

Nova's Solar System Expedition

Learning objective: To describe the movement of the Earth and other planets relative to the Sun in the solar system, and to use the idea of the Earth's rotation to explain day and night.

Read each question carefully and use your scientific knowledge of space to provide detailed answers. Remember to use the vocabulary from the word bank to support your explanations.

Word bank: orbit · axis · rotate · spherical · solar system · gravity · day · night

1. Nova the owl is stargazing. She observes that the Sun appears to move across the sky during the day. Explain why the Sun actually stays still while the Earth moves, and what this movement is called. (2 marks)

2. How long does it take for the Earth to complete one full rotation on its axis? How does this rotation create the cycle of day and night? (3 marks)

3. The planets in our solar system all travel around the Sun in a specific path. What is the name of this path, and what keeps the planets from drifting away into deep space? (2 marks)

4. If the Earth were a perfectly flat disc instead of a spherical planet, how might that change the way we experience sunlight and shadows? (2 marks)

5. Max the monkey wants to know if all planets take the same amount of time to orbit the Sun. Using your knowledge, explain why a planet further away from the Sun might have a different 'year' length compared to Earth. (2 marks)

Draw: Draw a diagram showing the Earth orbiting the Sun. Include an arrow to show the direction of the Earth's rotation on its axis, and shade the half of the Earth that is currently experiencing night-time.



Extension challenge: Research the Moon's movement. Write a short paragraph explaining how long the Moon takes to orbit the Earth and whether the Moon produces its own light or reflects it from the Sun.