

A Level Biology

Aims of the course are to encourage you, the candidate, to develop:

- An enthusiasm for Biology
- Practical skills alongside understanding of key concepts and principles
- An appropriate and relevant foundation of knowledge and skills for the study of Biology in Higher Education.

Are you considering a career in Chemistry, Biochemistry, Pharmacology, Pharmacy, Medicine, Dentistry, Veterinary Medicine or Veterinary Science?

If the answer is **yes** then you should be considering studying Biology.

COURSE CONTENT

This course has been designed to inspire students, nurture a passion for Biology and lay the groundwork for further study in courses like Biological Sciences and Medicine.

A Level Biology lasts two years, with exams at the end of the second year. The table below shows the topics you will study in each year:

First year of A Level	Second year of A Level
1. Biological Molecules	5. Energy transfers in and between organisms
2. Cells	6. Organisms respond to changes in their internal and external environments
3. Organisms exchange substances with their environment	7. Genetics, populations, evolution and ecosystems
4. Genetic information, variation and relationships between organisms	8. The control of gene expression

ASSESSMENT

Whilst there is no coursework, practical work is assessed through the examinations at the end of the year. There are 12 required practicals to be completed for the A Level.

These practicals will give you the skills and confidence needed to investigate the way living things behave and work. It will also ensure that if you choose to study a Biology-based subject at university, you'll have the practical skills needed to carry out successful experiments in your degree.

There are three exams at the end of the two years for A Level, all of which are two hours long. At least 15% of the marks for A Level Biology are based on what you learned in your practicals.

CAREER OPPORTUNITIES

As a subject on its own an A Level in Biology shows that you have a high level of scientific skill and understanding. Taken with other sciences, Biology A Level opens up many careers including Pharmaceutical industries; Pharmacy; Biochemistry; Medicine and related medical careers; Laboratory Technician; Environmental Scientist.

ENTRY REQUIREMENTS

The minimum entry requirements for academic Level 3 study apply.

In addition:

All students must have Grade 6+ in Maths owing to the considerable mathematical content of the A Level.

It is strongly recommended also that students have attained Grade 7 or better in GCSE science subjects.

The minimum entry requirements for Double Award Students are Grades 6 and 7 in Science. The minimum entry requirements for Triple Award students are Grade 6 in Biology plus Grade 6 in one other science and performance in the exam components may be taken into account, given the 100% examined nature of the A Level.

A Level Chemistry

Aims of the course are to encourage you, the candidate, to develop:

- An enthusiasm for Chemistry
- Gain hands-on practical skills and data analysis skills
- Appreciate how science works and its relevance beyond the laboratory
- Demonstrate a synoptic understanding
- Study Chemistry in a contemporary context
- An appropriate and relevant level of knowledge and skills for study at H.E. level.

Are you considering a career in Chemistry, Chemical engineering, Biochemistry, Pharmacology, Pharmacy, Medicine, Dentistry or Veterinary Medicine or Veterinary Science?

If the answer is **yes** then you should be considering studying Chemistry.

COURSE CONTENT - (AQA 7405)

In Year 12 candidates are given a solid grounding in the fundamentals of Chemistry. The specification introduces the chemical reactivity of atoms and their compounds and provides an understanding of structure and bonding. Chemical calculations include the study of amounts of substance. Physical chemistry topics cover energy changes and rates of reactions. The development and use of the periodic table is explained and organic chemical reaction mechanisms are introduced.

In Year 13 the specification further develops the concepts of chemistry introduced in Year 12. Candidates study physical chemistry topics of kinetics, equilibria, thermodynamics and electrochemistry. Organic chemistry is extended to include spectroscopic techniques that determine molecular formulae and structures of organic compounds. The study of the periodic table continues, including the chemistry of transition elements.

PRACTICAL SKILLS

Chemistry is fundamentally an experimental subject. The course provides numerous opportunities to use practical experience linking theory to reality and equipping students with essential skills.

