

Autumnal Transformations: A Scientific Investigation

Learning objective: To observe and explain the life cycle of deciduous trees and the seasonal changes occurring during autumn.

Use this scaffold to document your scientific findings. Use precise vocabulary to describe the changes observed in the natural world. Ensure your explanations are supported by logical reasoning.

As the days grow shorter and the temperature begins to drop, the woodland landscape undergoes a remarkable scientific transformation.

Word bank: photosynthesis · chlorophyll · deciduous · dormancy · consequently · furthermore · transformation · environment · nutrients · subsequently

1. The Process of Change: Explain why deciduous trees change the colour of their leaves as autumn progresses. Consider the role of chlorophyll and sunlight... (3 marks)

2. Energy Conservation: Describe the concept of 'dormancy' in plants. Why is it advantageous for a tree to shed its leaves before winter arrives? (3 marks)

3. Comparative Analysis: Compare the state of a deciduous tree in mid-summer to its state in late autumn. What are the key differences in its energy consumption? (3 marks)

4. Justification: Max the monkey wonders if all trees lose their leaves in autumn. Justify your answer using your knowledge of deciduous versus evergreen trees. (3 marks)

5. Hypothesis: What might happen to the soil quality beneath a tree if the fallen leaves were removed every single day? Explain your reasoning. (3 marks)

6. Scientific Conclusion: Summarise the main environmental triggers that signal to a tree that it is time to prepare for the winter months. (2 marks)

Extension challenge: Imagine you are Nova the owl observing the forest from above. Write a short, formal scientific report describing how the local wildlife is preparing for the winter. You must include at least three examples of animal behaviour, such as hibernation, migration, or food hoarding, and explain the scientific necessity of these actions.