



Science K–10 (incorporating Science and Technology K–6)

Syllabus Outcomes and Content Mapping Grids

Stage 3

The templates for mapping syllabus outcomes and content have been provided to assist teachers in evaluating existing and planning new teaching–learning programs for the *Science K–10 (incorporating Science and Technology K–6) Syllabus (2012)*

Outcomes Mapping Grid – Stage 3

Outcome		A student:	Station at Which Outcomes Are Met						
			1	2	3	4	5	6	7
Values and attitudes	ST3-1VA	shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunities	x	x	x	x	x	x	x
	ST3-2VA	demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futures			x			x	x
	ST3-3VA	develops informed attitudes about the current and future use and influence of science and technology based on reason							x
Skills	ST3-4WS	investigates by posing questions, including testable questions, making predictions and gathering data to draw evidence-based conclusions and develop explanations	x	x	x	x	x	x	x
	ST3-5WT	plans and implements a design process, selecting a range of tools, equipment, materials and techniques to produce solutions that address the design criteria and identified constraints			x				
Knowledge and understanding	ST3-6PW	describes how scientific understanding about the sources, transfer and transformation of electricity is related to making decisions about its use							
	ST3-7PW	uses scientific knowledge about the transfer of light to solve problems that directly affect people's lives							
	ST3-8ES	describes how discoveries by people from different cultures and times have contributed to advancing scientific understanding of the solar system							
	ST3-9ES	explains rapid change at the Earth's surface caused by natural events, using evidence provided by advances in technology and scientific understanding							
	ST3-10LW	describes how structural features and other adaptations of living things help them to survive in their environment							
	ST3-11LW	describes some physical conditions of the environment and how these affect the growth and survival of living things		x	x			x	
	ST3-12MW	identifies the observable properties of solids, liquids and gases, and that changes made to materials are reversible or irreversible	x			x	x		
	ST3-13MW	describes how the properties of materials determine their use for specific purposes							
	ST3-14BE	describes systems in built environments and how social and environmental factors influence their design							
	ST3-15I	describes how social influences impact on the design and use of information and communication systems							
	ST3-16P	describes systems used to produce or manufacture products, and the social and environmental influences on product design							

Content Mapping Grid – Stage 3

Working Scientifically		Station at Which Outcomes Are Met						
		1	2	3	4	5	6	7
A student investigates by posing questions, including testable questions, making predictions and gathering data to draw evidence-based conclusions and develop explanations ST3-4WS								
Content	<i>Students question and predict by:</i>							
	<ul style="list-style-type: none"> with guidance, posing questions to clarify practical problems or inform a scientific investigation (AC SIS231, AC SIS232) 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> predicting what the findings of an investigation might be (AC SIS231, AC SIS232) 📎 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> applying experience from similar situations in the past to predict what might happen in a new situation ⚙️ 	x	x	x	x	x	x	x
	<i>Students plan investigations by:</i>							
	<ul style="list-style-type: none"> with guidance, planning appropriate investigation methods to test predictions, answer questions or solve problems including surveys, fieldwork, research and fair tests (AC SIS086, AC SIS103, AC SHE081, AC SHE098) 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> deciding which variable should be changed and measured in fair tests while keeping everything else the same (AC SIS087, AC SIS104) ⚙️ 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> collaboratively and individually selecting suitable methods for gathering data and information first-hand and from reliable secondary sources 📎 👤 ⚙️ 	x	x	x	x	x	x	x
	<i>Students conduct investigations by:</i>							
	<ul style="list-style-type: none"> working individually and collaboratively in conducting a range of appropriate investigation methods, including fair tests, to answer questions or solve problems 👤 ⚙️ 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> using suitable equipment and materials, checking observations and measurements by repeating them where appropriate 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> using equipment and materials safely, identifying potential risks (AC SIS088, AC SIS105) 👤 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> accurately observing, measuring and recording data, using digital technologies as appropriate (AC SIS087, AC SIS104) 📎 📎 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> using formal units and abbreviations for measuring and recording data 📎 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> suggesting improvements to the methods used to investigate a question or solve a problem (AC SIS091, AC SIS108) ⚙️ 	x	x	x	x	x	x	x
	<i>Students process and analyse data and information by:</i>							
	<ul style="list-style-type: none"> constructing and using a range of representations, including tables, graphs (column, picture, line and divided bar graphs) and labelled diagrams 📎 📎 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> using numerical techniques to analyse data and information, including calculating the means and percentages of small sets of data 📎 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> drawing conclusions and providing explanations based on data and information gathered first-hand or from secondary sources ⚙️ 	x	x	x	x	x	x	x
	<ul style="list-style-type: none"> comparing gathered data with predictions, and using as evidence in developing explanations of events and phenomena (AC SIS218, AC SIS221, AC SHE081, AC SHE098) ⚙️ 	x	x	x	x	x	x	x
<ul style="list-style-type: none"> reflecting on their gathered evidence in relation to: ⚙️ 								
<ul style="list-style-type: none"> – the process used to gather, process and analyse their data and information 	x	x	x	x	x	x	x	
<ul style="list-style-type: none"> – their own prior knowledge as well as accepted scientific explanations 	x	x	x	x	x	x	x	
<ul style="list-style-type: none"> – their own and others' conclusions 	x	x	x	x	x	x	x	

