Night and Day – Stage 2

Earth and Space Strand

Term	1	2	3	4	Weeks	1	2	3	4	5	6	7	8	9	10	11

Outcome	Lesson Sequence – Overview	Resources	Word Wall
ST2-10ES-S investigates regular changes caused by interactions between the Earth and the Sun, and changes to the Earth's surface • describe the difference between night and day • describe the cause of night • describe the movements of the Sun, Earth and Moon to cause night and day. ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations • contribute to discussions about night and day • create an annotated drawing to show the movements of the Sun, Earth and	**Lesson 1** Night and day notions – Lesson focus p11 • To capture students' interest and find out what they think they know about how the Earth's rotation on its axis causes regular changes, including night and day. • To elicit students' questions about what causes night and day. Students: • *brainstorm ideas about night and day* • *choose reasons for why it is dark at night* • *draw the Sun, Earth and Moon showing how night and day happen*	For the class • class science journal • word wall • images of night and day scenes • 1 enlarged copy of 'Where's the Sun?' (Resource sheet 1) For each student • student science journal • 1 copy of 'Where's the Sun?' (Resource sheet 1)	*axis* *change* *compass* *dark* *day* *diagram* *direction* *distance* *Earth* *East* *hemisphere* *interaction* *journal* *length* *light*

Moon to cause night and day • describe the purpose and features of an annotated drawing • contribute to the beginning of a word wall.			measure model moon movement night North observe opaque orbit position rays record revolution rotation scale science shadow sky
ST2-10ES-S investigates regular changes caused by interactions between the Earth and the Sun, and changes to the Earth's surface • describe the spherical shapes of the Sun, Earth and Moon • compare the relative sizes of the Sun, Earth and Moon • explain why the Sun looks the same size as the Moon when viewed from Earth ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations • contribute to discussions on the shapes and sizes of the Sun, Earth and Moon	Lesson 2 <u>Shapes and sizes – Lesson focus p17</u> • To provide students with hands-on, shared experiences of the shapes, relative sizes and positions of the Sun, Earth and Moon. <u>Students:</u> • *view images of the Sun, Earth and Moon* • *investigate the relative sizes of the Sun, Earth and Moon* • *use spherical objects to explore why the Sun and Moon appear to be the same size when viewed from Earth.*	For the class • contribute to discussions on the shapes and sizes of the Sun, Earth and Moon • use 3-D models to develop understanding of the shapes and sizes of the Sun, Earth and Moon • demonstrate their understanding of scale in relation to representing the sizes of the Sun, Earth and Moon For each team • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • 1 tennis ball • 1 basketball	

• use 3-D models to develop understanding of the shapes and sizes of the Sun, Earth and Moon • demonstrate their understanding of scale in relation to representing the sizes of the Sun, Earth and Moon			spherical South surface transparent West
ST2-10ES-S investigates regular changes caused by interactions between the Earth and the Sun, and changes to the Earth's surface • describe changes in size and direction of shadows during a day • describe apparent movement of the Sun across the sky from East to West each day • describe how shadows are made • observe light and shaded sides of objects in sunlight. ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using	Lesson 3 <u>Shadows at play – Lesson focus p22</u> • To provide students with hands-on, shared experiences of shadows and light. <u>Students:</u> • *play shadow tag* • *observe and discuss changes in shadows around the school.*	For the class • class science journal • team roles chart • team skills chart • word wall • T-chart from Lesson 1 • 1 ruler or shadow puppet • strong light or torch • 1 popstick • 1 piece of plasticine or clay • *optional:* digital camera For each team • role wristbands or badges for Director, Manager and Speaker • each team member's science journal	

