



Hartismere
College



Chemistry

A STUDENT'S GUIDE TO THE AS/A LEVEL IN CHEMISTRY

What do I need to know or be able to do before taking this course?

In order to study this subject, it is usual to have a minimum of two GCSE qualifications in science with at least one grade 7. This might be via the combined science or “triple” science route, along with your teacher’s recommendation.

The course focuses on the study of all aspects of chemistry (organic, inorganic and physical) using applications in the real world as a vehicle to deliver and understand content. Problem-solving and investigation work are common aspects of the approach to learning. At Hartismere, we study OCR A Level Chemistry B (“Salters”).

What will I learn on this A level course?

The course will enable you to:

- develop your knowledge of chemical concepts, begun at GCSE;
- challenge your understanding of common phenomena;
- develop abstract models in explaining what you see;
- understand the importance of questioning and testing ideas;
- appreciate how society makes decisions about scientific issues and how chemistry contributes to the success of the economy and society

What kind of student is this course suitable for?

This course will appeal to students who:

- like to ask questions and challenge observations
- enjoy learning by experimenting and testing their understanding of the world around them
- engage with the subject on a deeper level – often taking the initiative in directing their own learning pathway
- want to keep their options open for further study by pursuing a challenging, well respected subject

AS Chemistry (H033)

Students study 5 modules of chemistry during the first year of their A level studies. These cover diverse topics such as atmospheric chemistry, fundamentals of organic chemistry and aspects of physical chemistry such as equilibria and enthalpy changes during reactions.

Teaching module	Content
Elements of life	Fusion and the origin of elements, group 2 chemistry, moles and fundamental concepts.
Developing Fuels	Energy changes in chemical reactions, the reasons behind the strange properties of some organic molecules and why bromine attacks C=C bonds.
Elements from the Sea	Extracting useful materials from sea water, understanding redox chemistry and equilibria.
The Ozone Story	Radical reactions, forces between molecules that affect properties and atmospheric chemistry.
What's in a medicine	The OH group in different situations in chemistry, esters and how to analyse unknown samples.

What examinations will I have to take to get my qualification?

AS is short for Advanced Subsidiary. This is a standalone qualification studied for one year. All Hartismere students will sit AS exams so that they can have as much choice as possible about the subjects they continue with in year 13. All work in year 12 is preparation for the full A level qualification which is taken at the end of year 13.

AS Chemistry Assessment

Foundations in Chemistry

50% of AS marks

1 hour 30 minute exam (summer of AS year)

This examination assesses year 12 work, through multiple choice and longer answer questions. It is known as the "breadth paper" as it covers work all parts of year 12.

The exam will challenge students to recall fundamental chemical knowledge and apply it to a range of new situations.

Chemistry in depth

50% of AS marks

1 hour 45 minute exam (summer of AS year)

This examination assesses aspects of all year 12 work, through structured and extended answer questions. This paper also assesses practical skills and knowledge.

Advanced Level (H433)

Students study 5 further modules of Chemistry. These cover diverse topics such as the interconversion of nitrogen compounds, the structure and function of DNA and entropy.

Assessment at A level

Paper 1 Fundamentals of Chemistry

41% of A level marks

2 hour 15 minute exam (summer of 2nd year)

This paper will have some multiple choice questions, but the majority of the paper will be structured questions.

Paper 2 Scientific literacy in Chemistry

37% of A level marks

2 hour 15 minute exam (summer of 2nd year)

This paper will have some problem-solving questions, calculations and a component related to some advanced notice materials issued to students prior to the exam.

Paper 3 Practical Skills in Chemistry

22% of A level marks

1 hour 30 minute exam (summer of 2nd year)

This paper comprises questions on experiments, how to carry them out and how to ensure valid results. The questions are largely structured.

Practical Endorsement for Chemistry

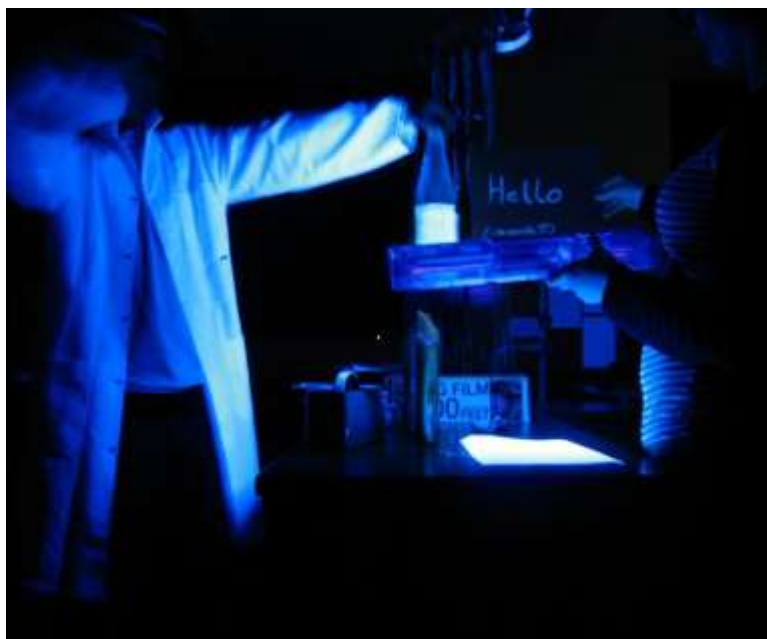
Reported as a separate Pass/Fail result, along with the A level grade.

Over the course of the 2nd year of the A level course, students will carry out a series of at least 12 experiments during lessons in order to demonstrate their experimental skills.

What about extra-curricular and wider study aspects of the chemistry course?

It's not just about study!

Many students see the chemistry they study as a launch pad for their wider interest and engagement. In recent years, there have been a whole host of off-site activities from a residential visit to a historic copper mine (complete with chemical demos!), tours of working laboratories (horse racing forensics at



Newmarket) and visits to the world-leading diamond light synchrotron facility near Oxford. We engage with local universities (such as Cambridge and UEA) and bodies such as the Royal Society of Chemistry to attend lectures and demonstrations, giving students a taste for life after their A level studies. We work hard to tailor these trips to match the interests of students in order to engage and enthuse.

Some A level chemistry students volunteer to support lower school chemistry lessons and extra-curricular science clubs in order to demonstrate their high level skills and to engage with younger pupils.

What could I go on to do at the end of my course?

Students with AS or A Level chemistry have a wide range of possible career and higher education opportunities. You will harness and use a wide variety of transferable skills during the course. These include developing questioning and investigative skills, proposing and testing hypotheses, manipulating abstract ideas in the search for solutions, evaluating processes and methodology to help to gauge the validity of findings and communication on many levels. These skills are in demand from employers, universities and colleges and are also valuable in their own right.

Chemistry can be studied as a single subject in higher education or can be combined with a range of other disciplines both science-based and otherwise. Students have gone on to study courses such as chemistry with business, toxicology, pharmacy, medicine, veterinary science, engineering, anthropology, forensics and many other courses. The rigour of the course and the skills it engenders mean that it would form a good basis for study in a range of different fields such as law, accountancy, politics and many more.

‘The chemists are a strange class of mortals, impelled by an almost maniacal impulse to seek their pleasures amongst smoke and vapour, soot and flames, poisons and poverty — yet amongst all these evils I seem to live so sweetly that I would rather die than change places with the King of Persia.’

— Becher, *Physica Subterranea*, 1667

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