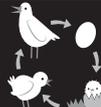


Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044) AC		Pages
Lesson 1 What do you know about living and non-living things?	Students recall prior knowledge to photograph and sort living things from non-living things and discuss the difficulties in identifying living from non-living. Students uncover misconceptions and attempt to define living and non-living things.	4-6
Lesson 2 What is the difference between living, once-living and a product of a living thing?	Students explore the link between living, once living and product of a living thing, and create class definitions. Students then investigate stations set up with various items to classify into one of the categories.	7-13
Lesson 3 What are living things? What characteristics do they have in common?	Students investigate the similarities and differences between a selected plant and animal. As a class, identify seven characteristics that all living things share and explore this further with the aid of QR codes linked to videos.	14-19
Lesson 4 What are the observable features of plants? How can plants be grouped? How are plants the same and different from each other? <i>(May extend over 2 lessons.)</i>	Students act as botanists and explore the classification of plant leaves as a class, identifying appropriate questions to assist in developing a classification key. Students then collect leaves and create their own classification key.	20-23
Lesson 5 What are the observable features of animals? How can animals be grouped? How are animals different from each other? <i>(May extend over 2 lessons.)</i>	Students act as biologists and attempt to sort animal cards into smaller categories according to features. Students are exposed to the classification system according to kingdom, phylum, class, order, family, genus, species, and further explore the characteristics of the phylum of vertebrates including the classes of bird, mammal, fish, amphibian and reptile.	24-31
Summative assessment	Assess students understanding of the science knowledge covered in the unit.	32-33
STEM project 3D habitat	Students take a photograph of a local environmental site and apply their knowledge to identify living, non-living, once-living things and products of living things. Students create a 3D model and accompanying video. The video can then be linked to the Aurasma application, using the photograph of the habitat as a 'trigger' to launch the video.	34-41



Curriculum scope and sequence

	Lesson						
	1	2	3	4	5	Assessment	STEM Project
SCIENCE UNDERSTANDING							
Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044) AC	✓	✓	✓	✓	✓	✓	✓
SCIENCE INQUIRY SKILLS							
Questioning and predicting							
With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACIS053) AC	✓	✓	✓	✓	✓		
Planning and conducting							
With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (ACIS054) AC	✓	✓	✓	✓	✓		✓
Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (ACIS055) AC	✓						
Processing and analysing data and information							
Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACIS057) AC	✓	✓	✓	✓	✓		✓
Compare results with predictions, suggesting possible reasons for findings (ACIS215) AC		✓					
Evaluating							
Reflect on investigations, including whether a test was fair or not (ACIS058) AC	✓	✓		✓	✓		
Communicating							
Represent and communicate observations, ideas and findings using formal and informal representations (ACIS060) AC		✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR							
Science involves making predictions and describing patterns and relationships (ACSHE050) AC	✓	✓	✓	✓	✓		✓
Science knowledge helps people to understand the effect of their actions (ACSHE051) AC				✓	✓		✓



A change of state between solid and liquid can be caused by adding or removing heat (ACSSU046)		Pages
<p>Lesson 1</p> <p>What do you know about solids, liquids and gases? Can a liquid become a solid? Can a solid become a liquid?</p>	<p>This lesson is to establish students' prior knowledge about three states of matter—solid, liquid and gas. Students discuss what they think makes a solid become a liquid and vice versa.</p>	46-49
<p>Lesson 2</p> <p>What makes solid ice change into a liquid? What causes melting? Does the amount of heat affect the time it takes for ice to melt?</p>	<p>Students conduct an experiment to explore how solid ice changes to a liquid and how the amount of heat added affects the ability to melt a solid.</p>	50-53
<p>Lesson 3</p> <p>What other solids melt? Does the size of a solid affect the time it takes to melt?</p>	<p>Students conduct an experiment to determine if the size of a solid chocolate piece affects its ability to melt when heated.</p>	54-57
<p>Lesson 4</p> <p>What makes a liquid change to a solid? What effect does freezing have on a liquid?</p>	<p>Students explore how a liquid becomes a solid by conducting an experiment to create ice cream. Students discuss liquids that become solids through freezing.</p>	58-61
<p>Lesson 5</p> <p>Can a solid change to a liquid and then back to a solid? What is a reversible change?</p>	<p>Students explore multiple reversible changes by conducting an experiment using solid wax crayon pieces, melted to a liquid and cooled to form a solid crayon again.</p>	62-66
<p>Lesson 6</p> <p>How is changing between solid and liquid useful for recycling?</p>	<p>Students explore the aluminium recycling process and relate it to the melting and cooling of solids and liquids. Students then research glass and plastic recycling and present their findings in a flowchart with accompanying audio using an iPad® application; e.g. ShowMe.</p>	67-71
<p>Summative assessment</p>	<p>Assess students' understanding of how solids change to liquids through melting (adding heat), and how liquids change to solids through freezing (removing heat).</p>	72-73
<p>STEM project</p> <p>Cooking with science</p>	<p>Design and make a recipe involving melting or freezing, and create a cooking segment video clearly depicting the changing states of matter.</p>	74-84



