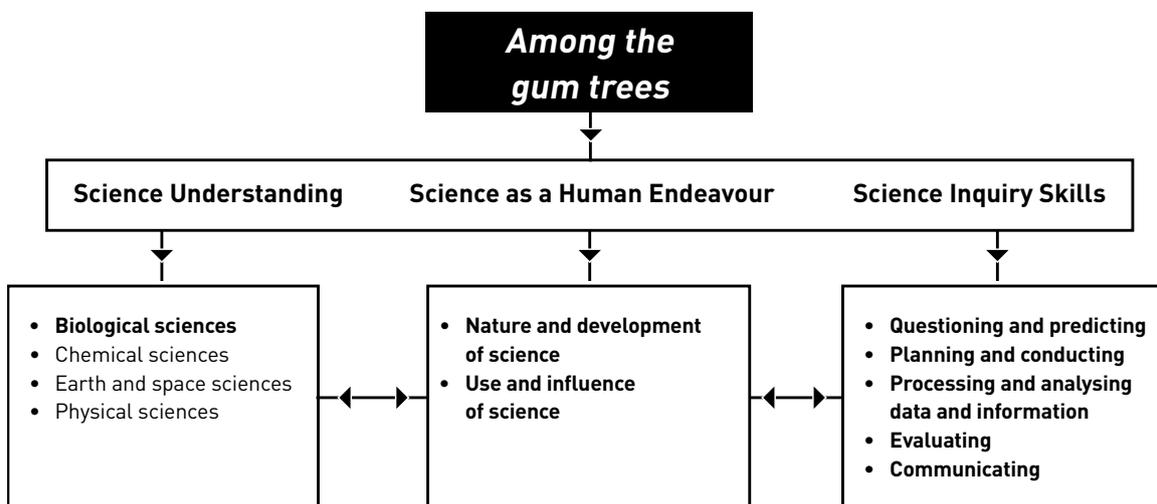


# Among the gum trees—Alignment with the Australian Curriculum

*Among the gum trees* is written to align to the Year 4 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>Among the gum trees</i>
<b>Recognising questions that can be investigated scientifically and investigating them</b>	Students explore the life cycles and beneficial interactions between eucalypts and bees. They explore other beneficial as well as harmful interactions between animals and eucalypts. Students conduct a fair test on seed germination of eucalypt seeds and test theories on why oil is present in eucalypt leaves.

## Year 4 Achievement Standard

The Australian Curriculum: Science Year 4 achievement standard indicates the quality of learning that students should demonstrate by the end of Year 4.

**By the end of Year 4, students** apply the observable properties of materials to explain how objects and materials can be used. They describe how contact and non-contact forces affect interactions between objects. They discuss how natural processes and human activity cause changes to the Earth's surface. **They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal. They identify when science is used to understand the effect of their actions.**

**Students follow instructions to identify investigable questions about familiar contexts and make predictions based on prior knowledge. They describe ways to conduct investigations and safely use equipment to make and record observations with accuracy. They use provided tables and column graphs to organise data and identify patterns. Students suggest explanations for observations and compare their findings with their predictions. They suggest reasons why a test was fair or not. They use formal and informal ways to communicate their observations and findings.**

The sections relevant to *Among the gum trees* 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.

## Among the gum trees—Australian Curriculum: Science

*Among the gum trees* embeds all three strands of the Australian Curriculum: Science. For ease of reference, the table below outlines the sub-strands covered in *Among the gum trees*, the content descriptions for Year 4 and their aligned lessons.