Practical skills are assessed continuously throughout the course through 12 compulsory activities leading to a 'practical endorsement'. There is no coursework component.

ASSESSMENT

All assessment is undertaken at the end of Year 13 as follows, apart from practical skills which are assessed continuously:

Paper i: Inorganic & Physical Chemistry (2hours, 105marks, 35% of A Level)

Paper ii: Organic & Physical Chemistry (2hours, 105 marks 35% of A Level)

Paper iii: Synoptic Paper (2hours, 90 marks, 30% of A Level)

CAREER OPPORTUNITIES

As a subject on its own, A Level in Chemistry shows that you have a high level of scientific skill, numeracy and understanding. Taken with other sciences, Chemistry A Level opens up many careers including Pharmaceutical Industries; Pharmacy; Biochemistry; Medicine and related medical careers; Laboratory Technician; Environmental Scientist, Forensic Scientist, Chemical engineer, Materials Engineer, Oil and Petroleum Chemistry.

ENTRY REQUIREMENTS

The minimum entry requirements for academic Level 3 study apply.

In addition:

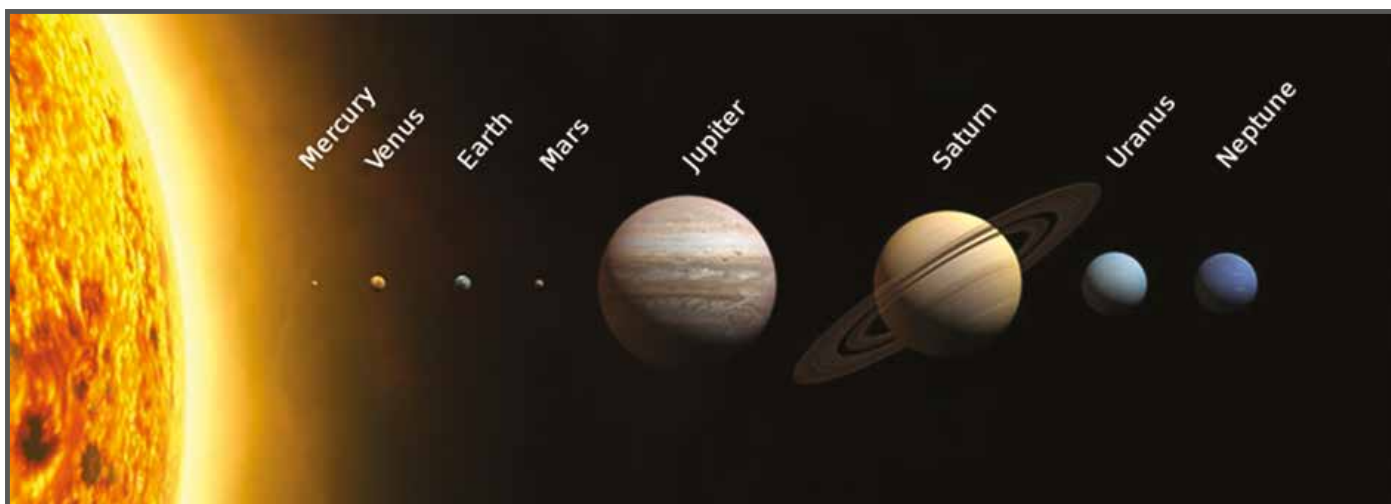
All students must have Grade 6+ in Maths owing to the considerable mathematical content of the A Levels.

It is strongly recommended also that students have attained Grade 7 or better in GCSE science subjects.

The minimum entry requirements for Double Award Students are Grades 6 and 7 in Science. The minimum entry requirements for Triple Award students are Grade 6 in Chemistry plus a Grade 6 in one other science and performance in the exam components may be taken into account, given the 100% examined nature of the A Level.

You will be required to complete independent study throughout the course.

For more information please see: www.aqa.org.uk



A Level Physics

Students studying A Level Physics will be entered for either the Edexcel course (SGA & KSHS) or OCR Physics A course (CGS).

