# **Australian Curriculum: Science**

## Year views (F-10)

- This document presents the curriculum with content descriptions and achievement standards for each year.
- These documents are based on the Australian Curriculum as published as version 5.0 on 20/05/2013.
- The content description codes are hyperlinked to the Australian Curriculum Website where the elaborations and links to the General Capabilities and Cross-Curriculum Priorities can be viewed.

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#### **Australian Curriculum: Science (Foundation)**

	Sub-strands		Content Descriptions	Achievement Standard
gı	Biological sciences	Living things have basic	needs, including food and water (ACSSU002)	By the end of the Foundation year, students describe the properties and behaviour of familiar objects. They suggest how the environment affects
erstandir	Chemical sciences	Objects are made of m	aterials that have observable properties (ACSSU003)	them and other living things.  Students share observations of familiar objects and
Science understanding	Earth and space sciences	Daily and seasonal cha	nges in our environment, including the weather, affect everyday life (ACSSU004)	events.
Scie	Physical sciences	The way objects move	depends on a variety of factors, including their size and shape (ACSSU005)	
r r	Nature and development of science	Science involves exploi	ing and observing the world using the senses (ACSHE013)	
Science as a human endeavour	Use and influence of science			
	Questioning and predicting	Respond to questions a	bout familiar objects and events (ACSIS014)	
skills	Planning and conducting	Explore and make obse	rvations by using the senses (ACSISO11)	
Science inquiry	Processing and analysing data and information	Engage in discussions a	bout observations and use methods such as drawing to represent ideas (ACSIS233)	
	Evaluating			
	Communicating	Share observations and	ideas (ACSIS012)	
Gene	ral Capabilities	1	Cross-Curriculum Priorities Notes:	
• Lite	eracy		Aboriginal and Torres Strait Islander histories and cultures	
	meracy ormation and communication t	echnology (ICT) canability	Asia and Australia's engagement with Asia	
	ical and creative thinking	ecimology (ICT) capability	Sustainability	
	ical behaviour			
l	sonal and social capability ercultural understanding			
	<b>o</b>			

#### **Australian Curriculum: Science (Year 1)**

	Sub-strands	Content Descriptions	Achievement Standard
gu	Biological sciences	<ul> <li>Living things have a variety of external features (ACSSU017)</li> <li>Living things live in different places where their needs are met (ACSSU211)</li> </ul>	By the end of Year 1, students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects. They identify a range of habitats. They
Science understanding	Chemical sciences	Everyday materials can be physically changed in a variety of ways (ACSSU018)	describe changes to things in their local environment and suggest how science helps people care for environments.
ience un	Earth and space sciences	Observable changes occur in the sky and landscape (ACSSU019)	Students make predictions, and investigate everyday phenomena. They follow instructions to
Sci	Physical sciences	Light and sound are produced by a range of sources and can be sensed (ACSSU020)	record and sort their observations and share their observations with others.
uman ar 1-2)	Nature and development of science	Science involves asking questions about, and describing changes in, objects and events (ACSHE021)	
Science as a human endeavour (Year 1-2)	Use and influence of science (1-2)	People use science in their daily lives, including when caring for their environment and living things (ACSHE022)	
~~~	Questioning and predicting	Respond to and pose questions, and make predictions about familiar objects and events (ACSIS024)	
s (Year 1-2)	Planning and conducting	<ul> <li>Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources (ACSIS025)</li> <li>Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate</li> </ul>	
skills		(ACSIS026)	
uiry	Processing and analysing data and information	<ul> <li>Use a range of methods to sort information, including drawings and provided tables (ACSIS027)</li> <li>Through discussion, compare observations with predictions (ACSIS212)</li> </ul>	
Science inquiry	Evaluating	Compare observations with those of others (ACSIS213)	
Scie	Communicating	Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play (ACSIS029)	
Gene	ral Capabilities	Cross-Curriculum Priorities Notes:	
• Lite	·	Aboriginal and Torres Strait Islander histories and cultures	
<ul><li>Nun</li><li>Info</li></ul>	neracy rmation and communication to	Asia and Australia's engagement with Asia	
<ul><li>Criti</li><li>Ethi</li><li>Pers</li></ul>	cal and communication to cal and creative thinking cal behaviour conal and social capability rcultural understanding	• Sustainability	

#### **Australian Curriculum: Science (Year 2)**

	Sub-strands	Content Descriptions	Achievement Standard
<b>∞</b>	Biological sciences	Living things grow, change and have offspring similar to themselves (ACSSU030)	By the end of Year 2, students describe changes to objects, materials and living things. They identify that certain materials and resources have differen
Science understanding	Chemical sciences	Different materials can be combined, including by mixing, for a particular purpose (ACSSU031)	uses and describe examples of where science is used in people's daily lives.
