
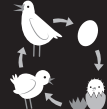



Living things have structural features and adaptations that help them to survive in their environment (ACSSU043) 		Pages
Lesson 1 What is an adaptation?	Students compare the structural features of various plants and animals before exploring how certain plants and animals have changed to suit different environments. Students find the meaning of the word <i>adaptation</i> and watch a video about how living things change over time.	4-7
Lesson 2 How have root system adaptations assisted trees to survive in Australian mangrove forests?	Students watch a video exploring some of the adaptations plants have made to survive in different environments. They then conduct an experiment to see how adaptations to root systems assist trees to survive in wet environments, such as mangrove forests. Students also <i>consider</i> the importance of mangrove forests in Australia.	8-13
Lesson 3 How have beak adaptations assisted birds to survive in Australian environments?	Students revise the external features that birds use for feeding and the types of food they eat. Students conduct an experiment to explore how different bird beak structures allow birds to eat different foods and then watch a video to see how a field biologist studies adaptations in birds.	14-17
Lesson 4 How have frillneck lizards adapted to survive in Australian forest environments?	Students explore the features of a scorpion, a thorny devil and a king brown snake and how their features help them to survive in Australian deserts. Students research the structural features and adaptations of the frillneck lizard and create a Microsoft® PowerPoint® presentation explaining how these adaptations help it to survive in Australian forest environments.	18-21
Lesson 5 How do structural and behavioural adaptations help echidnas survive in Australian environments	Students explore the external features of an echidna and predict how these features help it to survive. Students then conduct research to identify how echidnas survive cold winters, hot summers, bushfires and deadly predators. Students watch a video explaining how echidnas have adapted and compare this information to their research.	22-25
Lesson 6 What adaptations does a banksia tree have that help it survive Australian bushfires?	Students explore the flower, fruit and seed of a banksia tree by comparing images of each. Students scan a QR code to watch a video explaining how banksia trees have adapted to protect their seeds during a bushfire and how they use the bushfire to release seeds. They then answer questions about the adaptations of banksia trees.	26-28
Summative assessment	Students apply their knowledge to define adaptation and provide examples of different structural and behavioural adaptations of plants and animals that live in Australian environments.	29-30
STEM project Desert bear video	Students design and create a new species of bear that has adapted to survive in an Australian desert, and a diorama of its new environment. Students then film a video explaining how its adaptations allow it to survive in its new environment.	31-38



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
Living things have structural features and adaptations that help them to survive in their environment (ACSSU043) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) AC		✓	✓					
Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083) AC		✓						
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, pose clarifying questions and make predictions about scientific investigations (ACSI5231) AC	✓	✓	✓	✓	✓	✓		
Planning and conducting								
Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSI5086) AC	✓	✓	✓	✓	✓	✓		✓
Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSI5087) AC								
Processing and analysing data and information								
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 (ACSI5090) AC	✓	✓	✓	✓	✓	✓		✓
Compare data with predictions and use as evidence in developing explanations (ACSI5218) AC	✓		✓		✓			
Evaluating								
Reflect on and suggest improvements to scientific investigations (ACSI5091) AC		✓	✓	✓				✓
Communicating								
Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSI5093) AC	✓	✓	✓	✓	✓	✓	✓	✓



Solids, liquids and gases have different observable properties and behave in different ways (ACSSU077) 		Pages
Lesson 1 What are the common properties of each state of matter—solid, liquid and gas?	Students revise the three most common states of matter—solid, liquid and gas. Students then predict and explore the properties of each state of matter by using an iPad® to scan QR codes. Students write a definition for each state of matter, with reference to its properties.	42-45
Lesson 2 Can liquids stack on top of each other like solids?	Students compare the properties of a liquid to the properties of a solid to predict if liquids can stack on top of each other. Students experiment with this concept by creating a five-layer liquid stack, explaining why these liquids stack in simple terms.	46-47
Lesson 3 Can solids flow from one container to another like liquids?	Students compare the properties of a solid to a liquid or a gas to predict if solids can flow from one container to another. Students experiment with this concept by changing a biscuit into a substance that can pour, explaining why the biscuit crumbs appear to be 'flowing'.	48-51
Lesson 4 Does a gas have mass like liquids and solids?	Students explore the properties of gases to predict if a gas has mass and takes up space. Students conduct a balloon balancing experiment to prove that gas is matter because it has mass and volume. Students compare their experiment results to information in a video to draw conclusions about the properties of gases.	52-55
Lesson 5 How does matter change states?	Students revise their understanding of how temperature can be used to change states of matter by melting an ice-block using their body. Students conduct an experiment using Oobleck to determine if temperature is the only method for changing states of matter. Students examine the effect of applying pressure to a liquid to create a substance that behaves like a solid.	56-59
Lesson 6 Can all matter be classified as either a solid, a liquid or a gas?	Students revise the observable properties and behaviours of solids, liquids and gases. Students, then apply this knowledge to learning stations to determine if hair mousse/shaving foam, jelly, Playdough, mayonnaise and hair gel are solids, liquids or gases.	60-63
Summative assessment	Students explain their knowledge of the properties and behaviours of solids, liquids and gases and give examples of each state. Students then apply their knowledge of states of matter and changing states to two practical contexts.	64-66
STEM project Model vehicle with an alternative 'fuel' source.	Students follow a design brief to plan and create a vehicle that is powered by a 'fuel' that is made by combining a household solid and a liquid to produce a gas.	67-74



