

## Mapping tool – preamble for Science

This mapping tool matches essential content elements from two curriculum frameworks: *Every chance to learn* ELA 19, ELA 2 and ELA 20 to the Australian Curriculum (Science) 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 19 *The student understands and applies scientific knowledge*
- ELA 2 *The student understands and applies the inquiry process*
- ELA 20 *The student acts for an environmentally sustainable future*

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

- The *Science Understanding* strand refers to *the facts, concepts, laws theories and models that have been established by scientists over time.*
- The *Science as a Human Endeavour* strand *highlights the development of science as a unique way of knowing and doing, and the role of science in contemporary decision making and problem solving.*
- The *Science Inquiry Skills* strand outlines the process of working scientifically.

As Sustainability is a cross-curriculum priority, the elaborations of all phase 1 learning areas provide examples of how sustainability may be embedded within content.

Given that the documents are differently organised, the similarity of some essential content in both documents may appear superficial. These types of matches have been identified using a paler font colour.

Further information can be inferred from

- **strand** and **sub-stand** headings
- 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.

## Science – Later Childhood

Every chance to learn		Australian Curriculum		
19. The student understands and applies scientific knowledge		AC Strand/s SU = science understanding SHE = Science as a Human Endeavour SIS = Science Inquiry Skills		
		Year 3	Year 4	Year 5
<b>19.LC.1</b>	how science is used in work and leisure	•	•	<ul style="list-style-type: none"> <li>• <b>Use and influence of science</b> (ACSHE083) Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives</li> <li>(ACSHE217) Scientific knowledge is used to inform personal and community decisions</li> </ul>
<b>19.LC.2</b>	some of the contributions made by people in different times and cultures to the development of scientific knowledge	•	•	<ul style="list-style-type: none"> <li>• <b>Nature and development of science</b> (ACSHE082) Important contributions to the advancement of science have been made by people from a range of cultures</li> </ul>
<b>19.LC.3</b>	the effects of different-sized forces on the shape and/or motion of objects	•	•	•

<p><b>19.LC.4</b></p>	<p>the idea that some forces (e.g. magnetism) may act at a distance, while other forces need to be in contact with the object to affect it (e.g. hitting a ball)</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Physical sciences</b></li> </ul> <p>(ACSSU076) Forces can be exerted by one object on another through direct contact or from a distance</p>	<ul style="list-style-type: none"> <li>•</li> </ul>
<p><b>19.LC.5</b></p>	<p>different forms and sources of energy used in their community (e.g. heat, sound, light, electricity) and how energy can be transferred between objects</p>	<ul style="list-style-type: none"> <li>• <b>Physical sciences</b></li> </ul> <p>(ACSSU049) Heat can be produced in many ways and can move from one object to another</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
<p><b>19.LC.6</b></p>	<p>comparison of properties of an object with those of the materials of which it is made (e.g. eggs and sugar compared to meringue; sand and cement compared with concrete) and why materials are chosen for particular purposes</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Chemical sciences</b></li> </ul> <p>(ACSSU074) Natural and processed materials have a range of physical properties; These properties can influence their use</p>	<ul style="list-style-type: none"> <li>•</li> </ul>

19.LC.7	smaller visible parts that make up material under examination (e.g. grains, fibres)	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Chemical sciences</b> (ACSSU074) Natural and processed materials have a range of physical properties; These properties can influence their use</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b> (AC SIS087) Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate</li> </ul>
19.LC.8	different types of changes that materials may undergo	<ul style="list-style-type: none"> <li>• <b>Chemical sciences</b> (ACSSU046) A change of state between solid and liquid can be caused by adding or removing heat</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
19.LC.9	structures of living things and relationships between structure and function	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Biological sciences</b> (ACSSU043) Living things have structural features and adaptations that help them to survive in their environment</li> </ul>
19.LC.10	categories of living things based on observable characteristics	<ul style="list-style-type: none"> <li>• <b>Biological sciences</b> (ACSSU044) Living things can be grouped on the basis of observable features and can be distinguished from non-living things</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
19.LC.11	life cycles and reproductive processes in living things	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Biological sciences</b> (ACSSU072) Living things have life cycles</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

