

Tutor notes

Introduction

The spring 2010 science subject leader development materials reflect the changing and more varied ways in which these materials are being used within local authorities to support science department improvements.

The autumn 2009 materials identified sessions as core or additional, thus indicating those sessions that were to be considered essential and making all science departments aware of key national priorities for development. The optional materials will be appropriate for a range of science departments, depending on the context and the current position of the individual school.

The spring 2010 materials also contain three core and three additional sessions. All sessions have been written so that they can easily be used as a basis of a departmental CPD session lasting approximately 60 minutes. This more flexible approach has been adopted to support subject leaders with the delivery of targeted and appropriate development work with their departments based on identified departmental priorities.

There is a common thread throughout the sessions of **Narrowing the Gaps** but each session is a discrete package that does not draw on materials, activities or discussions from other sessions. The underlying philosophy of all the sessions remains the strengthening of science learning and teaching and the narrowing of the achievement gap.

Core sessions

1. *HSW* with additional guidance for supporting EAL learners
2. Using data to analyse pupils' attainment and progress in science
3. Curriculum models

Additional sessions

4. Supporting EAL pupils
5. Effective enrichment and enhancement in science (as part of STEM)
6. Using study guides to support high-quality first teaching

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

Objectives

- To understand how materials from 'Progressing to Level 6 and beyond in science' have been developed for particular use with English as an Additional Language (EAL) learners.
- To consider how to make effective use of these materials in school.
- To be aware that good practice for EAL learners is good practice for all learners.

Outcomes

Participants will have identified action points in:

- enhancing effective practice in *How science works (HSW)* for EAL learners
- making provision for learners with lower academic literacy.

Resources

PowerPoint® presentation – **slides 2–12**

- Handout 1.1** Aspects of *How science works* – teacher guidance with additional notes for EAL learners
- Handout 1.2** Effective group talk steps table – adapted for EAL learners
- Handout 1.3** Research skills steps table – adapted for EAL learners
- Handout 1.4** Effective group talk – teacher guidance adapted for EAL learners
- Handout 1.5** Research skills – teacher guidance adapted for EAL learners
- Handout 1.6** Scientific writing steps table adapted for EAL learners
- Handout 1.7** Scientific writing – teacher guidance adapted for EAL learners
- Handout 1.8** Understanding misconceptions – teacher guidance adapted for EAL learners
- Handout 1.9** Using models – teacher guidance adapted for EAL learners

Session outline

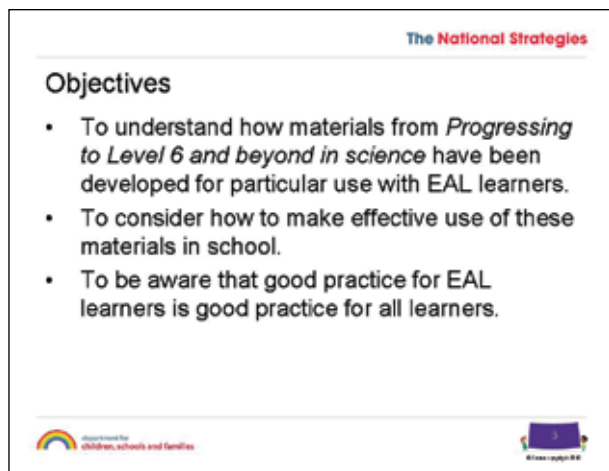
60 minutes

Section	Activity	Approximate timing
Briefing on form and function of materials	Input and review of materials	15 minutes
Exploration of challenge	Task 1: talk, work in groups of three	15 minutes
Planning support	Task 2: talk, group activities	20 minutes
Plenary	Talk	10 minutes

1. Briefing on form and function of materials

15 minutes

Show **slides 3 and 4** and share the objectives and outcomes for this session. Explain that the purpose of the session is to support participants in deciding how to use recently modified materials on *HSW* for EAL learners within schools.

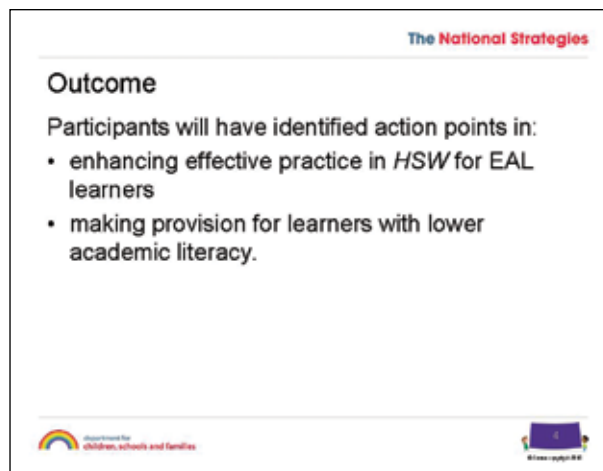


The National Strategies

Objectives

- To understand how materials from *Progressing to Level 6 and beyond in science* have been developed for particular use with EAL learners.
- To consider how to make effective use of these materials in school.
- To be aware that good practice for EAL learners is good practice for all learners.

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The National Strategies

Outcome

Participants will have identified action points in:

- enhancing effective practice in *HSW* for EAL learners
- making provision for learners with lower academic literacy.

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Show **slide 5** and ask participants to indicate the extent to which they are familiar with the *Progressing to Level 6 and beyond with added HSW* materials. Explain that the CD-ROM of materials was distributed to all schools via consultants to the summer 2009 SLDM; it is also accessible via the National Strategies website as follows: www.standards.dcsf.gov.uk/nationalstrategies and searching on *Progressing to Level 6 and beyond in science*.





Explain that these materials have been used in a wide range of schools and with considerable success in supporting pupils to achieve better rates of progress.

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Level 6 and beyond materials

- These materials identified 'blockers to good progress':
 - scientific writing
 - research skills
 - effective group talk
 - using models
 - understanding misconceptions.
- These have now been modified to provide specific guidance for teachers of EAL learners.
- Access via CD-ROM or go to:
www.standards.dcsf.gov.uk/nationalstrategies
and search for *Progressing to level 6 and beyond in science*.


Show **slide 6** and explain that the materials have been derived from those in the 'Level 6 and beyond' resources; these identified certain 'blockers to good progress' for pupils. Draw attention to the examples given:

- scientific writing
- research skills
- effective group talk
- using models
- understanding misconceptions.

Say that these have now been modified to provide specific guidance for teachers of EAL learners and that they will be of use and value to any teachers working with pupils with low academic literacy.

Show **slide 7** and explain that a fundamental feature of the 'Level 6 and beyond' resources is the 'steps and layers' approach. This consists of three aspects:

- steps tables, each with four steps, supporting teachers to identify what pupils can do
- teaching strategies to support the movement of the pupil to the next step
- teacher guidance, giving background on the use of the strategies and other resources.



STEPS AND LAYERS APPROACH

1. The approach used in this resource is based on identifying 'where the pupils are' using a simple steps table.

2. The next layer identifies some teaching strategies that could be used to move the pupils onto the next step.

3. The teacher guidance forms the final layer containing more detail on the teaching strategies and from which resources are linked.

>> More detail about the approach can be found in the *Subject leader guidance* or main *Teacher guidance*

Show **slide 8** and explain that this is an example of a steps table. The resources include many of these, each focusing on a particular aspect of the scientific processes that can be blockers to progress. In between the steps are strategies for progression.

Step 1 (High attainment)	Step 2 (High attainment)	Step 3 (High attainment)	Step 4 (High attainment)	Step 5 (High attainment)
<p>Pupils use their knowledge and skills that were used to describe a scientific situation or situation to describe a range of scientific situations and apparatus that can be used to investigate a scientific situation or situation in their field of science.</p> <p>Pupils demonstrate a broad awareness that factors such as culture and economics have a part to play in science.</p> <p>Pupils recognise that scientific activities might be investigated and used to explain something.</p>	<p>Pupils use their knowledge and skills to describe a range of scientific situations and apparatus that can be used to investigate a scientific situation or situation in their field of science.</p> <p>Pupils demonstrate a broad awareness that factors such as culture and economics have a part to play in science.</p> <p>Pupils recognise that scientific activities might be investigated and used to explain something.</p>	<p>Pupils have used a range of scientific situations and apparatus that can be used to investigate a scientific situation or situation in their field of science.</p> <p>Pupils demonstrate a broad awareness that factors such as culture and economics have a part to play in science.</p> <p>Pupils recognise that scientific activities might be investigated and used to explain something.</p>	<p>Pupils can explain why different approaches are required to investigate scientific work and how different views about scientific situations and apparatus can be used to investigate a scientific situation or situation in their field of science.</p> <p>Pupils can explain the significance of scientific work, such as culture, politics, ethics and economics, on scientific research, the interpretation of data and communication of findings.</p> <p>Pupils have a range of strategies to be able to explain why different approaches are required to investigate scientific work and how different views about scientific situations and apparatus can be used to investigate a scientific situation or situation in their field of science.</p>	<p>Pupils can explain why different approaches are required to investigate scientific work and how different views about scientific situations and apparatus can be used to investigate a scientific situation or situation in their field of science.</p> <p>Pupils can explain the significance of scientific work, such as culture, politics, ethics and economics, on scientific research, the interpretation of data and communication of findings.</p> <p>Pupils have a range of strategies to be able to explain why different approaches are required to investigate scientific work and how different views about scientific situations and apparatus can be used to investigate a scientific situation or situation in their field of science.</p>

Note: The steps don't correspond to National Curriculum levels. Levels represent a synoptic view of a pupil's attainment, whereas the steps tables relate to very specific aspects, such as descriptive writing. Pupils who are working at, say, level 5 might be on quite different steps on the descriptive writing steps table.

2. Exploration of challenge

15 minutes

Ask participants to briefly indicate to others on the same table the extent of their experience at providing support and guidance for teachers with EAL learners.



