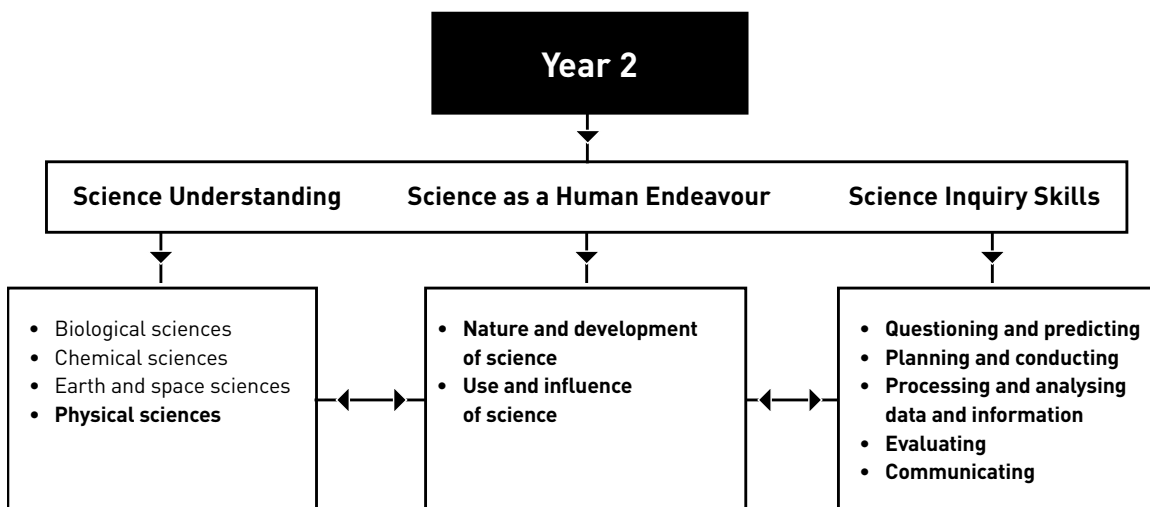# Alignment with the Australian Curriculum: Science

This *Push-pull* unit embeds all three strands of the Australian Curriculum: Science. The table below lists sub-strands and their content for Year 2. This unit is designed to be taught in conjunction with other Year 2 units to cover the full range of the Australian Curriculum: Science content for Year 2.

For ease of assessment the table below outlines the sub-strands and their aligned lessons.

Strand	Sub-strand	Code	Year 2 content descriptions	Lessons
Science Understanding (SU)	Physical sciences	ACSU033	A push or a pull affects how an object moves or changes shape	1–8
Science as a Human Endeavour (SHE)	Nature and development of science	ACSHE034	Science involves asking questions about, and describing changes in, objects and events	3
	Use and influence of science	ACSHE035	People use science in their daily lives, including when caring for their environment and living things	1,2,3
Science Inquiry Skills (SIS)	Questioning and predicting	ACSIS037	Respond to and pose questions, and make predictions about familiar objects and events	3
	Planning and conducting	ACSIS038	Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources	3,7
		ACSIS039	Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate	7
	Processing and analysing data and information	ACSIS040	Use a range of methods to sort information, including drawings and provided tables	1,2
		ACSIS214	Through discussion, compare observations with predictions	4,5
	Evaluating	ACSIS041	Compare observations with those of others	1,2,3,4,5
	Communicating	ACSIS042	Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play	1,6,8

Interrelationship of the science strands

The interrelationship between the three strands—Science Understanding, Science as a Human Endeavour and Science Inquiry Skills—and their sub-strands is shown below. Sub-strands covered in this unit are in bold.

Year 2		
Science Understanding	**Science as a Human Endeavour**	**Science Inquiry Skills**
• Biological sciences • Chemical sciences • Earth and space sciences • **Physical sciences**	• **Nature and development of science** • **Use and influence of science**	• **Questioning and predicting** • **Planning and conducting** • **Processing and analysing data and information** • **Evaluating** • **Communicating**

Relationship to 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 *Push-pull*, these overarching ideas are represented by:

Overarching idea	Incorporation in *Push-pull*
Patterns, order and organisation	Students explore how different strengths of pushes and pulls affect the movement of objects in predictable ways.
Form and function	Students explore how an object's form can affect how it moves in water, air and on the ground, and therefore influence its use.
Stability and change	Students investigate how objects float, fall slowly or stay still because of the forces acting on them. They explore how a stable object has balanced forces acting on it.
Scale and measurement	Students experience how some large objects float and smaller ones can sink. They use force-arrow diagrams to represent push and pull forces of different sizes and the direction in which they are acting.
Matter and energy	Students investigate the effect of the pull of gravity and explore how both air and water can 'push'.
Systems	Students investigate and compare floatation in both air and water, and recognise the opposing forces at work in a system.

