KS5 – Year 13 – Biology

Term	Topic Titles	Brief Overview
1	Communication and homeostasis	Students will learn the need for communication systems, and why we need to have a stable internal environment.
	Excretion as an example of homeostatic control	Students will learn the structure and function of the liver and kidneys in their roles of excretion of waste from the body.
	Neuronal communication	Students will learn the structure of the different neurons and the generation and transmission of action potentials.
	Hormonal communication	Students will learn to describe the histology of the pancreas, the cells within it and how they work together to regulate blood glucose concentration by negative feedback.
	Plant and animal responses	Students will learn to describe the responses from plants and animals in response to changes in the environment, both hormonal and structural.
	Photosynthesis	Students will learn to describe the interrelationship between respiration and photosynthesis, the roles of the photosynthetic pigments. Outline the processes involved in the light dependent and independent stage.
	Respiration	Students will learn to explain the need for aerobic and anaerobic respiration. Outline the different stages of respiration and the role of coenzymes. Complete practicals to show the different factors that affect respiration rate.
2	Cellular control	Students will learn to describe mutations and the effects they have. To describe the process of gene expression using the lac operon as an example.
	Patterns of inheritance	Students will learn to describe different types of variation, and use genetic diagrams to show patterns of inheritance. To know the different factors that affect evolution
	Manipulating genomes	Students will learn the principles of genetic sequencing and DNA profiling. To understand the ethical issues that relate to genetic manipulation.
	Cloning and biotechnology	Students will learn to describe the process of micropropagation, and the difference between natural and artificial clones. Including the use of immobilised enzymes.
	Ecosystems	Students will learn to describe the flow of biomass through an ecosystem, and how we can manipulate this. To know what succession is and the different techniques to study ecosystems.
	Populations and sustainability	Students will learn about the different factors that affect population size and understand how these interact. To understand the need for conservation and balancing human need with the conservation of a species.

3	Revision and consolidation	In the final few weeks before external exams start, students focus on structured revision activities.