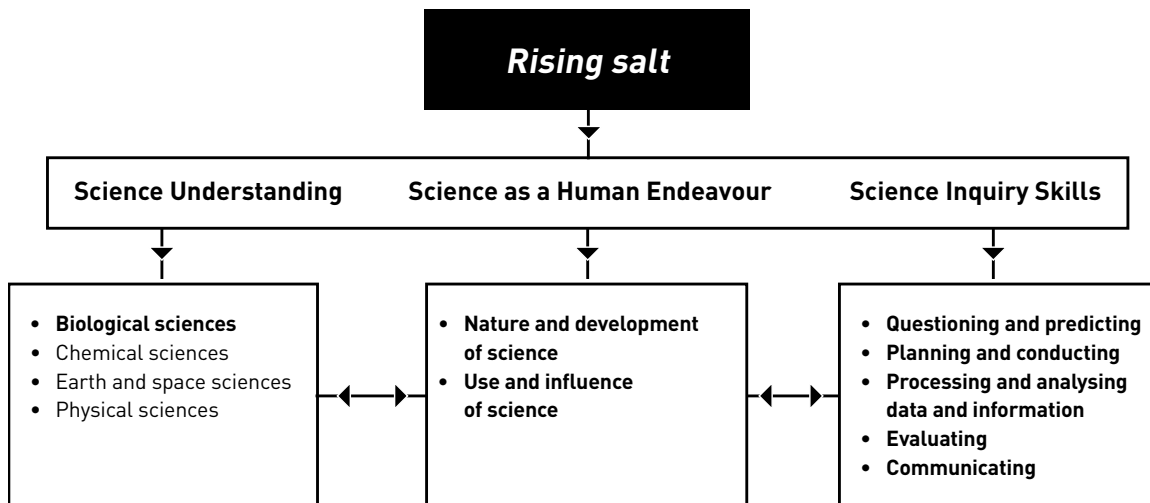


# Rising salt—Alignment with the Australian Curriculum

*Rising salt* is written to align to the Year 6 level of the Australian Curriculum Science. The interrelationship between the three strands—Science Understanding, Science as a Human Endeavour and Science Inquiry Skills—and their sub-strands at this year level is shown below. Sub-strands covered in this unit are in bold.



**AC** All the terms in this diagram are sourced from the Australian Curriculum (aside from the title).

## Curriculum focus

The Australian Curriculum: Science is described by year level, but provides advice across four year groupings on the nature of learners. Each year grouping has a relevant curriculum focus.

Curriculum focus Years 3–6	Incorporation in <i>Rising salt</i>
<b>Recognising questions that can be investigated scientifically and investigating them</b>	Students generate inquiry questions about how different types of watering and different levels of salinity affect the growth of plants. They discuss and formulate plans of actions to answer these questions and conducting scientific investigations. They generate new claims based on evidence to answer their original questions.

## Year 6 Achievement Standard

The Australian Curriculum: Science Year 6 achievement standard indicates the quality of learning that students should demonstrate by the end of Year 6.

**By the end of Year 6, students** compare and classify different types of observable changes to materials. They analyse requirements for the transfer of electricity and describe how energy can be transformed from one form to another when generating electricity. They explain how natural events cause rapid change to the Earth's surface. **They describe and predict the effect of environmental changes on individual living things. Students explain how scientific knowledge helps us to solve problems and inform decisions and identify historical and cultural contributions.**


**Students follow procedures to develop investigable questions and design investigations into simple cause-and-effect relationships. They identify variables to be changed and measured and describe potential safety risks when planning methods. They collect, organise and interpret their data, identifying where improvements to their methods or research could improve the data. They describe and analyse relationships in data using appropriate representations and construct multimodal texts to communicate ideas, methods and findings.**

The sections relevant to *Rising salt* are bolded above. By the end of the unit, teachers will be able to make evidence-based judgments on whether the students are achieving below, at or above the achievement standard for the sections bolded above.

## Rising salt—Australian Curriculum: Science

*Rising salt* embeds all three strands of the Australian Curriculum: Science. For ease of reference, the table below outlines the sub-strands covered in *Rising salt*, the content descriptions for Year 6 and their aligned lessons.

Strand	Sub-strand	Code	Year 6 content descriptions	Lessons
<b>Science Understanding</b>	<b>Biological sciences</b>	ACSSU094	The growth and survival of living things are affected by the physical conditions of their environment	1–7
<b>Science as a Human Endeavour</b>	<b>Nature and development of science</b>	ACSHE098	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions	2, 3, 6
	<b>Use and influence of science</b>	ACSHE100	Scientific knowledge is used to solve problems and inform personal and community decisions	1–7
<b>Science Inquiry Skills</b>	<b>Questioning and predicting</b>	AC SIS232	With guidance, pose clarifying questions and make predictions about scientific investigations	1–6
	<b>Planning and conducting</b>	AC SIS103	Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks	2, 3, 6
		AC SIS104	Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate	2, 3, 6
	<b>Processing and analysing data and information</b>	AC SIS107	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	2, 3, 5, 6
	<b>Evaluating</b>	AC SIS108	Reflect on and suggest improvements to scientific investigations	3, 6, 7
	<b>Communicating</b>	AC SIS110	Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multimodal texts	1–7

 All the material in the first four columns of this table is sourced from the Australian Curriculum.

