

Life Cycles and Reproduction: The Natural World

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

Use your scientific knowledge to answer the questions below. Think carefully about the life cycles of different species and how they ensure the survival of their offspring.

Nova the owl is observing the forest floor, while Bea the honeybee is busy visiting flowers. Both are witnessing the wonders of life cycles, where organisms produce offspring to ensure their species continues to thrive. From the tiny seeds of a sunflower to the complex growth of a young lion, every living thing follows a unique path of development.

Word bank: reproduction · metamorphosis · fertilisation · offspring · pollination · germination · larva · mammal

1. Nova the owl has noticed that mammals give birth to live young, whereas birds lay eggs. Compare these two methods of reproduction. Why might laying eggs be an advantage for a bird that needs to fly? (3 marks)

2. Bea the honeybee undergoes a process called metamorphosis. Explain why this process is different from the way a human or a lion cub grows from a baby to an adult. (2 marks)

3. In flowering plants, pollination is a vital step before reproduction can occur. Explain what happens during this process and why it is essential for the plant to create seeds. (2 marks)

4. If a species stopped reproducing, what would be the long-term consequence for that species? Justify your answer using the term 'extinction'. (2 marks)

5. Max the monkey is looking at a life cycle diagram of a frog. He sees the 'tadpole' stage. Explain how the tadpole's habitat and breathing method change as it transforms into an adult frog. (3 marks)

Draw: Draw a labelled diagram of a life cycle of your choice (e.g., a butterfly, a frog, or a bean plant). Ensure you include at least four distinct stages in your drawing.



Extension challenge: Imagine a new species of plant has been discovered in a remote rainforest. Write a short paragraph explaining how you think this plant might attract pollinators to ensure its reproduction. What might happen if the environment suddenly became too cold for these pollinators to survive?