

Nova's Cosmic Assessment: Earth and Space

Learning objective: To demonstrate an understanding of the movement of the Earth and other planets relative to the Sun in the solar system, and to explain the phenomena of day, night, and the phases of the Moon.

Read each question carefully. Use your scientific knowledge to provide clear, accurate answers. Remember to use technical vocabulary where appropriate.

Nova the owl is perched high in the old oak tree, observing the night sky. She notices that the stars seem to change position throughout the year, and she wonders how the Earth's movement influences our view of the universe. She remembers that the Earth is not static, but a constant traveller in space.

Word bank: Orbit · Rotate · Axis · Sphere · Solar System · Lunar · Gravity · Celestial

1. Explain why we experience day and night on Earth. Include the movement of the Earth in your answer. (2 marks)

2. The Earth takes approximately 365.25 days to complete one full journey around the Sun. What is the scientific name for this movement? (1 mark)

3. Nova observes that the Moon appears to change shape throughout the month. Justify why the Moon does not actually change shape, but only appears to do so from our perspective on Earth. (3 marks)

4. Compare and contrast the movement of the Earth on its axis with its movement around the Sun. What is the result of each movement? (4 marks)

5. Identify the eight planets in our solar system in order of their distance from the Sun. (4 marks)

6. Explain why the Sun appears to move across the sky during the day, even though it is the Earth that is moving. (3 marks)

7. What might happen to life on Earth if the Earth stopped rotating on its axis? Provide a scientific justification for your answer. (3 marks)

8. Write a short creative explanation (approx. 100 words) from the perspective of an astronaut looking back at Earth. Describe how the Earth's spherical shape and its position in space make it unique compared to the other planets in the solar system. (5 marks)

Draw: Draw a diagram showing the Earth, the Moon, and the Sun. Use arrows to show the direction of the Earth's rotation and its orbit around the Sun.



Extension challenge: Total: /25. Extension: Research the term 'Geocentric Model' versus 'Heliocentric Model'. Write a paragraph explaining why scientists eventually changed their minds about which object is at the centre of our solar system.