

Nova's Botanical Blueprint: The Life of a Flowering Plant

Learning objective: To identify and describe the functions of different parts of flowering plants, including roots, stem, leaves, and flowers, and to explore the requirements of plants for life and growth.

Nova the Barn Owl has been observing the wildflowers in the meadow. Use the word bank to label the functions of the plant parts. Once labelled, answer the higher-order thinking questions to demonstrate your understanding of how plants survive and thrive.

Word bank: Roots · Stem · Leaves · Flowers · Water · Sunlight · Carbon dioxide · Nutrients

1. Explain why a plant would struggle to grow if it were placed in a cupboard without any light. Justify your answer using scientific reasoning. (2 marks)

2. Compare and contrast the role of the roots and the leaves. How do they work together to keep the plant healthy? (2 marks)

3. What might happen to a plant if the stem became damaged or blocked? Explain the effect this would have on the rest of the plant. (2 marks)

4. Justify why flowers are essential for the survival of a plant species, even though they are not needed for the individual plant to grow. (2 marks)

5. If you were designing a new plant for a desert environment, which part of the plant would you make largest and why? (2 marks)

6. Nova wonders if plants can grow without soil. Explain how a plant might obtain nutrients if it were grown in only water and sunlight. (2 marks)

Draw: Draw a detailed diagram of a flowering plant. Include labels for the roots, stem, _____ leaves, and flower. Add small arrows to show the direction that water travels through the plant from the soil up to the leaves.



Extension challenge: Design an experiment to test how different amounts of sunlight affect the growth of a cress plant over one week. Write a hypothesis predicting the results and explain the variables you will keep the same to ensure a fair test.