Task 1

Show **slide 9** and allocate one of these areas to each pair (or trio) of participants:

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Task 1

- In your group consider one of these areas:
 - Scientific writing
 - Research skills
 - Effective group talk
 - Using models
 - Understanding misconceptions
- Suggest why this might present a particular challenge for learners with low levels of academic literacy.
- Be prepared to share key points.

- scientific writing
- research skills
- effective group talk
- using models
- understanding misconceptions.

Ask them to suggest why their area might present a particular challenge for learners with low levels of academic literacy and to be prepared to share key points.

Take feedback and summarise key points on a flipchart.

3. Planning support

20 minutes

Task 2

Show **slide 10** and use the handouts for this session to support this. Ask participants to look at the materials produced for the area they considered. Emphasise that they will only be able to skim-read them at this stage.

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Task 2

- Now look at the materials produced for the area your group considered.
- Identify key features that will support the progress of learners with low academic literacy.
- Prepare to share the three most significant of these with the rest of the group

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EAL Support

Ask them to collaborate to identify and discuss key features that will support the progress of EAL learners. They should prepare to share the three most significant of these with the rest of the group.

Take feedback but keep it fairly brief; a number of the points will be common to the sets of materials and some will have been raised in the previous part of this session.

It may be useful to ensure that the following key points are addressed:

- Effective practice for developing literacy skills with EAL learners is effective practice for developing literacy skills with all learners. Development of confidence and competence in using key words, construction of sentences that convey important ideas and relationships, and the reinforcement of the key features of text types, such as description and explanation, are fundamental aspects of science education.
- Effective support for EAL learners 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. If the schemes of learning suggest activities that are significantly different to the strategies for progression that are being selected, this may raise questions about the suitability of the lesson plans.
- The situation regarding support for EAL learners varies significantly from one school to another, not least because of the numbers of pupils involved. A school with a small number of EAL learners will face different challenges in terms of making effective provision to one with large numbers.

4. Plenary

10 minutes

Show **slide 11** to remind participants of the outcomes for the session. Then show **slide 12** and ask participants to identify and record action points for their work in school.

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Outcomes

Participants will have identified action points in:

- enhancing effective practice in *HSW* for EAL learners
- making provision for learners with lower academic literacy.

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Plenary

- Identify relevant action points for your work.
- Record them on the sheet provided.

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

Objective

- To support the process of identifying underperforming groups and individuals in science.

Outcomes

- Subject leaders know how to access data on attainment and progress in science.
- Science subject leaders and teachers know how to identify gaps in attainment and progress in their department.

Resources

PowerPoint™ presentation – **slides 13–23**

Handout 2.1 Using data

Handout 2.2 Interrogating the data

Data sheet for gender analysis (see CD-ROM). This is an example of how data can be gathered and interrogated where there is a focus on gaps in the attainment of girls and boys.

Note: Availability of different data sets will change over time. This is included as an example of how such interrogation could take place but would need to be adapted where data is no longer available and also to ensure that all current data is included.

Guidance

This development session will take 45 minutes to deliver. It is recognised that within a department meeting at least 60 minutes would be needed to interrogate the necessary data.

Session outline

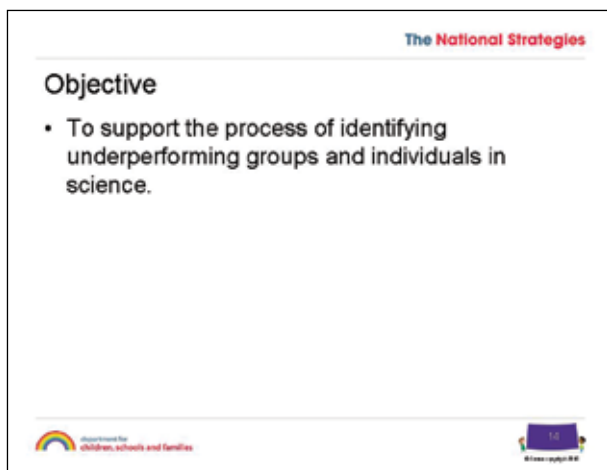
45 minutes

Section	Activity	Approximate timing
1. Introduction	Starter activity and opportunity for local input	15 minutes
2. Interrogating the data	Task 1	15 minutes
3. Review	Consideration of other sources of data and review	15 minutes

1. Introduction

15 minutes

Show **slides 14 and 15** to introduce the objectives and outcomes for the session.



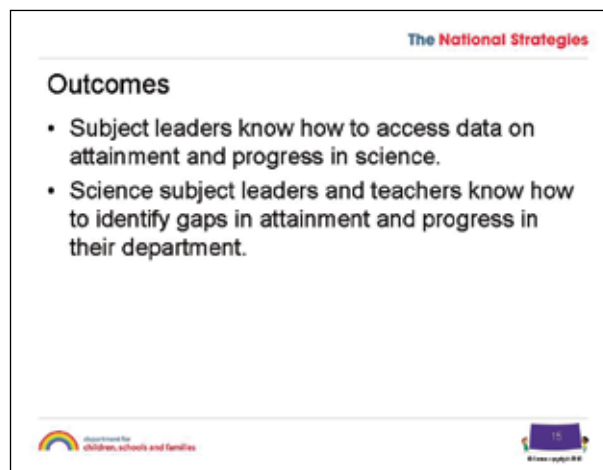
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Objective

- To support the process of identifying underperforming groups and individuals in science.

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Outcomes

- Subject leaders know how to access data on attainment and progress in science.
- Science subject leaders and teachers know how to identify gaps in attainment and progress in their department.

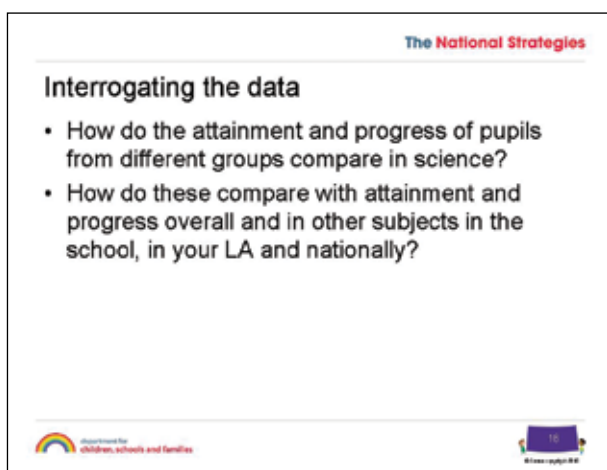
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Explain that this is the first in a series of sessions that support the Narrowing the Gaps agenda. This session will model how data can be used in order to 'know your gaps' in science.

Starter activity

Begin by posing the questions on **slide 16**.



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Interrogating the data

- How do the attainment and progress of pupils from different groups compare in science?
- How do these compare with attainment and progress overall and in other subjects in the school, in your LA and nationally?

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Give participants chance to discuss their response in small groups. Take feedback in terms of:

- **How do different groups compare?**
- How do you know?
- **What are the issues?**
- How do you know?

Use the quality of the feedback from this activity to shape the following parts of the session.

This is an opportunity to share local practice and expertise in terms of data analysis.

Additional guidance

These questions can be asked within the context of a subject leaders' development meeting or a departmental meeting, since all teachers of science should know how the performance of pupil groups in their department compares to other departments in their school and to national performance.

Show **slide 17** which lists pupil groups that should be considered. Ask participants to consider whether their current analysis includes consideration of all groups applicable to their setting.

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Pupil groups to consider

The first step towards 'knowing the gaps' in your science department is to find out about each individual. Groups of pupils who are at risk of underachieving may be those who:

- are eligible for free school meals
- belong to minority ethnic and faith groups, travellers, asylum seekers and refugees
- have special educational needs
- are gifted and talented
- need support to learn English as an additional language (EAL)
- are 'looked after' by the local authority
- are at risk of disaffection and exclusion.

You also need to consider the performance of boys and girls within science.

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Challenge participants to also undertake such analysis in situations where pupil numbers within the group are small. This is an important aspect of the 'Every Child Matters' agenda.

Set the scene for the next part of the session by considering some national data.

Slide 18 gives some summary national data from three levels of progress data, 2008. Although Gypsy, Roma and Travellers of Irish heritage have the largest gap of 41.3 per cent they have small numbers. The most significant group to consider is free school meals (FSM) pupils in which there are very large numbers. Addressing the needs of FSM pupils is essential if the effects of poverty are to be tackled.

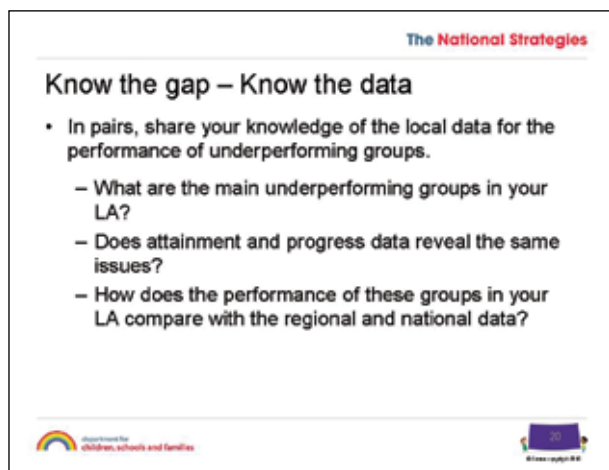
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In 2008, 54.8% of pupils nationally made three levels of progress from Key Stage 2 to Key Stage 4. Where are the national gaps?

