

A Level Biology FAQs



What is biology?

Biology is the scientific study of living organisms and how they interact with their environment. It is divided into many specialised fields that cover the morphology, biochemistry, physiology, anatomy, behaviour, origin and distribution of living organisms.

What topics do you study?

A range of topics are taught in A level biology, these explain how and why living organisms function as they do.

Year 1

Topic area	Key points
Microscopy and cell structure	Every living organism is made up of one or more cells, therefore understanding the structure and function of the cell is a fundamental concept in the study of biology. Understanding the ability of cells to communicate is important as scientists increasingly make use of membrane-bound receptors as sites for the action of medicinal drugs.
Biological molecules	Proteins, carbohydrates and lipids are three of the key groups of biological macromolecules that are essential for life. Nucleic acids are essential to heredity in living organisms. Metabolism in living organisms relies upon enzyme-controlled reactions.
Cell division, diversity, and organisation	During the cell cycle, genetic information is copied and passed to daughter cells. Microscopes are used to view the different stages of the cycle. Understanding how stem cells can be modified has huge potential in medicine.
Exchange surfaces	Ventilation and gas exchange systems in mammals, bony fish and insects are used as examples of the properties and functions of exchange surfaces in animals.
Transport in animals	As animals become larger and more active, transport systems become essential to supply nutrients to, and remove waste from, individual cells. Controlling this requires the coordinated activity of the heart and circulatory system.
Transport in Plants	The supply of nutrients from the soil relies upon the flow of water through a vascular system, as does the movement of the products of photosynthesis.
Biodiversity	Biodiversity of organisms; how they are classified and the ways in which biodiversity can be measured. An introduction to ecology, emphasising practical techniques and an appreciation of the need to maintain biodiversity.
Evolution	The relationships between organisms, considering variation, evolution and phylogeny.
Disease	The variety of organisms that are pathogenic and the way in which plants and animals have evolved defences to deal with disease.

Year 2

Topic area	Key points
Excretion and homeostasis	The kidneys, liver and lungs are all involved in the removal of toxic products of metabolism from the blood and therefore contribute to homeostasis.
Neuronal communication	The stimulation of sensory receptors leads to the generation of an action potential in a neurone. Transmission between neurones takes place at synapses.
Hormonal communication	The ways in which specific hormones bring about their effects are used to exemplify endocrine communication and control.
Photosynthesis	Biochemical process and the factors that affect it
Respiration	Biochemical processes and the factors that affect it
Genetics and evolution	Cellular control, mutation and controlling the development of body form. Patterns of inheritance, genetic diagrams, statistical analysis and artificial selection. Manipulating genomes, genetic engineering, DNA sequencing, PCR and its application in DNA analysis.

Cloning and biotechnology	Artificial clones of plants and animals and how they can now be produced. Biotechnology is the industrial use of living organisms (or parts of living organisms) to produce food, drugs or other product.
Ecosystems	Organisms do not live in isolation but engage in complex interactions with other organisms and their environment
Populations and sustainability	Factors determining size of populations; conservation and preservation

How much practical work is involved?

Throughout the 2 years up to 36 practical investigations are embedded within the different topics studied. These practical skills are assessed in 2 ways:

1. Practical skills assessed and contribute towards practical endorsement – pass or fail but do not directly affect your grade.
2. Examinable within the final written exams.

What is the exam board?

The exam board is OCR <https://www.ocr.org.uk/qualifications/as-and-a-level/biology-a-h020-h420-from-2015/>

How many exams are there?

There are three exams at the end of year 13.

The first 2 exams are 2 hours 15 mins long and each exam is worth 37% of the overall grade.

The final exam is 1 hour 30 mins and worth 26% of the overall grade.

What type of questions are in the exam?

There is a mixture of multiple choice, short answer questions and extended answer questions (up to 9 marks).

Is there any coursework?

No, there is no coursework element in A level biology.

What do those who study biology go on to do?

Many of our students go on to study Biology, Biomedical Sciences, Biochemistry, Dentistry, Dietetics, Earth Sciences, Environmental Science, Forensic Science, Geology, Medical Science, Medicine, Nursing, Pharmacy, Physiotherapy, Sports Science and Veterinary Science.

Is biology hard?

Simple answer, yes. Biology is a very challenging course due to its high, academically demanding subject content, a large range of new vocabulary to learn and the inclusion of many maths skills. Combined with the unique style of exam questions, A level Biology requires considerable time, effort and dedication both in and outside of lessons.

Do I need to be good at maths?

There is a significant maths element to biology which equates to 10% of the overall grade. Students will need to be proficient in basic maths such as mean, median, mode, range and standard deviation in addition to in drawing and interpreting a variety of graph types. They will be required to calculate percentages and percentage increases and decreases. Students will be taught how to use many statistical techniques to analyse data.

Can I get in touch if I have any other questions?

Of course, my email address is jbirchnall@plymstockschool.org.uk