



OXFORD
HIGH SCHOOL
GDST

A Level Chemistry

Sixth Form study options



A Level Chemistry

Welcome to the Chemistry Department

Chemistry is a long-standing and popular subject at Oxford High School. It has excellent results and routinely attracts a high number of students. Many go on to study Medicine, Chemistry, Biochemistry and other Chemistry-related subjects at university.

The aim of this booklet is to introduce you to the subject, provide an outline of the course and ensure that, if you opt for it, you will be aware of what to expect. You will be studying the AQA Chemistry course.

The Acting Head of Chemistry is Mr Joel Abbott. Dr Ed Batchelar, Mr Jack Sobey, and Mrs Nicola Westwood also teach this A Level. A team of science technicians assists the department and for Chemistry this is Mrs M Idiahi.

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Chemistry is necessarily an experimental science: its conclusions are drawn from data, and its principles supported by evidence from facts.

Michael Faraday (1791 to 1867)



Why study Chemistry?

Simply put – this is a beautiful subject, cutting-edge, and utterly inspirational

If you want to know what makes up the world around you, you are a natural chemist.

If you like logical problems and thinking hard (really using your brain) then Chemistry is for you!

The food you eat, the air you breathe, your own body, your mobile phone, plants, medicines, plastics, fabrics and the streets around you are made of chemicals.

Chemicals are converted into new forms during cooking, as part of your metabolism and body processes, through engineering, industrial processes and by the effect of drugs. This is why chemistry touches upon every aspect of daily life. It is essential to our global environment and sustainability research. Remember – not all chemists wear white coats!

What skills will I develop and learn on the course?

Chemistry is a concise subject that makes you think. It complements, and is itself complemented by Biology, Physics, Mathematics, Geography, Economics and Psychology, to name but a few.

Students develop problem solving skills and the ability to write equations and learn the appropriate terminology of the subject. The study of Mathematics A Level can really support this subject and anyone intending to study Chemistry or Physics at university level is strongly advised to study Mathematics A Level.

Students will develop a broad range of practical skills to complement a deeper understanding of the theoretical concepts being covered. Students become adept at using various apparatus and methods and in deciding independently what apparatus is needed for an investigation. Observational skills are also important as is the ability to make deductions from what is observed.



What kind of student does this course suit?

This course will be of interest if:

You are inquisitive and interested in all that is going on around you, from climate change, discovery of materials, to development of new medicines or fertilisers.

You want a well-respected, rigorous A Level which develops skills and assets greatly valued by future employers, such as team working, problem solving, presentation, practical and mathematical skills.

It is essential if you are thinking of going on to study Medicine, Veterinary Medicine, or Chemistry-related subjects at university (see below). It combines well with many other science-related subjects, plus Law, Geology, Architecture, and Economics to name but a few.

Above all else, however, we would like you to study Chemistry because you enjoy it, and not simply because it is a means to an end. We love our subject and hope that you will appreciate and enjoy it just as much as we do.



Key A Level practical skills

What is studied?

The A Level course studied will be AQA Chemistry (7405)

Year 12 includes the following topics:

Amount of substance, Atomic structure, Bonding, Energetics, Kinetics, Equilibria and K_c, Periodicity, Group 2, Group 7, Organic chemistry (including nomenclature, isomerism, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis).

Year 13 includes the following topics:

Thermodynamics, Rate equations, K_p, Electrode potentials, Acids and bases, Period 3 properties, Transition metals, Aqueous ions, Further Organic Chemistry (including carbonyl compounds, carboxylic acids and their derivatives, amines, aromatic chemistry, polymers, biochemistry, further organic synthesis to include chromatography and NMR).

Assessment

A Level Chemistry is assessed by three papers, each lasting two hours at the end of Year 13. Both Paper 1 and Paper 2 are worth 35% of the overall A Level, with the practical and synoptic Paper 3 being worth 30%.

Practical work

Students will do a huge amount of practical work. They will do many experiments throughout the course but there will be a formal record kept of the Required Practicals (RPs), which will be used in awarding students with the A Level Practical Endorsement at the end of Year 13.