Content Mapping Grid – Stage 3

Living World		Station at Which Outcomes Are Met						
		1	2	3	4	5	6	7
A student: <ul style="list-style-type: none"> describes how structural features and other adaptations of living things help them to survive in their environment ST3-10LW describes some physical conditions of the environment and how these affect the growth and survival of living things ST3-11LW 								
Content	<i>Living things have structural features and adaptations that help them to survive in their environment. (ACSSU043)</i>							
	Students:							
	<ul style="list-style-type: none"> observe and describe the structural features of some native Australian animals and plants 🌿 		x					
	<ul style="list-style-type: none"> present ideas and explanations about how the structural features and behaviour of some plants and animals help them to survive in their environment, eg shiny surfaces of leaves on sand dune plants and nocturnal behaviour in some animals 🎓 ⚙️ 							
	<ul style="list-style-type: none"> research the conditions needed for a particular plant to grow and survive in its environment, eg an indoor plant, plants in deserts, drought-resistant wheat or salt-tolerant plants 🎓 							
	<i>The growth and survival of living things are affected by the physical conditions of their environment. (ACSSU094)</i>							
	Students:							
	<ul style="list-style-type: none"> identify some physical conditions of a local environment, eg temperature, slope, wind speed, amount of light and water 						x	
	<ul style="list-style-type: none"> make predictions about how changing the physical conditions of the environment impacts on the growth and survival of living things, eg different amounts of light or water on plant growth or the effect of different temperatures on the growth of yeast or bread mould ⚙️ 👤 📊 							
	<ul style="list-style-type: none"> use gathered data to develop explanations about how changing the physical conditions of the environment affects the growth and survival of living things 🎓 📊 🌿 							

Content Mapping Grid – Stage 3

Material World		Year 5				Year 6			
		Unit				Unit			
		1	2	3	4	5	6	7	4
A student: <ul style="list-style-type: none"> identifies the observable properties of solids, liquids and gases, and that changes made to materials are reversible or irreversible ST3-12MW describes how the properties of materials determine their use for specific purposes ST3-13MW 									
Content	<i>Solids, liquids and gases have different observable properties and behave in different ways. (ACSSU077)</i>								
	Students:								
	<ul style="list-style-type: none"> observe and compare the differences in the properties and behaviour of solids and liquids, eg shape and ability to flow 	x				x			
	<ul style="list-style-type: none"> demonstrate that air has mass and takes up space, eg in an inflated basketball, bubbles, balloons and beaten egg white 	x							
	<i>Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting. (ACSSU095)</i>								
	Students:								
	<ul style="list-style-type: none"> observe and describe some readily observable reversible changes that materials can undergo, eg by melting and then solidifying chocolate, and dissolving and retrieving salt or sugar from water 🌀📊 					x			
	<ul style="list-style-type: none"> make and test predictions about the effect of temperature on the state of some substances, eg adding and removing heat from water 					x			
	<ul style="list-style-type: none"> observe some irreversible changes that common materials undergo to identify that the changes may result in new materials or products, eg rusting iron, burning paper, cooking a cake and making toffee 								
	<ul style="list-style-type: none"> classify some observable changes that materials undergo as reversible or irreversible 	x			x	x			
	<i>The properties of materials determine their use for specific purposes.</i>								
	Students:								
	<ul style="list-style-type: none"> identify the properties of materials used in a familiar product and relate them to its use 								
	<ul style="list-style-type: none"> explore how materials are used in innovative ways for specific purposes, eg the use of soft-fall materials in playgrounds and geotextiles to retain water in landscaping 								
<ul style="list-style-type: none"> describe how scientific and technological knowledge about the properties of materials can be used to inform decisions about use for their specific purposes 🌀 									
<ul style="list-style-type: none"> research the reasons for and the benefits of using solid, liquid and gaseous fuels for heating 🌀🌿 									