

## Change to all A Levels

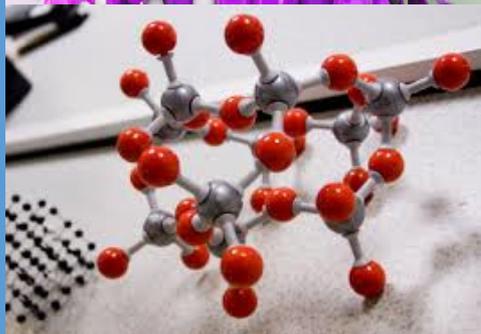
Changes are under way for all A levels in all schools and colleges and some awarding bodies are still revising their syllabuses for 2015. As a result, this guide is an illustration of the content but the exact details may change.

The most significant changes in A Levels and AS exams (but see below for the different timescale in this subject) are:

- All assessment for A Levels will be through end of course exams with no practical element in most subjects.
- There will still be AS as one year “half A Levels” but you won’t be able to add an A2 to make them into a full A Level.
- This means if you want a full A Level you will need to decide that at the start of your course.
- You will still be able to combine A Levels with other types of qualifications such as BTECs.
- These changes are happening at different times for different subjects.
- You’ll have lots of support from us before you have to make your final choice of subjects.

Specifics for this subject:

**The first teaching for the new examinations is in September 2015 leading to an end of course exam in 2017.**



## What is Chemistry

Chemistry is the natural science concerned with the composition, structure and properties of matter.

With specific focus on atoms, compounds and molecules, Chemistry examines interactions and transformation in matter including the impact of energy and the combination of elements to form complex substances.

Branches of Chemistry include:

- Analytical Chemistry;
- Biochemistry;
- Chemical Engineering;
- Electrochemistry;
- Medicinal Chemistry;
- Organic and Inorganic Chemistry;
- Physical Chemistry; and
- Nanochemistry.

Chemistry gives you in-depth understanding of the principles and theories of basic matter and allows you to explore your understanding of these through practical experiments.

## What GCSEs do I need to study Chemistry?

You will need to have done well in Chemistry at GCSE (which will normally mean at least a B Grade) or to have performed strongly in chemical elements of Combined Science.



## What could I do with it afterwards?

Chemistry links well with other natural sciences (Physics and Biology) and with Psychology. Most careers linked to Chemistry require degree level study but there are growing Apprenticeship opportunities in areas such as Lab Technician work. Careers directly linked to Chemistry including being an analytical chemist, chemical engineer, health scientist or doctor, vet, forensic scientist, pharmacologist, researcher or toxicologist. Other occupations where Chemistry provides recognised value include environmental science, conservation, oceanography, teaching and agriculture.



## What form does the assessment take?

There are end of course exams. These test your ability to apply Chemistry knowledge in multiple choice, short structured answers and extended answers (testing your ability to apply practical skills). There's also a pass/fail "practical endorsement" based on your ability to perform a minimum of 12 practicals. This reports separately rather than contributing to your A Level grade.

## Course details

The new A Level syllabuses include content-led approaches (specific topics that cover the key concepts) and context-led approaches (practical problems that demonstrate how Chemistry is applied). These are different approaches to gaining the same understanding. We will make a decision on which to adopt early in 2015.

### Examples of modules in a **content-led approach**

- **Practical skills development**
  - Planning, implementing, analysis and evaluation
- **Foundations in Chemistry**
  - Atoms, compounds, molecules and equations
  - Acid-based and redox reactions
  - Electrons, bonding and substance.
- **Periodic table and energy**
  - Periodicity
  - Group 2 and the halogens
  - Enthalpy changes
  - Qualitative reaction rates and equilibrium
- **Core organic Chemistry**
  - Hydrocarbons, alcohols and haloalkanes
  - Organic synthesis
  - Analytical techniques (e.g. mass spectrometry)
- **Physical Chemistry and transition elements**
  - Quantitative reaction rates and equilibrium
  - pH and buffers
  - Enthalpy, entropy and free energy
  - Redox and electrode potentials
- **Organic Chemistry and analysis**
  - Compounds (aromatic, carbonyl and nitrogen)
  - Carboxylic acids and esters
  - Polymers
  - Organic synthesis
  - Chromatography and spectroscopy

### Examples of modules in a **context-led approach**

Projects that build understanding of all the content elements through thematic study of:

- Elements of life
- Developing fuels
- Elements from the sea
- The ozone layer
- Composition of medicines
- Chemical industries
- Polymers and their role in life
- Role of the oceans
- Developing materials
- Creating colours