

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 an A grade (or above), although those with a B grade will be considered. Students who have sat triple science awards should have a minimum of a B grade in Biology **and** ideally Chemistry.

A LEVEL QUALIFICATION


Year 2017/2019 Advanced Level Award Examination Board: AGA	<p>The A level Biology specification includes the 4 topics taught during Year 12 and an additional 4 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 a further 6 practicals which are required to be completed in year 13 and which 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>
	<p>Topic 5: Energy transfers</p> <p>Photosynthesis; respiration; energy and ecosystems; nutrient cycles - nitrogen and phosphorus cycles.</p>
	<p>Topic 6: Organisms respond to changes in their internal and external environments</p> <p>Animal and plant responses; receptors; control of heart rate; nervous coordination; skeletal muscles; homeostasis; control of blood sugar; control of blood water potential.</p>
	<p>Topic 7: Genetics, populations, evolution and ecosystems</p> <p>Inheritance; populations; evolution and speciation; populations in ecosystems.</p>

	<p>Topic 8: Control of gene expression</p>	<p>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.</p>
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AS LEVEL QUALIFICATION		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 2017/18 Advanced Subsidiary Award Examination Board: AQA</p>	<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



Biology is a great subject to take at A-Level for many reasons. For me, it was partly because I hadn't decided what I wanted to do yet, and biology leads on to so many different possibilities and links well with other subjects, especially other sciences. The lessons are varied, the theory is incredibly interesting and is backed up with a good amount of practical work, including the heart dissection, which was my personal favourite. All of the biology department are willing to help whenever they can and make learning biology very enjoyable.

Hannah Mayne