Strand	Sub-strand	Code	Year 4 content descriptions	Lessons
<b>Science Understanding</b>	<b>Biological Sciences</b>	ACSSU072	Living things have life cycles	1–7
		ACSSU073	Living things depend on each other and the environment to survive	1–7
<b>Science as a Human Endeavour</b>	<b>Nature and development of science</b>	ACSHE061	Science involves making predictions and describing patterns and relationships	2–6
	<b>Use and influence of science</b>	ACSHE062	Science knowledge helps people to understand the effect of their actions	5
<b>Science Inquiry Skills</b>	<b>Questioning and predicting</b>	AC SIS064	With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge	2, 6
	<b>Planning and conducting</b>	AC SIS065	With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment	2, 6
		AC SIS066	Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately	2, 6
	<b>Processing and analysing data and information</b>	AC SIS068	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends	2, 6
		AC SIS216	Compare results with predictions, suggesting possible reasons for findings	2, 6
	<b>Evaluating</b>	AC SIS069	Reflect on investigations; including whether a test was fair or not	2, 6
	<b>Communicating</b>	AC SIS071	Represent and communicate observations, ideas and findings using formal and informal representations	1–7

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

## Overarching ideas

In the Australian Curriculum: Science, six overarching ideas support the coherence and developmental sequence of science knowledge within and across year levels.

In *Among the gum trees*, these overarching ideas are represented by:

Overarching idea	Incorporation in <i>Among the gum trees</i>
<b>Patterns, order and organisation</b>	Students describe the life cycle of eucalypts and bees. They investigate patterns in the mutualistic relationships that exist between eucalypts and bees and other pollinating animals.
<b>Form and function</b>	Students observe and investigate parts of flowers and bees that play important roles in pollination as part of the plant life cycle. Students explore the role that seed capsules play in protecting seeds from the heat of bushfires.
<b>Stability and change</b>	Students observe the predictable stages of growth of living things as they change through their life cycle. They explore the pattern of bushfires and the regeneration of eucalypts.
<b>Scale and measurement</b>	Students discuss the time scale involved in the growing and changing of living things.
<b>Matter and energy</b>	Students explore the theories of the presence of oil in eucalypts and how it might contribute to the survival of the trees.
<b>Systems</b>	Students identify and describe the relationships that exist between the components of ecosystems, including the interdependency of living things and their environments.

## 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.

## Among the gum trees—Australian Curriculum general capabilities

General capabilities	Australian Curriculum description	Among the gum trees examples
<b>Literacy</b>	Literacy knowledge specific to the study of science develops along with scientific understanding and skills.  Primary <b>Connections</b> learning activities explicitly introduce literacy focuses and provide students with the opportunity to use them as they think about, reason and represent their understanding of science.	In <i>Among the gum trees</i> the literacy focuses are: <ul style="list-style-type: none"> <li>• TLWH charts</li> <li>• science journals</li> <li>• word walls</li> <li>• factual texts</li> <li>• labelled diagrams</li> <li>• posters</li> <li>• annotated diagrams</li> <li>• flow charts.</li> </ul>
 <b>Numeracy</b>	Elements of numeracy are particularly evident in Science Inquiry Skills. These include practical measurement and the collection, representation and interpretation of data.	Students: <ul style="list-style-type: none"> <li>• measure plant growth</li> <li>• collect and represent data in tables</li> <li>• represent and identify patterns and trends in simple column graphs.</li> </ul>
<b>Information and communication technology (ICT) competence</b>	ICT competence is particularly evident in Science Inquiry Skills. Students use digital technologies to investigate, create, communicate, and share ideas and results.	Students are given optional opportunities to: <ul style="list-style-type: none"> <li>• use digital cameras to record observations in investigations</li> <li>• integrate digital images into science journal entries</li> <li>• use interactive resource technology to view video resources on pollination and bushfires.</li> </ul>
 <b>Critical and creative thinking</b>	Students develop critical and creative thinking as they speculate and solve problems through investigations, make evidence-based decisions, and analyse and evaluate information sources to draw conclusions. They develop creative questions and suggest novel solutions.	Students: <ul style="list-style-type: none"> <li>• use evidence to discuss and support claims</li> <li>• make predictions</li> <li>• summarise information from investigations</li> <li>• reflect on learning.</li> </ul>
<b>Ethical behaviour</b>	Students develop ethical behaviour as they explore principles and guidelines in gathering evidence and consider the implications of their investigations on others and the environment.	Students: <ul style="list-style-type: none"> <li>• ask questions of others, respecting each other's point of view.</li> </ul>
 <b>Personal and social competence</b>	Students develop personal and social competence as they learn to work effectively in teams, develop collaborative methods of inquiry, work safely, and use their scientific knowledge to make informed choices.	Students: <ul style="list-style-type: none"> <li>• participate in discussions</li> <li>• work collaboratively in teams</li> <li>• listen to and follow instructions to safely complete investigations.</li> </ul>
 <b>Intercultural understanding</b>	Intercultural understanding is particularly evident in Science as a Human Endeavour. Students learn about the influence of people from a variety of cultures on the development of scientific understanding.	<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.</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 *Among the gum trees*, 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)