scientific representations • discuss observations of light and shadows • draw a labelled diagram of own shadow • record ideas about light and shadows.			
ST2-10ES-S investigates regular changes caused by interactions between the Earth and the Sun, and changes to the Earth's surface • spinning of the Earth on its axis causes night and day • demonstrate through role-play that the Earth orbits the Sun and the Moon orbits the Earth. ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations • use oral language and role-play to represent their understanding of the rotation of the Earth • complete a labelled diagram to represent	# Lesson 4 <u>In a spin – Lesson focus p27</u> • To support students to represent and explain their understanding of how Earth's rotation on its axis causes night and day, and to introduce current scientific views. <u>Students:</u> • *use models to explain their ideas of how the Earth and Sun cause night and day* • *participate in role-plays to explain how the spinning of the Earth on its axis as it orbits the Sun causes night and day* • *represent their new understanding of night and day in a labelled diagram.*	For the class • class science journal • team roles chart • team skills chart • word wall • 1 light source (eg, lamp, torch, data projector or overhead projector) • 1 world globe or ball (eg, netball or basketball) • labels with 'Sun', Earth' and Moon • 1 enlarged copy of 'The spinning Earth' (Resource sheet 2) For each team • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • props to represent Earth and Sun (eg, different-sized balls or spheres, plasticine, torches) • 1 copy of 'The spinning Earth' (Resource sheet 2) per team member	

how night and day are caused by Earth's rotation • identify the limitations of models in showing how the Earth rotates			
ST2-10ES-S investigates regular changes caused by interactions between the Earth and the Sun, and changes to the Earth's surface • plan and conduct an investigation of the effect of time of day on length and direction of shadows • record observations and measurements • construct a graph to represent their results. ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations • discuss and compare ideas about how shadows change during a day • use a table and a column graph to represent findings	# Lesson 5 Investigating shadows – Lesson focus p33 • To support students to plan and conduct an investigation of the length and direction of shadows during one day. Session 1 Planning it out Students: • *plan an investigation* • *select variables to be changed, measured or kept the same.* Session 2 One o'clock, two o'clock ... Students: • *conduct an investigation* • *observe and record results.* Session 3 Shadows rock! Students: • *create a table with measurements of shadows* • *create a column graph to represent and compare measurements* • *discuss and summarise results of investigation.*	Session 1 For the class • class science journal • team roles chart • team skills chart • word wall • 1 enlarged copy of 'Shadow stick investigation planner' (Resource sheet 3) • selection of 'shadow sticks' (eg, rulers, sticks) (see 'Preparation') • self-adhesive notes For each team • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • 1 copy of 'Shadow stick investigation planner' (Resource sheet 3) for each team member Session 2 For the class • class science journal • team roles chart • team skills chart	

• describe the features of fair testing • summarise results of an investigation.		• word wall • magnetic compass For each team • role wristbands or badges for Director, Manager and Speaker • each team member's journal • each team member's copy of 'Shadow stick investigation planner' (Resource sheet 3) • shadow stick (eg, a stick weighted with a ball of clay or plasticine) • large sheet of paper for recording shadows • *optional:* digital camera Session 3 For the class • class science journal • team roles chart • team skills chart • word wall For each team • role wristbands or badges for Director, Manager and Speaker • each team member's journal • each team member's copy of 'Shadow stick investigation planner' (Resource sheet 3)	
ST2-10ES-S investigates regular changes caused by	Lesson 6 <u>Spinning in space – Lesson focus p45</u>	For the class • class science journal • word wall	

interactions between the Earth and the Sun, and changes to the Earth's surface • describe the shapes and relative sizes of the Sun, Earth and Moon • explain how night and day are caused by the Earth rotating on its axis. ST2-1WS-S questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations • use written, oral and visual language to describe their understanding of the Sun, Earth and Moon moving in space • construct an annotated drawing to represent and communicate what they learned about the Sun, Earth and Moon, and night and day • reflect on their learning using a science journal entry.	• To provide opportunities for students to represent what they know about how the Earth's rotation on its axis causes regular changes, including night and day, and to reflect on their learning during the unit. <u>Students:</u> • *review and discuss the unit* • *review ideas on night and day from Lesson 1* • *create an annotated drawing to represent their knowledge and understanding of the movements of the Sun, Earth and Moon to cause night and day* • *reflect on their learning during the unit.* • *represent their new understanding of night and day in a labelled diagram.*	For each student • student science journal • 1 copy of 'Where's the Sun?' (Resource sheet 1) • their completed copy of 'Where's the Sun?' (Resource sheet 1) from Lesson 1 • 1 x A3 sheet of paper	