Very importantly, nearly 45% of the marks awarded on Paper 3 will be related to your knowledge of practical work including planning, implementing, analysing and evaluating. Therefore, understanding the how and why of a practical is just as important as following the instructions.

Stretch and Challenge

Students are constantly given opportunities to work outside their own comfort zone. Each lesson normally contains questions in which students have to apply learnt information in an unfamiliar context. There are also booklets of Stretch and Challenge activities which are set at an A* (and beyond) level. Pupils are also actively encouraged to develop their research skills through independent projects, such as the Gold CREST Award scheme, the Big Bang Competition, and the Imperial College Science Challenge, to name a few.

In January, many Year 12 and Year 13 students take part in the RSC 'Chemistry Olympiad' and in June, students can take part in the 'Cambridge Chemistry Challenge'. Further enrichment through the Peterhouse and Newnham College essay competitions are encouraged. A Science Conference-style event also enables Year 13 pupils to showcase the skills and interests they have developed over the years.

Further enrichment through the Immerse Essay Competition, #700STEM Challenge, The Oxford Student Schools' Science Writing Competition, the Association of British Science Writers' Young Science Writer of the Year, and the academic essay competition from Robinson College, Cambridge are also encouraged. The Oxfordshire Youth Chemistry Conference enables students to showcase the skills and interests they have developed over the years.

Resources

There are a variety of sources of information available to you during the course. This includes the AQA textbook (OUP ISBN 978 019 8351825) which will be issued by the department along with a variety of other text resources, including a revision guide.

The Oxford High School Library is extremely well stocked with up-to-date Chemistry books. It also contains back issues of Chemistry Review and the New Scientist. Students taking the course are expected to purchase their own copies of 'Chemistry Review' (purchased through ParentPay). Students are also encouraged to read around the subject to gain a holistic understanding of where chemistry fits in with all other subjects on offer.

Science Conference



Year 12 Chemistry Curriculum Day

On the Chemistry Curriculum Day, we work outside of the normal timetable and our students have an opportunity to do extended practical investigations without the constraints of a school bell.

Students spend the whole day doing experimental work and can take considerable time allowing them to immerse themselves in lots of exciting activities.



Year 13, 2022 Leavers



RSC Science Challenge 2022 – Winner

Marianne P, Class of 2023

RCSU Science Challenge is an international competition run by Imperial College London which requires entrants to demonstrate their skills in scientific debate and reasoning, as well as their ability to teach the public about the science that affects their lives. After successfully being shortlisted for her entry, Marianne was invited to attend the Grand Awards Ceremony on Monday 21st March, where she was declared winner of her category

Chemistry at University

OHS students have studied these Chemistry-related courses over the last three years:

Adult Nursing	King's College, London	Medical Science	Birmingham, Leeds
Animal Science	Nottingham	Natural Sciences	Anglia Ruskin, Cambridge, Durham
Biochemistry	Oxford, Leeds	Neuroscience	Sussex
Biomedical Sciences	Cardiff, Durham, Imperial College London, Sheffield, Southampton, University College London, Oxford Brookes	Pharmacology	King's College London, University College London, Nottingham
Chemistry	Bath, Cardiff, Oxford, Southampton, Imperial College London	Pharmacy	University College London, Cardiff
Chemical Engineering	Cambridge, Manchester, Swansea	Veterinary Medicine/ Science	Bristol, Liverpool
Chemical Physics	Bristol	Liberal Arts	Harvard
Computer Science	Oxford, Imperial College London (with Maths)	Zoology	Bristol
Dentistry	King's College London		
Environmental Geoscience	University College London		
Law	City, University of London		
Medicine	Birmingham, Brighton & Sussex, Bristol, Cambridge, Cardiff, Edinburgh, Imperial College London, Leicester, Manchester, Newcastle, Nottingham, University College London, Queen Mary (University of London), Sheffield, St. Andrews, University of East Anglia		

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