*Among the gum trees* focuses on the Western science method of making evidence-based claims about life cycles and interactions between living things. Aboriginal and Torres Strait Islander Peoples might have other explanations for why living things interact with each other.

The ubiquitousness of eucalypts has meant that the trees have been an important resource for Aboriginal and Torres Strait Islander Peoples for thousands of years. Their knowledge includes how to use parts of the trees for ailments including diarrhoea, fever and headache, and the food sources that might lie within the tree, such as sugarbag and witchetty grubs.

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 *Among the gum trees* unit provides opportunities for students to develop an understanding of how the growth of some living things can be impacted by environmental conditions, including changes due to human impact such as bushfires. This can assist students to develop knowledge, skills and values for making decisions about individual and community actions that contribute to sustainable patterns of use of the Earth's natural resources.

## Among the gum trees—Australian Curriculum: English

Strand	Sub-strand	Code	Year 4 content descriptions	Lessons
<b>Language</b>	<b>Language for interaction</b>	ACELA1488	Understand that social interactions influence the way people engage with ideas and respond to others for example when exploring and clarifying the ideas of others, summarising their own views and reporting them to a larger group	1–7
		ACELA1489	Understand differences between the language of opinion and feeling and the language of factual reporting or recording	2, 3, 5
	<b>Text structure and organisation</b>	ACELA1490	Understand how texts vary in complexity and technicality depending on the approach to the topic, the purpose and the intended audience	1–7
	<b>Expressing and developing ideas</b>	ACELA1498	Incorporate new vocabulary from a range of sources into students' own texts including vocabulary encountered in research	2–7
<b>Literacy</b>	<b>Interacting with others</b>	ACELY1688	Use interaction skills such as acknowledging another's point of view and linking students' response to the topic, using familiar and new vocabulary and a range of vocal effects such as tone, pace, pitch and volume to speak clearly and coherently	1–7
		ACELY1689	Plan, rehearse and deliver presentations incorporating learned content and taking into account the particular purposes and audiences	7
	<b>Interpreting, analysing, evaluating</b>	ACELY1692	Use comprehension strategies to build literal and inferred meaning to expand content knowledge, integrating and linking ideas and analysing and evaluating texts	4
	<b>Creating texts</b>	ACELY1694	Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features	7
		ACELY1697	Use a range of software including word processing programs to construct, edit and publish written text, and select, edit and place visual, print and audio elements	2, 6, 7

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

## Among the gum trees—Australian Curriculum: Mathematics

Strand	Sub-strand	Code	Year 4 content descriptions	Lessons
<b>Measurement and Geometry</b>	<b>Using units of measurement</b>	ACMMG084	Use scaled instruments to measure and compare lengths, masses, capacities and temperatures	2
		ACMMG290	Compare objects using familiar metric units of area and volume	6
<b>Statistics and Probability</b>	<b>Chance</b>	ACMSP093	Identify everyday events where one cannot happen if the other happens	4
	<b>Data representation and interpretation</b>	ACMSP095	Select and trial methods for data collection, including survey questions and recording sheets	2, 6
		ACMSP096	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	2, 6

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