



Lesson 1

Topic: Australian Aboriginal astronomy

Exploring the night sky

Learning alerts and misconceptions

- Be aware of students thinking that stars are stationary.

Suggested next steps for learning

- Inform students that stars move but are so far away that the movement is not noticeable.

Lesson notes

Aboriginal and Torres Strait Islander histories and cultures in this lesson

Students will develop an awareness of Aboriginal peoples' knowledge of the night sky.

Knowledge of the night sky was used traditionally by the Indigenous peoples of Australia. This knowledge is still used in some regions and is shared through rock engravings, rock art and oral histories such as song, story and dance.

Note: Aboriginal and Torres Strait Islander students are warned that the lesson may contain images, names and voice of deceased persons.

Lesson answers

1. For example: the moon, stars, planets, comets, constellations
 - a) The moon, stars, planets and comets all move.
2.
 - a) Every year, in autumn around April to May, the image of an emu appears in the Milky Way.
 - b) Just under the Southern Cross is a dark spot which is the head of the emu, and its body stretches out across the Milky Way.
 - c) This Dreaming story 'Emu in the sky' assists the Kamilaroi people to know when it is time to gather emu eggs.
3. For example: Astronomy and the night sky are important to Indigenous Australians because stars are useful for navigation and inform when specific events are occurring on land or at sea.

Lesson 2

Topic: Challenges to space exploration

Lunar landing

Learning alerts and misconceptions

- Be aware of students thinking that items needed for survival on the moon and in space are the same as items needed on Earth.

Suggested next steps for learning

- Explain to students that different items might be necessary to survive on the moon because of the different conditions on Earth and the moon.

Lesson notes

In this lesson, students will review their understanding of Earth's moon and consider what they might need to survive on its surface.

Lesson answers

1. a) True
b) False
c) False
d) True
e) False
f) False
g) True
h) False
2. For example: an oxygen supply, a water supply, a food supply, clothing and shelter to keep a comfortable body temperature and to stay safe from solar radiation.
3. a) Personal response required.
b) For example: We both put oxygen as number 1 and water as number 2. I put the map as number 3 but the scientist put food. We both put the first aid kit as number 5.

Lesson 3

Topic: Space-based discoveries

Investigating space technology in the home

Learning alerts and misconceptions

- Be aware of students thinking that space technology is limited to rockets and space suits.

Suggested next steps for learning

- Explain that materials and technology can have more than one use.

Lesson notes

In this lesson, students will investigate the inventions that were created for use in space travel and explore how this space technology has impacted on our daily lives.

There are several activities where the students need access to the internet to complete them. If students do not have access to the internet they can skip Questions 2 b. & c. and 3.

Lesson answers

1. For example: rockets, spacecraft, space shuttle, the ISS, satellites, space boots, astronaut suits.
2. a) For example: ear thermometers, athletic shoes, water filters, clothing, pillows, mattresses, telephone.
b) No answer required.
c) For example: polarised sunglasses, golf club, golf ball, ski jacket, water purifier, ski boots, baby formula, cordless drill, bicycle wheel, infrared thermometer, athletic shoes, computer joystick, exercise equipment, portable electric cooler, bicycle helmet, memory foam, pillows.
3. For example:

Space technology	Space use	Everyday use
Infrared thermometers	To measure the temperature of stars and planets	The infrared ear thermometer measures energy emitted from a person's eardrum to measure their temperature in a few seconds.
Anti-ice system	Used on spacecraft	Used for planes on Earth to fly through icy conditions
Fire-resistant material	Used by NASA for Apollo spacecraft	Used to make fire-retardant paints and foams for planes

4. a) For example: In space, the technology used in thermometers allowed scientists to measure the temperature of distant stars to find out more about the stars without having to get close to them which would not be possible.
b) For example: In the home, the technology allows people to be able to take the temperature of a sick person quickly and easily without even needing to wake them up.
5. Personal response required.