

SCIENCE DEPARTMENT

Head of Department: Ms F Wright

Why choose the subject? This is a subject for those wishing to pursue biological studies with a broad basis of plant and animal study in modern, topical areas.

Who is eligible? Students who have a double science qualification should preferably have a grade 7 (or above), although those with a grade 6 will be considered. Students who have sat triple science awards should have a minimum of a grade 6 in Biology **and** ideally Chemistry.

A LEVEL QUALIFICATION

Examination Board: AQA	<p>The A level Biology specification includes four topics taught during Year 12 and an additional four topics taught in Year 13. There are 3 exam papers with each one of 2 hours duration. Paper one examines topics 1-4 and will include short and longer style response questions; paper two examines topics 5-8 and will include short and longer style response questions, and a comprehension question; paper 3 examines topics 1-8 and will include structured questions, critical analysis of experimental data and one essay question (from a choice of two titles).</p> <p>Practical skills underpin A level Biology and there are 12 practicals which are required to be completed in Years 12 and 13 and which will be examined within the written papers.</p>	
	Topic 1: Biological molecules	Monomers and polymers; carbohydrates; lipids; proteins; enzymes; DNA and RNA; ATP; water; inorganic ions.
	Topic 2: Cells	Structure of eukaryotic and prokaryotic cells; use of microscopes; transport across membranes; cell recognition and the cell cycle.
	Topic 3: Organisms exchange substances with their environment	Gas exchange; digestion and absorption; mass transport in animals and mass transport in plants.
	Topic 4: Genetic information, variation and relationships between organisms	DNA, genes and chromosomes; DNA and protein synthesis; genetic diversity through mutations and adaptations; meiosis and mitosis; natural selection; species and taxonomy; biodiversity.
	Topic 5: Energy transfers	Photosynthesis; respiration; energy and ecosystems; nutrient cycles - nitrogen and phosphorus cycles.
	Topic 6: Organisms respond to changes in their internal and external environments	Animal and plant responses; receptors; control of heart rate; nervous coordination; skeletal muscles; homeostasis; control of blood sugar; control of blood water potential.
	Topic 7: Genetics, populations, evolution and ecosystems	Inheritance; populations; evolution and speciation; populations in ecosystems.
	Topic 8: Control of gene expression	Stem cells; gene expression including epigenetics, genes and cancer; sequencing genomes and genome projects; gene technology including recombinant DNA, identification and diagnosis of inheritable conditions, and genetic fingerprinting.

AS LEVEL QUALIFICATION

Examination Board: AQA	<p>The AS Biology specification is split up into 4 topics. Some of these topics will be familiar to you from GCSE and A level will build on the detail that you have already learnt. Other topics will be new to you.</p> <p>Assessment will be in the form of two written papers, each 1 hour 30 minutes in length made up of short and extended response questions, and a comprehension question.</p> <p>There are 6 practical tasks which are required to be carried out by students during the Year and these will be examined within the written papers.</p>	
	<p>Topic 1: Biological molecules</p>	<p>Monomers and polymers; carbohydrates; lipids; proteins; enzymes; DNA and RNA; ATP; water; inorganic ions.</p>
	<p>Topic 2: Cells</p>	<p>Structure of eukaryotic and prokaryotic cells; use of microscopes; transport across membranes; cell recognition and the cell cycle.</p>
	<p>Topic 3: Organisms exchange substances with their environment</p>	<p>Gas exchange; digestion and absorption; mass transport in animals and mass transport in plants.</p>
	<p>Topic 4: Genetic information, variation and relationships between organisms</p>	<p>DNA, genes and chromosomes; DNA and protein synthesis; genetic diversity through mutations and adaptations; meiosis and mitosis; natural selection; species and taxonomy; biodiversity.</p>

STUDENT VIEW

Biology



I would highly recommend taking Biology at A-Level because it can open up so many doors in terms of career prospects and possible university degrees/apprenticeship courses. I am hoping to study Medicine at university which is just one of many paths you can go down with an A level in Biology. The course content itself is diverse; from biochemistry and plant processes to genetics, so whichever area interests you most, you'll be able to carry out studies into your favourite area of biology at some point in the course! Biology is also a subject which brings in varied lesson structures with textbook theory but also practical work and investigations which the teachers provide exceptional support with throughout.

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