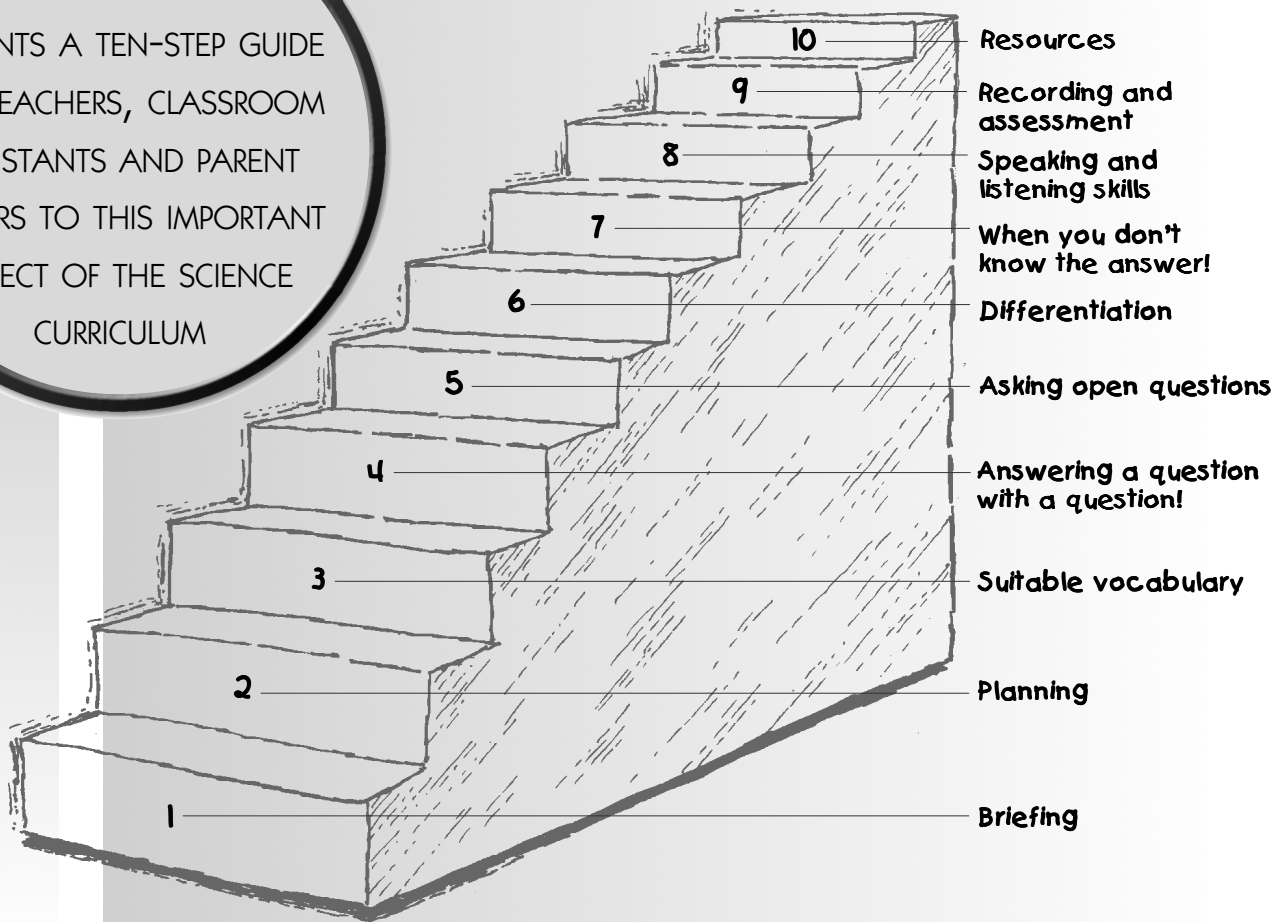




# Asking the right questions

## developing children's questioning skills and knowing how to answer!

**CHRIS WARDLE**  
 PRESENTS A TEN-STEP GUIDE  
 FOR TEACHERS, CLASSROOM  
 ASSISTANTS AND PARENT  
 HELPERS TO THIS IMPORTANT  
 ASPECT OF THE SCIENCE  
 CURRICULUM



Increasingly, teaching assistants and parents are engaging with children across the curriculum in group-led activities. However, whereas in literacy and numeracy the outcome of activities is pre-determined and the same objectives and teaching points are reinforced over a week or a fortnight, in science things can be

very different. Helpers often come to a topic area 'cold', as 'We didn't do that when I was at school', but, with one isolated lesson a week, every adult involved must make the most of the valuable science teaching time. The outcome of an investigation may not be obvious, the vocabulary to be used may not be familiar and, worst of all, the children may be

full of scientific questions you really don't know how to answer!

Here are some practical steps and pointers to use when assisting with group activities and to stimulate the right questions.

### 1 Briefing

Teaching assistants and parent helpers should be briefed as to the content of the lesson, the learning

objectives and the aim of the investigation (if there is one) so they are 'tuned in' to the topic, vocabulary and types of questions that might arise.