- **Free school meals**
Non-free school meals – free school meals pupils **23.7%**
- **Gender**
Girls – boys **1.5%**
- **Target ethnic groups**
 - Black African and white/Black African **6.5% better than national**
 - Black Caribbean **9.3%**
 - White/Black Caribbean **10.8%**
 - Black other **5.1%**
 - Gypsy, Roma and Travellers of Irish heritage **41.3%**
 - Pakistani **1.9%**
 - White other **4.9%**

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You will need to insert the relevant regional and local data into **slide 19**. This gives the opportunity to discuss how the local picture compares to the national picture. National and regional attainment and progress data was shared at the July 2009 science consultant network meeting.



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Know the gap – Know the data

- In pairs, share your knowledge of the local data for the performance of underperforming groups.
 - What are the main underperforming groups in your LA?
 - Does attainment and progress data reveal the same issues?
 - How does the performance of these groups in your LA compare with the regional and national data?

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Education Support

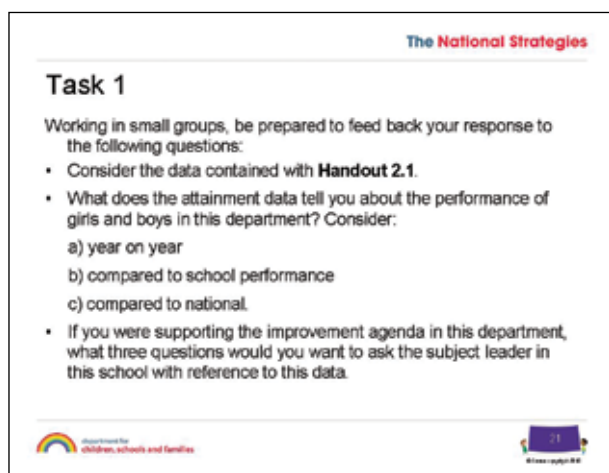
Slide 20 provides a focus for this discussion.

2. Interrogating the data

15 minutes

Task 1

Participants may feel it is appropriate to repeat the task outlined on **Handout 2.1** within a departmental meeting. The handout includes a screenshot from a spreadsheet that can be used to model the process of establishing whether there are significant gaps relating to the relative attainment of boys and girls. The spreadsheet contains attainment data from an anonymised school. The task is detailed on **slide 21**.



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Task 1

Working in small groups, be prepared to feed back your response to the following questions:

- Consider the data contained with **Handout 2.1**.
- What does the attainment data tell you about the performance of girls and boys in this department? Consider:
 - a) year on year
 - b) compared to school performance
 - c) compared to national.
- If you were supporting the improvement agenda in this department, what three questions would you want to ask the subject leader in this school with reference to this data.

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Education Support

Talk participants through the data, ensuring that the purpose of each column and row is explained. Allow about 10 minutes for small groups to discuss and compile the questions they would ask the subject leader from this school. Take feedback and encourage the development of the questions, which give depth to the challenge.

Additional guidance

The additional rows underneath give suggestions as to how this analysis could be used further in a school situation. These rows are not needed for this task.

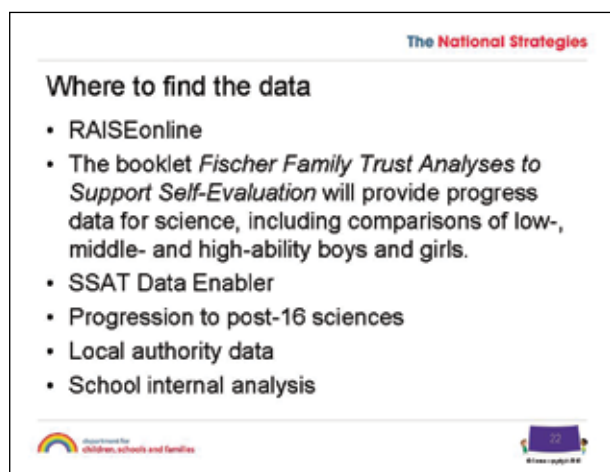
This can be adjusted in order to focus on other groups, such as FSM and EAL, and to remove analysis that is not applicable, for example, for some year groups where Key Stages 2–3/Key Stages 3–4 data is no longer available due to the removal of Key Stage 3 science tests.

An electronic copy of the spreadsheet can be found on the CD-ROM that accompanies these materials.

Now move on to **Handout 2.2**. Explain that this handout gives a more detailed breakdown of what data is available and how RAISEonline and Fischer Family Trust (FFT) data can be used to support analysis at school level. Some local authorities (LAs) provide good data analysis, which could be included at this point as well as the national data.

Again, the example of gender is used to illustrate the possibilities.

Move onto **slide 22**, which lists other sources of data.



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Where to find the data

- RAISEonline
- The booklet *Fischer Family Trust Analyses to Support Self-Evaluation* will provide progress data for science, including comparisons of low-, middle- and high-ability boys and girls.
- SSAT Data Enabler
- Progression to post-16 sciences
- Local authority data
- School internal analysis

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As data is constantly being refined, this selection may need amending and adding to over time. Tutors can also draw upon the LA and national data, which focuses on the performance gaps between FSM and non-FSM pupils and the eight identified ethnic groups that was shared at the consultants' network meeting in July 2009.

Complete this session by moving onto **slide 23**.

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Other data

Numerical data will give a picture of current performance.

Add to your understanding of what learning in science is like for pupils in your school by undertaking focused:

- pupil voice questionnaires
- lesson observations.

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Every Child Matters

Stress that in order to make a complete analysis, all available data – hard and soft – needs to be accessed. In particular, pupil voice and lesson observations with a focus on the particular learning needs of the focus group can provide useful additional data.

3. Review

15 minutes

Allow participants time to consider what additional data they need to access and to begin to plan the next steps, identifying actions to narrow the gap.

Session 3: Curriculum models

Objectives

- To explore the issues surrounding the planning of effective curriculum pathways for Key Stage 4.
- To consider the use of support and guidance being made available.

Outcome

- Participants will have action points and resources to support their planning of effective provision in school.

Resources

PowerPoint™ presentation – **slides 24–33**

Handout 3.1 Profile of Mitchell Media College

Handout 3.2 Background information on Carvoza Community College

Note: It will also be necessary to have copies of the Curriculum Models guidance for senior leaders and subject leaders for participants to use. This is due to be published as a document to download from the National Strategies website in early Spring 2010.

Session outline

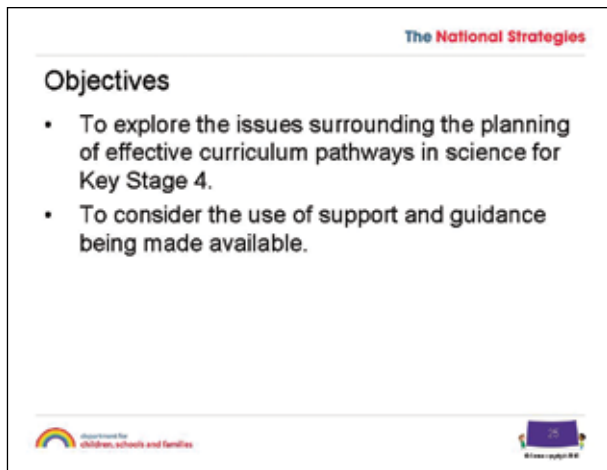
60 minutes

Section	Activity	Approximate timing
Introduction	Whole group	15 minutes
Curriculum planning activity	Talk, group activities	35 minutes
Plenary	Talk	10 minutes

1. Introduction

15 minutes

Use **slides 25 and 26** to share the objectives and outcomes with participants. Explain that this is of particular relevance currently.



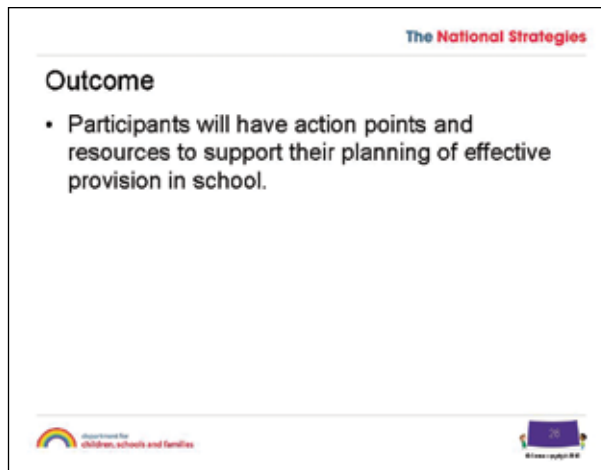
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Objectives

- To explore the issues surrounding the planning of effective curriculum pathways in science for Key Stage 4.
- To consider the use of support and guidance being made available.

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Outcome

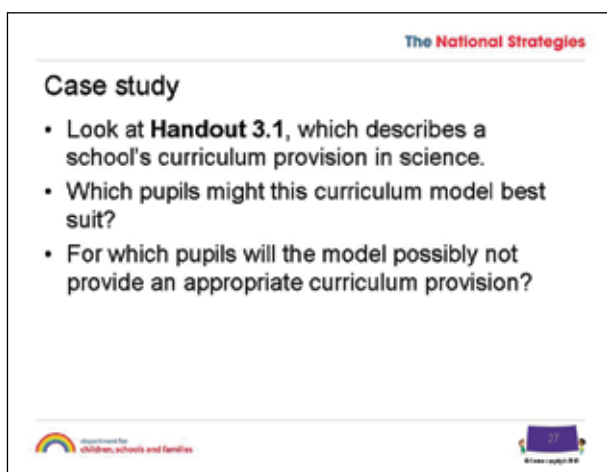
- Participants will have action points and resources to support their planning of effective provision in school.

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- With the GCSE specifications being revised from 2011, a number of schools are looking to review their provision.
- The use of data such as '2 good sciences', Key Stage 2–4 levels of progress and progression to post-16 sciences has sharpened the focus on progress and attainment in science.
- There are concerns that some curriculum pathways in use may not be the best at meeting pupils' learning needs.

