</p> <p>Examples</p> <ul style="list-style-type: none"> fold or cut a shape into equal parts 	<p>visualise and describe halves and quarters</p> <p>Examples</p> <ul style="list-style-type: none"> cutting an item of food in half and then half again <p>Mathematics ACMNA033</p>	<p>visualise, describe and order tenths, hundredths, 1-place and 2-place decimals</p> <p>Examples</p> <ul style="list-style-type: none"> putting the amounts of money raised by different classes in a school fundraiser into order <p>Mathematics ACMNA079</p>	<p>visualise, describe and order equivalent fractions, decimals and simple percentages</p> <p>Examples</p> <ul style="list-style-type: none"> explaining how to make a drink using 20% fruit, 30% lemonade and 50% fruit juice <p>Mathematics ACMNA131</p>	<p>visualise and describe the proportions of percentages, ratios and rates</p> <p>Examples</p> <ul style="list-style-type: none"> explaining the sizes of different cultural groups as proportions of the population of the local community <p>Mathematics ACMNA173</p>	<p>illustrate and order relationships for fractions, decimals, percentages, ratios and rates</p> <p>Examples</p> <ul style="list-style-type: none"> calculating and plotting the savings made on a variable interest rate mortgage for the past 5 years <p>Mathematics ACMNA208</p>
Apply proportional reasoning						
<p>Level 1b is the starting point for this sub-element</p>	<p>identify quantities such as more, less and the same in everyday comparisons</p> <p>Examples</p> <ul style="list-style-type: none"> pouring a liquid equally into two containers or identifying that one storage container is larger than another 	<p>solve problems using halves and quarters</p> <p>Examples</p> <ul style="list-style-type: none"> using kitchen measuring equipment to show 2 half cup measures can be used instead of a 1 cup measure 	<p>solve problems using equivalent fractions for tenths, hundredths, 1-place and 2-place decimals</p> <p>Examples</p> <ul style="list-style-type: none"> finding the time difference between the fastest and slowest times for a class Beep test 	<p>solve problems using equivalent fractions, decimals and simple percentages</p> <p>Examples</p> <ul style="list-style-type: none"> using migration statistics to show which 50-year period in Australia's history had the largest percentage of growth 	<p>solve problems using simple percentages, ratios and rates</p> <p>Examples</p> <ul style="list-style-type: none"> comparing and contrasting trends in migration from Asian countries to Australia since World War II 	<p>solve problems involving fractions, decimals, percentages, ratios and rates</p> <p>Examples</p> <ul style="list-style-type: none"> using proportional reasoning to assess the impact of changes in society and significant events, for example population loss from the 1919

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b					
	Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
	Mathematics ACMNA003	Mathematics ACMNA016	Mathematics ACMNA077	Mathematics ACMNA103	Mathematics ACMNA187	influenza epidemic Mathematics ACMNA208

Using spatial reasoning

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b					
	Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Visualise 2D shapes and 3D objects						
sort or match objects according to their features	sort and name simple 2D shapes and 3D objects	identify, sort and describe common 2D shapes and 3D objects	visualise, sort, identify and describe symmetry, shapes and angles in the environment	visualise, sort, describe and compare the features of objects such as prisms and pyramids in the environment	visualise, describe and apply their understanding of the features and properties of 2D shapes and 3D objects	visualise, describe and analyse the way shapes and objects are combined and positioned in the environment for different purposes
Example	Examples	Examples	Examples	Examples	Examples	Examples
<ul style="list-style-type: none"> sorting objects by features of shape, size, colour and function 	<ul style="list-style-type: none"> grouping 2D shapes and 3D objects by their features, colour and materials 	<ul style="list-style-type: none"> creating a structure using a variety of shapes 	<ul style="list-style-type: none"> recording the angles of the shots hit by a batsman in a cricket match 	<ul style="list-style-type: none"> explaining why some angles are used more frequently in built environments than others 	<ul style="list-style-type: none"> identifying and explaining key features of architecture in Qing China 	<ul style="list-style-type: none"> explaining how the design of buildings in the local community reflect their use
	Mathematics ACMNA005 Science ACSSU003	Mathematics ACMMG022 Science ACSIS038	English ACELA1483 Mathematics ACMMG066 Science ACSSU048	Mathematics ACMMG111 Science ACSSU078	Mathematics ACMMG161	Mathematics ACMMG216

