

Changes to GCSEs in Science from 2006 – your questions answered

Why is GCSE science changing?

Following the 14-19 green paper from the Government in 2003, the Qualifications and Curriculum Authority (QCA) was asked by the Department for Education and Skills (DfES) to revise the Key Stage 4 programme of study for science. The result will be a new range of science GCSEs from 2006, aiming to ensure that

- pupils will be studying science that is relevant and up-to-date; and
- there is choice in the courses which pupils take to prepare them for different career routes post 16.

Has the 14-19 White Paper changed this?

No – in fact it has strengthened science by providing an entitlement to all students to study two science GCSEs.

What is the main change?

The new programme of study for science – i.e. what is legally required from science teachers at Key Stage 4 - sets out a smaller core of content that is relevant to all pupils, and specifies curriculum requirements for the equivalent of a single GCSE.

Has a lot of the content of science GCSE been removed?

Although content has been removed from the programme of study, the specifications being developed by the awarding bodies will have an equal but different content to current qualifications. Some illustrative examples of these have been provided in the criteria that QCA sets out for science GCSEs and these are available on QCA's website. Awarding Bodies have to meet the criteria for GCSE qualifications before QCA can accredit them to the National Qualifications Framework. This common core of content on topics that must be covered should allow awarding bodies to come up with more innovative approaches that will engage pupils.

Does it mean most pupils will only take one single science GCSE?

No, the expectation that most pupils will study at least two GCSEs in science has been reinforced in the 14-19 White Paper and strengthened by an entitlement to do so. The sciences cannot be adequately taught to any Key Stage 4 pupil in less than two GCSEs i.e. 20% of curriculum time, particularly if pupils are considering further study in science. There are new science GCSE criteria which outline the content of a range of additional science subjects currently being developed by the awarding bodies to provide the equivalent of double and triple awards in science.

Will I be able to continue offering a double award qualification?

The idea is that the GCSE science (double award) qualification will be replaced by two single awards: GCSE science and GCSE additional science. These are intended to provide pupils with greater flexibility in their choice of science qualifications and will be separately graded. Although the double award qualification has not been prohibited by QCA, it is anticipated that the awarding bodies will discontinue it in favour of single awards from 2006 onwards.

Can my students do the core and a single GCSE in e.g. Chemistry?

Yes but not in the same examination series. This means they would have to do the core (and exam) in Year 10 and chemistry in Year 11.

Have the changes to the programme of study been trialled?

A set of 3 GCSEs called 21st Century Science have been developed by the University of York Science Education Group and the Nuffield Curriculum Centre, in partnership with awarding body OCR. The pilot course started teaching in September 2003 and will continue until Summer 2006. QCA has carried out an interim evaluation of the first year, so that the experience can inform the current work of the awarding bodies. The report of this will be published on the QCA website. There are additional evaluations taking place of the whole course, which will be reported next year. Changes to other specifications to be offered from 2006 are not considered by QCA to be extensive enough to need piloting.

Will I have to teach 21st Century Science then?

No, there will be a variety of specifications on offer, some of which will look closer to what we have now than others.

Will the needs of those progressing to A levels in the sciences still be met by these changes?

One of the main reasons for the change is to encourage more pupils to choose further science study post 16. Progression routes will be clearly indicated in each specification and it will be important that you are aware of the impacts on further opportunities and career choices of your pupils when you are thinking which specifications to offer.

What about applied science courses?

There will be new GCSE Applied Science (Double Award) courses similar to the present courses. There will also be single award GCSEs with a choice of assessment weightings that allow for an Applied Science route and a traditional science route. These are intended to provide alternative progression routes post-16, e.g. to GCE Applied Science and other vocationally-oriented level 2 or level 3 courses.

Will there be changes to assessment?

Yes, it is hoped that your assessment burden should be decreased, and QCA will be ensuring that the awarding bodies offer a much greater range of assessment techniques.

What happens next?

The awarding bodies will be submitting draft specifications for their new GCSE science qualifications to QCA in early April so that they can be approved and accredited by the Summer. Early in the Autumn term 2005 you will receive information and guidance from the awarding bodies and QCA about what will be on offer from 2006.

Do I need to do anything?

Now – nothing! But you might want to start thinking about what types of science would best meet the needs of the pupils in your schools and the implications of this in terms of resources and professional development. If you have time, more information is available from the websites of the QCA and awarding bodies, and some events are being planned in the Spring term to help you in your planning.

You might find it useful to get your department to decide what criteria you should use when deciding which specification to choose for 2006. You could start by holding a briefing meeting with senior management, relevant year heads and careers teachers. You can obtain further copies of this information sheet from the RSC website at <http://www.rsc.org/pdf/education/gcse2006.pdf>.

Next year, you may need to rewrite entries for options booklets and also to consider how to promote science at GCSE to your students so that they make the right decisions that do not preclude future options being taken.

How can I find out more?

This information sheet has been prepared by the: Association for Science Education, Royal Society, Institute of Physics, Royal Society of Chemistry and Institute of Biology, with advice from the Qualifications and Curriculum Authority. These organisations will be working together over the next 18 months to 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 and sign up for our chemistry contacts database at <http://www.chemsoc.org/networks/learnnet/chemistry-contacts.htm>

Useful web links

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| Association for Science Education | www.ase.org.uk |
| The Royal Society | www.royalsoc.ac.uk/education |
| Institute of Physics | http://teachingphysics.iop.org/ |
| Royal Society of Chemistry | http://www.rsc.org/lap/educatio/rsedhome.htm |
| Institute of Biology | http://www.iob.org/ |
| <i>Educational bodies</i> | |
| Qualifications and Curriculum Authority | www.qca.org.uk/science |
| 21 st century science project | http://www.21stcenturyscience.org/home/ |
| OCR | www.ocr.org.uk |
| AQA | http://www.aqa.org.uk |
| Edexcel | http://www.edexcel.org.uk |
| WJEC | www.wjec.org.uk |
| CCEA | www.ccea.org.uk |