

9B Plant Growth	Knowledge, Skills and Understanding
Higher	<p>Model photosynthesis using a balanced symbol equation.</p> <p>Use a knowledge of diffusion to explain how different conditions cause different rates of transpiration</p> <p>Use the idea of equilibria to explain starch production</p> <p>Explain why phosphates and potassium are important nutrients for plants</p> <p>State the names of compounds in which nitrogen is held in an ecosystem</p> <p>Describe the methods by which nitrogen is recycled in an ecosystem</p>
Intermediate	<p>Use the word equation to identify factors that would affect the rate of photosynthesis</p> <p>Explain how the rate of photosynthesis can be controlled by a limiting factor</p> <p>Explain how wilting occurs</p> <p>Explain how the features of leaves and plant cells are adaptations for photosynthesis</p> <p>Explain how roots and stems are adapted for their function</p> <p>Explain the importance of nitrates to plants</p> <p>Describe the synthesis of starch and proteins in plants (only in terms of the monomers involved)</p> <p>Recall some functions of different proteins</p> <p>Explain how food production for humans can be increased using different plant varieties and pest management strategies (including insecticides and herbicides).</p> <p>Make predictions about how changes in physical and biological factors will affect carbon supply in an ecosystem</p> <p>Make predictions about how changes in physical and biological factors will interact with adaptations and affect survival (e.g. effects of disease on monoculture)</p> <p>Explain the effects of phosphates, nitrates and persistent pesticides on ecosystems</p>
Foundation	<p>Describe ways in which respiration can be detected (limewater, hydrogen carbonate indicator, heat)</p> <p>Model aerobic respiration using a word equation</p> <p>Describe what happens in photosynthesis</p> <p>Explain the functions of light and chlorophyll in photosynthesis (in terms of energy transfer)</p> <p>Model photosynthesis using a word equation</p> <p>Recall the factors that affect the rate of photosynthesis</p>

Describe how gas exchange occurs in plants

Describe the adaptations of leaves and plant cells for photosynthesis

Describe how water and mineral salts are absorbed and moved around a plant

Describe how water is lost from a plant

Describe the test for starch

Describe how starch is used as a food storage material

Recall that plants use glucose produced by photosynthesis to make new substances, often using mineral salts

Explain the need for the different resources by a seed as it germinates

Describe why plants are cross-bred

Identify the desired outcome of crossbreeding

Describe how increased human population growth affects food supply

Describe how selective breeding is done

Explain how attack of plants by pests and pathogens can have an impact on human populations

Recall the main nutrients required by plants and identify signs that a plant may be lacking in nutrients (in general terms only)

Use food webs to predict the effects of changes in biological factors (including human activity)

Explain why preserving biodiversity is important (useful products, organism interactions, enriches our lives, disaster recovery)

Explain how changes in a population or community in an ecosystem will affect other populations

Model the recycling of carbon in an ecosystem using the carbon cycle