

Key messages

Core sessions

Session 1: *HSW* with additional guidance for supporting EAL learners

Materials have been derived from the 'Progressing to Level 6 and beyond in science' resources for teachers of English as an Additional Language (EAL) learners in the areas of scientific writing, research skills, effective group talk, using models and understanding misconceptions.

Effective practice for developing literacy skills with EAL learners is effective practice for developing literacy skills with all learners. It is a whole-school issue and there needs to be a dialogue within the school, shared features of good practice and monitoring and evaluation of provision. The science team needs to be part of this.

There should be a critical relationship between the strategies for progression to support pupils in progressing from one step to another and the support for teachers provided in the schemes of learning.

Session 2: Using data to analyse pupils' attainment and progress in science

Teachers need to have access to science-based attainment and progress data and take into consideration pupil and teacher voice in order to know the gaps for the different groups of pupils within their school.

The attainment and progress of pupils from different groups in science should be known.

How this picture compares with attainment and progress overall and in other subjects in the school, in the local authority (LA) and nationally should be known.

Session 3: Curriculum models

Schools need to be giving careful consideration to the planning of curriculum pathways in science at Key Stage 4. This is likely to be a critical period for many schools due to:

- GCSE specifications being revised from 2011
- concerns that some curriculum pathways in use may not be the best at meeting pupils' learning needs
- the plethora of courses available, which vary in the nature of the challenge to pupils and the future progression routes they offer
- the importance of science in the school curriculum, partly because of the breadth and relevance it brings and partly because of the contribution towards pupils attaining five or more 'good' GCSEs
- the raising of the age up to which young people are required to be in full-time education or training and therefore the importance of seeing the curriculum in the context of an 11–19 continuum.

Support and guidance are being provided by the National Strategies as website material and as a booklet to download.

Additional sessions

Session 4: Supporting EAL pupils

Addressing the needs of EAL learners has been shown to also support other underperforming groups whose academic literacy needs extra support.

Identification of gaps by comparing all pupils in your school, as well as with the same ethnicity in other schools, in the LA and then nationally, helps to put the gap into perspective. Schools with similar socio-economic circumstances are often a good place to start to share good practice.

There are several recognised teaching strategies that can be used to support EAL learners (and other underperforming pupils), for example organising pupil groupings, modelling, using non-verbal clues and responses and activating prior knowledge.

The way English is used in science can be a barrier to EAL learners; awareness of this can help to avoid some of the pitfalls.

Session 5: Effective enrichment and enhancement in science (as part of STEM)

Effective enrichment and enhancement in science is about increasing pupils' engagement and enjoyment of the subject – all pupils, all years – and hence:

- increasing uptake of post-16 science and mathematics
- raising attainment in the Science, Technology, Engineering and Mathematics (STEM) subjects.

National Strategies guidance regarding the effective use of enrichment and enhancement provision has been placed on the National Strategies website. This includes a 'Steps table' to help identify the next steps in development that could be taken in order to ensure that the time and resources committed to providing enrichment and enhancement activities in science provide the maximum benefit to learning.

Session 6: Using study guides to support high-quality first teaching

The following study guides are now available on the website: Cells, Particles, Interdependence, and Earth in Space. Study guides on Energy and Animal Behaviour are due to be published later in the spring term 2010. The final two – Forces and Geological Processes – will be published later in 2010.

Although they are based around areas of range and content, the delivery of *How Science Works (HSW)* is integrated within them. They support planning for progression in that they show how topics in Key Stage 3 should develop processes and concepts needed for success at Key Stage 4.

They suggest how effective and engaging activities can generate evidence that can be used to support periodic assessment, such as Assessing Pupils' Progress (APP). They support a flexible format of planning and are predicated upon the teacher responding to pupils' understanding and progress, rather than a rigid and inflexible set of lesson plans.