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
A change of state between solid and liquid can be caused by adding or removing heat (ACSSU046) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACSI053) AC	✓	✓	✓	✓	✓	✓		
Planning and conducting								
With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (ACSI054) AC		✓	✓	✓	✓	✓		✓
Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (ACSI055) AC		✓	✓					✓
Processing and analysing data and information								
Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSI057) AC	✓	✓	✓			✓		
Compare results with predictions, suggesting possible reasons for findings (ACSI215) AC		✓	✓	✓	✓			
Evaluating								
Reflect on investigations, including whether a test was fair or not (ACSI058) AC		✓	✓	✓		✓		✓
Communicating								
Represent and communicate observations, ideas and findings using formal and informal representations (ACSI060) AC		✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves making predictions and describing patterns and relationships (ACSHE050) AC		✓	✓	✓	✓	✓		✓
Science knowledge helps people to understand the effect of their actions (ACSHE051) AC		✓	✓	✓	✓	✓		✓

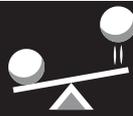


Earth's rotation on its axis causes regular changes, including night and day (ACSSU048) AC		Pages
<p>Lesson 1</p> <p>What do you know about day and night?</p> <p>What do you know about the sun, moon and Earth?</p>	<p>This lesson is to establish what the students believe to be true about the sun, moon and Earth, and what causes day and night. Any misconceptions should become clear as they reflect on Dreamtime stories about the sun and moon and create concept maps of their prior knowledge.</p>	88-90
<p>Lesson 2</p> <p>What causes shadows and how do they change throughout the day?</p>	<p>Students predict and investigate how shadows change throughout the day, by tracing their own shadow at different times and monitoring the position of the sun.</p>	91-96
<p>Lesson 3</p> <p>Why does the sun appear to move across the sky?</p> <p>What causes day and night?</p>	<p>Students conduct research on how Earth moves, what causes shadows to change throughout the day and what causes night and day. Students demonstrate Earth's rotation by creating a styrofoam model.</p>	97-100
<p>Lesson 4</p> <p>What size are the sun, moon and Earth?</p> <p>How far away from Earth are the sun and moon?</p>	<p>Students explore the reason why the sun and moon appear to be the same size, and recreate the perspective seen from Earth using different-sized balls and a digital camera.</p>	101-105
<p>Lesson 5</p> <p>What does revolution mean?</p> <p>What is the relationship between the sun, moon and Earth?</p> <p>What impact does this have on our daily lives?</p>	<p>Students explore patterns in daily life and examine the link to the sun, moon and Earth. Students role-play the relationship between the sun, moon and Earth, depicting rotation and revolution.</p>	106-109
<p>Lesson 6</p> <p>Why does the shape of the moon keep changing?</p>	<p>Students investigate why the moon appears to change shape by constructing a moon viewer. This demonstrates the different angles of the half-lit moon that can be viewed from Earth, therefore making it appear to change.</p>	110-115
<p>Summative assessment</p>	<p>Assess students' understanding of rotation and revolution, how this causes day and night, and the time it takes Earth to rotate and revolve.</p>	116-118
<p>STEM project</p> <p>Podcast interview</p>	<p>Plan and create a science show podcast. Students will conduct a mock interview of a 'famous space scientist' about how our everyday lives are affected by rotation and revolution involving the sun, moon and Earth.</p>	119-126