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Interpret maps and diagrams						
<p>demonstrate awareness of position of self and objects in relation to everyday contexts</p> <p>Example</p> <ul style="list-style-type: none"> following actions to a song or dance 	<p>follow directions to demonstrate understanding of common position words and movements</p> <p>Examples</p> <ul style="list-style-type: none"> using a diagram or picture as a guide to building a model <p>Mathematics ACMMG010</p>	<p>give and follow directions on maps and diagrams of familiar locations</p> <p>Examples</p> <ul style="list-style-type: none"> using the language of position and movement to direct a friend to a new location <p>Mathematics ACMMG044 Science ACSSU033 History ACHHK045</p>	<p>interpret information, locate positions and describe routes on maps and diagrams using simple scales, legends and directional language</p> <p>Examples</p> <ul style="list-style-type: none"> creating and labelling a diagram showing the location of historical features in the local community <p>Mathematics ACMMG090 History ACHHK078</p>	<p>identify and describe routes and locations, using grid reference systems and directional language such as north or north east</p> <p>Examples</p> <ul style="list-style-type: none"> using a street map to describe how to locate a friend's house <p>English ACELA1524 Mathematics ACMMG113 Science ACSSU096 History ACHHK094</p>	<p>create and interpret 2D and 3D maps, models and diagrams</p> <p>Examples</p> <ul style="list-style-type: none"> creating a map showing the expansion of the Mongol Empire across Europe and Asia <p>History ACDSEH078</p>	<p>create and interpret maps, models and diagrams using a range of mapping tools</p> <p>Examples</p> <ul style="list-style-type: none"> using digital mapping tools to show the movement of people in the transatlantic slave trade or convict transportation to Australia <p>Science ACSSU190 History ACDSEH018</p>

Interpreting statistical information

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Interpret data displays						
<p>display information using real objects or photographs and respond to questions about the information displayed</p> <p>Example</p> <ul style="list-style-type: none"> displaying the most popular activity in the class using photographs 	<p>recognise how to ask and answer simple data questions and interpret data in drawings or picture graphs</p> <p>Examples</p> <ul style="list-style-type: none"> asking class members which football team they support and recording this information using the team logos <p>Mathematics ACMSP011 Science AC SIS014 History ACHHK001</p>	<p>collect and describe data on a relevant issue based on one variable and display as lists, tables or picture graphs</p> <p>Examples</p> <ul style="list-style-type: none"> construct column graphs and picture graphs to represent the amount of water wasted by a dripping tap over a week <p>Mathematics ACMSP048 Science AC SIS040 History ACHHS036</p>	<p>collect record and display data as tables, diagrams, picture graphs and column graphs</p> <p>Examples</p> <ul style="list-style-type: none"> presenting evidence about the foods eaten by animals in a column graph <p>Mathematics ACMSP096 Science AC SIS068 History ACHHS087</p>	<p>collect, compare, describe and interpret data as 2-way tables, double column graphs and sector graphs, including from digital media</p> <p>Examples</p> <ul style="list-style-type: none"> comparing and discussing line graphs about pulse rates when at rest and after activity <p>Mathematics ACMSP147 Science AC SIS107 History ACHHS125</p>	<p>compare, interpret and assess the effectiveness of different data displays of the same information</p> <p>Examples</p> <ul style="list-style-type: none"> using secondary data to investigate changes in the mean and median rainfalls and water consumption in different locations choosing the most effective data display to compare mean and median rainfalls and water consumption in different locations and justifying choice of display <p>Mathematics ACMSP170 Science AC SIS146 History ACHHS153</p>	<p>evaluate media statistics and trends by linking claims to data displays, statistics and representative data</p> <p>Examples</p> <ul style="list-style-type: none"> using bar graphs to compare food rations from World War II with their own food consumption <p>Mathematics ACMSP253 Science AC SIS206 History ACHHS189</p>

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Interpret chance events						
Level 1b is the starting point for this sub-element	<p>recognise that some events might or might not happen</p> <p>Example</p> <ul style="list-style-type: none"> recognising that it might or might not rain tomorrow 	<p>identify and describe familiar events that involve chance</p> <p>Examples</p> <ul style="list-style-type: none"> discussing and using the language of chance to describe the likelihood of events such as 'will', 'won't' and 'might' <p>Mathematics ACMSP024 Science AC SIS212</p>	<p>describe possible outcomes from chance experiments using informal chance language and recognising variations in results</p> <p>Examples</p> <ul style="list-style-type: none"> understanding and using terms denoting the likelihood of events, including colloquial terms such as 'no way', 'for sure' <p>Mathematics ACMSP067 Science AC SIS216</p>	<p>describe chance events and compare observed outcomes with predictions using numerical representations such as a 75% chance of rain or 50/50 chance of snow</p> <p>Examples</p> <ul style="list-style-type: none"> comparing and discussing the difference between predicted data and evidence when explaining the outcomes of an investigation <p>Mathematics ACMSP146 Science ACSHE098</p>	<p>describe and explain why the actual results of chance events are not always the same as expected results</p> <p>Examples</p> <ul style="list-style-type: none"> predicting and comparing the outcomes of plant-cloning techniques in agriculture <p>Mathematics ACMSP205 Science AC SIS141</p>	<p>explain the likelihood of multiple events occurring together by giving examples of situations when they might happen</p> <p>Examples</p> <ul style="list-style-type: none"> rolling two die and determining the probability of both displaying the same numbered face <p>Mathematics ACMSP225</p>

