Chapter 15:
HANDLING CHILDREN'S QUESTIONS
by Wynne Harlen

Notwithstanding the value to children's learning of encouraging their questions, many teachers feel that to do this would only add to their problems. Don't children already ask enough questions and ones which their teachers find difficult to answer? Indeed it is not all that rare for teachers to adopt classroom materials and strategies which either keep children so busy in routines that they have little time to think and query or else themselves do all the talking and discourage any input from children which is not a response to a teacher's question. So if the ideas suggested in the last chapter for encouraging children's questions are to be taken at all seriously, being able to handle the questions which children raise has a high priority.

Fortunately handling questions is a skill which can readily be developed. It requires thought about the kind of question being asked, about the likely motive for asking it and knowledge of how to turn a question into one which can be a useful starting point for investigation. The word 'handle', rather than 'answer' is used deliberately here. One of the first things to realise - perhaps with some relief - is that is often better not to answer children's questions directly (even if the teacher does know the answer). But it depends on the kind of question which is asked and so we start by identifying important differences.

Questions children ask

Most questions children ask in the context of science activities fall into one of five categories which have been chosen because they group together questions requiring different kinds of responses.

(i) *Comments expressed as questions*

These are questions which children ask when they are intrigued or excited. The questions don't really need to be answered but there has to be some response which acknowledges the stimulus which gave rise to the question. For example, here is how an infants' teacher handled a question from a six year old when she and a group of children were examining a birds' nest:

Child: How do they weave it?
Teacher: They're very clever...
Child: Birds are very clever with their beaks
Child: Nobody would ever think they were because they're so small
Teacher: Yes, it's wonderful isn't it? If we turn this right round and let you have a look at this side.....

The child's question was used to maintain the close observation of the nest and a sense of wonder. She might have replied "Look carefully and see if you can tell how it is done?" but perhaps she judged that this was too early a stage in the exploration for focusing on one aspect, but her response leaves open the possibility of

returning to the subject in this vein if the children's interest is still there. Another way of putting this is that she judged the question to be a way of expressing wonder rather than a genuine query. The child might just as easily have said "look at how it is woven!"

(ii) *Philosophical questions*

This is another category of questions to which the response has to be of the 'yes, isn't it interesting/intriguing' kind, sharing the wondering behind the question. 'Why do we have birds and all different things like that?' is such a question . Taken at face value the only answer is to say that there is no answer. However, not all children's questions are to be taken at face value; the motive for asking has also to be taken into account (see p 00) . Neither should we read too much into the exact words children use. They often phrase questions as 'why' questions, making them sound philosophical when the answer they are wanting is much more related to 'what makes it happen' rather than 'why does it happen'. When children's question seem philosophical the initial step is to ask them to explain their question. It may well then turn into a question in a different category, but if not it should be treated as an interesting question but one to which no-one can give a definite answer.

(iii) *Requests for simple facts*

These are questions which satisfy the urge to name, to know, to identify. The children looking at the bird's nest asked "Where did it come from?" "What kind of stuff is this that it's made of?" "How long do the eggs take to hatch?" These are questions to which there are simple factual answers which may help the children to give a context to their experience and their ideas about the lives of birds. The teacher may know the answers and if so there is no point in withholding them. In the case of the birds' nest she knew where it had come from and helped the children identify the 'stuff' as hair. But for the length of hatching she did not have the knowledge and the conversation ran on as follows:

Teacher: Well, you've asked me a question that I can't answer - how many days it would take - but there's a way that you could find out, do you know how?

Child: Watch it.....

Child: A bird watcher....

Child: A book

Teacher: Yes, this is something you can look up in a book and when you've found out.....

Child: (who had rushed to pick up the book by the display of the nest).....I've got one here, somewhere.

Child .....here, here's a page about them

Teacher There we are.....

The group was engrossed in the stages of development of a chick inside an egg for some time. The question was answered and more was learned besides. Had the book not been so readily available the teacher could have suggested that either she or the children could look for the information and report back another day.

Requests for names of things fall into this category, as do definitions which arise in questions such as 'Is coal a kind of rock?' Whilst names can be supplied if they are known, undue attention should not be given to them. Often children simply want to know that things do have a name and, knowing this, they are satisfied. If work requires something to be named and no-one knows the proper name at that moment then children can be invited to make up a name to use. 'Shiny cracked rock', 'long thin stem with umbrella', 'speedy short brown minibeast' will actually be more useful in talking about things observed in the field than their scientific or common names. Later the 'real' names can be gradually substituted.

Some requests for simple facts cannot be answered. Young children often have a view of their teacher as knowing everything and it is necessary to help them to realise that this is not the case. When the children asked "Where are the birds now, the ones who built the nest?" they were expecting a simple question to have a simple answer. In this case the teacher judged that the kind of answer they wanted was "They've probably made their home in another shed, but I really don't know for sure" rather than an account of all the possibilities, including migration and whether or not birds tend to stay in the same neighbourhood. A straight "I don't know" answer helps children to realise the kinds of questions that cannot have answers as well as that their teacher is a human and not a super-human being.

(iv) *Questions requiring complex answers*

Apart from the brief requests for facts, most questions children ask can be answered at a variety of levels of complexity. Take "why is the sky blue?" for example. There are many level of 'explanation' from those based on the scattering of light of different wavelength to those relating to the absence of clouds. Questions such as 'why is soil brown?' "why do some birds build nests in trees and others on the ground?" "how to aeroplanes stay up in the air?" fall in this category.

They seem the most difficult for teachers to answer but they are in fact the most useful questions for leading to investigations. Their apparent difficulty lies in the fact that many teachers do not know the answers and those who do will realise that children could not understand them. There is no need to be concerned , whichever group you fall into, because the worst thing to do in either case is to attempt to answer these questions!