Show **slide 27** and use **Handout 3.1**.



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Case study

- Look at **Handout 3.1**, which describes a school's curriculum provision in science.
- Which pupils might this curriculum model best suit?
- For which pupils will the model possibly not provide an appropriate curriculum provision?

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Encourage participants to discuss how this curriculum model works for some pupils and not for others.

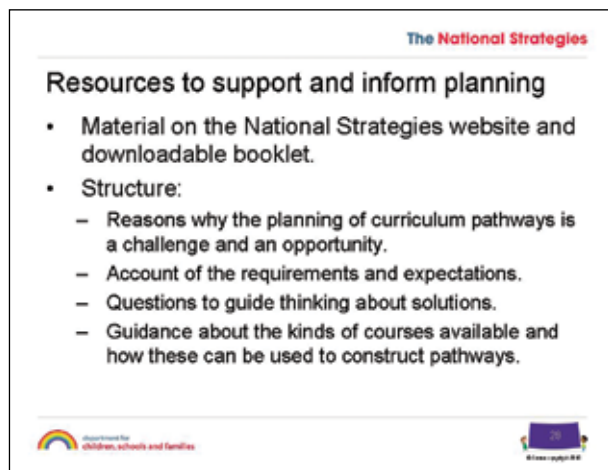
Tutors need to point out that schools can face considerable challenges in providing suitable curriculum provision in science for 11–19 year-olds. The school's provision needs to develop appropriate curriculum pathways in science that will cater for the learning needs of a wide range of pupils. This is exacerbated by the changes in the assessment arrangements at Key Stage 2 and Key Stage 3 and changes to GCSE criteria for September 2011, developments in the science diploma for 2012 and changes in A-level specifications from September 2009. It is important to appreciate that for senior leaders who may

not be familiar with the science curriculum, or for subject leaders who may have little experience in designing and implementing new structures, there are aspects with which they may be unfamiliar or lack confidence in approaching.

Take feedback and identify key points that emerge. Ensure that reference is made to the following:

- There is a plethora of courses available, which vary in the nature of the challenge to pupils and the future progression routes they offer. It may not be immediately apparent to senior leaders which courses should be offered, how they should be provided and to whom they should be offered.
- 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 in the context of an 11–19 continuum.
- The significance of Science, Technology, Engineering and Mathematics (STEM) subjects and the need for these skills, processes and understanding of key concepts by a significant proportion of the workforce.
- 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.

Show **slide 28**



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Resources to support and inform planning

- Material on the National Strategies website and downloadable booklet.
- Structure:
 - Reasons why the planning of curriculum pathways is a challenge and an opportunity.
 - Account of the requirements and expectations.
 - Questions to guide thinking about solutions.
 - Guidance about the kinds of courses available and how these can be used to construct pathways.

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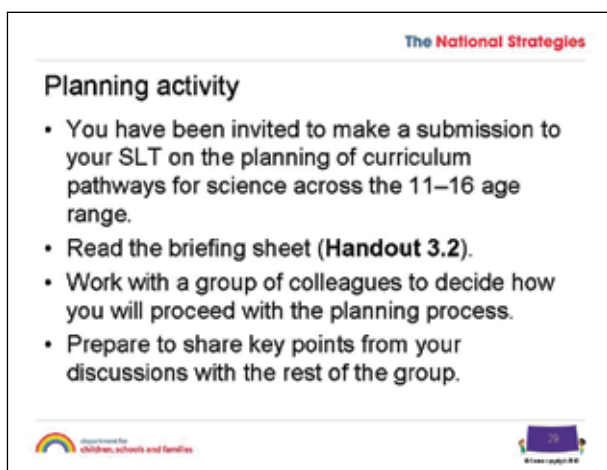
and introduce the materials (see the note at start of this session) that have been provided to support senior and subject leaders in designing curricular pathways for science across the 11–19 age range. Draw attention to the key features of this, including:

1. exploration of the reasons why the planning of curriculum pathways is both a challenge and an opportunity
2. an account of the requirements and expectations on schools that need to be considered
3. key questions to guide thinking about generating solutions that are appropriate for a particular school
4. information and guidance about the kinds of courses available and how these can be used to construct pathways that offer pupils challenge and a variety of outcomes.

2. Curriculum planning activity

35 minutes

Show **slide 29**.



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Planning activity

- You have been invited to make a submission to your SLT on the planning of curriculum pathways for science across the 11–16 age range.
- Read the briefing sheet (**Handout 3.2**).
- Work with a group of colleagues to decide how you will proceed with the planning process.
- Prepare to share key points from your discussions with the rest of the group.

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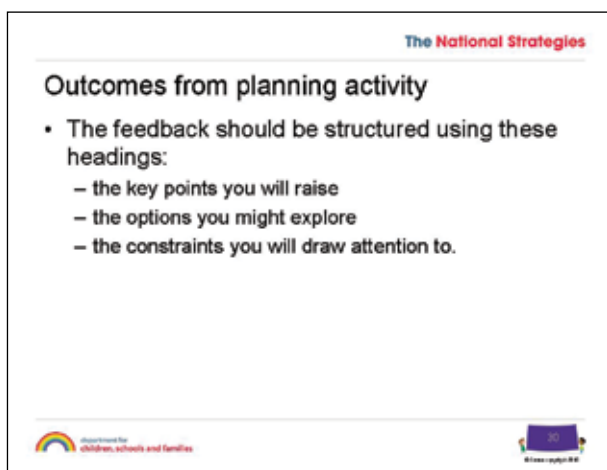
29

Distribute **Handout 3.2** and introduce the planning activity. The purpose of this is to get participants to think through and share ideas about effective practice for schools in designing an 11–16 science curriculum.

Handout 3.2 has background information about a (fictitious) school for which participants are to explore the process of curriculum design in science across the 11–16 age range with two of the senior leaders. The challenge is to identify the key points to make to get the process working effectively without getting sidetracked into fine detail at this stage.

You will need to allow time for participants to assimilate the information from the handout. They should then work in groups to decide how to respond. It might be an idea to use slightly larger groups as some participants may lack confidence in approaching this task.

Show **slide 30**



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Outcomes from planning activity

- The feedback should be structured using these headings:
 - the key points you will raise
 - the options you might explore
 - the constraints you will draw attention to.

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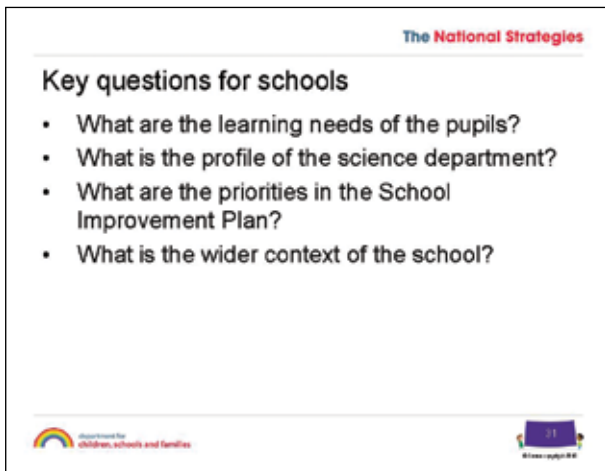
30

and emphasise that feedback will be taken under the headings of:

- the key points they will raise
- the options they might explore
- the constraints they will draw attention to.

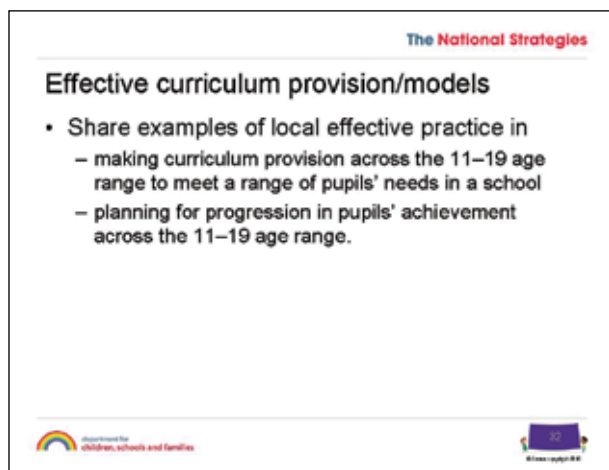
Take feedback and identify how such support should be structured to make it most effective.

Show **slide 31**



and say that the guidance for subject and senior leaders emphasises four key questions.

1. What are the learning needs of the pupils? It is important for the curriculum pathways being offered, and the experiences that they represent, to be matched to pupils' learning needs.
 - a. Courses shouldn't simply be allocated to pupils on the basis of their prior attainment. Many of the specifications on offer at Key Stage 4 give access to a full range of grades and the differences are more in terms of the style of learning, the skills and processes developed and the onward progression routes possible.
 - b. Different pathways represent different learning experiences and should be designed as such. For pupils to make a meaningful choice, their prior experience of the curriculum should have breadth; they can then decide, and can be guided in their decisions, on the basis of how they learn best and what their aspirations are.
 - c. It should be informed by the track record of previous cohorts of pupils; there should be a view about the kinds of pupils that do better on certain kinds of courses.
2. What is the profile of the science department? The team is likely to have ideas and plans for its future development; an important balance is to draw on these without being limited by them. Some changes may represent a challenge and the support of the SLT may be needed in meeting this.
3. What are the priorities in the School Improvement Plan? Curriculum pathways in science are a way in which a school can develop overall, developing applied learning for example, or utilising links with certain local industries. It is important to explore how the aims of the school can be realised in these developments.
4. What is the wider context of the school? The school works in conjunction with primary and tertiary institutions and alongside other secondary providers; decisions about its curricular pathways need to reflect this. Local commerce and industry may influence decisions as well. However, pupils are national and global citizens as well and need to be equipped to function as such.



