You're studying AS or A-level Chemistry, congratulations!

Studying chemistry after your GCSEs really develops your practical and mathematical skills. If you enjoy experimenting in the lab, you'll love it.

At first, you may find the jump in demand from GCSE a little daunting, but if you follow the tips and advice in this guide, you'll soon adapt.

We recommend you keep this somewhere safe, as you may like to refer to the information inside throughout your studies.

Why study A-level Chemistry?

Chemistry students get to investigate a huge range of ideas: the big question you'll ask yourself is 'what is the world made of?' If you choose it as career, you have the potential to help solve all sorts of problems. You could work on a cure for cancer, or you might develop a new food: the possibilities are endless.

Even if you don't decide to work in chemistry, studying it still develops useful and transferable skills for other careers. You'll develop research, problem solving and analytical skills, alongside teamwork and communication. Universities and businesses regard all of these very highly.

Possible degree options

According to bestcourse4me.com, the top five degree courses taken by students who have A-level Chemistry are:

- Chemistry
- Biology
- Pre-clinical medicine
- Mathematics
- Pharmacology.

For more details, go to the bestcourse4me.com website, or UCAS.

Which career appeals to you?

Studying Chemistry at A-level or degree opens up plenty of career opportunities, such as:

- analytical chemist
- chemical engineer
- clinical biochemist
- pharmacologist
- doctor
- research scientist (physical sciences)
- toxicologist
- environmental consultant
- higher education lecturer or secondary school teacher
- patent attorney
- science writer.

Specification at a glance

AS and A-level

Physical chemistry

- Atomic structure
- Amount of substance
- Bonding
- Energetics
- Kinetics
- Chemical equilibria, Le Chatelier's principle and K_c
- Oxidation, reduction and redox equations

Inorganic chemistry

- Periodicity
- Group 2, the alkaline earth metals
- Group 7 (17), the halogens

Organic chemistry

- Introduction to organic chemistry
- Alkanes
- Halogenoalkanes
- Alkenes
- Alcohols
- Organic analysis

A-level only topics

Physical chemistry

- Thermodynamics
- Rate equations
- Equilibrium constant K_p for homogeneous systems
- Electrode potentials and electrochemical cells
- Acids and bases

Inorganic chemistry

- Properties of Period 3 elements and oxides
- Transition metals
- Reactions of ions in aqueous solution

Organic chemistry

- Optical isomerism
- Aldehydes and ketones
- Carboxylic acids and derivatives
- Aromatic chemistry
- Amines
- Polymers
- Amino acids, proteins and DNA
- Organic synthesis
- NMR spectroscopy
- Chromatography

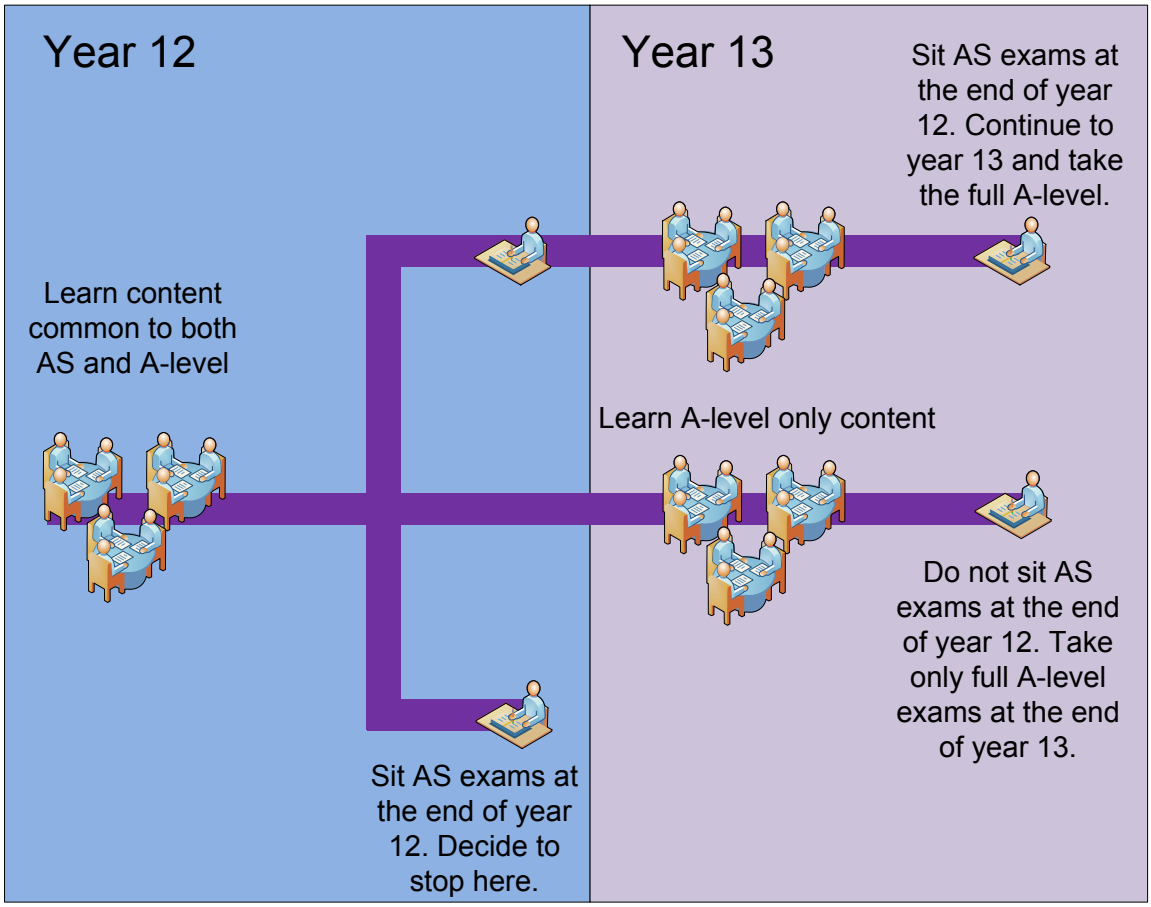
Should you study AS or A-level?

