



Making Sense of Secondary Science – Research into children’s ideas, Rosalind Driver, Ann Squires, Peter Rushworth, Valerie Wood-Robinson, Routledge, London 1994

Making Sense of Secondary Science is now considered a classic of science education literature. First published in 1994, it was reprinted with the addition of a new introduction in 2015. If purchasing (or alternatively pdf downloads can be found on the internet!) second-hand copies of the original version will be much cheaper and apart from the new introduction identical.



Children develop their own ideas about scientific phenomena and events that fit with their own experiences and that make sense to them. However, these ideas may differ substantially from the scientific view. Studies show that these notions may persist into adulthood despite formal teaching. Research has also shown that science misconceptions can even persist in university graduates. In dealing with the conceptions children have about science, educators try to avoid referring to misconceptions (or alternative conceptions) with its associated negativity and prefer to refer to their ‘prior ideas’ about science. The view is that these prior ideas have to be the starting point when devising learning experiences about science as if left unaddressed they are likely to persist. Effective science teaching takes account of these ideas and provides activities which enable pupils to make the journey from their current understanding to a more scientific view. A science curriculum should structure ideas and experiences in a way that will help learners to move their conceptual understanding forward in scientific terms. Too often a curriculum involves a series of ‘fresh starts’ rather than having continuity designed for progression of children’s ideas.

Children’s existing ideas about science are a result of social construction. Through discussion with others, thinking about and forming mental images of their experiences they come up with these ideas. The role of the teacher is to intervene by providing experiential evidence and making the appropriate theoretical ideas and conventions of science available to learners. This creates opportunities for pupils to reorganise their own ideas through talk and listening. The experiential evidence may be experimental practical work and/or focussed discussion (e.g. using concept cartoons [1]). In any event animated talk and argument are likely to be a feature of successful science lessons.

This book is invaluable as a ready source of reference for the prior ideas children are likely to have about science. This should help teachers both to deal with ideas that are likely to arise and in designing activities to help learners construct meaning from what they see and do in science.

References:

1. <http://www.millgatehouse.co.uk/product/science-concept-cartoons-set-2/>.