

# Changes to A-level Chemistry from 2008 – your questions answered

## Why is A-level Chemistry changing?

Following the 14-19 White Paper from the Government in 2005, the Qualifications and Curriculum Authority (QCA) was asked by the then Department for Education and Skills (DfES) to revise the A-level curriculum. Following on from the reform of the Science GCSE curriculum, the new A-level curriculum, to be introduced in 2008, aims to ensure that:

- there is an increase in post-16 participation
- there is an increase in stretch for the most able
- Chemistry is made relevant through the use of contemporary contexts and real life applications
- there is a smooth progression from the new GCSEs to A levels

## What are the main changes?

QCA produced new GCE AS and A-level subject criteria for Science in 2006. These give the general aims of studying Chemistry at AS/A-level, outline the core content essential to all specifications, and indicate the assessment objectives and the scheme of assessment. Awarding Bodies have to meet the criteria for A-level qualifications before QCA can accredit them to the National Qualifications Framework. The criteria outline a common core of content that must form approximately 60% of any specification, with a view to allowing awarding bodies greater flexibility with the remaining 40% to come up with more innovative approaches that will engage students.

Specifications have been designed to allow progression from Core and Additional Science at GCSE (or equivalent studies), building on the concepts of *How Science Works* that were introduced at this level.

Content is complemented by the use of contemporary contexts such as green chemistry, climate change, biodegradable polymers, and other environmental issues. In many cases, contexts are not prescribed or specifically examined, but are given to help teachers enhance teaching and learning. Students should, however, be able to apply their knowledge to a variety of contexts.

The Edexcel Chemistry (Nuffield) qualification will no longer be available. The new Edexcel Chemistry qualification draws on aspects of the old Chemistry and Chemistry (Nuffield) courses. Optional units are no longer included in any of the specifications.

## Will there be changes to assessment?

Unlike some other A-level subjects, the number of assessment units required to achieve AS/A2 GCE in Chemistry is six, not four. It is hoped, however, that the assessment burden should be decreased, and QCA should be ensuring that the awarding bodies offer a much greater range of assessment techniques.

Coursework has been retained in the form of controlled assessment, usually consisting of a selection of practical based tasks set by the awarding bodies and carried out throughout the whole course under controlled conditions rather than as a separate exercise. These practical activities are internally assessed using awarding body mark schemes. In some cases centres can provide their own assessment materials which can be used subject to approval. The externally assessed practical examination that was offered by some awarding bodies and the OCR (Salters) Open Book examination will no longer be available.

There is a requirement for A2 assessments to include synoptic assessment and opportunities for stretch and challenge. Assessment of synopticity will be integral to unit examinations, rather than a separate examination. Stretch and challenge style questions will be included at A2 in the externally assessed units, and the award of A\* will now be possible.

Stretch and challenge may be met by:

- Using a variety of stems in questions.
- Making connections between areas of content being used where possible and appropriate
- Having some requirement for extended writing
- Using a range of question types to address different skills
- Application of knowledge and skills rather than simply demonstrating a range of content coverage

## What GCSEs should students have taken to progress on to A levels?

Specifications recommend that students have acquired the skills and knowledge associated with a GCSE Additional Science course, or GCSE Science and Additional Science, or GCSE Chemistry or equivalent. The RSC would recommend a minimum of GCSE Science and Additional Science both at Grade C, however requirements are at the discretion of centres.

### Will the needs of those progressing to University to study Chemistry still be met by these changes?

One of the main reasons for the change is to encourage more students to choose further science study post-16. The QCA carried out a consultation that included university academics before finalising its revised criteria.

### What about Advanced Extension Award in Chemistry?

AQA will continue to offer the AEA in Chemistry qualification.

### What about other science courses?

The following GCE courses are also available:

**AQA GCE Environmental Studies** A specification designed for candidates who wish to develop a scientific knowledge and understanding of key environmental topics.

