KS5 CURRICULUM: A Level Biology Year 13

Overview

In Science you will learn about:

How energy is transferred through respiration and photosynthesis and using this as indirect evidence of evolution. How organisms respond to changes in the external and internal environment using the nervous and endocrine system. Interactions between organisms and the evidence for evolution.

How organisms inherit particular characteristics and the probability of this occurring.

How genes are expressed and the factors that affect expression. The current uses of gene technology to create and use recombinant DNA.

	Focus / Topic	Knowledge & Skills	Assessment
Autumn 1	-Nutrient cycles -Photosynthesis	The movement of nutrients specifically nitrogen and phosphorus through ecosystems, and the effect fertilisers on this. Explain the Light-dependent reaction and importance of photosynthesis.	w/c 21st Sept 2 x 90 Minute Mock papers (all content covered)
Autumn 2	-Respiration -Inherited Change	Explain and calculate the probability of inheriting particular characteristics. Analyse the statistical significance of variation using the chi-squared test. Describe the detailed process of respiration.	w/c 7th Dec 2 x 90 Minute Mock papers (all content covered)
Spring 1	-Response to Stimuli -Evolution -Populations and genetics	Use the Hardy-Weinberg principle to calculate probability of inheritance. Explain how selection pressures affect distribution. Describe the processes involved in responding to stimuli both through nervous impulses and hormonal responses.	
Spring 2	-Response to Stimuli continued -Gene expression -Recombinant DNA	The different types of stem cells and their uses in medicine. How transcription factors and siRNA affect transcription. Understanding of epigenetics and effects of acetylation and methylation of DNA and histones. How tumours arise and the purpose of the human genome project. How gene technology is used to create recombinant DNA.	
Summer 1	-Homeostasis -Exam technique	Explain the mechanisms involved in controlling essential internal conditions such as temperature and blood glucose levels. Focus skills such as how to write a scientific essay. Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to make judgements and reach conclusions.	In class final Mocks (all 3 Papers)
Summer 2	-Revision -Exam Practice	Continued practice of statistical analysis, mathematical skills such as calculating standard deviations.	

Further Information

All topics will be assessed with an end of module exam (approx. 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.