## Key ideas

In the Australian Curriculum: Science, six key ideas support the coherence and developmental sequence of science knowledge within and across year levels. In *Rising salt*, these key ideas are represented by:

Key idea	Incorporation in <i>Rising salt</i>
<b>Patterns, order and organisation</b>	Students make observations and identify patterns in plant growth in order to draw conclusions about salt tolerance at different stages of growth and for different plants.
<b>Form and function</b>	When designing improved irrigation systems or water troughs, students identify forms that best suit the function of reducing water consumption.
<b>Stability and change</b>	Students recognise that a plant's response to environmental change is relatively predictable (you can determine the salt tolerance of a particular type of lettuce), however on longer timescales plants evolve in response to climatic conditions, for example, salt-resistance types of plants can be bred.
<b>Scale and measurement</b>	Students use formal units of measurements to compare the growth of plants when affected by different amounts of salt in their water.
<b>Matter and energy</b>	Students recognise that under certain conditions plants can no longer create matter, that is, they stop growing.
<b>Systems</b>	By understanding how different plants respond to increasing salinity, students can discuss and predict ecosystem responses to changing conditions and suggest solutions.

## General capabilities





The skills, behaviours and attributes that students need to succeed in life and work in the 21st century have been identified in the Australian Curriculum as general capabilities.


There are seven general capabilities and they are embedded throughout the units.

For further information see: [www.australiancurriculum.edu.au](http://www.australiancurriculum.edu.au)

For examples of our unit-specific general capabilities information see the next page.

## Rising salt—Australian Curriculum general capabilities

General capabilities	Australian Curriculum description	Rising salt examples
<b>Literacy</b>	Students develop a broader literacy capability as they explore and investigate their world. By learning the literacy of science, students understand that language varies according to context and they increase their ability to use language flexibly.	In <i>Rising salt</i> the literacy focuses are: <ul style="list-style-type: none"> <li>• science journals</li> <li>• glossaries</li> <li>• TWLH charts</li> <li>• word walls</li> <li>• graphs</li> <li>• factual texts</li> <li>• ideas maps</li> <li>• posters</li> <li>• labelled diagrams.</li> </ul>
 <b>Numeracy</b>	Many elements of numeracy are evident in the Science Inquiry Skills. These include practical measurement and the collection, representation and interpretation of data from investigations.	Students: <ul style="list-style-type: none"> <li>• collect and interpret data in tables</li> <li>• represent and interpret data in simple graphs</li> <li>• identify trends and patterns from numerical data.</li> </ul>
<b>Information and Communication Technology (ICT) Capability</b>	Students develop ICT capability when they research science concepts and applications, investigate scientific phenomena and communicate their scientific understandings.	Students are given optional opportunities to: <ul style="list-style-type: none"> <li>• use interactive resource technology to view, record and discuss information</li> <li>• use the internet to research further information on sustainable agricultural solutions</li> <li>• use ICT to create multimedia presentations.</li> </ul>
 <b>Critical and Creative Thinking</b>	Students develop capability in critical and creative thinking as they learn to generate and evaluate knowledge, ideas and possibilities, and use them when seeking new pathways or solutions. Creative thinking enables the development of ideas that are new to the individual, and this is intrinsic to the development of scientific understanding.	Students: <ul style="list-style-type: none"> <li>• ask questions and design investigations to answer them</li> <li>• analyse data from investigations and use it to answer their questions</li> <li>• respond to questions and compare predictions with results to formulate conclusions</li> <li>• make evidence-based claims about how physical conditions affect the growth and survival of living things.</li> </ul>
 <b>Personal and Social Capability</b>	Students develop personal and social capability as they engage in science inquiry, learn how scientific knowledge informs and is applied in their daily lives, and explore how scientific debate provides a means of contributing to their communities.	Students: <ul style="list-style-type: none"> <li>• work collaboratively in teams</li> <li>• listen to and follow instructions to safely complete investigations</li> <li>• participate in discussions.</li> </ul>
<b>Ethical understanding</b>	Students develop the capacity to form and make ethical judgements in relation to experimental science, codes of practice, and the use of scientific information and science applications.	Students: <ul style="list-style-type: none"> <li>• ask questions of others, respecting each other's point of view.</li> </ul>
 <b>Intercultural understanding</b>	Students learn to appreciate the contribution that diverse cultural perspectives have made to the development, breadth and diversity of science knowledge and applications.	<ul style="list-style-type: none"> <li>• Cultural perspectives opportunities are highlighted.</li> <li>• Important contributions made to science by people from a range of cultures are highlighted where relevant.</li> </ul>

 All the material in the first two columns of this table is sourced from the Australian Curriculum.