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
Earth's rotation on its axis causes regular changes, including night and day (ACSSU048) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACSI053) AC	✓	✓	✓	✓	✓	✓		
Planning and conducting								
With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (ACSI054) AC		✓	✓	✓	✓	✓		✓
Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (ACSI055) AC		✓		✓				✓
Processing and analysing data and information								
Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSI057) AC		✓	✓	✓	✓	✓		
Compare results with predictions, suggesting possible reasons for findings (ACSI215) AC		✓		✓		✓		
Evaluating								
Reflect on investigations, including whether a test was fair or not (ACSI058) AC		✓		✓		✓		✓
Communicating								
Represent and communicate observations, ideas and findings using formal and informal representations (ACSI060) AC		✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves making predictions and describing patterns and relationships (ACSHE050) AC	✓	✓	✓	✓	✓	✓		
Science knowledge helps people to understand the effect of their actions (ACSHE051) AC								



Heat can be produced in many ways and can move from one object to another (ACSSU049) 		Pages
<p>Lesson 1</p> <p>What does it mean if something is hot? Is heat the same as temperature?</p>	Engage students with a concept cartoon and a book about heat. Establish their prior knowledge and understanding of what heat and temperature mean. Students complete a KWL chart.	130-133
<p>Lesson 2</p> <p>What is heat? Is heat visible?</p>	Students explore what heat is in scientific terms and conduct an experiment that makes heat energy visible.	134-136
<p>Lesson 3</p> <p>What is temperature? What does a thermometer do?</p>	Students explore how to measure heat with a thermometer. They examine a thermometer and gain an understanding of how to read the degrees.	137-142
<p>Lesson 4</p> <p>How can heat be created?</p>	Students explore how heat is produced via friction, electricity and burning. Students observe various stations and record how heat is produced at each.	143-148
<p>Lesson 5</p> <p>How does heat move? What is conduction? What materials are good conductors?</p>	Students explore how heat moves by discussing three types of heat transfer—conduction, convection and radiation. Students focus on conduction through an experiment to determine what material (wood, metal or plastic) makes a good conductor.	149-155
<p>Lesson 6</p> <p>What are insulators? What materials are good insulators?</p>	Students examine what an insulator does, and investigate which materials make good insulators by conducting an experiment to try and keep the heat in a warm cup of water.	156-160
<p>Summative assessment</p>	Assess students' understanding of heat, how heat is produced, how heat moves through conduction and how heat moves slower through insulators.	161-162
<p>STEM project</p> <p>Just chillin'</p>	Students apply their knowledge about what heat is, how it transfers, heat conduction and insulation, to create a design to keep the water in a bottle cool.	163-171



Curriculum scope and sequence

	Lesson							
	1	2	3	4	5	6	Assessment	STEM project
SCIENCE UNDERSTANDING								
Heat can be produced in many ways and can move from one object to another (ACSSU049) AC	✓	✓	✓	✓	✓	✓	✓	✓
SCIENCE INQUIRY SKILLS								
Questioning and predicting								
With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (ACSI053) AC	✓	✓	✓	✓	✓	✓		✓
Planning and conducting								
With guidance, plan and conduct scientific investigations to find answers to questions, considering the safe use of appropriate materials and equipment (ACSI054) AC		✓	✓	✓	✓	✓		✓
Consider the elements of fair tests and use formal measurements and digital technologies as appropriate, to make and record observations accurately (ACSI055) AC					✓	✓		✓
Processing and analysing data and information								
Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSI057) AC		✓	✓	✓	✓	✓		✓
Compare results with predictions, suggesting possible reasons for findings (ACSI215) AC		✓	✓	✓	✓	✓		
Evaluating								
Reflect on investigations, including whether a test was fair or not (ACSI058) AC		✓		✓	✓	✓		✓
Communicating								
Represent and communicate observations, ideas and findings using formal and informal representations (ACSI060) AC		✓	✓	✓	✓	✓	✓	✓
SCIENCE AS A HUMAN ENDEAVOUR								
Science involves making predictions and describing patterns and relationships (ACSHE050) AC	✓	✓	✓	✓	✓	✓	✓	✓
Science knowledge helps people to understand the effect of their actions (ACSHE051) AC				✓	✓	✓		✓