	Earth and space sciences	Earth's resources, including water, are used in a variety of ways (ACSSU032)	Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare
	Physical sciences	A push or a pull affects how an object moves or changes shape (ACSSU033)	observations. They follow instructions to record and represent their observations and communical their ideas to others.
a human (Year 1-2)	Nature and development of science	Science involves asking questions about, and describing changes in, objects and events (ACSHE021)	
science as a hi endeavour (Ye	Use and influence of science	People use science in their daily lives, including when caring for their environment and living things (ACSHE022)	
<u> </u>	Questioning and predicting	Respond to and pose questions, and make predictions about familiar objects and events (ACSIS024)	
ills (Year 1-2)	Planning and conducting	<ul> <li>Participate in different types of guided investigations to explore and answer questions, such as manipulating materials, testing ideas, and accessing information sources (ACSIS025)</li> <li>Use informal measurements in the collection and recording of observations, with the assistance of digital technologies as appropriate (ACSIS026)</li> </ul>	
ıquiry ski	Processing and analysing data and information	<ul> <li>Use a range of methods to sort information, including drawings and provided tables (ACSIS027)</li> <li>Through discussion, compare observations with predictions (ACSIS212)</li> </ul>	
Science inquiry	Evaluating	Compare observations with those of others (ACSIS213)	
Sci	Communicating	Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role play (ACSIS029)	
Gene	ral Capabilities	Cross-Curriculum Priorities Notes:	
Lite	<u>-</u>	Aboriginal and Torres Strait Islander histories and cultures	
	neracy ormation and communication t	Asia and Australia's engagement with Asia	
<ul><li>Criti</li><li>Ethi</li><li>Pers</li></ul>	ical and creative thinking ical behaviour sonal and social capability ercultural understanding	Sustainability	

#### **Australian Curriculum: Science (Year 3)**

	Sub-strands	Content Descriptions	Achievement Standard	
Science understanding	Biological sciences	Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044)	By the end of Year 3, students use their understanding of the movement of the Earth, materials and the behaviour of heat to suggest	
	Chemical sciences	A change of state between solid and liquid can be caused by adding or removing heat (ACSSU046)	explanations for everyday observations. They describe features common to living things. They describe how they can use science investigations to	
	Earth and space sciences	Earth's rotation on its axis causes regular changes, including night and day (ACSSU048)	respond to questions and identify where people use science knowledge in their lives.	
	Physical sciences	Heat can be produced in many ways and can move from one object to another (ACSSU049)	Students use their experiences to pose questions and predict the outcomes of investigations. They make formal measurements and follow procedure	
human rear 3-4)	Nature and development of science	Science involves making predictions and describing patterns and relationships (ACSHE050)	to collect and present observations in a way that helps to answer the investigation questions. Students suggest possible reasons for their findings. They describe how safety and fairness were considered in their investigations. They use	
Science as a human endeavour (year 3-4)	Use and influence of science	Science knowledge helps people to understand the effect of their actions (ACSHE051)	diagrams and other representations to communicate their ideas.	