COURSE STRUCTURE:

The A Level is assessed using three exams taken in the Summer of Year 13. The first two papers will cover a differing selection of topics across the two years of study, while the third paper will be synoptic in nature, including all topics, and focus more on understanding of experimental methods and analytical techniques. The topics covered include:

- Mechanics
- Materials
- Electricity
- Waves and quantum phenomena
- Thermodynamics
- Circular motion
- Oscillations
- Gravitational fields
- Astrophysics and cosmology
- Capacitors
- Electric and magnetic fields
- Nuclear and particle physics

Practical Endorsement

Pupils will also work towards the practical endorsements in lessons completing a series of practical activities over the two years. This will lead to a Pass or Fail of the endorsement. This element is completely separate to the A Level and no marks from this contribute towards the final A Level grade.

ENTRY REQUIREMENTS

Physics is traditionally seen as one of the most difficult A Level subjects. The jump from GCSE is significant.

For students to make a success of the course, they will need to be able to work independently and to have a high level of mathematical ability. It is highly recommended that students also take A Level Mathematics as the progression from A Level Physics into Higher Education Physics courses will require it.

The minimum entry requirements for academic Level 3 study apply.

In addition:

All students must have Grade 6+ in Maths owing to the considerable mathematical content of the new A Levels. It is strongly recommended also that students have attained Grade 7 or better in GCSE Science subjects. The minimum entry requirements depend upon which Science GCSEs you have taken.

- For Combined Science students is a Grade 7-6 or above.
- For Separate Science students are Grade 6 in Physics plus Grade 6 in one other science.

Performance in the exam components may be considered given the 100% examined nature of the A Level.

Further details about the courses can be obtained from:
<http://qualifications.pearson.com/en/qualifications/edexcel-a-levels/physics-2015.html>
<http://www.ocr.org.uk/qualifications/as-and-a-level/physics-a-h156-h556-from-2015/>

BTEC Level 3 National Extended Certificate in Applied Science (AAQ)

The Pearson BTEC Level 3 National Extended Certificate in Applied Science (AAQ) enables students to study the principles and applications of biology, chemistry and physics, as well as practical scientific procedures and techniques. Students will also have the opportunity to develop their investigation skills.

Students develop the ability to practically apply scientific concepts, which is beneficial to the analytical approach of related degrees. Critical thinking and independent learning help students to be better prepared for the self-directed learning approach used in higher education and become more open-minded to learning. Research and extended writing skills with the other skills, create a good foundation for academic success.

Equivalent to one A level in size, it is suitable for students looking to develop their applied knowledge and skills in science alongside other BTEC Nationals, CTECS or A Levels. It can link to learning in a range of A level subjects such as A level Psychology and A level Sociology. The Pearson BTEC Level 3 National Extended Certificate in Applied Science (AAQ) is intended for students that wish to progress into higher education as a pathway to employment.

COURSE CONTENT

The Qualification consists of four mandatory units:

- Unit 1: Principles and Applications of Biology
- Unit 2: Principles and Applications of Chemistry
- Unit 3: Principles and Applications of Physics
- Unit 4: Practical Scientific Procedures and Techniques

Learners will also study one optional unit:

- Unit 5: Scientific Investigation Skills

CAREER OPPORTUNITIES

The requirements of the qualification will mean that learners develop the transferable and higher order skills which are valued by higher education providers and employers. For example, when studying **Unit 5: Scientific Investigation Skills**, learners will develop skills including how to plan investigations, collecting, analysing, and presenting data and communicating results, which support some of the skills learners need to progress to higher education, employment, self-employment or training.

ASSESSMENT

Mandatory units; 1-3: Principles and Applications of Biology, Chemistry and Physics are externally-set written examination assessments. Units; 4-5: Practical Scientific Procedures and Techniques and Scientific Investigation Skills are portfolio-based assessments.

ENTRY REQUIREMENTS

The minimum entry requirement for Level 3 academic study apply. In addition students will need to achieve at least Grade 4 in GCSE Science (single or combined).