

Botanical Breakthroughs with Bea the Bee

Learning objective: To identify and explain the functions of the different parts of a flowering plant and understand the process of pollination and life cycles.

Bea the Bee has been buzzing around the meadow observing the life cycle of plants. Use the word bank to label the parts of the flower in your diagram, then complete the analytical questions below to show your deep understanding of plant biology.

Word bank: Stamen · Carpel · Sepal · Petal · Pollen · Stigma · Ovary · Filament

1. Explain why the petals of a plant are often brightly coloured and scented. How does this adaptation assist the plant in its reproductive life cycle? (3 marks)

2. Compare and contrast the roles of the stamen and the carpel. If a plant were missing its stigma, what might happen to the process of fertilisation? (3 marks)

3. Justify your answer: Is a plant considered a living organism if it cannot move like an animal? Reference the life processes (MRS GREN) to support your reasoning. (3 marks)

4. Describe the journey of a grain of pollen from the moment it leaves the stamen until it reaches the ovary. What role does a pollinator like Bea play in this? (3 marks)

5. What might happen to the ecosystem if all flowering plants were suddenly unable to produce seeds? Explain the ripple effect on other organisms. (3 marks)

6. Evaluate the importance of the sepal. Why is this often-overlooked part of the plant essential for the initial stages of growth? (3 marks)

Draw: Draw a large, detailed scientific diagram of a flowering plant. Clearly label the _____ stamen, carpel, stigma, ovary, petal, and sepal. Add a small drawing of Bea the Bee near the flower to show how pollination occurs.



Extension challenge: Design an experiment to test which environmental factor (light, water, or soil nutrients) has the greatest impact on the growth rate of a seedling. Write a hypothesis, list your variables, and explain how you would ensure your results are reliable and accurate.