<del></del>	Questioning and predicting	<ul> <li>With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS053)</li> </ul>		
lls (Year3-4)	Planning and conducting	<ul> <li>Suggest ways to plan and conduct investigations to find answers to questions</li> <li>Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSIS054)</li> </ul>		
quiry skills	Processing and analysing data and information	<ul> <li>Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends</li> <li>Compare results with predictions, suggesting possible reasons for findings (ACSISO57)</li> </ul>		
Science inquiry	Evaluating	Reflect on the investigation, including whether a test was fair or not (ACSIS058)		
Sci	Communicating	Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSIS060)		
<ul><li>Lite</li><li>Nun</li><li>Info</li><li>Criti</li><li>Ethi</li><li>Pers</li></ul>	ral Capabilities racy meracy ormation and communication rical and creative thinking fical behaviour sonal and social capability ercultural understanding	Cross-Curriculum Priorities  • Aboriginal and Torres Strait Islander histories and cultures  • Asia and Australia's engagement with Asia  • Sustainability		

#### **Australian Curriculum: Science (Year 4)**

	Sub-strands	Content Descriptions	Achievement Standard	
	Biological sciences	Living things have life cycles (ACSSU072)      (ACSSU072)	By the end of Year 4, students apply the observable properties of materials to explain how objects and	
Science understanding		• Living things, including plants and animals, depend on each other and the environment to survive (ACSSU072)	materials can be used. They use contact and non-	
	Chemical sciences	Natural and processed materials have a range of physical properties; These properties can influence their use (ACSSU074)	contact forces to describe interactions between objects. They discuss how natural and human processes cause changes to the Earth's surface.	
	Earth and space sciences	Earth's surface changes over time as a result of natural processes and human activity (ACSSU075)	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	
	Physical sciences	Forces can be exerted by one object on another through direct contact or from a distance (ACSSU076)	science is used to ask questions and make predictions. They describe situations where scienc understanding can influence their own and others'	
	Nature and development	Science involves making predictions and describing patterns and relationships (ACSHE061)	actions.	
a human (Year 3-4)	of science		Students follow instructions to identify investigable questions about familiar contexts and predict likely outcomes from investigations. They discuss ways to conduct investigations and safely use equipmen	
Science as a endeavour (Y	Use and influence of science	Science knowledge helps people to understand the effect of their actions (ACSHE062)	to conduct investigations and safely use equipmen to make and record observations. They use provided tables and simple column graphs to organise their data and identify patterns in data. Students suggest explanations for observations and compare their findings with their predictions. They suggest reasons why their methods were fair or	
3-4)	Questioning and predicting	With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS064)	not. They complete simple reports to communicate their methods and findings.	
ls (Year	Planning and conducting	<ul> <li>Suggest ways to plan and conduct investigations to find answers to questions (ACSIS065)</li> <li>Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSIS066)</li> </ul>	5	
′ ski∥	Processing and analysing	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends		
<u>uir</u>	data and information	Compare results with predictions, suggesting possible reasons for findings (ACSISO68)		
Science inquiry	Evaluating	Reflect on the investigation, including whether a test was fair or not (ACSIS069)		
Scie	Communicating	• Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSISO71)		
Genei	al Capabilities	Cross-Curriculum Priorities Notes:		
• Liter	•	Aboriginal and Torres Strait Islander histories and cultures		
<ul><li>Num</li><li>Info</li></ul>	neracy rmation and communication :	• Asia and Australia's engagement with Asia		
• Criti	cal and creative thinking	Sustainability		
	cal behaviour onal and social capability			
	cultural understanding			

#### **Australian Curriculum: Science (Year 5)**

	Sub-strands	Content Descriptions	Achievement Standard
<u>g</u>	Biological sciences	Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)	By the end of Year 5, students classify substances according to their observable properties and behaviours. They explain everyday phenomena
understanding	Chemical sciences	Solids, liquids and gases have different observable properties and behave in different ways (ACSSU077)	associated with the transfer of light. They describ the key features of our solar system. They analyse how the form of living things enables them to
Science unde	Earth and space sciences	The Earth is part of a system of planets orbiting around a star (the sun) (ACSSU078)	function in their environments. Students discuss how scientific developments have affected people's lives and how science knowledge
Scie	Physical sciences	Light from a source forms shadows and can be absorbed, reflected and refracted (ACSSU080)	develops from many people's contributions.
a human (Year 5-6)	Nature and development of science	<ul> <li>Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE081)</li> <li>Important contributions to the advancement of science have been made by people from a range of cultures (ACSHE081)</li> </ul>	Students follow instructions to pose questions for investigation, predict what might happen when variables are changed, and plan investigation methods. They use equipment in ways that are safe and improve the accuracy of their observations. Students construct tables and graph
Science as a l endeavour (Y	Use and influence of science	<ul> <li>Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE083)</li> <li>Scientific knowledge is used to inform personal and community decisions (ACSHE217)</li> </ul>	to organise data and identify patterns. They use patterns in their data to suggest explanations and refer to data when they report findings. They describe ways to improve the fairness of their methods and communicate their ideas, methods and findings using a range of text types.