Using measurement

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
Estimate and measure with metric units						
<p>use informal language and/or actions to describe characteristics of length, temperature, mass, volume, capacity and area in familiar environments</p> <p>Example</p> <ul style="list-style-type: none"> using hand gestures to describe the length of an object 	<p>measure by comparing objects and indicate if these measurements are the same or different</p> <p>Examples</p> <ul style="list-style-type: none"> comparing the length of two objects and indicating which one is longer 	<p>estimate, measure and order using direct and indirect comparisons and informal units to collect and record information about shapes and objects</p> <p>Examples</p> <ul style="list-style-type: none"> using informal measures to record observations, compare masses of objects using a balance scale, measure the heights of plants in hand spans 	<p>estimate, measure and compare the length, temperature, volume, capacity and mass of everyday objects using metric units and scaled instruments</p> <p>Examples</p> <ul style="list-style-type: none"> using a thermometer to measure heating and cooling and recording results to the nearest half unit 	<p>choose and use appropriate metric units for length, area, volume, capacity and mass to solve everyday problems</p> <p>Examples</p> <ul style="list-style-type: none"> using measurements from maps, plans and other sources to describe historical buildings and the layout of settlements 	<p>convert between common metric units for volume and capacity and use perimeter, area and volume formulas to solve authentic problems</p> <p>Examples</p> <ul style="list-style-type: none"> estimating and working out the area of a vegetable garden in square metres and calculating how much sugarcane mulch to buy to cover it 	<p>solve complex problems involving surface area and volume of prisms and cylinders and composite solids</p> <p>Examples</p> <ul style="list-style-type: none"> working out how much space is taken up by kitchen cupboards in a kitchen design and the area of remaining walls that will need to be painted

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
	Mathematics ACMMG006	Mathematics ACMMG037 Science ACSIS039	Mathematics ACMMG084 Science ACSIS066	Mathematics ACMMG137 Science ACSIS104	Mathematics ACMMG195 Science ACSIS141	Mathematics ACMMG242 Science ACSIS200
Operate with clocks, calendars and timetables						
sequence familiar actions and events in a variety of ways Example <ul style="list-style-type: none"> associating familiar activities with times of the day or days of the week using pictorial, written or technology formats 	sequence familiar actions and events using the everyday language of time Examples <ul style="list-style-type: none"> retelling a familiar story or sorting pictures from a familiar event into time order English	read digital and analogue clocks to the half and quarter hour, sequence events by months and seasons and identify a date on a calendar Examples <ul style="list-style-type: none"> developing a list for celebrating class birthdays English ACELY1671	read digital and analogue clocks to the minute, convert between hours and minutes, use 'am' and 'pm', and use calendars to locate and compare time events Examples <ul style="list-style-type: none"> calculating how many hours are spent at school in the month of July Mathematics	convert between 12- and 24-hour systems to solve time problems, interpret and use timetables from print and digital sources Examples <ul style="list-style-type: none"> working out how long it would take to get from home to the airport by bus or train Mathematics	use 12- and 24-hour systems within a single time zone to solve time problems, and place personal and family events on an extended time scale Examples <ul style="list-style-type: none"> recording the correct time when creating a new event in a social media website Mathematics	use 12- and 24-hour systems within a multiple time zone to solve time problems, use large and small timescales in complex contexts and place historical and scientific events on an extended time scale Examples <ul style="list-style-type: none"> calculating the correct time differences before phoning an overseas friend Mathematics

Level 1		Level 2	Level 3	Level 4	Level 5	Level 6
1a	1b Typically by the end of Foundation Year, students	Typically by the end of Year 2, students	Typically by the end of Year 4, students	Typically by the end of Year 6, students	Typically by the end of Year 8, students	Typically by the end of Year 10, students
	ACELT1580 Mathematics ACMMG007 Science ACSSU004 History ACHHS015	Mathematics ACMMG041 Science ACSSU019 History ACHHK029	ACMMG086 Science ACSSU048 History ACHHS081	ACMMG139 Science ACSSU096 History ACHHS117	ACMNA199 Science ACSSU115 History ACHHS148	ACMMG219 Science ACSSU185 History ACHHS182