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
Solids, liquids and gases have different observable properties and behave in different ways (ACSSU077) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) AC		✓	✓	✓	✓	✓		✓
Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083) AC			✓	✓	✓	✓	✓	✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, pose clarifying questions and make predictions about scientific investigations (ACSI5231) AC	✓	✓	✓	✓	✓	✓		✓
Planning and conducting								
Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSI5086) AC	✓	✓	✓	✓	✓	✓		✓
Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSI5087) AC			✓	✓				✓
Processing and analysing data and information								
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 (ACSI5090) AC	✓	✓	✓	✓	✓	✓	✓	✓
Compare data with predictions and use as evidence in developing explanations (ACSI5218) AC	✓	✓	✓	✓	✓	✓		✓
Evaluating								
Reflect on and suggest improvements to scientific investigations (ACSI5091) AC		✓	✓	✓				✓
Communicating								
Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSI5093) AC	✓	✓	✓	✓	✓	✓	✓	✓



The Earth is part of a system of planets orbiting around a star (the sun) (ACSSU078)		Pages
Lesson 1 What is our solar system and what features does it have?	Students recall their prior knowledge of the solar system and it's features to record as much information as they can about each feature. Students then watch a video and answer questions about space, including our galaxy, and the planets and dwarf planets in our solar system	78-81
Lesson 2 How big are the planets in our solar system and how far apart are they?	Students view an image of our solar system to predict if it is a realistic representation of the size of our solar system. Students research the diameter of each planet, the sun and Earth's moon, and the distance between each planet by multiplying a scaled-distance by a scale. Students demonstrate the distance between planets, using a scaled model.	82-87
Lesson 3 Do all planets rotate and revolve around the sun at the same speed?	Students briefly explore the solar system using a 360° video. Students then recall their knowledge of Earth's rotation and revolution, before exploring the rotation periods and orbital periods of each planet in our solar system. Students use this information to compare the different speeds at which planets rotate on their axis and orbit around the sun.	88-90
Lesson 4 What are terrestrial planets?	Students explore what is meant by a terrestrial (or rocky) planet and identify which planets in our solar system are terrestrial planets—Mercury, Venus, Earth and Mars. In pairs, students research the surface and atmosphere conditions of one of the terrestrial planets, to create a poster using a word processing tool. Students then use an online dictionary to find the meaning of a terrestrial planet.	91-93
Lesson 5 What are Jovian planets?	Students explore what is meant by a jovian (or gas) planet and identify which planets in our solar system are jovian planets—Jupiter, Saturn, Uranus and Neptune. Students research each of the jovian planets to identify the difference between the conditions on the gas giants, Jupiter and Saturn, and the ice giants, Uranus and Neptune.	94-97
Lesson 6 How do scientists explore planets in our solar system?	Students watch a video of the Apollo moon landing and predict how scientists are able to explore terrestrial and jovian planets in our solar system. Students research the space probes Curiosity, Juno and Cassini to see how scientists have been able to learn about the conditions on Mars, Jupiter and Saturn. Students then view a timeline of significant developments in space exploration.	98-101
Summative assessment	Students demonstrate their knowledge of our solar system by labelling a diagram, defining a solar system, identifying the difference between terrestrial and jovian planets and explaining how scientists explore planets in our solar system.	102-104
STEM project Solar system documentary	Students apply their science knowledge to design and create a documentary that demonstrates what other planets in our solar system are like. Students create a scaled-model of each planet to film and explain during the documentary.	105-112



