

Autumn Nature Assessment: Changes in the Environment

Learning objective: To identify and describe seasonal changes in the environment and understand the life cycles and behaviours of living things during autumn.

Read each question carefully. Answer in full sentences where indicated. Ensure your scientific vocabulary is precise. You have 45 minutes to complete this assessment.

As the Earth tilts away from the sun, temperatures begin to fall and the hours of daylight decrease. Nova the owl notices the forest changing rapidly. The trees, which were once lush and green, begin to display vibrant hues of amber, gold, and crimson. Meanwhile, Bea the bee notices that many flowers have stopped blooming, and animals are preparing for the colder months ahead by gathering food or seeking shelter.

Word bank: deciduous · evergreen · chlorophyll · dormancy · migration · hibernate · photosynthesis · environment

1. Nova observes that deciduous trees change colour in autumn. Explain the role of chlorophyll in leaves and why leaves change colour when chlorophyll levels drop. (2 marks)

2. Compare and contrast how a deciduous tree and an evergreen tree respond to the arrival of autumn. (2 marks)

3. Many animals, such as hedgehogs, prepare for winter by entering a state of dormancy. What is this process called, and why is it essential for their survival in cold temperatures? (2 marks)

4. Explain why some bird species choose to migrate during autumn rather than hibernating or remaining in the local environment. (3 marks)

5. Justify your answer: If the Earth's axis did not tilt, would we still experience the cycle of autumn? Explain your reasoning using your understanding of light and seasons. (4 marks)

6. Max the monkey is calculating the weight of nuts collected by a squirrel. The squirrel collects 150g of acorns, 220g of walnuts, and 130g of hazelnuts. If the squirrel needs 600g to survive the winter, how much more does it need? Show your working out. (4 marks)

7. Extended Writing: Imagine you are a scientist observing a woodland habitat. Describe the sequence of changes that occur from early September to late November. Discuss how these changes affect both plant life and animal behaviour. (5 marks) (5 marks)

Draw: Draw a diagram of a deciduous tree in autumn. Label the parts of the tree and use arrows to show the direction of nutrient storage moving from the leaves to the roots.



Extension challenge: Total: /25. Imagine a scenario where autumn temperatures remain as warm as summer temperatures. What might happen to the life cycles of local plants and the migration patterns of birds? Justify your predictions using scientific evidence.