Download 3.2 'Subject knowledge support'

TAs supporting practical work in science

Within all stages, practical science work is encouraged, at the Foundation Stage this is through practical exploration and investigation, at KS1 and KS2 it is through Scientific Enquiry (Sc1). Throughout KS3 Scientific enquiry (Sc1) is further developed into more detailed scientific investigations. During GCSE work pupils will need to undertake specific assessed practicals as course work. The marks of which will be included in the GCSE exam undertaken.

This extensive range of practical science work offers many opportunities for TAs to support teachers and pupils in science. This could involve learning to use a piece of equipment correctly, e.g. a red spirit thermometer in KS2, to be aware of a meniscus when using fluids and how to measure them accurately at KS3, and how to work through a whole timed practical at KS4. It could involve a TA helping or guiding individual or a group of children complete a practical task successfully.

The Nursery, Primary, or Secondary science teacher would need to consider what role they wished the TA to take with their pupils. It is essential that the TA feels valued and finds a clear role in the laboratory: prior consultation with the class teacher is of particular importance.

Science Knowledge

The teaching assistant or parent helper may need briefing on the knowledge and concepts being developed during the lesson.

Has the trainee identified the science knowledge needed for the science lesson? Have they prepared notes to give to the teacher assistant and or had a discussion with the teacher assistant about the knowledge?

- Is the trainee aware of the National Curriculum level they are working at? Is this communicated to the T/A?
- Has the trainee considered the QCA statements of Average, Below Average and Above average? Have they identified to the T/A, which they are working at with the children?
- Does the helper have an understanding of the knowledge that is being involved? (Some T/As want to avoid science because it is hard!)
- Are resources readily available to support the teacher assistant and the children – e.g. Big Book and readers on snakes? Other books on snakes?
- Has the teacher assistant been advised to discuss answers with the children rather than just show them the answer?

TAs supporting knowledge in science

There are now available a huge range of resource material to support the development of subject knowledge for teachers and pupils. It is not possible to list all of those available. A few suggestions are set out below. The Teacher would need to make some of these resources available to the TA to support their individual knowledge needs.

Teacher Assistants would need to be aware of the different styles of questioning that could be employed when working with pupils to develop Scientific Enquiry or knowledge. A range of questions types is considered below. Also a range of resources that could support subject knowledge at various levels is indicated.

Type and style of questioning

Teacher assistants need to be aware of the range of questioning they could use with children?

- Questions that ask about doing something, a procedure – can you measure 200ml of water?
- Questions that ask about an observation – did you notice how the?
- Questions that provide supportive statements – yes the snail has got a shell
- Questions that build on information and ask further questions – yes the snail has got a shell can you see how many whorls it has?
- Questions that encourage problem solving? How can you make the propeller work?
- Questions that encourage science practical work. Could we try this and see?
- Questions that support science investigations and scientific enquiry. Can you think of a question that you could test to find a result?
- Questions that encourage investigative planning. How would you plan this investigation?

Harlen (2002) and Fleer & Atkinson (1995) discuss these issues in more depth.