Attainment Band	Ecosystem & Bioenergetics Knowledge and Understanding
Yellow/Yellow +	• Analyse and evaluate the impact of changes in a food web • Evaluate a model of predator–prey populations and explain the importance of predators • Communicate, in a creative way, the impact of rainforest destruction on biodiversity • Analyse and evaluate how beak adaptations in seashore birds allow them to survive in the same ecosystem • Critically evaluate the use of pesticides • Analyse and evaluate the risks involved with monoculture – particularly with regard to food security in poorer countries • Explain the importance of respiration in releasing energy and in building up complex molecules • Evaluate the quality of evidence for respiration • Explain what is meant by oxygen debt and why it occurs • Compare the implications of aerobic respiration and anaerobic respiration for the organism • Write a logical method for an investigation of what is produced in anaerobic respiration, taking safety into consideration • Evaluate an investigation carried out into the effect of different sugars on fermentation • Critically evaluate secondary data showing plants growing in different habitats • Critically evaluate the risks involved when testing a leaf for starch • Critically evaluate the structure of different cells related to their function • Analyse stomata density in different temperatures and different concentrations of carbon dioxide • Analyse secondary data and apply learning to new situations • Evaluate the limitations of collected evidence • Evaluate cell structures that allow the movement of water and minerals through a plant
Blue	• Predict the effects of different environmental factors on plant and animal populations – e.g. disease and drought • Explain why prey populations affect predator populations • Explain how organisms help or depend on each other for survival • Explain the concept of resource partitioning • Explain the process of bioaccumulation • Explain why hand-pollination is cost effective for some crops • Recall the word equation for aerobic respiration and describe it as a way of releasing energy from food • Describe some practical experiments on plants that provide evidence for respiration • Explain why some sports rely on anaerobic respiration while others can use aerobic respiration; describe some of the effects on the body of anaerobic respiration • Describe several similarities and differences between aerobic respiration and anaerobic respiration • Describe a piece of evidence to show that anaerobic respiration produces carbon dioxide • Manage variables in an investigation into the effect of different sugars on fermentation, and make a conclusion • Explain the evidence that van Helmont obtained from his experiment • Predict that plants will only photosynthesise in the light and that photosynthesis will only occur in the green areas of leaves where chlorophyll is present; draw up a good plan for an investigation • Explain the functions of the different cells in a leaf; identify the different cells found in the leaf • Explain how stomata open and close to control the movement of gases • Accurately predict the results of investigations of photosynthesis • Explain the roles of nitrogen, phosphorus and potassium in plant growth • Explain how water and minerals are taken in and move through a plant

Green	• Describe food webs as a number of interrelated food chains • Describe some ways in which organisms affect their environment • Describe a range of examples of interdependence • Describe the role of niches • Describe how toxins pass along the food chain • Describe the impact of low pollination on crop yield and how this could potentially be avoided • Recall that energy is released in our bodies by aerobic respiration, which uses oxygen and glucose • Recall that plants respire; describe how to demonstrate that water is produced during respiration • Describe anaerobic respiration as requiring no oxygen; know that some sports rely mainly on anaerobic respiration • Describe one similarity and one difference between aerobic respiration and anaerobic respiration • Recall some examples of microbes and know that they carry out anaerobic respiration • Explain simply what is meant by fermentation; follow instructions to investigate the effect of sugars on fermentation • Identify the various ways in which plants are essential to life on Earth • Identify carbon dioxide and water as reactants, and glucose and oxygen as products of photosynthesis • Name the common features of leaves that are adaptations to photosynthesis; explain how the size of leaves relates to the availability of light • Describe the movement of gases into/out of a leaf • Identify the factors that affect the rate of photosynthesis • Identify nitrogen, phosphorus and potassium as essential for healthy plant growth • Identify the passage of water and minerals through a plant; summarise the inputs and outputs for plant growth by a diagram
White	• Some of the above elements have been achieved.