19.LC.12	some interactions between living things, and between living things and their environment	•	<ul style="list-style-type: none"> <li>• <b>Biological sciences</b></li> </ul> (ACSSU073) Living things, including plants and animals, depend on each other and the environment to survive	
19.LC.13	the relationships between distance and apparent size of objects to an observer	•	•	•
19.LC.14	planets and other objects in the solar system, including current information from space exploration	•	•	<ul style="list-style-type: none"> <li>• <b>Earth and space sciences</b></li> </ul> (ACSSU078) The Earth is part of a system of planets orbiting around a star (the sun)
19.LC.15	gravity as a force that pulls things on or above the Earth's surface towards it	•	•	•
19.LC.16	identifiable causes for some of the short- and long-term changes to the surface of the Earth or the atmosphere (e.g. volcanic activity, soil erosion, air pollution)	•	<ul style="list-style-type: none"> <li>• <b>Earth and space sciences</b></li> </ul> (ACSSU075) Earth's surface changes over time as a result of natural processes and human activity	

<p><b>19.LC.17</b></p>	<p>observe, explore, investigate, consider, identify, describe, compare and sort natural phenomena and living and non-living things</p>	<ul style="list-style-type: none"> <li>• <b>Nature and development of science</b></li> </ul> <p>(ACSHE050) Science involves making predictions and describing patterns and relationships</p> <ul style="list-style-type: none"> <li>• <b>Biological sciences</b></li> </ul> <p>(ACSSU044) Living things can be grouped on the basis of observable features and can be distinguished from non-living things (repeat)</p>	<ul style="list-style-type: none"> <li>• <b>Nature and development of science</b></li> </ul> <p>(ACSHE061) Science involves making predictions and describing patterns and relationships</p>	<ul style="list-style-type: none"> <li>•</li> </ul>
<p><b>19.LC.18</b></p>	<p>examine and predict events, speculate about how and why things happen, and compare explanations from different sources, using scientific language</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
<p><b>19.LC.19</b></p>	<p>apply scientific understandings to their experiences and describe how products (e.g. hair gel, sunscreen, protective clothing) and tools (e.g. egg beater, hair dryer) have been developed</p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

NEW MATERIAL		<ul style="list-style-type: none"> <li><b>Earth and space sciences</b> (ACSSU048) Earth's rotation on its axis causes regular changes, including night and day</li> </ul>		<ul style="list-style-type: none"> <li><b>Chemical sciences</b> (ACSSU077) Solids, liquids and gases have different observable properties and behave in different ways</li> </ul>
		<ul style="list-style-type: none"> <li><b>Use and influence of science</b> (ACSHE051) Science knowledge helps people to understand the effect of their actions</li> </ul>	<ul style="list-style-type: none"> <li><b>Use and influence of science</b> (ACSHE062) Science knowledge helps people to understand the effect of their actions</li> </ul>	<ul style="list-style-type: none"> <li><b>Physical sciences</b> (ACSSU080) Light from a source forms shadows and can be absorbed, reflected and refracted</li> </ul>
		<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li><b>Nature and development of science</b> (ACSHE081) Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena</li> </ul>
<b>Every chance to learn</b>		<b>Australian Curriculum</b>		
2. The student understands and applies the inquiry process		<b>AC Strand/s</b> SU = science understanding SHE = Science as a Human Endeavour SIS = Science Inquiry Skills		
		Year 3	Year 4	Year 5
<b>2.LC.1</b>	recognise different contexts for applying the inquiry process	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

2.LC.2	understand the various stages of planning and conducting a straightforward inquiry	•	•	•
2.LC.3	create questions and predictions for investigation and testing	<ul style="list-style-type: none"> <li>• <b>Questioning and predicting</b> (ACSIS053) With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Questioning and predicting</b> (ACSIS064) With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Questioning and predicting</b> (ACSIS231) With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be</li> </ul>
2.LC.4	identify and describe the mathematical nature of various problems and make and test straightforward statements, propositions and conjectures	•	•	•
2.LC.5	contribute to planning a variety of investigations, recognising where comparisons may be fair and unfair	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b> (ACSIS054) Suggest ways to plan and conduct investigations to find answers to questions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b> (ACSIS065) Suggest ways to plan and conduct investigations to find answers to questions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b> (ACSIS086) With guidance, select appropriate investigation methods to answer questions or solve problems</li> </ul>
2.LC.6	make decisions about information and equipment needed and the tasks to be carried out	•	•	•

