

KS5 CURRICULUM: A LEVEL BIOLOGY YEAR 12

Overview

In Biology you will learn about:

- The biochemical basis of life, focusing on the essential structural carbon-based components for all living things, including how they interact and testing for their presence.
- The unifying concept of cell theory. Including key structural features, their ability to reproduce and their role in disease.
- The exchange of substances between the internal and external environments that take place at exchange surfaces.
- The continuous transfers of energy through different organisms and systems.

	Focus / Topic	Knowledge & Skills	Assessment
Autumn 1	Biological molecules Cell Structure Cell transport	Understanding of use and structure of the fundamental carbon-based molecules and how to test for their presence. The use of enzymes in organisms, specifically digestion. How to plot logarithmic scales and calculate rate. Learn and observe the detailed structure of cells and the cell cycle. Describe the structure and movement of substances across a cell membrane.	Baseline exam on key GCSE knowledge
Autumn 2	Nucleic acids Cell recognition and immune system	Structure and function of DNA and RNA. How DNA replicates using semi-conservative replication and the evidence for this. The role of proteins on the cell-surface membrane, in particular the role they play in immune response.	Assessment on all content covered to this date.
Spring 1	Cell recognition and immune system DNA, Genes and Protein Synthesis	How DNA is stored in both eukaryotic and prokaryotic organisms and how proteins are synthesised.	
Spring 2	Genetic Diversity Gas exchange	Causes and effects of gene mutations. How genetic variation arises within a population, which specific knowledge of Meiosis. How substances are exchanged between internal and external surfaces and the effect on organisms.	Assessment on all content covered to this date.
Summer 1	Mass Transport Biodiversity	How organisms are classified and identified using DNA, features and behaviours. Calculating the Index of Diversity and the techniques to investigate diversity. Understand how efficient movement of substances over exchange surfaces is provided by mass transport.	
Summer 2	Mass Transport Populations and ecosystems	Understanding of the interactions within ecosystems and techniques used to measure frequency and percentage cover.	End of Year Mock exams – 2 x 90 minute papers on all content from Year 1.

Further Information

All topics will be assessed with an end of module exam (every 3-4 weeks). Practical skills will be assessed throughout the course during required practical's. Students are expected to complete 5 hours of additional study per week for this course.