

Preparing for the next millennium

With scientific literacy now a necessity rather than a luxury, children's science books have taken on a new importance. James Trefil introduces *Nature's* first children's books supplement with a review of some recent reference volumes*.

THE market for children's books is one of those strange institutions, like the market for college textbooks, where the people who buy the books are not the same as the people for whom the books are intended. Parents, the purchasers, shop for science books for many reasons. The most important, presumably, is the sense that the world has changed, and that attitudes towards science that permeated the educational systems of the industrial world in the middle of the twentieth century simply aren't going to serve their children as we approach the twenty-first.

It used to be that we could get away with thinking of science as merely one of those embellishments, like a knowledge of Renaissance poetry or the Russian novel, that are the mark of an educated person but have no possible relevance to real life. That sort of attitude just won't work any more. Children growing up today are going to enter a world in which science and technology play an ever greater role in shaping everyone's life and work. To make sense of that world, to function as a citizen, that child will have to have a firm understanding of the scientific issues and concepts that will shape his or her life. We talk about this sort of intellectual framework as scientific literacy, which describes people's ability to deal with scientific issues with as much ease as they do other issues that come across their horizons.

Given this background, the first thing we have to ask in evaluating a children's science book concerns the nature of the audience for which it is intended — is it to be judged as a book that will, in and of itself, make children more scientifically literate, or is it instead intended as background for parents who will, in turn, help their child in this field? To help me with this assessment, I recruited an expert — my ten-year-old son Tomas, who represents the ultimate audience for them. Here is our consensus evaluation of a selection of general science reference books.

The Kingfisher Science Encyclopedia edited by Catherine Headlam (Kingfisher; £25, \$39.95), despite its name, is actually an expanded dictionary of scientific terms. Look up 'immune system', for example, and you'll find a half-page discussion that hits high points such as antibodies, white blood cells, AIDS and vaccination, together with a nicely done illustration of the workings of

antibodies and macrophages. The strong point of the book is the illustrations: my son and I both learned a lot just by going through and reading figure captions. The text itself may be a bit advanced for children below the age of 12 or so.

The Kingfisher Visual Encyclopedia of Science edited by Mychele Byam (Kingfisher; £17.99, \$22.95), on the other



hand, gets my vote for the most child-friendly of the publications — an evaluation that is seconded by my son's fifth-grade class. Lavishly illustrated, it is divided into four sections dealing with the Earth sciences, the living world, stars and planets, and technology (the latter section, for some reason, includes the structure of matter). Using what I think of as a "Sesame Street" format, it presents snippets of information that, taken together, present the sort of information one would expect a scientifically literate child to have. A long index can be used to locate specific information.

The Guinness Encyclopedia of Science by Robert Youngson (Guinness, £21.95), on the other hand, is organized more like a traditional encyclopaedia, with longish articles that go into specific areas in some depth, the articles being grouped according to subject matter. Under "Computing", for example, we find essays on artificial intelligence, information theory, software and other such topics. The second half of the book is a dictionary-style "Factfinder" for quick reference.

This is the book I would most recommend for parents who want to understand in some depth what their children's science classes are about. It has a straightforward, honest style, and if there is some scientific dispute on an issue, it says so without mincing words. The author is also

willing to resist modern fads. You will search in vain for deconstruction in the discussion of the philosophy of science, for example, and under a photograph of an African medicine man is the statement that people who have access to modern Western medicine are better off than those who do not — a fact that everyone knows to be true but which, on my side of the Atlantic at least, is considered unfashionable to point out.

The Oxford Children's Book of Science by Charles Taylor and Stephen Pole (Oxford University Press, £14.99) seems to me to be well suited to direct use by children in the traditional encyclopaedia mode. It is lavishly illustrated and consists of articles on specific topics such as energy, machines, probability and so on. My son felt that the illustrations made him want to read the text, and the text itself seemed accessible for someone his age. My problem with the book is that it may be difficult to dig out specific information from the longer essays (there is only a short index at the back). In addition, the emphasis in the essays seems to be heavily on traditional classical science — there is only a paragraph or two on the working of computers, for example, buried in an essay on animal communication.

Computers, whether through CD-ROMs or the Internet, are providing children with more and more scientific information and activities. **Usborne's Computer Dictionary for Beginners** by Anna Claybourne (£5.99) is a series of short essays linking together definitions of words important in information technology, together with an extensive index and a useful glossary of computer slang. Under a heading entitled "Computer networks", for example, you'll find definitions and short descriptions of LANs, modems, optical cables, passwords, servers and other kinds of terminology. There are illustrations and photos, some of which (like the cutaway view of a mouse) supply a lot of background information in a small space. The book won't get your child started with a particular computer, but it might well provide a useful reference as he or she gets into the digital world. □

James Trefil, co-author of The Dictionary of Cultural Literacy and Science Matters and author of 1001 Things Everyone Should Know About Science, is in the Department of Physics, George Mason University, Fairfax, Virginia 23030, USA.

*Where possible, details of availability and price in the United States and the United Kingdom are given throughout the supplement. All readers should check prices before ordering.