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
The Earth is part of a system of planets orbiting around a star (the sun) (ACSSU078) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) AC	✓	✓	✓	✓	✓	✓	✓	✓
Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083) AC						✓		✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, pose clarifying questions and make predictions about scientific investigations (ACSI5231) AC	✓	✓	✓	✓	✓	✓		
Planning and conducting								
Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSI5086) AC	✓	✓	✓	✓	✓	✓		✓
Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSI5087) AC								
Processing and analysing data and information								
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 (ACSI5090) AC	✓	✓	✓	✓	✓	✓	✓	✓
Compare data with predictions and use as evidence in developing explanations (ACSI5218) AC	✓	✓	✓	✓	✓	✓		
Evaluating								
Reflect on and suggest improvements to scientific investigations (ACSI509) AC			✓					
Communicating								
Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSI5093) AC	✓	✓	✓	✓	✓	✓	✓	✓



Light from a source forms shadows and can be absorbed, reflected and refracted (ACSSU020) AC		Pages
Lesson 1 What is light and how does it help our eyes to see?	Students investigate how light travels in straight paths and reflects or bounces off objects into the path of our eyes, where our brain interprets the light waves to see the object(s) illuminated. Students then experiment with using a mirror to reflect light from the sun onto objects in the playground.	116-117
Lesson 2 Why are some objects coloured and some objects see through? Why can we only partially see through some objects?	Students conduct internet research to learn the difference between the appearance of transparent, translucent and opaque objects; and how light behaves when it contacts each type of object. Students then take a digital photograph of each type of object and create a digital presentation to explain how light behaves when it contacts each object, using labels on the photographs and audio recordings.	118-121
Lesson 3 What is white light and how does it refract through transparent objects to form rainbows?	Students predict how rainbows are formed by sunlight and raindrops and then experiment to create a rainbow by shining a torch onto a cup of water. Students discover how light refracts or bends when it contacts a transparent object at an angle, and separates into different wave lengths which our eyes perceive as a rainbow.	122-123
Lesson 4 Why do we see objects in colour?	Students explore how our eyes see objects in colour or in black and white, depending on how light is transmitted, reflected or absorbed by an object. They conduct an online colour mixing interactive game to explore how different combinations of red, green and blue light waves reflected by an object, affect the colour we perceive the object to be.	124-127
Lesson 5 How do shadows form and why are they not always the same size or shape?	Students watch a hand shadow puppet video then predict how shadows are formed, and the types of objects that cast shadows, using their understanding of the behaviour of light. Students conduct an experiment to compare the shadows cast by a translucent and an opaque object when the light source is held at different distances from the object and the in in different positions.	128-131
Lesson 6 How do coloured shadows form? Are they always the same colour as the object or the light source?	Students predict how coloured shadows are formed, then conduct an online interactive activity to compare the shadows cast by red, green and blue light bulbs, when two or three light bulbs are turned on. Students discover how yellow, cyan and magenta shadows are formed when red, green and blue lights shine on an object at the same time.	132-135
Summative assessment	Students reflect on their understanding of the behaviour of light, how our eyes see objects, and how shadows are formed to complete the assessment.	136-138
STEM project Cellophane sunglasses	Students design and create a pair of temporary sunglasses using craft materials, with lenses made from a combination of different coloured cellophane layers, that block out sunlight without changing the colour an object appears. Students create a simple budget to plan how long it will take to save enough pocket money to buy new sunglasses.	139-146



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
Light from a source forms shadows and can be absorbed, reflected and refracted (ACSSU080) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) AC	✓	✓	✓	✓	✓	✓		
Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083) AC	✓	✓	✓	✓	✓	✓		✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, pose clarifying questions and make predictions about scientific investigations (ACSI5231) AC	✓	✓	✓	✓	✓	✓		
Planning and conducting								
Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSI5086) AC	✓	✓	✓	✓	✓	✓		✓
Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSI5087) AC			✓	✓	✓	✓		
Processing and analysing data and information								
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 (ACSI5090) AC	✓	✓	✓	✓	✓	✓	✓	✓
Compare data with predictions and use as evidence in developing explanations (ACSI5218) AC		✓	✓	✓	✓			
Evaluating								
Reflect on and suggest improvements to scientific investigations (ACSI5091) AC			✓		✓			
Communicating								
Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSI5093) AC	✓	✓	✓	✓	✓	✓	✓	✓