

Nova's Guide to the Solar System: An Expedition Report

Learning objective: To describe the movement of the Earth and other planets relative to the Sun in the solar system, and to explain the movement of the Moon relative to the Earth.

Use this scaffold to structure your scientific report about the solar system. Ensure you use technical vocabulary to explain the movements of celestial bodies clearly.

As the brilliant barn owl Nova gazes through her telescope at the twinkling canopy above, she begins to document the complex dance of the planets spinning around our majestic Sun.

Word bank: heliocentric · orbit · axis · rotation · revolution · gravitational pull · spherical · consequently · furthermore · in contrast · simultaneously

1. Introduction: Define the solar system by identifying the Sun's position and explaining what keeps the planets in their fixed paths. Start with: 'At the centre of our solar system lies...' (2 marks)

2. Planetary Motion: Explain the difference between rotation and orbit. How does the Earth's rotation cause day and night? Start with: 'Each planet travels in a distinct orbit, yet simultaneously rotates on its own...' (3 marks)

3. The Moon's Journey: Describe how the Moon moves in relation to the Earth. Start with: 'Unlike the planets orbiting the Sun, the Moon is a natural satellite that...' (2 marks)

4. Comparing Planets: Compare and contrast two different planets in our solar system (e.g., a rocky planet vs. a gas giant). Start with: 'While both Earth and Jupiter exist within the same solar system, they possess distinct characteristics because...' (3 marks)

5. Critical Thinking: Explain why the duration of a 'year' differs from planet to planet. Justify your answer using the concept of distance from the Sun. Start with: 'The length of a planetary year is determined by...' (3 marks)

6. Hypothetical Scenario: What might happen to life on Earth if our planet ceased its rotation on its axis? Explain the potential consequences for our climate and day-night cycle. (4 marks)

Extension challenge: Imagine you are an astronomer living on a moon of a distant gas giant. Write a short diary entry describing what your sky looks like, explaining how your orbit affects your view of the Sun and the planet you are orbiting. Use at least four terms from the word bank.