

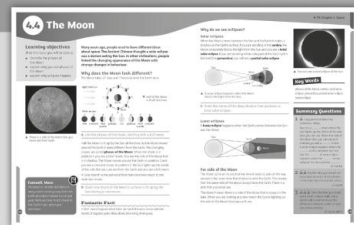
4.4 The Moon

Physics NC link:

- use of ray model.

Working Scientifically NC link:

- make predictions using scientific knowledge and understanding.



Band	Outcome	Checkpoint	
		Question	Activity
Developing	Name some phases of the Moon (Level 4).	A, 1	
	Explain simply why we see the Moon from Earth (Level 4).		Main
	Describe what a total eclipse is (Level 4).	1	
	Show the different phases of the Moon using models provided (Level 4).		Main
Secure	Describe the phases of the Moon (Level 5).	1	Main, Starter 2, Plenary 2
	Explain why we see the phases of the Moon (Level 6).		Main
	Explain why total eclipses happen (Level 6).	1, 3	Main
	Explain phases of the Moon using the models provided (Level 6).		Main
Extending	Predict phases of the Moon at a given time (Level 7).		Plenary 1
	Explain how total eclipses are linked to phases of the Moon (Level 8).		Main
	Explain why it is possible to see an eclipse on some of the planets in the Solar System but not others (Level 7).	2	
	Predict the phases of the Moon using models provided (Level 8).		Main

Maths

The student-book activity asks students to carry out a simple calculation to work out the distance between the Moon and the Earth at a given time.

Literacy

Students use scientific vocabulary when writing about the phases of the Moon in the starter and plenary tasks. Students summarise scientific text for key ideas in their homework.

APP

Use of models to demonstrate the phases of the Moon (AF1). Students choose appropriate methods to present observations (AF3).

Key Words

solar eclipse, phases of the Moon, total eclipse, partial eclipse, lunar eclipse

Answers from the student book

In-text questions	<p>A full moon, waning gibbous, last quarter, waning crescent, new moon, waxing crescent, first quarter, waxing gibbous</p> <p>B Half the Moon is lit up at all times.</p> <p>C umbra</p>
Activity	<p>Farewell, Moon</p> <p>Distance = your age × 3.8 cm/year</p> <p>= 11 years × 3.8 cm/year</p> <p>= 41.8 cm</p>

Summary questions	<p>1 full, new, Moon, Earth, Earth, Moon (6 marks)</p> <p>2 There will be eclipses on any other planet that has one or more moons.</p> <p>3 6 mark question. Example answers:</p> <p>Put the torch on the desk and switch it on.</p> <p>Label the tennis ball 'Moon'.</p> <p>Label the beach ball 'Earth'.</p> <p>For a solar eclipse, hold the tennis ball between the beach ball and the torch.</p> <p>There is a shadow cast by the tennis ball on the beach ball.</p> <p>For a lunar eclipse, hold the beach ball between the tennis ball and the torch.</p>
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Starter	Support/Extension	Resources
<p>Check the facts (5 min) Check misconceptions/prior knowledge with five short questions. Students may think that the Moon changes shape or clouds change its appearance, that it always appears in the same part of the sky, and that it gives out its own light. Possible questions: Does the Moon change shape? Is the Moon bigger/closer than the Sun? What is a full/new moon? Is the Moon seen in the same place each night/during the night?</p> <p>How does the Moon change? (5 min) Students write down how the Moon changes in as much detail as possible, for example, timescale, what they see, where it is, and when it is seen.</p>	<p>Support: Provide multiple choice answers.</p> <p>Extension: Students explain answers and offer more detail.</p>	
Main	Support/Extension	Resources
<p>The Moon and eclipses (40 min) Students model the phases of the Moon and eclipses using the instructions on the practical sheet. Students then answer the questions on the practical sheet.</p>	<p>Support: Clarify these concepts using animations and diagrams. A support sheet is available with partially drawn diagrams for students to complete.</p> <p>Extension: Students suggest why we don't see eclipses every day/month.</p>	<p>Practical: The Moon and eclipses</p>
Plenary	Support/Extension	Resources
<p>What does it look like? (10 min) Draw a phase of the Moon (e.g., full moon). Students describe its appearance in future or the past, for example, in a week's time/two weeks' time/a week ago. This can be done in conjunction with the interactive gap fill as a summary.</p> <p>How does the Moon change? (Part 2) (5 min) Students revisit their answers at the start of the lesson to see how much more detail they can add.</p>	<p>Support: Provide cards with images to sort.</p> <p>Extension: Predict appearance (phases) of Earth for an astronaut on the Moon.</p>	<p>Interactive: What does it look like?</p>
Homework	Support/Extension	Resources
<p>Provide students with accounts to read from people/news articles of solar or lunar eclipses. Students must then write a summary paragraph explaining what was seen.</p>	<p>Extension: Students should relate their summary to the relative positions of the Sun, Earth, and Moon.</p>	

Resources