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Effective curriculum provision/models

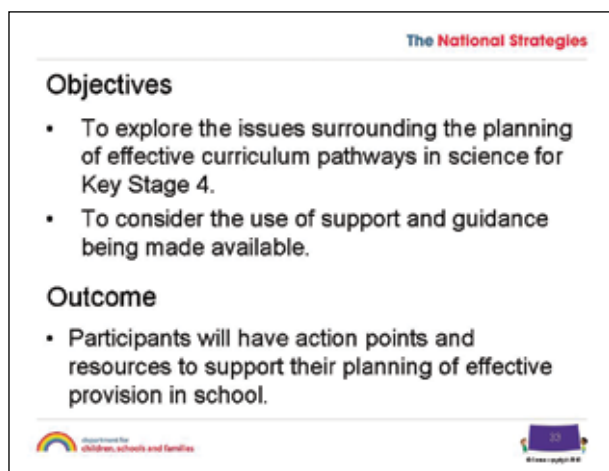
- Share examples of local effective practice in
 - making curriculum provision across the 11–19 age range to meet a range of pupils' needs in a school
 - planning for progression in pupils' achievement across the 11–19 age range.

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Local Input Slide 32 is included as this is a good opportunity to draw on examples of local effective practice.

3. Plenary

10 minutes



The National Strategies

Objectives

- To explore the issues surrounding the planning of effective curriculum pathways in science for Key Stage 4.
- To consider the use of support and guidance being made available.

Outcome

- Participants will have action points and resources to support their planning of effective provision in school.

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Show **Slide 33** to remind consultants of the objectives and outcome for the session. Invite participants to identify and record action points for their future work.

Session 4: Supporting EAL pupils

Objectives

- To describe what constitutes EAL.
- To be more confident in identifying the challenges and supporting practice in your school.
- To identify how some strategies support the language development in science for EAL learners.

Outcomes

Participants will have:

- used data to identify underachievement in EAL learners
- identified features of science language and teaching strategies that present barriers for EAL learners.

Resources

PowerPoint™ presentation – **slides 34–49**

Sticky notes

Highlighter pens

Sample of science textbooks

Flipchart paper

Reusable adhesive

Reference materials - *Access and engagement in science: Teaching pupils for whom English is an additional language* (ref: DfES 0610-2002); *Narrowing the Gaps: Resources to support the achievement of Black and minority ethnic, disadvantaged and gifted and talented pupils* (ref: 00781-2009BKT-EN)

Handout 4.1 Aide memoire – supporting EAL learners

Handout 4.2 Cards for loop/dominoes game (cut up and shuffled) – located on CD-ROM

Handout 4.3 Glossary of terms (and answer sheet for the loop/dominoes game)

Handout 4.4 'Narrowing the gap' approach to data analysis

Handout 4.5 Using school data summary sheet

Handout 4.6a Continuum activity cards – Do these classroom practices support learning? (Cut into cards) – located on CD-ROM

Handout 4.6b Continuum – Do these classroom practices support learning? – Located on CD-ROM

Handout 4.6c Answers – Do these classroom practices support learning?

Handout 4.7 Why are some scientific texts difficult?

Handout 4.8 Newspaper article illustrating difficulties with texts

Handout 4.9 EAL exam howlers – located on CD-ROM

Guidance

This session is part of a series addressing the 'Narrowing the gap' agenda. However, it is important to make the point that the strategies presented for addressing the literacy needs for EAL pupils will be useful for and will support other groups of underperforming pupils whose academic literacy needs considerable support.

The training models good practice for teaching and learning, as well as providing an opportunity to model joint working with the Ethnic Minority Achievement (EMA) team in the LA. Explicitly refer to the modelling during the training so that teachers recognise the strategies as examples of good practice that could be used to support EAL pupils.

Session outline

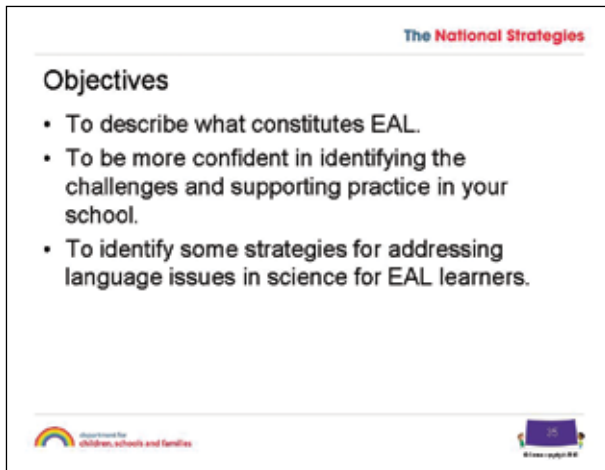
60 minutes

Section	Activity	Approximate timing
Introduction	Starter activity: Loop/domino cards Task 1: Current school practice	10 minutes
Identifying gaps in attainment	Exploring EAL data Task 2: Narrowing the gap – analysis and identifying the issues	15 minutes
Challenging practice	Task 3: Is it good practice? – card sort Task 4: Language issues in science – group activity	25 minutes
Plenary	Reflection EAL exam howlers	5 minutes 5 minutes

1. Introduction

10 minutes

Use **slides 35 and 36**



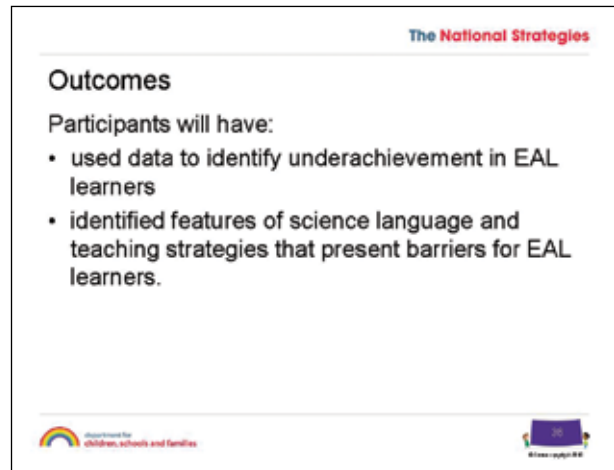
The National Strategies

Objectives

- To describe what constitutes EAL.
- To be more confident in identifying the challenges and supporting practice in your school.
- To identify some strategies for addressing language issues in science for EAL learners.

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Outcomes

Participants will have:

- used data to identify underachievement in EAL learners
- identified features of science language and teaching strategies that present barriers for EAL learners.

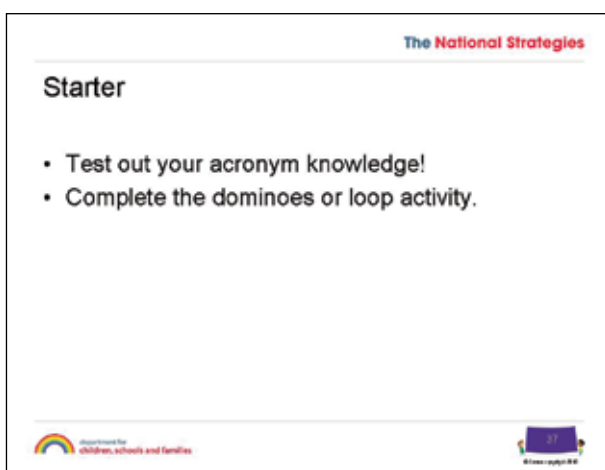
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to explain the objectives and outcomes for the whole session.

Say that we recognise that there is some excellent expertise in schools around EMA, in particular those pupils who have English as an additional language (EAL), which is not shared very well across the LA and this is an opportunity for departments, and the LA, to share that expertise during the session. We also recognise that there are significant gaps in teachers' knowledge of issues. This is an opportunity to share some of the LA statistics related to EAL learners.

Point out that **Handout 4.1** is an aide memoire that they can use throughout the session. Begin with **slide 37**



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Starter

- Test out your acronym knowledge!
- Complete the dominoes or loop activity.

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and **Handout 4.2** cut up for a loop card or dominoes game to secure participants' understanding of some of the acronyms associated with EAL learners and EMA. **Handout 4.3** has the answers and can be useful for future reference. Make the point that loop cards/dominoes are good tasks for EAL learners because:

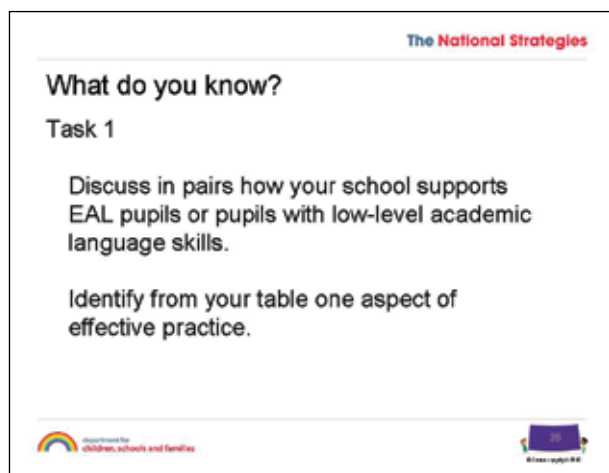
- the text is not easy but is limited, i.e. pupils know exactly what they have to read
- pupils have to listen to each other
- it is a good activity for 'prediction'

- there is opportunity for repetition in language structure, for example all definitions in the present tense or each one has use of similar language, such as larger/smaller.

This activity can be use effectively with a breadth of language abilities by differentiation of the cards.

Task 1

Show **slide 38**



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What do you know?

Task 1

Discuss in pairs how your school supports EAL pupils or pupils with low-level academic language skills.

Identify from your table one aspect of effective practice.