It is sometimes more difficult for the teacher who *does* know the scientific explanation to resist the temptation to give it than to persuade the teacher who does not know not to feel guilty about not being able to answer. Giving complex answers to children who cannot understand them is underlining for them that science is a subject of facts to memorise that you don't expect to understand. If their questions are repeatedly met by answers which they do not understand the children will cease to ask questions. This would be damaging, for these questions particularly drive their learning.

So what can be done instead of answering them? A good answer is given by Sheila Jelly in the following words:

> "The teaching skill involved is the ability to 'turn' the questions. Consider, for example, a situation in which children are exploring the properties of fabrics. They have dropped water on different types and become fascinated by the fact that water stays 'like a little ball' on felt. They tilt the felt, rolling the ball around, and someone asks 'Why is it like a ball?' How might the question be turned by applying the 'doing more to understand' approach? We need to analyse the situation quickly and use what I call a 'variables scan'. The explanation must relate to something 'going on' between the water and the felt surface so causing the ball. That being so, ideas for children's activities will come if we consider ways in which the situation could be varied to better understand the making of the ball. We could explore surfaces, keeping the drop the same, and explore drops, keeping the surface the same. These thoughts can prompt others that bring ideas nearer to what children might do."
>
> (Sheila Jelly, 1985, p55)

The result of the 'variables scan' is to produce a number of possible investigable questions such as 'Which fabrics are good ball-makers?' 'What happens is we use other fluids, or put something into the water?' Exploring questions of these kinds leads to evidence which can be interpreted to test hypotheses concerning what it is about felt that makes it a good ball-maker (and can we use this idea to make it into a poor ball-maker?) and what extent it is something about water which makes it form balls (and how we can change this). These activities lead towards an explanation of the original question and can be pursued as far as the extent of the children's interest and understanding. It is not difficult to see that there is far greater educational potential in following up the question in this way than in attempting to give an explanation (which probably has to be in terms of a misleading 'skin' round the surface of the drop).

'Turning' questions into investigable ones is an important skill since it enables teachers to treat difficult questions seriously but without providing answers beyond children's understanding. It also indicates to children that they can go a long way to finding answers through their own investigation, thus underlining the implicit messages about the nature of scientific activity and their ability to answer questions by 'asking the objects' (see Chapter 14, p00).

(v) Questions which can lead to investigation by children

Teachers looking for opportunities for children to explore and investigate will find these are the easiest questions to deal with. The main problems

a) recognising such questions for what they are
b) resisting the urge to give the answer because it may seem so evident (to the teacher but not the child)
c) storing them, when they seem to come at the wrong time.

a) It is not often that a child expresses a question in an already investigable form; there is usually a degree of 'turning' to do and the 'variables scan' is a useful idea to keep in mind. The example of the snails' shells (p00) is a case in point. Here the questions 'Why do snails have four rings on their shell?" was quite easily turned into "Do snails have the same number of rings on their shells?" A slightly different approach is to turn a question

from a 'why' question into a 'what would happen if' question. For instance:
'Why do you need to stretch the skin tight on a drum?' can become 'What would happen if the skin is not tight?'

Not only is this more encouraging for the child than a straight return of the question: 'Well, what do you think?' but it directs the child towards finding out more than the answer to the original question - in this case probably the relationship between the pitch of the sound and the tautness of the drum skin.

b) 'What are these?' (the eyes of sprouting potatoes)
'Where did these come from?' (winged fruits of sycamore trees)
'How can I stop my tower falling over?' (tower built from rolled newspaper with no diagonal struts).

These are questions which the teacher could readily answer, but in most cases to do so would deprive the children of good opportunities to investigate and learn much more that the simple answer. Certainly, there can be occasions when it is best to give the short answer, but in general the urge to answer is best resisted. Instead it is best to discuss how the answer can be found.

c) Questions which can be profitably investigated by children will come up at various times, often times which are inconvenient for embarking on investigations. Although they can't be taken up at that moment the question should be discussed enough to turn them into investigations and then, depending on the age of the children, picked up some time later. Some kind of note has to be made and this can usefully be kept publicly, a list of 'things to investigate' on the classroom wall, or just kept privately by the teacher. For younger children the time delay in taking up the investigations has to be kept short - a matter of days - but the investigations are also short and so can be fitted into a programme more easily. Older children can retain interest over a longer period - a week or two - during which the required time and materials can be built into the planned programme.

The five categories of questions and ways of handling them are summarised in figure 15.1.

Flow diagram for handling questions

Children's motives for questioning

So far we have treated children's questions as is they all stem from curiosity and a desire to understand. These are, of course, powerful motives for questioning and are the basis of the reasons given for encouraging questions (p00). But there are other motives which overlay the distinctions between categories proposed above. Children also ask questions to demand attention; they are less interested in the answer than in being the focal point of the class for a few minutes. One little girl made a habit of putting her hand up and then asking a

question in such a whispering voice that the whole class had to freeze in order for her to be heard. The teacher did not want to discourage her questions by not allowing her to speak or to be heard, but found the effort disrupted the flow of discussion. Other children use questions to seek gradually more and more clues to what they are expected to do that they end up being with far more help than other children. When such subterfuges work the children use them more frequently and they spread to others. The way to avoid this is not to let them work; to recognise them for what they are and to make it explicit to the child that the teacher realises what is happening.

Recognising that the motive for a question may not be purely a desire to know, the teacher has to modify the ways of handling suggested above. At the same time the situations can be used to reinforce the preference for questions which are investigable, giving praise and attention to such questions whilst expecting children to do more fact-finding for themselves.