Botanical Explorers: The Secrets of Plant Life

Learning objective: To identify and describe the functions of different parts of flowering plants and understand the requirements for healthy plant growth.

Use your scientific knowledge to answer the questions below. Think carefully about how plants survive and thrive in different environments.

Bea the honeybee is busy visiting the garden to help plants grow. She knows that every part of a plant has a special job to do, from the hidden roots below the soil to the vibrant petals reaching for the sun.

Word bank: photosynthesis · stamen · roots · transpiration · pollination · carbon dioxide · xylem · germination

1. Explain the primary function of a plant's roots. How do they support the rest of the plant's survival? (2 marks)

2. Compare and contrast the roles of the stem and the leaves in a plant's life cycle. Why is the stem essential for transport? (2 marks)

3. Nova the owl wonders: 'What might happen if a plant were kept in a dark cupboard for two weeks?' Justify your answer using scientific vocabulary. (3 marks)

4. Describe the process of pollination. Why is it vital for the plant to produce seeds? (2 marks)

5. If you were designing an experiment to test which soil type helps a sunflower grow tallest, what variables would you need to keep the same to ensure a 'fair test'? (3 marks)

Draw: Draw a detailed diagram of a flowering plant. Label the roots, stem, leaves, and flower. Draw an arrow showing how water travels from the soil up to the leaves.

Extension challenge: Imagine a plant that has evolved to live in a very dry desert. Write a short paragraph explaining three adaptations it might have to help it survive without much water. Use your knowledge of plant biology to justify your choices.