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which details the next task. Ask participants to work in pairs to think about how EAL pupils are supported in their schools. After a few minutes, all pairs on a table should join together as a table group and identity one example of good practice to share with everyone. Your EMA colleague could emphasise the good practice emerging or offer warnings, with reasons why some practice may be not in line with current thinking, for example the teacher correcting all spoken errors can be inhibiting and can cause language anxiety.

2. Identifying the gaps in attainment 15 minutes

Show **slide 39**.



Explain that this part of the session focuses on the first outcome:

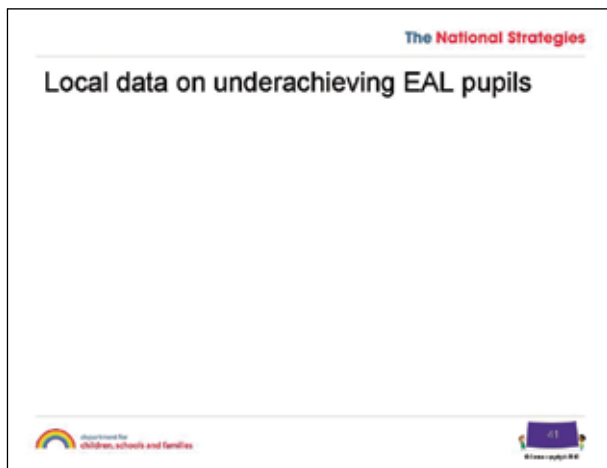
- Participants will have used data to identify underachievement in EAL learners.

Explain that the word 'underachievement' has different meanings to different people in different contexts and that we will be exploring this.

Explain that tackling the underachievement of minority ethnic groups is a priority for the government. Many of the underachieving minority ethnic groups speak English as an additional language. Other underachieving groups may include FSM pupils and those from white working class backgrounds. However, there can also be underachievement in monolingual groups whose members are not using more academic language in science. Then show **slide 40**

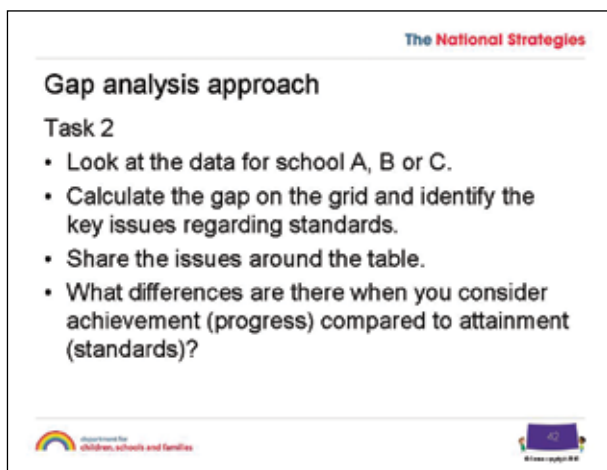
	4 levels of progress		3 levels of progress	
		Gap with all		Gap with all
All pupils	25.2		54.8	
Pakistani	25.4	+0.2	52.9	-1.9
Black African, B/W African	28.4	+3.2	61.3	+6.5
Black Caribbean	16.4	-8.8	45.5	-9.3
W/B Caribbean	16.5	-8.7	44.0	-10.8
Gypsy Roma Traveller	2.9	-22.3	13.5	-41.3

and make the point that sometimes all Asian pupils are 'lumped together' as a group. This slide clearly shows the progress gap for some of the main ethnic groups in science. It should be noted that all gaps are negative. This illustrates why it is important to consider the different ethnicities within your LA/school individually rather than considering them as a larger group, for example, Asian pupils Pakistani, Bangladeshi, Indian, white/Asian and Asian other. Analysis of the relative performance of these individual ethnicities could be lost when grouped together. **Slide 41** is blank so that consultants can add the local performance of ethnic groups..



Task 2

You may wish to substitute actual LA data into **Handout 4.4** if you have a range to illustrate the points made below. Refer participants to **Handout 4.4** and instructions for the activity on **slide 42**.



'Narrowing the Gap' approach to data analysis in science

Activity instructions

- Divide each table, into three pairs or groups – each pair/group must look at the data for either school A, B or C.
- For the ethnic minority groups, calculate the gap with the school, the LA and the national figures.
- Share the issues around the table.
- What differences might there be if you consider achievement (progress) compared to attainment (standards)?

Allow two minutes for the groups to calculate and record the gaps on the 'Gap' grid and to discuss the issues. Then allow a further three minutes for the three small groups at the table to share the information about the school they have dealt with and to discuss the issues overall.

Draw out the following points.

- In some schools, particular minority ethnic groups are the highest attainers but they are still below LA and national standards (School A).
- In some schools, particular minority ethnic groups are the lowest attainers but no pupils are meeting LA and national standards (School C).
- In some schools, particular minority ethnic groups are meeting LA and national standards but not doing as well as the rest of the school (School B).
- All of the above scenarios would require further investigation.
- If we look at progress instead of standards, we may think that pupils with EAL are doing well, for example they have made two levels' progress across a key stage, but if they had a lower starting point only accelerated progress would allow them to reach national standards. Accelerated progress should be an expectation as pupils become more competent in English.
- 'Narrowing the gap' can be tracked over time using the three comparators – the school, the LA and national.
- This method is a useful way of comparing attainment for any underperforming group.

Make the point that although it is important to make comparisons with the attainment of minority ethnic groups and the attainment of all pupils in the LA and all pupils nationally, it is sometimes useful to **compare the same minority ethnic groups in different schools**. This can be especially useful where the schools are similar in terms of socio-economics but attainment for the same minority ethnic group is very different. Such schools may need this evidence to raise their expectations of particular ethnic groups.

Local Input

This is an opportunity to share any good practice that exists across your LA.

Then show **slide 43**

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Looking deeper

- Looking from the perspective of a subject leader of school A, B or C, what might be the causes of underperformance?
- How would you know and what would you do about it?

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and split the participants into table groups, allocating them either school A, B or C to discuss the issues. Take some feedback. The following points may be raised.

These pupils could have achieved less than expected performance because of:

- language issues
- interrupted schooling
- gender
- late start to UK education
- low expectations.

Handout 4.5 can be used to consider the sorts of evidence they may need to investigate further.

Refer participants back to the aide memoire/action sheet.

3. Challenging practice

25 minutes

Explain that the rest of the training will be addressing the second outcome:

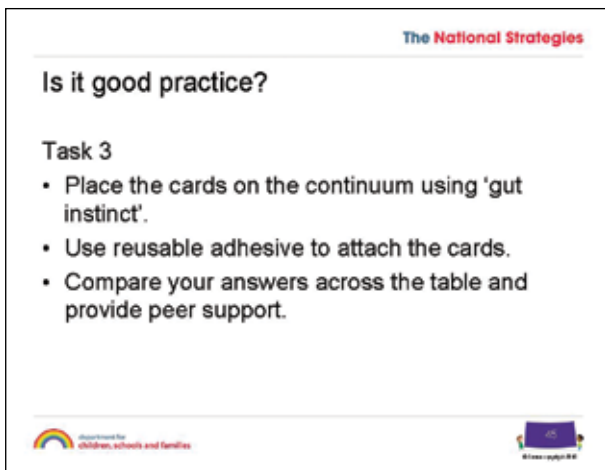
- Participants will have identified features of science language and teaching strategies that present problems for EAL learners. These are also areas of need for pupils with lower levels of academic literacy, particularly for FSM pupils.

Task 3

Show **slide 44**

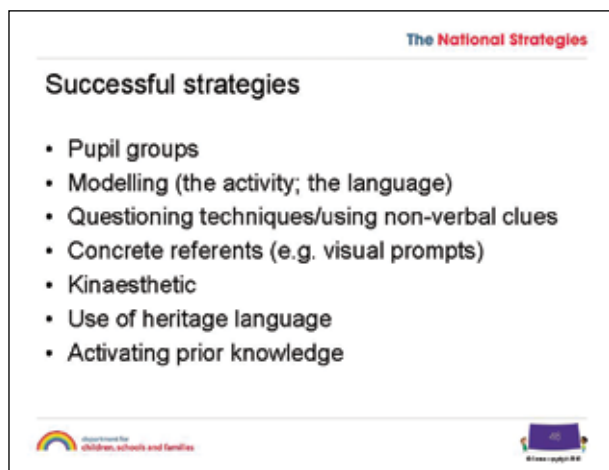


then use **Handouts 4.6a and 4.6b** and **slide 45** for this task.



Ask participants to use their 'gut response' to attach the cards to the A3 sheet (**Handout 4.6b**) using reusable adhesive. Ask participants to compare answers and provide peer support around any differences.

Provide copies of **Handout 4.6c**, which provides some acceptable answers to the position on the continuum. Allow a few minutes for participants to check the most controversial ones. Then show **slide 46**

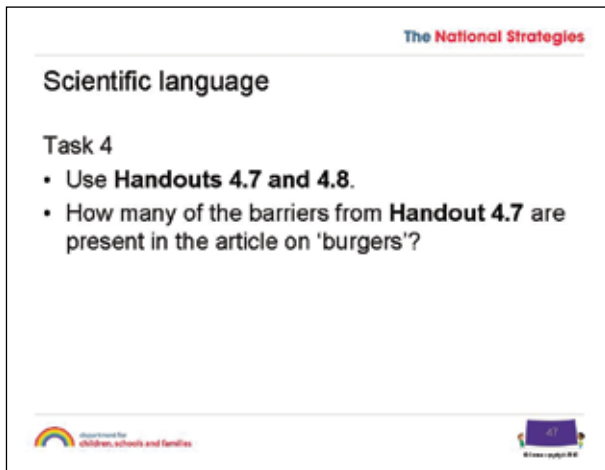


and allow the group to discuss how these strategies help EAL learners. Take feedback from the whole group. Use the guidance below to expand on these. Use the expertise of your EMA colleague to provide further clarification where necessary.

