A Level Biology

What's it all about?

Throughout this fascinating subject you will study topics such as biological molecules, cells, organisms, genetics and populations, evolution and ecosystems.

Biology at A Level builds on the knowledge that students will have already gained at GCSE. Students will gain an awareness of the technological, ethical and economic aspects of biology. It is a subject that can provide great enjoyment and respect for all things living. There will be a structured and progressive approach to the essential principles, in contexts that are interesting and stimulating. There will be number of practical activities which will help develop practical skills alongside the understanding of concepts and principles.

What do I need?

5 GCSEs at grade 5-9 including English and a grade 6 or above in Maths, Biology and another Science (or dual award).

Biology will support your study of other sciences and maths, as well as subjects like geography and psychology – though if you study it alongside a language or an essay subject like English at A level, you might have even more career options.

Where can it lead?

A level Biology is a highly respected academic A level and it makes an excellent choice, offering you access to a wide range of university courses and careers. You'll need biology for most degrees in medicine, biology, biomedical sciences, dentistry, dietetics, physiotherapy, orthoptics and veterinary medicine. Biology is usually required or recommended for courses in biochemistry, environmental science, nursing, occupational therapy, optometry, pharmacy, sports science, physiology and speech therapy.

How is the course assessed?

All main exam boards offer A level Biology courses, and all follow the same general assessment pattern. Your A level grade is determined by your performance in three written papers at the end of the course, which include questions relating to both theory and practical skills.

In the main OCR Biology specification, the first two papers (multiple choice, structured questions, extended response questions) each cover roughly half of the course content and account for 74% of the final mark. Paper 3 includes synoptic questions which might relate to any part of the specification, and contains only structured and extended response questions. It accounts for 26% of the final mark.

Practical skills are assessed by your teacher during a minimum of 12 lab and field experiments, the results of which are sent to the exam board for moderation. Your practical skills result is reported alongside (but does not contribute to) your A level grade.

A Level Chemistry

What's A level Chemistry about?

A level Chemistry studies the material world, and through chemistry we can describe and explain questions such as: "what happens when sugar dissolves in tea?"; "why is mercury a liquid at room temperature?"; "how do we make plastics?"; "what can we do about global warming?"; "how and why will I be affected if oil runs out?".

From baking a cake to recharging a mobile phone, chemistry is involved in everything we do; and our lives are inextricably influenced by many aspects of chemistry. Chemistry will continue to be at the forefront of responding the needs of society; with chemists central to making advances in designing new materials, efficient energy use, drug development, and technology, to name but a few.

A level Chemistry courses cover a wide variety of basic concepts such as the structure of the atom; the interaction of matter and energy; how to control reactions; patterns in the Periodic Table; understanding carbon-based molecules.

What do I need?

5 GCSEs at grade 5-9 including English and a grade 6 or above in Maths, Chemistry and another Science (or dual award).

Where can it lead?

Chemistry A level is a highly respected A level, with its broad variety of tested skills, and it is a good choice for many degrees and careers. Chemistry has been described as the ‘central science’ and is often combined with either physics or biology. It is a compulsory choice for anyone wishing to pursue medicine, dentistry and veterinary science, as well as chemistry-based degrees, such as pharmacy, pharmacology, and biochemistry.

Assessment

The main exam boards (OCR, AQA, Pearson, Eduqas) all offer A level Chemistry. The courses are linear, meaning that the A level exams take place at the end of the second year and any internal or AS exams taken at the end of the first year do not contribute to the overall grade of the A level.

There are 3 written papers, two of which question particular topics from the two years, whilst the third is more 'synoptic' (asking questions which cut across several topics) and has a greater emphasis on the understanding of practical work you have developed during the course. Taking the example of OCR, Paper 1 examines modules 1, 2, 3 and 5; Paper 2 examines modules 1, 2, 4 and 6; and Paper 3 covers all 6 modules.

A level Physics

What's A level Physics about?

A level Physics gives you the opportunity to explore the phenomena of the universe and to look at theories that explain what is observed. This subject combines practical skills with theoretical ideas to develop descriptions of the physical universe. You will learn about everything from kinematics to cosmology and many recent developments in fascinating topics, such as particle physics. If you are interested in the limits of space, the beginning of time and everything in between this is the subject for you. Physics is more than a subject – it trains your brain to think beyond boundaries. Want to find out more? Try

- *A short History of Nearly Everything by Bill Bryson;*
- *Why don't penguins' feet freeze? by New Scientist,*
- *The Quantum Universe: Everything that can happen does happen by Brian Cox and Jeff Forshaw.*
- *Good websites for Physicists include www.iop.org and www.physicsworld.com*
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What do I need?

A good grounding in Physics is essential 7 or higher at GCSE Physics or double science. You need to be comfortable with Mathematics and able to write good English that is scientifically accurate. A general interest in science would be helpful. Much of what you learn in Physics will complement A levels in Biology, Chemistry and Mathematics.

Where can it lead?

Physics is a highly respected A level. A good grade in A level Physics demonstrates to an employer that you have analytical and mathematical skills that you can apply to real life situations. There are many possible career paths that it will create for you, for example: Engineering, Medicine, Forensic Science, Astronomy, Cosmology, Electronics, Power generation, Finance and many more.

Assessment

The whole of the A level Physics course is examined at the end of the full course. There are three theory papers and a practical skills assessment. Your grade is determined by how well you do on the theory papers. Your result in the practical is noted as an endorsement alongside your A-level grade. The papers are:

2 papers each covering about half of the main course content

A third paper with data response / synoptic questions which can come from any part of the specification, plus questions on the option topic (see earlier)

The practical skills assessment involves performing a series of twelve experiments in class time which are assessed