AS and A-level are separate qualifications.

An AS lasts one year. Your exam results don't count towards an A-level, but they're still valuable and AS UCAS points are accepted by higher education institutions.

Despite being separate to an A-level, AS course content is the same as the first year of A-level. If you want to switch from an AS to an A-level, you can. Your teacher will help you decide whether it's the right move for you.

All exams for the AS take place at the end of the one-year course. Exams for the A-level take place at the end of the two-year course.



The assessment for the AS consists of two exams

Paper 1	+	Paper 2
What's assessed • Relevant Physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 and 3.1.7) • Inorganic chemistry (section 3.2.1 to 3.2.3) • Relevant practical skills		What's assessed • Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6) • Organic chemistry (section 3.3.1 to 3.3.6) • Relevant practical skills
How it's assessed • Written exam: 1 hour 30 minutes • 80 marks • 50% of the AS		How it's assessed • Written exam: 1 hour 30 minutes • 80 marks • 50% of the AS
Questions • 65 marks of short and long answer questions • 15 marks of multiple choice questions		Questions • 65 marks of short and long answer questions • 15 marks of multiple choice questions

The assessment for the A-level consists of three exams

Paper 1	+	Paper 2	+	Paper 3
What's assessed • Relevant Physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 to 3.1.8 and 3.1.10 to 3.1.12) • Inorganic chemistry (section 3.2) • Relevant practical skills		What's assessed • Relevant Physical chemistry topics (sections • 3.1.2 to 3.1.6 and 3.1.9) • Organic chemistry (section 3.3) • Relevant practical skills		What's assessed • Any content • Any practical skills
How it's assessed • Written exam: 2 hours • 105 marks • 35% of A-level		How it's assessed • Written exam: 2 hours • 105 marks • 35% of A-level		How it's assessed • Written exam: 2 hours • 90 marks • 30% of A-level
Questions • 105 marks of short and long answer questions		Questions • 105 marks of short and long answer questions		Questions • 40 marks of questions on practical techniques and data analysis • 20 marks of questions testing across the specification • 30 marks of multiple choice questions

Places to go for help

1. Our website is a great place to start.

Our AS and A-level Chemistry webpages are aimed at teachers, but you may find them useful too. Information includes:

- The specification – this explains exactly what you need to learn for your exams.
- Practice exam papers.
- Lists of command words and subject specific vocabulary – so you understand the words to use in exams.
- Practical handbooks explain the practical work you need to know.
- Past papers from the old specification. Some questions won't be relevant to the new AS and A-level so please check with your teacher.
- Maths skills support.
- Web resources page with many links to other resources to support study.

2. The Royal Society of Chemistry (RSC)

The RSC do everything from naming new elements and lobbying MPs, to improving funding for research sciences in the UK.

You'll find lots of handy resources on their website.

3. The student room

Join the A-level Chemistry forums and share thoughts and ideas with other students if you're stuck with your homework. Just be very careful not to share any details about your assessments, there are serious consequences if you're caught cheating. Visit thestudentroom.co.uk

4. Textbooks

Our approved textbooks are published by Collins, Hodder and Oxford University Press. Textbooks from other publishers will also be suitable, but you'll need to double check that the content and formula symbols they use match our specification.

5. Revision guides

These are great if you want a quick overview of the course when you're revising for your exams. Remember to use other tools as well, as these aren't detailed enough on their own.

6. YouTube

YouTube has thousands of Chemistry videos. Just be careful to look at who produced the video and why, because some videos distort the facts. Check the author, date and comments – these help indicate whether the clip is reliable. If in doubt, ask your teacher.

7. Magazines

Focus, New Scientist or Philip Allan updates can help you put the chemistry you're learning in context.