- Pupil groups: try to buddy-up someone who is less confident with a good user of the language, who also shares the same heritage language. This will allow the good user of English to move between both languages to model the use of English and also to support exploratory talk.
- Modelling (the activity; the language): provide pupils with a vision of what success looks like. The teacher should model what is required to complete the activity successfully. The key language can be modelled. For example, 'Put the cards from the hottest to the coldest.'
- Questioning techniques/using non-verbal clues: understanding always precedes using a language. Providing pupils with the opportunity to demonstrate their understanding of the language allows them to demonstrate their understanding of the scientific concepts. Sometimes open questions do not support some EAL learners because they do not scaffold the response, and this leaves the teacher uncertain about the reasons for the lack of engagement. Allowing non-verbal responses – pointing, moving objects, matching pictures and words, nodding – demonstrates understanding without being constrained by competence in the language. Provide pupils with options, for example 'Is it the hottest or the coldest?' This models the correct response and scaffolds the use of the key language, moving pupils towards confident use.
- Concrete referents (e.g. visual prompts, cultural reference points, teacher actions): the new language being taught is related to something that is concrete to which the pupil can make reference in order to scaffold their understanding or to develop their use of English, for example the teacher referring to pictures/objects while explaining a task or providing a running commentary while setting up equipment. Consider the cultural background of pupils when choosing visual prompts.
- Kinaesthetic: movement of cards and/or working at an interactive whiteboard enable non-verbal responses.
- Use of heritage language: the heritage language can be used to maintain the cognitive challenge. (Support from peers or EMA teachers.) Operating only in English would mean the activity would have to be 'dumbed down' to use only the words of English that are known.
- Activating prior knowledge: EAL learners, as all learners, benefit from relating new learning to their existing knowledge, which may be part of their experience beyond school. This is an opportunity to reflect different cultural backgrounds.

Ask participants to make a note on their aide memoire of one or two of these strategies that they can take back to school.

Task 4



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Scientific language

Task 4

- Use **Handouts 4.7 and 4.8**.
- How many of the barriers from **Handout 4.7** are present in the article on 'burgers'?

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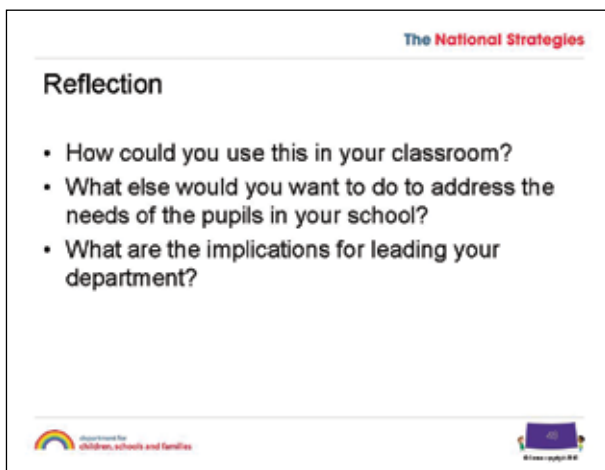
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Show **slide 47** and ask participants to read **Handout 4.7**, which outlines some reasons why pupils, and other adults, can find scientific texts difficult. Explain that many pupils are using newspaper articles or other media stories in their science lessons. Ask participants to identify how many of these aspects are present in the article on **Handout 4.8**, and annotate on the text. You might like to have a sample of science textbooks available for participants to see what difficulties they might present for EAL pupils.

4. Plenary

10 minutes

Show **slide 48**



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Reflection

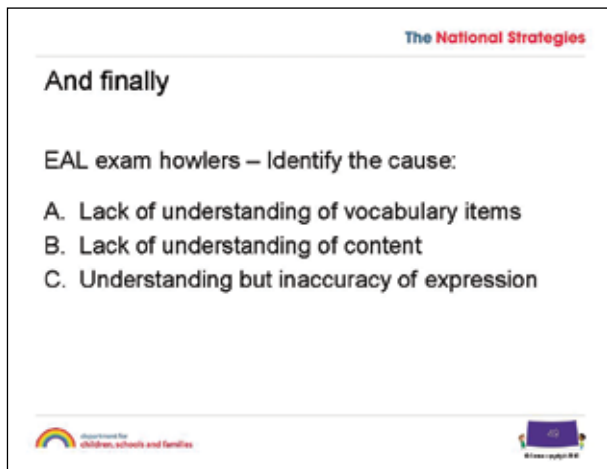
- How could you use this in your classroom?
- What else would you want to do to address the needs of the pupils in your school?
- What are the implications for leading your department?

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and allow 5 minutes for participants to add to their aide memoire sheet and reflect on leading their department.

Show **slide 49**



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And finally

EAL exam howlers – Identify the cause:

- A. Lack of understanding of vocabulary items
- B. Lack of understanding of content
- C. Understanding but inaccuracy of expression

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and use **Handout 4.9**. Allow a few minutes for participants to look at the examples and decide what has caused the misunderstanding/error.

- a. Lack of understanding of vocabulary items
- b. Lack of understanding of content
- c. Understanding but inaccuracy of expression

Some examples are:

- 'When you smell an odourless gas, it is probably carbon monoxide.'
Lack of understanding of the vocabulary item 'odourless'
- 'Blood flows down one leg and up the other.'
Lack of understanding of content
- 'A super saturated solution is one that holds more then it can hold.'
Understanding but inaccuracy of expression

Conclude the plenary by asserting that a focus on language is crucial for success in science for all pupils, but especially for pupils with EAL.

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

While this session has been written with a specific focus on the guidance provided on the National Strategies website, it should be recognised that it has been written in collaboration with STEMNET and will provide an ideal opportunity to involve STEMNET contract holders and schools that demonstrate effective practice.

Objectives

- To provide an opportunity to reflect on current practice regarding enrichment and enhancement opportunities offered within science.
- To consider guidance relating to effective STEM enrichment and enhancement activities.

Outcomes

Participants will have:

- considered the effectiveness and clarity of purpose of current enrichment and enhancement provision in science
- explored how the impact of enrichment and enhancement activities could be increased.

Resources

Access to the National Strategies website – Science in STEM section (preferably live to demonstrate the guidance provided and links to partner websites)

STEM Directory – printed or web version

Enhancement and Enrichment – science study guide (on CD-ROM)

Outside the classroom – science study guide (on CD-ROM)

Guidance

This session has been provided in such a way that it can be easily tailored to the specific needs of your schools.

Local Input

If a number of your schools provide enrichment and enhancement opportunities in science as part of the learning experience for all pupils, then this session can be used to showcase that effective practice.

If practice is less consistent and more development is needed, refer to 'Progression in the programme' on the Secondary science 'Managing effective STEM enhancement and enrichment' web page at www.standards.dcsf.gov.uk/nationalstrategies. This can be used to inform a discussion regarding the effectiveness of current enrichment and enhancement provision in your schools. These steps can then be used to 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.

Use **slides 51 and 52** to share the objectives and outcomes.

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Objectives

- To provide an opportunity to reflect on current practice regarding enrichment and enhancement opportunities offered within science.
- To consider guidance relating to effective STEM enrichment and enhancement activities.

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Outcomes

Participants will have:

- considered the effectiveness and clarity of purpose of current enrichment and enhancement provision in science
- explored how the impact of enrichment and enhancement activities could be increased.

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A series of questions has been provided on **slides 53, 54, 55, 56 and 57** to support the discussions. These questions focus on four specific areas that may or may not have been considered by science subject leaders and their departments:

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What is enrichment and enhancement?

- What is it?
- What does this look like in science?
- Why do we need it? (Why is it important?)
- What makes it effective?
- Who is it for?
- Where and when does it happen now?
- Who does it involve?
- Who provides enrichment and enhancement?
- Who can support specific activities?

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Range of enrichment and enhancement

- What enrichment and enhancement activities do you currently provide for your students?
 - Which of these take place outside the classroom?
 - Which are an integral part of lessons in science? (How do you know?)
 - Which do not fit into either of these categories? (Where do they fit?)
- How are these activities related to pupils' learning:
 - By all the teachers in the department?
 - By the pupils involved?
 - By pupils' parents?
 - By the school leadership team?

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Management of enrichment and enhancement

- How are enrichment and enhancement opportunities planned, coordinated, tracked and evaluated in the department?
- How are opportunities evaluated and tracked within the whole school?
 - Is practice the same in science as it is in PE, drama, geography, music?
 - Are opportunities identified in schemes of learning? Are they ad hoc?

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Management of enrichment and enhancement

- How are external contributions supported by the science team? (Who briefs visitors, pupils, caretakers, other teachers and ensures the event goes smoothly?)
- How are opportunities within science lessons supported? (TAs, technicians, team teaching, parents?)

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The effectiveness of enrichment and enhancement

- How do you know that enrichment and enhancement activities have been effective?
- Do you gather feedback from pupils perhaps by using pupil voice activities?
- Do you gather feedback from science teachers regarding the engagement of pupils and the impact of specific activities on subsequent learning?
- Do you gather feedback from parents?
- Do you gather feedback from external partners?

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1. What is good quality enrichment and enhancement?
2. The range of enrichment and enhancement activities provided within and beyond lessons.
3. The effective management of enrichment and enhancement activities in science.
4. The effectiveness of enrichment and enhancement activities provided.

Each of these aspects is considered and supported by guidance on the website – this could be used to support and stimulate the discussions.

Use **slide 58** to encourage participants to reflect on the next steps.

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Next steps

- Reflect on the discussions that have taken place today and the resources you have seen.
- How could you change the way in which enrichment and enhancement is approached in your school to make it more effective and to increase the impact on pupils' learning and engagement with science?

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The key message from this session is that:

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 STEM subjects.

