Chapter 9: Earth, Sun and Moon

Challenge 9.1: Modelling how the Earth moves in space

Experiment worksheet answers (pages 156–157 and 211)

Discussion

How many times should the Earth spin in one orbit?

365.25 times

During what phase of the Moon does a solar eclipse occur?

Full moon

Challenge 9.2: Modelling the phases of the moon

Experiment worksheet answers (pages 158–159 and 212)

Discussion

1 Does this explain why we only see one side of the Moon?

Student answers will vary. Answers should reflect the slow rotation of the moon as it orbits the Earth so that the same side of the moon faces the Earth at all times.

2 When people refer to the ‘dark side of the Moon’, are they always talking about exactly the same side?

No. The dark side of the moon is the side that faces away from the Sun. This will vary as the moon orbits the Earth.

Challenge 9.3: Modelling the seasons

Experiment worksheet answers (pages 160–161 and 212)

Questions

1 When you have walked half a circle around your Sun, stop and look at the model Earth. How is it different? Which part of the Earth is having summer?

Student answers will vary.

2 How did the seasons change on one point of the ball as it moved around the Sun?

Student answers will vary according to the point they chose on the ball.

3 A student claimed it is hotter in summer because Australia is closer to the Sun. Are they correct? Provide evidence from your model to support your answer.

No. Australia is hotter in summer because the Sun is higher in the sky and spends more time warming the earth and the air. Students should refer to their model to support their answer.