

**Looking ahead to September 2006**

It is all change at key stage 4 from September 2006. The scale of the challenge for teachers of science in secondary schools is becoming clearer as the proposed GCSE specifications shuttle to and fro between the awarding bodies and QCA.

This edition of *Education in Science* focuses on changes affecting schools in England, but related developments are being considered in Wales and Northern Ireland.

As Jenifer Burden explains in her first article on page 8, the changes arise from the recognition in 2000 that the National Curriculum was failing many young people despite the best efforts of teachers.

Our politicians and regulators have at last accepted the evidence that it is a mistake to force all young people to follow the same science curriculum. So QCA has introduced a new programme of study for the key stage which is much less specific than its predecessors and wide open to interpretation.

**Science for all and science for scientists**

In her second article, Jenifer Burden on page 10 describes how one project has helped to explore some of the principles underlying the new programme of study. The Twenty First Century Science project is an experiment that has been going on in about 75 schools.

The central research question is whether or not it is better for all to make a sharp distinction between, on the one hand, science courses designed to prepare young people for their role as 'consumers' of science in society and, on the other hand, science courses that prepare them for more advanced study and training in science – becoming in due course 'producers' of scientific knowledge and services.

After two years of the pilot, there are three evaluation teams collecting evidence of the impact of the new approach. It is a pity that the new GCSEs are being introduced before the data has been analysed and reported.

**Applied science**

The new Applied Science courses have already provided some choice. As Bob Ponchaud explains in his article (page 13), these courses have grown in popularity especially in schools seeking to raise the motivation and performance of young people that have been switched off by mainstream double-award science.

Current Applied Science programmes were derived from Intermediate GNVQ Science – most obviously in the model for portfolio assessment which some have found burdensome. They are double-award courses with units that are generic and not focused on particular areas of science.

The established courses will continue with minor revisions. From 2006, however, a new style of Applied Science course will be available. At least one of these courses will be more explicitly related to particular occupational sectors, as Jenifer Burden shows in her second piece.

**The response from ASE**

ASE is in business to support its members. Marianne Cutler and Adrian Fenton show that Headquarters staff are very much aware of the need to ensure that teachers of science have access to the information, support and professional development they can rightly expect at a time of change.

Marianne and Adrian describe a joint initiative with the Royal Society, to bring together teachers who can identify the issues with all those who may be in a position to help. The range of support that could be on offer is impressive. The capacity of the science education community to respond to challenges is unparalleled – not least because so many of the key players belong to ASE.

Even so there is a danger that competing interests, funded by different branches of government, will lead to confusion rather than clarity. We must hope that ASE and the Royal Society can encourage all those involved to collaborate rather than to compete.

**All our future**

We have come a long way since 1963 when the Newsom Report, *Half Our Future*, was published. That was a report from an Advisory Council charged with considering the education of young people of average or less than average ability between the ages of 13 and 16. The first paragraph about science ends with what a girl can expect when coming to a science lesson: '*Whether science to her is friend or enemy, she will be better equipped by having some inkling of its nature*'. A boy, in contrast, could be expected to be '*excited by the prospect of a science course*'. But what sort of science course? In 1963, there was no rationale for science for all beyond '*beginning where our boys and girls are*'.

Forty years on we are far more ambitious in what we expect from all our students. The one-size-fits-all National Curriculum has constrained innovation for over a decade. Now we have a chance to embark again on the adventure of inventing a range of programmes in science that meet the needs of all young people.

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