A series of case studies, describing examples of effective enrichment and enhancement activities in science are currently being developed and will be placed on the National Strategies website when they are available. If you are interested in sharing the effective practice demonstrated by your schools, please contact us via the website.

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

Objectives

- To provide an update of the provision of study guides on the Secondary Framework website.
- To share experiences of using materials published in autumn term 2009.
- To develop strategies for the use of materials to support high-quality first teaching.

Outcomes

Participants will have:

- an understanding of how they might make effective use of the study guides
- action points relating to the use of the study guides.

Resources

PowerPoint™ presentation – **slides 59–68**

Handout 6.1 Particles: Introduction

Handout 6.2 Particles: Developing an understanding of particle theory – located on CD-ROM

Handout 6.3 Particles: Using particle models to explain phenomena – located on CD-ROM

Handout 6.4 Particles: Using particle models to understand digestion and absorption

Handout 6.5 Particles: Changing evidence and ideas about particles – located on CD-ROM

Handout 6.6 Particles: The formation of compounds and chemical reactions – located on CD-ROM

Handout 6.7 Particles: Answers to some of the questions – located on CD-ROM

Handout 6.8 Particles: Appendix 1: The learning demand – located on CD-ROM

Handout 6.9 Particles: Appendix 2: *HSW* – Practical and enquiry skills – located on CD-ROM

Handout 6.10 Particles: Appendix 2: *HSW* – Explanations, arguments and decisions – located on CD-ROM

Handout 6.11 Particles: Appendix 3: Yearly learning objectives, amplification, progression and rich questions – located on CD-ROM

Session outline

60 minutes

Section	Activity	Approximate timing
Introduction	Whole group	10 minutes
Sharing effective practice	Talk Work in table groups.	10 minutes
Role-play	Talk Group activities in threes	30 minutes
Plenary	Talk	10 minutes

1. Introduction



10 minutes

Show slides 60 and 61

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Objectives

- To provide an update of the provision of study guides on the Secondary Framework website.
- To share experiences of using materials published in autumn term 2009.
- To develop strategies for the use of materials to support high-quality first teaching.






The National Strategies

Outcomes

Participants will have:

- an understanding of how they might make effective use of the study guides
- considered action points relating to the use of the study guides.



and share the objectives and outcomes with participants. Explain that this session is a follow-up from last term's meeting in which the first two study guides were shared and their potential use discussed.

Show slide 62

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Overview

Phase	Study guide	Published
1	Cells Particles	Autumn 2009
2	Interdependence Earth in Space	Spring 2010
3	Energy Animal Behaviour	Summer 2010
4	Forces Geological Processes	Autumn 2010

and brief participants on the state of development of the study guides. These are now available on the website for:

- Cells
- Particles
- Interdependence
- Earth in Space

The next two to be produced, later in the spring term, are:

- Energy
- Animal Behaviour

The final two, due to be published later in 2010, will be:

- Forces
- Geological Processes

The study guides are located in the 'Guidance' section of the Framework for secondary science at: www.standards.dcsf.gov.uk/nationalstrategies

Explain that this session will use the materials from the Particles study guide as an example of the resources.

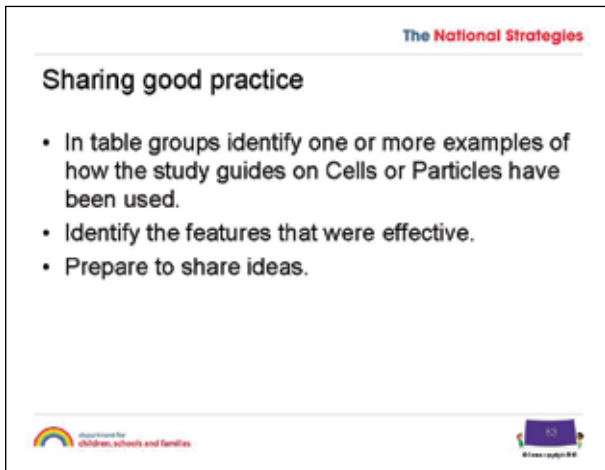
It is worthwhile emphasising that the resources in the study guides don't only include documents; the particle theory one, for example, includes crystal growth and diluted milk video clips and the audio clip of the talk by Sir Harry Kroto. The session will be more effective if the presenter is familiar with these, both in terms of locating them and using them. If time (and internet access) allows, demonstrate one or more of these.

It is important to be familiar with the form and function of these materials; they not only include material to support the effective delivery of the respective areas of range and content but also show how *HSW* should be integrated and how the ensuing lessons will be more engaging and will generate evidence to support assessment using Assessing Pupils' Progress (APP).

2. Sharing effective practice

10 minutes

Show **slide 63**



The National Strategies

Sharing good practice

- In table groups identify one or more examples of how the study guides on Cells or Particles have been used.
- Identify the features that were effective.
- Prepare to share ideas.

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and invite participants to share experiences of using the first two study guides. Bearing in mind that this is likely to be variable, it is suggested that a good example per table group is aimed at rather than an overall consensus. It will strengthen the effectiveness of the session if an example of good practice using the study guides, either by the presenter or a participant identified beforehand, is shared.

Local Input

Decide during the session if there are particular examples to share with the whole group.

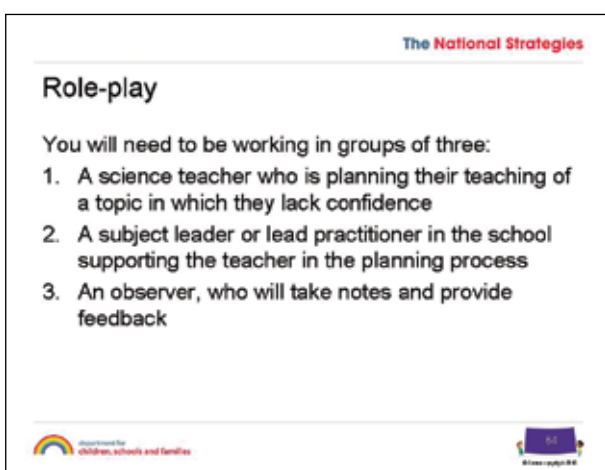
3. Role-play

30 minutes

The purpose of this session is to engage participants with the materials in more detail and to get them thinking about the process of using them. Explain that this will take the form of a role-play and that participants will need to be working in groups of three:

1. a science teacher who is planning their teaching of a topic in which they lack confidence
2. a subject leader or lead practitioner in the school supporting the teacher in the planning process
3. an observer who will take notes and provide feedback.

Show **slide 64**



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Role-play

You will need to be working in groups of three:

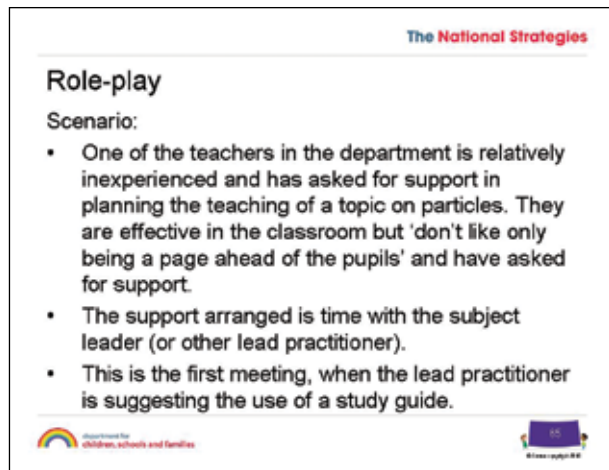
1. A science teacher who is planning their teaching of a topic in which they lack confidence
2. A subject leader or lead practitioner in the school supporting the teacher in the planning process
3. An observer, who will take notes and provide feedback

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and emphasise that you will be taking feedback at the end of the activity relating to how the study guide material can be used most effectively; you will be requesting key points from the observers.

Show **slide 65**



The slide is titled "The National Strategies" in red text at the top right. Below the title, the word "Role-play" is written in bold black text. Underneath, the word "Scenario:" is followed by three bullet points. The first bullet point describes a teacher who is relatively inexperienced and has asked for support in planning the teaching of a topic on particles. The second bullet point states that the support arranged is time with the subject leader (or other lead practitioner). The third bullet point notes that this is the first meeting, when the lead practitioner is suggesting the use of a study guide. At the bottom left of the slide, there is a logo for the Department for Children, Schools and Families, and at the bottom right, there is a small logo for "65" with the text "65" and "65" below it.

The National Strategies

Role-play

Scenario:

- One of the teachers in the department is relatively inexperienced and has asked for support in planning the teaching of a topic on particles. They are effective in the classroom but 'don't like only being a page ahead of the pupils' and have asked for support.
- The support arranged is time with the subject leader (or other lead practitioner).
- This is the first meeting, when the lead practitioner is suggesting the use of a study guide.

and share the features of the situation. The teacher being supported isn't weak or ineffective but wants to develop a deeper understanding of the topic so that their teaching will be more effective.

Allow time for the participants to carry out the role-play then take feedback from the observers. Draw out and share key points about the use of the study guides including:

- Although they are based around areas of range and content, the delivery of *HSW* is integrated.
- They are designed to be used in a variety of ways and are not dependent upon mediation.
- 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 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.

4. Plenary

10 minutes

Show **slides 66 and 67**

The National Strategies

Objectives

- To provide an update of the provision of study guides on the Secondary Framework website.
- To share experiences of using materials published in autumn term 2009.
- To develop strategies for the use of materials to support high-quality first teaching.

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Outcomes

Participants will have:

- an understanding of how they might make effective use of the study guides
- considered action points relating to the use of the study guides.

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to remind participants of the objectives and outcomes for the session. Then show **slide 68** and invite them to identify action points for their future work.

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Plenary

- Consider the study guide material available and planned.
- Reflect on the points emerging from the role-play.
- Identify action points for using the study guides.

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