BIOLOGY

Nothing in Biology makes sense except in the light of evolution"

Dobshansky

*If a student who currently attends another school achieves less than two Grade 7s, we will ask them to arrange for their school's Examination Officer to complete a form to provide evidence of their performance in each Science subject

Current Teaching Staff:
Mrs K Bumby - Head of Department
Dr D Halliday, Mrs S Faro, Mrs N Leflaive, Mrs J Kittow

Examination board and syllabus:
AQA GCE A level Biology

Entrance requirement:
Separate Science GCSE students: Grade 7 or above in Biology, Grade 6 or above in Chemistry, Physics and Mathematics
Double Award Science GCSE students:
Grade 6 or above in Combined Science*, with an overall Grade 7 in the Biology components and Grade 6 in the Chemistry and Physics components, Grade 6 or above in Mathematics.

First year of A2:

Topic 1: Biological Molecules: Monomers and polymers, carbohydrates, lipids, proteins, enzymes, DNA, RNA, DNA replication, ATP, water and inorganic ions,
Topic 2: Cells: Cell structure, cellular transport, cell recognition and the immune system
Topic 3: Organisms exchange substances with their environment: Surface are to volume ratio, gas exchange, digestion and absorption and mass transport.
Topic 4: Genetic information, variation and relationships between organisms: DNA, genes and chromosomes, protein synthesis, mutations, genetic diversity, adaptation, taxonomy and biodiversity.

A2 year two outline:

Topic 5: Energy transfer in and between organisms: Photosynthesis, respiration, energy in ecosystems and nutrient cycles.
Topic 6: Organisms respond to changes in their internal and external environments: Stimuli and detection, receptors, control of heart rate, nerve impulses, synaptic transmission, skeletal muscles, homeostasis, blood-glucose concentration control and blood water potential control.
Topic 7: Genetics, populations, evolution and ecosystems: Inheritance, populations, evolution and speciation.
Topic 8: The control of gene expression: DNA sequence alteration, gene expression, regulation of transcription and translation, using genome projects, recombinant DNA technology and genetic fingerprinting.

Each class is taught by two teachers who each teach five lessons per fortnight. A diverse range of interactive teaching and learning strategies are employed, for example, practical work, class and group discussions, debates, student presentations and revision games.

Examples of homework include: research, data-handling exercises, follow-up to practical work, practice examination questions, presentations and A2 synoptic essays.

	Paper 1	**Paper 2**	**Paper 3**
What's assessed	Any content from topics 1– 4, including relevant practical skills	Any content from topics 5–8, including relevant practical skills	• Any content from topics 1–8, including relevant practical skills
How is it assessed?	written exam: 2 hours • 91 marks • 35% of A-level	written exam: 2 hours • 91 marks • 35% of A-level	written exam: 2 hours • 78 marks • 30% of A-level
Questions	• 76 marks: a mixture of short and long answer questions • 15 marks: extended response questions	76 marks: a mixture of short and long answer questions • 15 marks: comprehension question	• 38 marks: structured questions, including practical techniques • 15 marks: critical analysis of given experimental data • 25 marks: one essay from a choice of two titles

Lunchtime help is available; students are able to drop-in or request individual appointments with their teacher. Students working below their expected level are provided with additional homework, and expected to attend the weekly lunchtime help sessions. In year 13, Immersion Day activities are offered to help boost examination performance across the ability range.

More able students are provided with a suggested reading list, for example, articles from the Biological Sciences Review journal. The British Biology Olympiad competition in Year 13 is offered to the top performing students at AS level.

Students will be invited to attend a visit to the electron microscope unit at Plymouth University and the A2 Ecology residential field course.

Students will need to:	**Compulsory**	**Optional**
Attend extra sessions before Examinations	X	
Read widely around the subject	X	
Make extensive notes	X	
Carry out detailed revision for regular tests beyond public examinations	X	
Be willing to lead class discussions		X

CAREERS

Medicine and allied healthcare professions including dentistry, nursing, physiotherapy; veterinary medicine and allied professions; research and development; teaching; specialist e.g. forensic science, geneticist; environmental management and conservation; science writing and communication; law; politics and policy. In common with other science qualifications, biology is well-regarded by a wide range of potential employers.