Earth and Space: Exploration Assessment

Learning objective: To demonstrate a secure understanding of the Earth and Space, including the solar system, planetary motion, and the concept of day and night.

Read each question carefully. Answer in full sentences where required. Ensure you use scientific vocabulary correctly.

Nova the owl is observing the night sky from her perch. She notes that as the Earth moves, the Sun appears to rise and set, creating the cycle of day and night. Meanwhile, Max the monkey is busy calculating the time it takes for different planets to complete their journey around the Sun.

Word bank: Orbit · Rotate · Axis · Spherical · Gravity · Solar System · Geocentric · Heliocentric

1. Explain why we experience day and night on Earth. Use the word 'rotate' in your answer. (2 marks)

2. Name the eight planets in our Solar System in order of their distance from the Sun. (2 marks)

3. Max the monkey says the Sun moves across the sky. Justify why this is a scientific misconception. (3 marks)

4. Describe the shape of the Earth, the Moon, and the Sun. What evidence do we have that they are this shape? (3 marks)

5. Compare and contrast the movement of the Earth on its axis with its movement around the Sun. How long does each process take? (4 marks)

6. What might happen to life on Earth if the planet stopped rotating on its axis? Explain your reasoning. (3 marks)

7. Write a short report (5 marks) explaining the difference between the Geocentric and Heliocentric models of the solar system. Why did our scientific understanding change over time? (5 marks)

8. If you were to weigh yourself on the Moon compared to Earth, would you be lighter or heavier? Explain the role of gravity in your answer. (3 marks)

Draw: Draw a diagram showing the Earth orbiting the Sun. Label the Earth's axis and indicate the direction of rotation with an arrow.

Extension challenge: Nova the owl is planning a trip to a distant planet. If you could design a space probe to explore the outer reaches of our solar system, what scientific instruments would you include and why? Justify your choices based on the extreme conditions of space. Total: /25