## Cross-curriculum priorities

There are three cross-curriculum priorities identified by the Australian Curriculum:

- Aboriginal and Torres Strait Islander histories and cultures
- Asia and Australia's engagement with Asia
- Sustainability.

Two of these are embedded within *Rising salt*, as described below.



### Aboriginal and Torres Strait Islander histories and cultures

The PrimaryConnections Indigenous perspectives framework supports teachers' implementation of Aboriginal and Torres Strait Islander histories and cultures in science. The framework can be accessed at: [www.primaryconnections.org.au](http://www.primaryconnections.org.au)

*Rising salt* focuses on the Western science method of making evidence-based claims about how physical conditions of the environment affect the growth and survival of living things. It discusses how early European farming practices have affected the landscape, including contributing to salinity, and encourages students to explore modern innovations to make practices more ecologically sustainable.

Aboriginal and Torres Strait Islander Peoples might have other ways of understanding and interpreting changes to the growth and survival of living things. It is increasingly recognised that their management of the land was sophisticated, coined as 'farming without fences'. Many of these practices would not have been immediately recognisable to early European settlers, as the ecology and environmental conditions of Australia were so different to what they were used to.

PrimaryConnections recommends working with Aboriginal and Torres Strait Islander community members to access local and relevant cultural perspectives. Protocols for engaging with Aboriginal and Torres Strait Islander community members are provided in state and territory education guidelines. Links to these are provided on the PrimaryConnections website.

### Sustainability

The *Rising salt* unit embeds a sustainability focus from the start through discussing one family's desire to meet their needs more sustainably. This unit adopts the Australian Curriculum definition of sustainable patterns of living as meeting 'the needs of the present without compromising the ability of future generations to meet their needs'. By introducing students to the challenges and opportunities faced by primary production systems, they gain a better understanding of intended and unintended environmental modifications and how they affect both plants and animals. This knowledge helps students to make decisions about individual and community actions that contribute to sustainable patterns of consumption of primary products.

Students identify that unsustainable practices can have effects that are far removed from the initial people who benefited. The water tables rose gradually after years of additions of water from both farms and cities, and it wasn't until the salt reached the roots of plants that the effects were felt. This helps students to understand that short-term gain can come at long-term cost, providing a framework for understanding the broader picture of sustainability.


## Rising salt—Australian Curriculum: English

Strand	Sub-strand	Code	Year 6 content descriptions	Lessons
Language	Expressing and developing ideas	ACELA1524	Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts	2, 3, 5, 6
Literacy	Interacting with others	ACELY1709	Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions	1–7
		ACELY1710	Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis	5, 7
	Interpreting, analysing, evaluating	ACELY1712	Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings	1, 3–7
		ACELY1713	Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts	1, 3–7
	Creating texts	ACELY1714	Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience	5–7
		ACELY1717	Use a range of software, including word processing programs, learning new functions as required to create texts	7

 All the material in the first four columns of this table is sourced from the Australian Curriculum.

## Rising salt—Australian Curriculum: Mathematics

Strand	Sub-strand	Code	Year 6 content descriptions	Lessons
<b>Number and Algebra</b>	<b>Number and place value</b>	ACMNA123	Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers	2, 3, 6
	<b>Fractions and decimals</b>	ACMNA128	Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers	2, 3, 6
<b>Statistics and Probability</b>	<b>Data representation and interpretation</b>	ACMSP147	Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables	2, 3, 6

 All the material in the first four columns of this table is sourced from the Australian Curriculum.

## Rising salt—Australian Curriculum: Technologies

Strand	Sub-strand	Code	Year 6 content descriptions	Lessons
<b>Design and Technologies</b>	<b>Design and Technologies Knowledge and Understanding</b>	ACTDEK021	Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy	1, 4
<b>Design and Technologies</b>	<b>Design and Technologies Knowledge and Understanding</b>	ACTDEK023	Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use	2, 3, 6
<b>Design and Technologies</b>	<b>Design and Technologies Processes and Production Skills</b>	ACTDEP024	Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions	4, 6
<b>Design and Technologies</b>	<b>Design and Technologies Processes and Production Skills</b>	ACTDEP028	Develop project plans that include consideration of resources when making designed solutions individually and collaboratively	5, 6

 All the material in the first four columns of this table is sourced from the Australian Curriculum.