Autumn Science: Nature’s Seasonal Cycle

Learning objective: To understand the biological and environmental changes that occur during autumn, focusing on deciduous trees, animal preparation, and the changing day length.

Read each question carefully and use your knowledge of seasonal cycles to provide detailed answers. Remember to use scientific terminology where appropriate.

As the Earth tilts on its axis, the amount of sunlight reaching the UK decreases. Nova the owl has noticed that the trees are changing colour and the air is getting colder, signalling that autumn has arrived. From the way plants manage their energy to how animals prepare for the winter months ahead, nature is working hard to adapt to the changing environment.

Word bank: chlorophyll · deciduous · dormancy · photosynthesis · migration · hibernation · day length

1. Explain why the leaves of deciduous trees change colour from green to yellow, orange, or brown during autumn. Mention the role of chlorophyll. (2 marks)

2. Max the monkey is looking at a graph of daylight hours. Why does the reduction in daily sunlight affect the rate of photosynthesis in plants? (2 marks)

3. Some animals choose to migrate while others choose hibernation. Define these two survival strategies and give one example of a British animal for each. (2 marks)

4. Bea the honeybee is busy preparing the hive for winter. Why do many insects and animals consume more food during the autumn months? (2 marks)

5. If a farmer sells bags of apples at £2.50 each, and he sells 120 bags during the autumn harvest, calculate the total profit. Show your working out. (2 marks)

Draw: Draw a scientific diagram of a deciduous tree in autumn. Label the parts of the tree and draw an animal nearby showing how it might be preparing for winter.

Extension challenge: Research the 'Autumn Equinox'. Write a short paragraph explaining what happens to the Earth's position in relation to the Sun on this date and why it marks the official start of autumn.