Biology GCSE Y11 – Course Overview

Biology helps us understand how living organisms function, adapt and evolve. In Year 11, students deepen their understanding of ecology, homeostasis and genetics before exploring the evidence for evolution and the diversity of life on Earth. Through practical investigations and scientific enquiry, students develop the knowledge and skills needed to apply biological concepts to real-world issues and prepare for their GCSE examinations.

Advent 1: Ecology and Homeostasis

Students complete their study of ecology by examining how human activity affects ecosystems and the challenges of maintaining biodiversity. They are then introduced to homeostasis and the ways organisms maintain stable internal conditions.

Key areas of study:
• Nutrient cycles and decomposition
• Biodiversity and its importance
• Pollution and its effects on ecosystems
• Food security and sustainable farming
• Principles of homeostasis
• The nervous system and reflex responses

Advent 2: Homeostasis and Response

Students investigate how hormones coordinate responses within the body and explore how plants respond to environmental stimuli.

Key areas of study:
• Hormonal coordination in humans
• Control of blood glucose levels
• Human reproductive hormones
• Contraception and fertility treatments
• Plant hormones and tropisms
• Required practical investigations

Lent 1: Inheritance and Evolution – DNA and Protein Synthesis

Students explore the molecular basis of inheritance and learn how genetic information is stored, expressed and passed from one generation to the next.

Key areas of study:
• DNA structure and function
• Chromosomes and genes
• Protein synthesis
• Genetic variation
• Sexual and asexual reproduction
• The relationship between genotype and phenotype

Lent 2: Inheritance and Genetic Technologies

Students investigate inherited characteristics and disorders and evaluate modern genetic technologies and their applications.

Key areas of study:
• Inherited disorders
• Genetic screening and counselling
• Genetic engineering and genetically modified organisms
• Cloning and its applications
• Ethical considerations of genetic technologies
• Advantages and limitations of biotechnology

Trinity 1: Evolution and Classification

Students examine the evidence for evolution and explore how scientists classify living organisms based on shared characteristics and evolutionary relationships.

Key areas of study:
• Fossil evidence for evolution
• Natural selection and evolution
• Extinction and its causes
• Classification systems
• The work of Carl Linnaeus
• Modern classification and evolutionary relationships

Trinity 2: Examination Preparation

Students consolidate knowledge from across the GCSE Biology course and develop examination skills through revision, retrieval practice and assessment.

Key areas of study:
• Review of key biological concepts
• Examination technique and extended responses
• Analysis and interpretation of scientific data
• Required practical revision
• Synoptic links across the specification
• GCSE examination preparation