**AQA GCE Science in Society** A specification designed to help to broaden the curriculum for those whose interests lie mainly in the arts or humanities and give those studying science the opportunity to reflect on their specialist studies in a wider context.

**OCR GCE Science (AS only)** A specification designed for candidates who wish to continue with a broad study of science beyond GCSE, but who choose not to specialise in the separate science disciplines.

Vocational courses are available through a wide variety of BTEC National qualifications.

### What happens next?

The awarding bodies have had their specifications for AS/A2 Chemistry approved, and these are now available on their websites (see links below) or as a hard copy. In many cases specimen assessment materials are also available. You will receive information and guidance from the awarding bodies and QCA about what will be on offer from 2008.

Awarding bodies are running launch events between September and November 2007 and further events covering the specifications in depth will be available in Spring / Summer 2008

You might find it useful to get your department to decide what criteria you should use when deciding which specification to choose for 2008. You could start by holding a briefing meeting with senior management, relevant year heads and careers teachers.

You might want to start thinking about which specification will best meet the needs of the students in your schools and the implications of this in terms of resources and professional development. Once you have come to a decision you will need to start to modify your schemes of work. Next year, you may need to rewrite entries for AS and A level options booklets and also to consider how to promote Chemistry at A level to your students.

### How can I find out more?

We will keep you informed about the upcoming changes so that you feel able to make the best decisions for you, your school and your students. If you would like to receive more information when it is ready, or ask any questions, please email [education@rsc.org](mailto:education@rsc.org) and sign up for our chemistry contacts database at [www.chemsoc.org/networks/learnnet/chemistry-contacts.htm](http://www.chemsoc.org/networks/learnnet/chemistry-contacts.htm)

### Useful web links

OCR (Chemistry A) [http://www.ocr.org.uk/qualifications/asa\\_levelgceforfirstteachingin2008/chemistry\\_a/index.html](http://www.ocr.org.uk/qualifications/asa_levelgceforfirstteachingin2008/chemistry_a/index.html)

OCR (Salters) [http://www.ocr.org.uk/qualifications/asa\\_levelgceforfirstteachingin2008/chemistry\\_b\\_salters/index.html](http://www.ocr.org.uk/qualifications/asa_levelgceforfirstteachingin2008/chemistry_b_salters/index.html)

AQA [http://www.aqa.org.uk/qual/gce/chemistry\\_new.php](http://www.aqa.org.uk/qual/gce/chemistry_new.php)

Edexcel <http://developments.edexcel.org.uk/gce2008/subjects/chemistry/>

WJEC <http://www.wjec.co.uk/index.php?subject=13&level=21&imageField2.x=20&imageField2.y=12>

CCEA <http://www.rewardinglearning.org.uk/qualifications/results.aspx?q=1&t=1&c=R&s=12&v=0>

AQA Environmental Studies [http://www.aqa.org.uk/qual/gce/environment\\_new.php](http://www.aqa.org.uk/qual/gce/environment_new.php)

AQA Science in Society [http://www.aqa.org.uk/qual/gce/science\\_society\\_new.php](http://www.aqa.org.uk/qual/gce/science_society_new.php)

OCR Science AS [http://www.ocr.org.uk/qualifications/asa\\_levelgceforfirstteachingin2008/science\\_as\\_only/index.html](http://www.ocr.org.uk/qualifications/asa_levelgceforfirstteachingin2008/science_as_only/index.html)

Qualifications and Curriculum Authority [www.qca.org.uk/qca\\_4075.aspx](http://www.qca.org.uk/qca_4075.aspx)

Association for Science Education [www.ase.org.uk](http://www.ase.org.uk)

The Royal Society [www.royalsoc.ac.uk/education](http://www.royalsoc.ac.uk/education)

Royal Society of Chemistry [www.rsc.org/lap/educatio/rsedhome.htm](http://www.rsc.org/lap/educatio/rsedhome.htm)