

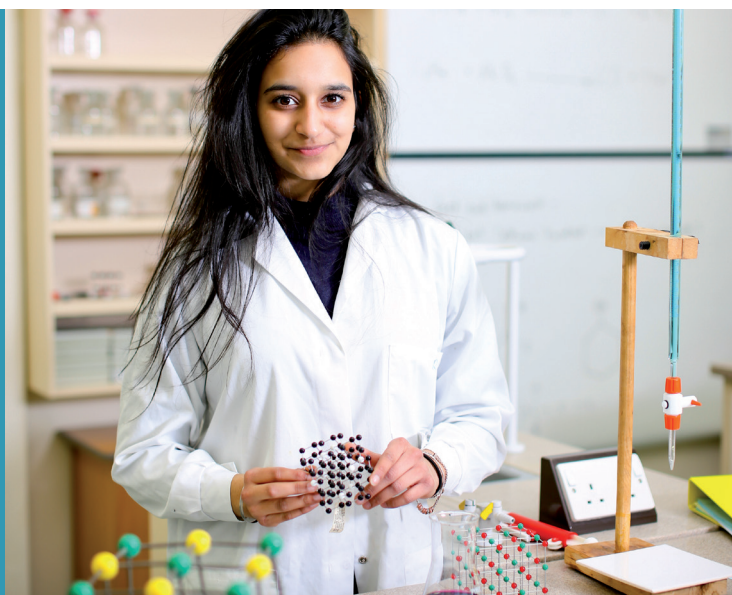
# chemistry

A Level

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## What is this subject about?

Chemistry is the study of how the elements and their compounds behave. It overlaps with Physics and Biology as chemical principles underpin both the physical environment in which we live and all biological systems. You will develop knowledge and understanding of fundamental chemical concepts, as well as the application of these in a variety of areas of chemistry. You will also develop a deeper appreciation of how Chemistry plays a major role in providing the comfortable modern lifestyle we appreciate, and how it contributes to the success of the economy and to society more broadly.

## What will I study over the two years?

In the first year, you begin by studying chemical concepts and theories that bridge your knowledge between GCSE and A Level before developing this knowledge and understanding further. You will apply your knowledge to develop the ideas that underpin the study of inorganic and physical chemistry including periodic trends, and consideration of energy and yield in improving sustainability. You will develop and improve your skills in planning, implementing, analysing and evaluating data. You will also develop important quantitative techniques involved in measuring masses and using volumetric apparatus to measure volumes of gases and solutions. During the year you will also be introduced to organic chemistry and its important applications within everyday life, including current environmental concerns associated with sustainability. You will be given opportunities to develop practical skills in organic chemistry, including use of Quick Fit apparatus for distillation, heating under reflux and purification of organic liquids. You will also learn to appreciate the need to consider the responsible use of organic chemicals in order to reduce demand for hydrocarbon fuels and avoid the use of ozone depleting chemicals.

The second year builds on your knowledge and understanding of topics studied in the first year. You will develop a strong appreciation of the skills, knowledge and understanding of scientific methods. You will also understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society. There is a particular focus on how amino acids are the building blocks of polypeptides and proteins, on the preparation of synthetic condensation polymers, on the importance of synthetic organic chemistry (for example in the design and development of drugs in the pharmaceutical industry), and on the chemistry of fuel cells and renewable resources.

## How is the course assessed?

Assessment is by written examinations with multiple choice, structured and extended response questions covering theory and practical skills.

### **What skills will I need and develop in this course?**

Numerical, problem solving and communication skills are central to the course. Chemistry is a practical subject and the development of practical skills is also fundamental. The course will give many opportunities to develop the skills needed to plan, collect and analyse empirical data. You will also develop your research and critical skills – i.e. how to find relevant scientific information and how to interpret and evaluate scientific data.

### **What can the course lead to in terms of higher education and future careers?**

This course is an excellent foundation (and indeed essential) for further study of Chemistry, Chemical Engineering, Medicine, Veterinary Science, Dentistry, and related subjects such as Pharmacy, Pharmacology and Biomedical Sciences. It is highly recommended for other sciences as well. The course also provides a valuable education if you take chemistry no further but wish to pursue a career in, for example, Finance, Publishing or Patent Law.

### **What are the formal entry requirements for this course?**

A Level Chemistry is a strongly theory based course that is assessed by exams and builds directly on GCSE work in Chemistry and Maths. You are most likely to succeed if you have an appropriate base of knowledge and a good track-record of success in exam based courses at GCSE overall.

In addition to the College's general entry criteria, you will need to achieve a minimum of:

- Grade 6's in GCSE Combined Science (or if you have taken triple science, Grade 6 in GCSE Chemistry and similar in the other sciences)
- Grade 6 in GCSE Maths (Higher level)

Additionally we would also ideally expect you to have averaged at least a grade 6 in your GCSEs overall. If you have not achieved at this level you will be much more likely to succeed on the BTEC Extended Certificate or Diploma in Applied Science, rather than A Level in the sciences. Merit on BTEC carries the same UCAS points as a C at A Level. Distinction carries the same UCAS points as an A.

Applied Science or Additional Applied Science or non-GCSE Science qualifications are not suitable as preparation for A Level study.

### **Are there alternative routes forward in Science?**

To succeed with A Level Chemistry you need to be good at understanding and remembering a large body of knowledge, and at applying it under exam conditions to solve unfamiliar problems. This is why

ideally an average of least a grade 6 in your GCSEs is needed. If your GCSE track record is not in line with this but you wish to take science to a higher level you should look at our BTEC courses in Applied Science. These are assessed predominantly by coursework and you can check your thinking with your teachers as you go along.

The Extended Certificate is equivalent to one A Level and would give a sufficient base to enable progression to degrees in fields where science has a supporting role – fields such as Sports Science, Sports Therapy, Paramedics, Nursing, Radiography, and Equine Science – as well as to a range of scientifically orientated Foundation degrees. If you want to be able to go on to a wider range of more intensely scientific careers/degrees, you would need to take the Diploma course, which is the equivalent to two A Levels.

There is more detailed information about BTEC Applied Science on its own subject information sheet.

### **Why should I consider taking an A Level in Chemistry?**

It will enable you to develop a wide range of transferable skills. It will also help develop your interest and enthusiasm for chemistry, including developing your interest in further study and careers involving it. It will help you appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society. Chemistry has a great capacity to solve many of the global challenges that society faces in the 21st Century, including energy, food, climate change and health care. A new generation of chemists and other scientists will be involved in tackling these global challenges. If you want to enhance your understanding and be in a position to make a difference, then Chemistry is for you.

### **What extra support/enrichment activities are on offer?**

You will be encouraged to attend the lunchtime chemistry clinics or scheduled subject tutorials for assistance when required. We encourage students to attend a Chemistry lecture day held at the University of London as well as other lectures that will enable you to extend your knowledge and interest in chemistry beyond the syllabus. We try to arrange for you to spend a day at a university to get hands-on experience with spectroscopic techniques that are not available here at the College. You will also be alerted to relevant 'taster' courses at various universities, especially those related to chemistry, medicine, veterinary science and dentistry.

### **Subject combination advice:**

We strongly advise you to take Maths and another science subject (Biology if you are considering medicine), as many science degree courses related to Chemistry require Maths and two sciences at the top universities.



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