Curriculum focus

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

Curriculum focus Years F–2	Incorporation in *Push-pull*
Awareness of self and the local world	Students identify the forces they use in their daily lives to play and work and live. They observe and discuss the effects of gravity and how forces work in water, air and on the ground. They use science inquiry skills to conduct a test of fall time for paper helicopters.

Achievement standards

The achievement standards of the Australian Curriculum: Science indicate the quality of learning that students typically demonstrate by a particular point in their schooling, for example, at the end of a year level. These standards will be reviewed regularly by ACARA and are available from the ACARA website.

By the end of this unit, teachers will be able to make evidence-based judgements on whether the students are achieving below, at or above the Australian Curriculum: Science Year 2 achievement standard. Rubrics to help teachers make these judgements will be available on the website (www.science.org.au/primaryconnections).

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 unit-specific information see the next page. For further information see: www.australiancurriculum.edu.au

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

Push-pull—Australian Curriculum general capabilities

General capabilities	Australian Curriculum description	*Push-pull* examples
Literacy	Literacy knowledge specific to the study of science develops along with scientific understanding and skills. Primary**Connections** 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 *Push-pull* the literacy focuses are: • word walls • tables • science journals • force-arrow diagrams • factual texts.
Numeracy	Elements of numeracy are particularly evident in Science Inquiry Skills. These include practical measurement and the collection, representation and interpretation of data.	Students: • complete provided data tables • observe and report on differences using comparison vocabulary (such as heavy, light, faster, slower).
Information and communication technology (ICT) competence	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: • use Learning Objects about forces • use a digital camera to take photographs of an investigation.
Critical and creative thinking	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: • discuss their ideas and reasoning • predict and explain their observations • solve to a sink/float problem challenge • reflect on questions and share answers with a partner • consider investigation variables • contemplate an observed phenomenon.
Ethical behaviour	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: • ask questions respecting each other's point of view.
Personal and social competence	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: • work with a partner to manipulate materials • follow safety rules during investigations.
Intercultural understanding	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.	• 'Cultural perspectives' opportunities are highlighted • Important contributions made to science by people from a range of cultures are highlighted.

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 this unit as described below. For further information see: www.australiancurriculum.edu.au

Aboriginal and Torres Strait Islander histories and cultures

The Primary**Connections** Indigenous perspective framework supports teachers' implementation of Aboriginal and Torres Strait Islander histories and cultures in science. The framework can be accessed at: www.science.org.au/primaryconnections

Push-pull focuses on the Western science way of making evidence-based claims about the way objects move and change shape.

Aboriginal and Torres Strait Islander Peoples might have other explanations for the observed phenomenon of the effects of forces.

Primary**Connections** 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 guidelines. Links to these are provided on the Primary**Connections** website.

Sustainability

In the *Push-pull* unit, students explore ways that objects move on land, through water and in the air. This provides opportunities to develop an understanding of how forces can be harnessed to do useful things. This can assist them to develop knowledge, skills and values for making decisions about individual and community actions that contribute to sustainable patterns of energy use.

Alignment with the Australian Curriculum: English and Mathematics

Strand	Sub-strand	Code	Year 2 content descriptions	Lesson
English– Language	**Language variation and change**	ACELA1461	Understand that language varies when people take on different roles in social and classroom interactions and how the use of key interpersonal language resources varies depending on context	1,3,5,7
	Text structure and organisation	ACELA1466	Know some features of text organisation including page and screen layouts, alphabetical order, and different types of diagrams, for example timelines	1,2,3,5,6,8
	Expressing and developing ideas	ACELA1470	Understand the use of vocabulary about familiar and new topics and experiment with and begin to make conscious choices of vocabulary to suit audience and purpose	1–8
English– Literacy	**Literature and Context**	ACELT1587	Discuss how depictions of characters in print, sound and images reflect the contexts in which they were created	1,3,4
	Responding to literature	ACELT1589	Compare opinions about characters, events and settings in and between texts	1,3,4
		ACELT1590	Identify aspects of different types of literary texts that entertain, and give reasons for personal preferences	1,3,4
English– Literacy	**Interacting with others**	ACELY1666	Listen for specific purposes and information, including instructions, and extend students' own and others' ideas in discussions	1,2,3,5,7
		ACELY1789	Use interaction skills including initiating topics, making positive statements and voicing disagreement in an appropriate manner, speaking clearly and varying tone, volume and pace appropriately	1,3,5,7
	Interpreting, analysing, evaluating	ACELY1669	Read less predictable texts with phrasing and fluency by combining contextual, semantic, grammatical and phonic knowledge using text processing strategies, for example monitoring meaning, predicting, rereading and self-correcting	6
Mathematics– Statistics and Probability	**Data representation and interpretation**	ACMSP049	Collect, check and classify data	1,2,4
		ACMSP050	Create displays of data using lists, table and picture graphs and interpret them	1,2,4

Other links are highlighted at the end of lessons where possible. These links will be revised and updated on the website (www.science.org.au/primaryconnections).