

Best Practice Guidance

Guidance on Scientific Enquiry

Context

“Science enquiry is what children do in order to answer scientific questions about the world around them” Turner et al (2011)

Science curricula across the UK all include reference to the ways in which scientific knowledge is acquired. Statutory requirements use a range of terminology (for example inquiry and investigative skills, how science works, and working scientifically) which essentially describe the process of scientific enquiry.

Changes over time have been subtle, and become linked to the requirements of assessment which more often drives the approach to teaching and learning. The expectations and assessment of scientific enquiry is different across the UK.

The position of ASE

- Opportunities for teaching scientific enquiry should be central to all science curricula, so that pupils gain a deeper understanding of science concepts in the context of questions they ask and answer
- Scientific enquiry describes the processes and language pupils should be taught. They should be encouraged to use this knowledge so they are able to find out more about the world and how it works

Best practice should seek to include

- Reference to the ASE document [‘Scientific enquiry’](#)
- Clarity about progression in the concepts and practices of scientific enquiry both within and across phases
- Recognition that ‘school science’ is not the same as ‘real science’ but should provide opportunity to understand how science really works
- Lessons that are planned to achieve specific outcomes related to scientific enquiry, so that children are clear about what and how they are learning, and that these outcomes are transferable to different contexts
- Learning about scientific enquiry should be integral to learning scientific content, which is just as much part of scientific content as the other aspects of science such as learning about cells, or elements or circuits
- Recognition that scientific enquiry describes an approach to learning about science, it is not the same as ‘enquiry based learning’

- CPD for teachers that has a focus on scientific enquiry, and not only on scientific content and helps teachers distinguish between teaching about scientific enquiry, and teaching science through scientific enquiry

Links

See ASE document '[Scientific enquiry in the UK](#)' for links to the UK Nations approach to scientific enquiry.

Read *It's not fair - or is it? A guide to developing children's ideas through primary science enquiry* (2011) by Jane Turner, Brenda Keogh, Stuart Naylor and Liz Lawrence. Published by Millgate House Publishers and the Association for Science Education

Primary Science Journal Articles

It's Not Fair (Jan/Feb 2012) <https://www.ase.org.uk/journals/primary-science/2012/01/121/>

Working Scientifically with enquiry (May/June 2014) A special 8 page supplement
<https://www.ase.org.uk/journals/primary-science/2014/05/133/>

Beyond Fair Testing : Teaching Different Types of Enquiry An SEP resource for secondary teachers <https://www.stem.org.uk/elibrary/resource/28910>