2.LC.7	collect and record data, checking and repeating observations or measurements as needed	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS057) Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends</p>	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS068) Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends</p>	<ul style="list-style-type: none"> <li>•</li> </ul>
2.LC.8	use equipment safely and appropriately	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b></li> </ul> <p>(AC SIS055) Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate</p>	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b></li> </ul> <p>(AC SIS066) Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate</p>	<ul style="list-style-type: none"> <li>• <b>Planning and conducting</b></li> </ul> <p>(AC SIS088) Use equipment and materials safely, identifying potential risks</p>
2.LC.9	use interviews and simple surveys to ask people for information and opinions	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
2.LC.10	conduct searches for information and use a range of sources (e.g. information texts, artefacts, maps, images)	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
2.LC.11	evaluate the accuracy, relevance and credibility of data or information	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

2.LC.12	organise and present data, and identify patterns	•	•	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS090) Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate</p>
2.LC.13	discuss and compare results with their questions and predictions, and draw conclusions	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS215) Compare results with predictions, suggesting possible reasons for findings</p>	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS216) Compare results with predictions, suggesting possible reasons for findings</p>	<ul style="list-style-type: none"> <li>• <b>Processing and analysing data and information</b></li> </ul> <p>(AC SIS218) Compare data with predictions and use as evidence in developing explanations</p>
2.LC.14	explain the inquiry approach taken and communicate their findings or conclusions, generalising about them using specific instances they have observed, data they have analysed or information they have assembled	<ul style="list-style-type: none"> <li>• <b>Communicating</b></li> </ul> <p>(AC SIS060) Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports</p>	<ul style="list-style-type: none"> <li>• <b>Communicating</b></li> </ul> <p>(AC SIS071) Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports</p>	<ul style="list-style-type: none"> <li>• <b>Communicating</b></li> </ul> <p>(AC SIS093) Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts</p>
2.LC.15	attempt to convince others about the reasonableness of their findings	•	•	•

<b>2.LC.16</b>	reflect on their inquiry experience, identify what went well and difficulties encountered, and suggest improvements to the investigation.	<ul style="list-style-type: none"> <li><b>Evaluating</b> (AC SIS058) Reflect on the investigation, including whether a test was fair or not</li> </ul>	<ul style="list-style-type: none"> <li><b>Evaluating</b> (AC SIS069) Reflect on the investigation, including whether a test was fair or not</li> </ul>	<ul style="list-style-type: none"> <li><b>Evaluating</b> (AC SIS091) Suggest improvements to the methods used to investigate a question or solve a problem</li> </ul>
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<b>Every chance to learn</b>		<b>Australian Curriculum</b>		
20. The student acts for an environmentally sustainable future		<b>AC Strand/s</b> SU = science understanding SHE = Science as a Human Endeavour SIS = Science Inquiry Skills		
		Year 3	Year 4	Year 5
<b>20.LC.1</b>	natural cycles and systems in the environment (e.g. water cycle, food chains)	•	•	•
<b>20.LC.2</b>	the concept of habitat and the diversity of living things within a habitat	•	<ul style="list-style-type: none"> <li><b>Biological sciences</b> (ACSSU073) Living things, including plants and animals, depend on each other and the environment to survive</li> </ul> (Repeated)	

20.LC.3	some effects of human action on natural environments (e.g. land clearing, air and water pollution)	•	•	•
20.LC.4	how Earth's renewable and non-renewable resources, including energy sources, are used and the need to conserve non-renewable resources	•	•	•
20.LC.5	the preservation of natural environments and heritage sites and the importance of particular places to different individuals and groups, including Indigenous Australians (e.g. Uluru, Namadgi National Park, Canberra lakes and bushland)	•	•	•

20.LC.6	how protecting the environment requires that people work together as citizens and consumers and participate in appropriate actions as environmental stewards or in other civic action to effect positive change	•	•	•
20.LC.7	observe and gather data about local environments and changes over time due to human or natural events (e.g. school and grounds, nearby park or creek)	•	•	•
20.LC.8	take responsibility for caring for a local environment (e.g. part of school grounds, class garden, local park)	•	•	•

<b>20.LC.9</b>	investigate how their actions contribute to sustainability of resources and local environments (e.g. investigate issues relating to packaging and plastic bags, develop reuse and recycling systems in their classroom and school)	•	•	•
<b>20.LC.10</b>	explore probable and preferred futures in relation to environmental issues familiar to them and discuss actions needed to make preferred futures happen	•	•	•