Life Cycles of Flowering Plants: The Botanical Blueprint

Learning objective: To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird, and to describe the life process of reproduction in some plants.

Use your knowledge of botanical science to illustrate the life cycle of a flowering plant. Ensure you include the specific stages of reproduction, from pollination to seed dispersal. Use your neatest scientific labelling to identify the structures involved.

Draw: Create a detailed scientific diagram of a flowering plant life cycle. In the centre, draw a clear, cross-section of a flower showing the stamen and carpel. Surround this with a circular flow chart showing: 1. Pollination (include a bee), 2. Fertilisation, 3. Seed formation, 4. Seed dispersal (use wind or animal vectors), 5. Germination. Use a clean, technical style with precise labels and pencil-shaded details.

Label words: Stamen · Carpel · Pollination · Fertilisation · Seed dispersal · Germination · Ovary · Pollen

Steps:

1. Step 1: Draw a mature flowering plant. Step 2: Use arrows to show the path of pollen moving from the stamen to the stigma. Label these parts.

2. Explain why cross-pollination is often considered more beneficial for a plant species than self-pollination. Justify your reasoning using biological concepts.

3. What might happen to the life cycle of a flowering plant if there were a significant decline in the population of pollinating insects? Explain your hypothesis.

4. Compare and contrast the methods of seed dispersal for a dandelion and a conker. Why have these plants evolved different strategies?

5. Label the specific part of the flower where fertilisation occurs and describe the transformation that happens to the ovary after this process.

6. Identify one environmental factor that could prevent a seed from germinating successfully, even if it is healthy.