	Questioning and predicting	With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be (ACSIS231)	
Science inquiry skills (Year 5-6)	Planning and conducting	<ul> <li>With guidance, plan appropriate investigation methods to answer questions or solve problems (ACSIS086)</li> <li>Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate (ACSIS087)</li> <li>Use equipment and materials safely, identifying potential risks (ACSIS088)</li> </ul>	
	Processing and analysing data and information	<ul> <li>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 (ACSISO90)</li> <li>Compare data with predictions and use as evidence in developing explanations (ACSIS218)</li> </ul>	
cience	Evaluating	Suggest improvements to the methods used to investigate a question or solve a problem (ACSIS091)	
Š	Communicating	Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts (ACSIS093)	
3ene	ral Capabilities	Cross-Curriculum Priorities Notes:	
• Lite	•	Aboriginal and Torres Strait Islander histories and cultures	
	neracy rmation and communication	echnology (ICT) capability  • Asia and Australia's engagement with Asia	
• Criti	ical and creative thinking	• Sustainability	
	cal behaviour sonal and social capability		
	rcultural understanding		

#### **Australian Curriculum: Science (Year 6)**

	Sub-strands	Content Descriptions	Achievement Standard	
<b>8</b> 0	Biological sciences	The growth and survival of living things are affected by the physical conditions of their environment (ACSSU094)	By the end of Year 6, students compare and classification different types of observable changes to materials.  They analyse requirements for the transfer of	
Science understanding	Chemical sciences	• Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)	electricity and describe how energy can be transformed from one form to another to generate electricity. They explain how natural events cause	
	Earth and space sciences	Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096)	rapid change to the Earth's surface. They describe and predict the effect of environmental changes of individual living things. Students explain how	
	Physical sciences	<ul> <li>Electrical circuits provide a means of transferring and transforming electricity (ACSSU097)</li> <li>Energy from a variety of sources can be used to generate electricity (ACSSU219)</li> </ul>	scientific knowledge is used in decision making and identify contributions to the development of science by people from a range of cultures.	
(Year 5-6)	Nature and development of science	<ul> <li>Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE098)</li> <li>Important contributions to the advancement of science have been made by people from a range of cultures (ACSHE099)</li> </ul>	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	
endeavour (Y	Use and influence of science	<ul> <li>Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE100)</li> <li>Scientific knowledge is used to inform personal and community decisions (ACSHE220)</li> </ul>	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 graphic representations and construct multi-moda texts to communicate ideas, methods and findings	
	Questioning and predicting	With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be (ACSIS232)	_	
Science inquiry skills (Year 5-6)	Planning and conducting	<ul> <li>With guidance, plan appropriate investigation methods to answer questions or solve problems (ACSIS103)</li> <li>Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate (ACSIS104)</li> <li>Use equipment and materials safely, identifying potential risks (ACSIS105)</li> </ul>		
	Processing and analysing data and information	<ul> <li>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 (ACSIS107)</li> <li>Compare data with predictions and use as evidence in developing explanations (ACSIS221)</li> </ul>		
	Evaluating	Suggest improvements to the methods used to investigate a question or solve a problem (ACSIS108)		
••	Communicating	Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts (ACSIS110)		
3ene	ral Capabilities	Cross-Curriculum Priorities Notes:		
• Lite	<u>-</u>	Aboriginal and Torres Strait Islander histories and cultures		
	neracy ormation and communication t	Asia and Australia's engagement with Asia		
<ul><li>Criti</li><li>Ethi</li></ul>	ical and creative thinking cal behaviour social and social capability	Sustainability		
	sonal and social capability ercultural understanding			

#### **Australian Curriculum: Science (Year 7)**

	Sub-strands	Content Descriptions	Achievement Standard
50	Biological sciences	<ul> <li>There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111)</li> <li>Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112)</li> </ul>	By the end of Year 7, students describe techniques to separate pure substances from
understanding	Chemical sciences	Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)	mixtures. They represent and predict the effects of unbalanced forces, including Earth's gravity, o motion. They explain how the relative positions of the Earth, sun and moon affect phenomena o
Science unde	Earth and space sciences	<ul> <li>Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115)</li> <li>Some of Earth's resources are renewable, but others are non-renewable (ACSSU116)</li> <li>Water is an important resource that cycles through the environment (ACSSU222)</li> </ul>	Earth. They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems. They predict the effect of environmental changes on feeding relationships and classify and organise diverse organisms based on observable differences.