## 2 Planning

Teachers should include a brief section in their lesson plan listing suitable questions to be raised during whole-class teaching and group work. Assistants and parents should be informed of these and be given a photocopy so that they can incorporate them into their group interactions. The questions may be to:

- link that day's learning with previous work;
- reinforce the main teaching point of the lesson;
- challenge and extend more able children to make connections between topics and to ask further questions.

## 3 Suitable vocabulary

As Wynne Harlen (2000) notes, children really enjoy encountering new words and technical terms and these should be incorporated into their established vocabulary as they occur. However, she raises the very important point that the children may have gained 'incomplete meanings' for them and may be using the words in a 'loose' and transitional way as they move towards a more accurate understanding and usage. It is therefore vital for adults working with groups of children to reinforce the technical vocabulary being taught and to clarify what the words mean within a context and with scientific accuracy appropriate to the age group (Emery, 2002). The terms being used may thus enhance the children's thinking and maintain the accuracy of the science being taught.

## 4 Answering a question with a question!

A key role of an adult working with a group is to promote questioning skills and encourage scientific enquiry. A useful

teaching tool is to 'bounce questions back' to the children, either by rephrasing the question they have just asked or by inviting them to elaborate on what they wish to know. This is another opportunity to reinforce technical vocabulary and clarify meanings. For example:

*What do you think might happen?*

*Could you ask that question in another way?*

*How would we describe what is happening?*

*Is there another way we could measure/look at this?*

*What do you think as a group?*

## 5 Asking open questions

Asking questions that require children to explain their thinking may seem obvious, but in the heat of a busy and exciting science lesson it is easy to forget to do this, often without realising it. Adults working with children are in the privileged and bizarre situation of asking questions to which they generally already know the answers. It is easy to fall into the trap of asking questions that will only elicit 'yes' or 'no' answers, in the desire to confirm and reinforce teaching points and objectives, without giving due regard to developing children's questioning (and answering) skills. It is therefore a good idea to rehearse a few questions beforehand to ensure that they cannot be replied to with one-word answers. Use words and phrases such as 'How does...', 'Why does...', and 'What might...' rather than 'Can you...' or 'Is that...', which could lead to a series of very short responses. This comes with practice. It is surprisingly hard at first, especially for an adult not used to asking the vast number of questions the average teacher asks every week.

## 6 Differentiation

An adult working with a named child within special educational needs provision, or assigned to a particular ability group, must

tailor the questions and vocabulary to suit the children they are supporting. Here the teacher's planning will be useful as to the desired outcome for each ability group. Although every child may take part in an investigation and discussion, the individual learning and technical vocabulary used may vary tremendously. It may be appropriate to use 'flash cards' of scientific vocabulary for reinforcement or to make an individual or group dictionary of terms (see Wardle, 2002). The key here is close liaison between the teacher and the other adults; if in doubt they should ask for advice.

## 7 When you don't know the answer!

Adults not used to teaching may often be surprised by the range or complexity of questions that children ask. It is all right not to be sure how to answer. Science is an investigative subject and children enjoy hunting for answers, whether that means asking the teacher for a 'clue', using reference materials or carrying out a search on the Internet (with adult guidance). Children should be made aware that scientists are uncovering information all the time and our thinking on certain topics is developing as we explore and find out more. The last thing an adult should do is to avoid the question, ignore it, or give a 'fudged' answer based on what they think a child might want to hear or needs to know. There must be accuracy and integrity in our responses, enabling children to realise that we are all involved in a learning experience.

## 8 Speaking and listening skills

As Hopkins and Hunter (1990) comment:

*Asking questions is the means by which children find out the information they need to help them understand. The questions they ask show where their existing ideas are*

not adequate to interpret their experiences. Children should be encouraged to ask all kinds of question, as this helps them form links between previous and new experience. Many of the questions children ask are complex 'how' and 'why' questions. The teacher needs to encourage this but at the same time help children to frame investigative questions. The explanation-seeking 'how' and 'why' questions need to be turned into information-seeking 'What happens if...' and 'I wonder whether...' questions for children. (p. 18)

All of these opportunities for question setting and answering can feed into speaking and listening sessions within English or vice versa. It is therefore useful if teaching assistants or parent helpers can use some available literacy time to compose, try out and refine questions and answers they wish to share or explore within science lessons (Wardle, 1999). In this way, English skills are developed and the children come to their next science session eager and empowered to find out more.

### 9 Recording and assessment

While teaching assistants and parents are working with groups, teachers may have the opportunity to formally or informally assess children within the framework of National Curriculum 'Scientific enquiry'. Discussions within groups can be tape-recorded and the questions raised used as evidence to move the children forward. This is also an excellent opportunity to check for understanding and clarify any misconceptions that might have arisen.

### 10 Resources

A number of resources are available to support teaching assistants or parent helpers as well as children in the use of

scientific vocabulary. Examples include:

*Science dictionary* – A useful, inexpensive science dictionary with child/parent-friendly definitions and explanations (Robson, P., 1995, Newby Books. ISBN 1 872686 22 2)

*Keywords in specialist subjects* – A useful booklet detailing key vocabulary in all curriculum areas, but especially useful for adult helpers so they know which scientific terms they should be reinforcing with the children. (O'Connell, H., 1995, Desktop Publications. ISBN 1 872406 55 6)

### References

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