## Science Year 9 16 (B2.2) Ecosystem processes

Year group: 8	
Prior learning- linked	Students have studied 7B1 Cells, 7B2 Structure and function of body systems and 7B3 Reproduction last year.
to Natioanl	Students have been taught:
curriculum	
	<ol> <li>Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts.</li> <li>The similarities and differences between plant and animal cells the role of diffusion in the movement of materials in and between cells the structural adaptations of some unicellular organisms.</li> <li>The hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms.</li> </ol>
Covid gaps	Be sure that students know the seven life processes. Recap MRSGREN.
Rationale /	Rationale - This module provides underpinning knowledge for the following KS4 topics:
Misconceptions	
	The importance of photosynthesis
	Factors affecting photosynthesis
	Levels of organisation within an ecosystem
	Pyramids of biomass
	Biodiversity
	Misconceptions - Plants carry out photosynthesis and animals carry out respiration.
	Students often confuse the processes of photosynthesis and respiration in plants. They have a misconception that respiration in plants is different to that in other organisms, resulting in the production of Carbon Dioxide. In teaching about photosynthesis it is important to stress that in plants both processes occur depending on conditions and that respiration in plants is the same as in all other organisms.

	Some misconceptions that students have about photosynthesis may be as a result of "learning" about the process from an early age, so they often think that the sunlight absorbed by a plant is actually food and that plants "suck up" food from the soil. Students also struggle with the concept of Carbon Dioxide being used in photosynthesis as it isn't something they can see.
Vocabulary:	<b>Keywords</b> - aerobic respiration, anaerobic respiration, bioaccumilation, chemosynthesis, chlorophyll, deficiency, ecosystem, fermentation, fertiliser, food chain, food web, habitat, magnesium, nitrates, phosphates, photosynthesis, potassium, producer, stomata.
	E Ecosystem processes glossary
Cultural Capital:	
Key assessments-	Big question (6 mark question) Mid point 🖃 Big question student sheet
assessments	Explain in detail why farmers have to add to fertiliser to soil to ensure good crop yields year after year. (QWC, 6 marks)
	End of topic test - A range of multiple choice, short answer and a long answer question.  E Ecosystem processes test
What do children	Test marks-
know/ can do now	Emerging - 20%
(EDSM)	Developing - 40%
	Securing - 60%
	Mastered - 80%
	Describe how food chains operate and identify the producer.
	Describe the role of insecticides in a food chain.
	Identify the function of a quadrat.
	Describe a range of methods to estimate the population of species.
	Describe photosynthesis and the reactants and products involved.
	Define the functions of a plant.
	Describe how mineral deficiencies effect plant growth.
	State what is meant by respiration, chemosynthesis and fermentation.
	Describe now energy transfer is used in aerobic respiration.
	I carry out a range of experiments including testing a leaf for starch, looking at stomata, measuring breathing rate.