	Physical sciences	<ul> <li>Change to an object's motion is caused by unbalanced forces acting on the object (ACSSU117)</li> <li>Earth's gravity pulls objects towards the centre of the Earth (ACSSU118)</li> </ul>	
a human (Year 7-8)	Nature and development of science	<ul> <li>Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world (ACSHE119)</li> <li>Science knowledge can develop through collaboration and connecting ideas across the disciplines of science (ACSHE223)</li> </ul>	Students describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem. They explain how the solution was viewed by, and impacted on, different groups in society.
Science as a endeavour (Y	Use and influence of science	<ul> <li>Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120)</li> <li>Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121)</li> <li>People use understanding and skills from across the disciplines of science in their occupations (ACSHE224)</li> </ul>	Students identify questions that can be investigated scientifically. They plan fair experimental methods, identifying variables to be changed and measured. They select equipment that improves fairness and accuracy and describ how they considered safety. Students draw on
	Questioning and predicting	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)	evidence to support their conclusions. They summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods. They communicate their ideas, methods and findings using scientific language and appropriate representations.
Science inquiry skills (Year 7-8)	Planning and conducting	<ul> <li>Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (ACSIS125)</li> <li>In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (ACSIS126)</li> </ul>	
	Processing and analysing data and information	<ul> <li>Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (ACSIS129)</li> <li>Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw</li> </ul>	
	Evaluating	<ul> <li>Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method (ACSIS131)</li> <li>Use scientific knowledge and findings from investigations to evaluate claims (ACSIS132)</li> </ul>	
	Communicating	Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate (ACSIS133)	
<ul><li>Lite</li><li>Nur</li><li>Info</li><li>Crit</li><li>Ethi</li><li>Pers</li></ul>	ral Capabilities racy meracy ormation and communication to ical and creative thinking ical behaviour sonal and social capability ercultural understanding	Cross-Curriculum Priorities  • Aboriginal and Torres Strait Islander histories and cultures  • Asia and Australia's engagement with Asia	

### **Australian Curriculum: Science (Year 8)**

	Sub-strands		Content Descriptions		Achievement Standard	
Science understanding	Biological sciences		of living things and have specialised structures and functions (AC contain systems of organs that carry out specialised functions the		By the end of Year 8, students compare physical and chemical changes and use the particle model	
	Chemical sciences	Differences between ele	ferent states of matter can be explained in terms of the motion ments, compounds and mixtures can be described at a particle I s substances reacting to form new substances (ACSSU225)		to explain and predict the properties and behaviours of substances. They identify different forms of energy and describe how energy transfers and transformations cause change in simple systems. They compare processes of rock	
	Earth and space sciences	Sedimentary, igneous an (ACSSU153)	d metamorphic rocks contain minerals and are formed by proce	sses that occur within Earth over a variety of timescales	formation, including the time scales involved. They analyse the relationship between structure and function at cell, organ and body system levels. Students examine the different science knowledge used in occupations. They explain how evidence has led to an improved understanding of a	
Sci	Physical sciences	Energy appears in different (ACSSU155)	ent forms including movement (kinetic energy), heat and potent	ial energy, and causes change within systems		
<b>.</b> ≅	Nature and development of science	understanding of the wo	nges as new evidence becomes available, and some scientific distributed (ACSHE134)  Ilevelop through collaboration and connecting ideas across the d		scientific idea and describe situations in which scientists collaborated to generate solutions to contemporary problems.	
a human (Year 7-8)		Science knowledge can d	nevelop through collaboration and collifecting ideas across the d	iscipilities of science (ACSHEZZO)	Students identify and construct questions and	
Science as a hendeavour (Ye	Use and influence of science	<ul><li>and involve ethical consi</li><li>Science understanding ir terrestrial resource man</li></ul>	nfluences the development of practices in areas of human activit	ry such as industry, agriculture and marine and	They consider safety and ethics when planning investigations, including designing field or experimental methods. They identify variables to be changed, measured and controlled. Students construct representations of their data to reveal and analyse patterns and trends, and use these when justifying their conclusions. They explain how modifications to methods could improve the quality of their data and apply their own scientific knowledge and investigation findings to evaluate claims made by others. They use appropriate language and representations to communicate science ideas, methods and findings in a range of text types.	
	Questioning and predicting	Identify questions and processing the state of the s	roblems that can be investigated scientifically and make predicti	ons based on scientific knowledge (ACSIS139)		
Year 7-8)	Planning and conducting	ethical guidelines are fol	idually plan and conduct a range of investigation types, including lowed (ACSIS140)  d control variables, and select equipment to collect data with according to the control variables.			
Science inquiry skills (Y	Processing and analysing data and information	Construct and use a rang using digital technologie	ge of representations, including graphs, keys and models to represent as as appropriate (ACSIS144) udents' own investigations and secondary sources, and use scient	esent and analyse patterns or relationships, including		
	Evaluating	Reflect on the method u improvements to the me	sed to investigate a question or solve a problem, including evaluathod (ACSIS146) and findings from investigations to evaluate claims (ACSIS234)	ating the quality of the data collected, and identify		
	Communicating		ngs and solutions to problems using scientific language and representations using digital technologies as appropriate			
<ul> <li>General Capabilities</li> <li>Literacy</li> <li>Numeracy</li> <li>Information and communication technology (ICT) capability</li> <li>Critical and creative thinking</li> <li>Ethical behaviour</li> <li>Personal and social capability</li> </ul>		1	Cross-Curriculum Priorities	Notes:		
		echnology (ICT) capability	<ul> <li>Aboriginal and Torres Strait Islander histories and cultures</li> <li>Asia and Australia's engagement with Asia</li> <li>Sustainability</li> </ul>			

### **Australian Curriculum: Science (Year 9)**

Sub-strands	Content Descriptions	Achievement Standard
Biological sciences	<ul> <li>Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment (ACSSU175)</li> <li>Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)</li> </ul>	By the end of Year 9, students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chamical reactions. They describe
Chemical sciences	All matter is made of atoms which are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms (ACSSU177)	of important chemical reactions. They describe models of energy transfer and apply these to explain phenomena. They explain global features
inders	<ul> <li>Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed (ACSSU178)</li> </ul>	and events in terms of geological processes and timescales. They analyse how biological systems
Earth and space sciences	• Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer (ACSSU179)	function and respond to external changes with reference to interdependencies, energy transfers
Earth and space sciences	The theory of plate tectonics explains global patterns of geological activity and continental movement (ACSSU180)	and flows of matter. They describe social and technological factors that have influenced scientification developments and predict how future application
Physical sciences	Energy transfer through different mediums can be explained using wave and particle models (ACSSU182)	of science and technology may affect people's lives.
Nature and development of science	• Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE157)	Students design questions that can be investigated
(Year 9-10) of science	<ul> <li>Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE158)</li> </ul>	using a range of inquiry skills. They design method that include the control and accurate measurement of variables and systematic
Use and influence of	People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSHE160)	collection of data and describe how they
Use and influence of science	<ul> <li>Advances in science and emerging sciences and technologies can significantly affect people's lives, including generating new career opportunities (ACSHE161)</li> </ul>	considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse
s e	The values and needs of contemporary society can influence the focus of scientific research (ACSHE228)	their methods and the quality of their data, and explain specific actions to improve the quality of
Questioning and predicting	Formulate questions or hypotheses that can be investigated scientifically (ACSIS164)	their evidence. They evaluate others' methods an explanations from a scientific perspective and use
Planning and conducting	• Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS165)	appropriate language and representations when communicating their findings and ideas to specific audiences.
() si	Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (ACSIS166)	
Processing and analysing data and information	<ul> <li>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies (ACSIS169)</li> <li>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS170)</li> </ul>	
data and information  Evaluating	<ul> <li>Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data (ACSIS171)</li> </ul>	
ien	• Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems (ACSIS172)	
Communicating	Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations (ACSIS174)	
General Capabilities	Cross-Curriculum Priorities Notes:	
• Literacy	Aboriginal and Torres Strait Islander histories and cultures	
• Numeracy	• Asia and Australia's engagement with Asia	
Ethical behaviour	echnology (ICT) capability  • Sustainability	
<ul> <li>Critical and creative thinking</li> <li>Ethical behaviour</li> <li>Personal and social capability</li> <li>Intercultural understanding</li> </ul>	Sustainability	

#### **Australian Curriculum: Science (Year 10)**

	Sub-strands	Content Descriptions	Achievement Standard
	Biological sciences	<ul> <li>The transmission of heritable characteristics from one generation to the next involves DNA and genes (ACSSU184)</li> <li>The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence (ACSSU185)</li> </ul>	By the end of Year 10, students analyse how the periodic table organises elements and use it to
ice understanding	Chemical sciences	<ul> <li>The atomic structure and properties of elements are used to organise them in the Periodic Table (ACSSU186)</li> <li>Different types of chemical reactions are used to produce a range of products and can occur at different rates (ACSSU187)</li> </ul>	make predictions about the properties of elements. They explain how chemical reactions are used to produce particular products and how different factors influence the rate of reactions. They explain the concept of energy conservation and represent energy transfer and transformation within systems. They apply relationships between force, mass and acceleration to predict changes in the motion of objects. Students describe and analyse interactions and cycles within and betwee Earth's spheres. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth. They explain the processes that underpin heredity and evolution. Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.  Students develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation. They explain how the
	Earth and space sciences	<ul> <li>The universe contains features including galaxies, stars and solar systems and the Big Bang theory can be used to explain the origin the universe (ACSSU188)</li> <li>Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere (ACSSU189)</li> </ul>	
Science	Physical sciences	<ul> <li>Energy conservation in a system can be explained by describing energy transfers and transformations (ACSSU190)</li> <li>The motion of objects can be described and predicted using the laws of physics (ACSSU229)</li> </ul>	
Science as a human endeavour (Year 9-10)	Nature and development of science	<ul> <li>Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community (ACSHE191)</li> <li>Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries (ACSHE192)</li> </ul>	
	Use and influence of science	<ul> <li>People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions (ACSHE194)</li> <li>Advances in science and emerging sciences and technologies can significantly affect people's lives, including generating new career opportunities (ACSHE195)</li> <li>The values and needs of contemporary society can influence the focus of scientific research (ACSHE230)</li> </ul>	
(01	Questioning and predicting	Formulate questions or hypotheses that can be investigated scientifically (ACSIS198)	have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the
ıs (Year 9-10)	Planning and conducting	<ul> <li>Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS199)</li> <li>Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (ACSIS200)</li> </ul>	quality of data. When analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty Students evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the
Science inquiry skill!	Processing and analysing data and information	<ul> <li>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies (ACSIS203)</li> <li>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS204)</li> </ul>	
	Evaluating	<ul> <li>Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data (ACSIS205)</li> <li>Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems (ACSIS206)</li> </ul>	methodology and the evidence cited. They construct evidence-based arguments and select appropriate representations and text types to
S	Communicating	• Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations (ACSIS208)	communicate science ideas for specific purposes.
<ul><li>Lite</li><li>Nur</li><li>Info</li><li>Crit</li><li>Ethi</li><li>Pers</li></ul>	ral Capabilities racy meracy rmation and communication to the second sec	Cross-Curriculum Priorities  • Aboriginal and Torres Strait Islander histories and cultures  • Asia and Australia's engagement with Asia	