

# REVIEWS

## Teaching primary science

Alan Peacock  
Oxford: Macmillan Education, 2003  
112 pp.  
ISBN 0 333 75015 2

**A PROVOCATIVE TEACHERS' HANDBOOK OF IDEAS ABOUT SCIENCE EDUCATION FOR STUDENT TEACHERS AND TEACHERS IN AFRICAN PRIMARY SCHOOLS.**

This book is one of a series written for student and practising teachers in African primary schools. It sets out to support them with practical advice, background knowledge and understanding of the *process* of primary science education. It is not a source book of scientific concepts, though inevitably it uses examples of curriculum content to illustrate the points it is making about how to teach science more effectively. I think it succeeds in its intentions, through the sequence of eight sections which are all subdivided into double-page spreads focusing on particular issues facing the teacher. For example, Section 2, *The science classroom*, includes: *Organising your classroom for science*; *Managing large classes for science*; and *Health and safety: assessing the risks*.

Science in African primary schools is similar in many ways to English primary science – prescriptive, tested in school-leaving exams, taught by a majority of teachers who opted out of science courses as soon as possible and whose interest and confidence do not always match well with the demands laid on them by their governments. This book confronts ‘head-on’ the issues raised by teachers as their reasons/excuses for teaching science in formal, didactic, class-based ways, which

emphasise the memorisation of scientific ‘facts’, whilst devaluing its creative, exploratory and practical aspects. The author is aware of the realities of African school contexts and does not try to downplay them, whilst seeking to answer objections commonly raised by teachers. For example, ‘...some teachers may say that allowing pupils to carry out investigations is impossible, especially with large classes. We will never complete the syllabus, they will say, so our pupils will do badly in exams. ... All these constraints can be overcome if you have a positive mindset.’ The author goes on to provide strategies and approaches to overcome these ‘constraints’ and the many others which teachers often claim are preventing them from teaching science more effectively.

There are highlighted ‘Activity’ boxes on most pages, which pose questions directed at the individual reader or groups of teachers. These make the book very suitable for initial and in-service training courses.

In spite of being targeted at African primary teachers, I feel this book is very useful in the British context, as it deals with the universal issues relating to primary science education. I will recommend it to colleagues without reservation.

**Anthony Russell**  
*Research Officer, London Institute of Education*

## Raising achievement in science at key stage 2

Keith Atkins  
Robert Powell Publications  
2 CD-ROMs. £99.00 each

**IDEAS FOR USE OF INTERACTIVE WHITEBOARDS IN SCIENCE LESSONS.**

These two CDs are linked to the QCA scheme of work, one for years 3 and 4, and the other for

years 5 and 6. Each disk contains an impressive number of resources, with eight activities offered for each of the 14 topics. Many of the activities can be used on an interactive whiteboard, making them perfect for lively introductions or plenaries. There are also paper-based versions, which makes them accessible to small groups and classrooms without interactive boards. The disks also contain extended writing ideas, which link to non-fiction writing, allowing the science curriculum to be brought into the literacy hour.

The sheer amount of content on these disks makes them an ideal resource for teachers to dip into when planning science lessons. However, the knowledge content is often beyond that expected in the target year groups and many tasks would only be useful for enrichment and extension.

The CDs would be particularly valuable to any school wanting to develop use of ICT for delivery of science lessons. This resource is reasonably priced considering the large number of activities included. The disks can be bought using eLearning credits.  
**Stephen Harris**  
*Senior lecturer in primary education, Anglia Polytechnic University*

## Developing science: Developing scientific skills and knowledge

Christine Moorcroft  
London: A&C Black, 2004  
**Year 2**

ISBN 0 7136 6641 2

### Year 3

ISBN 0 7136 6642 0  
64 pp. £16.99 each

**A USEFUL BANK OF PHOTOCOPIABLE SHEETS TO SUPPORT SCIENCE TEACHING THROUGHOUT THE PRIMARY SCHOOL.**

This is a series of seven photocopiable activity books designed to support science teaching from reception to year 6. The activities found within them follow the National Curriculum and the QCA scheme of work; the activities are also linked to the national literacy strategy. As you would expect from a major publisher, the sheets are well produced

and accompanied by teacher's notes. Each activity has comprehensive notes at the beginning of the book which include preparation required, essential vocabulary, resources and, in some cases, useful websites. Some of the sheets have additional resources available on the A&C Black website, although at the time of writing not all of them were available to view. Those I did look at were in the form of an online quiz and would be quite useful to use during a plenary session to ascertain the children's knowledge. The sheets themselves are well designed and easy for children to follow. Many of them have a ‘Now try this!’ section to extend the activity. There is also a short footnote on the actual sheet to help teachers focus their questioning and often suggestions for further extension work.

None of the activities featured in the two books I have seen are very different from those published elsewhere, but if you require well-produced sheets to support your work these would be worth a look.

**Vicki Thomas**  
*Director of Studies, Stockport Grammar Junior School*

## Eco-literacy for primary schools

Alan Peacock  
Stoke-on-Trent: Trentham Books, 2004  
128 pp. £14.99  
ISBN 1 85856 304 6

**A WELCOME AND MUCH-NEEDED EDUCATIONAL RESOURCE WITH A REFRESHING NEW APPROACH.**

At last a book that really embeds environmental issues within a curricular context, whilst drawing on real-life examples to enhance understanding. *Eco-literacy* is not just another book about environmental education; as the title suggests it goes further than that. It is about knowing the consequences of our actions and how to do something about them. With this in mind, the author sees eco-literacy as a new core subject within the primary curriculum.

To emphasise the essence of eco-literacy the haunting story of Easter Island is used to bring the sustainability message

home. Parallels are drawn between this and human impact on a global scale today. The author introduces the more conventional ideas of environmental education whilst including several new ones such as living networks and eco-design. Well-tested classroom-based activities are explained that raise awareness of these ideas, demystifying the concepts and challenging the issues. Novel approaches are once again included, this time relating to carbon waste and 'food miles'.

Being accessible and innovative this book offers a refreshing new approach to a much-publicised problem and does so thoughtfully and with carefully prepared guidance. Being cross-curricular, this will be of interest and use to all those involved in primary education and is a welcome and much-needed educational resource.

**Liz Lakin**

*University of Gloucestershire*

### **Oxford connections: Science through literacy**

Oxford: Oxford University Press, 2003

**Light and shadow (Y3)**  
(pb/tn)

J. Driver/S. Palmer  
ISBNs 0 19 834855 X/834866 5

**Moving and growing (Y4)**  
(pb/tn)

B. Heddle/M. George  
ISBNs 0 19 834858 4/834869 X

**Changing state (Y5)**  
(pb/tn)

J. Driver/J. Driver  
ISBNs 0 19 834854 1/834872 X

**Interdependence and adaptation (Y6) (pb/tn)**

J. Bruce/M. Kent  
ISBNs 0 19 834863 0/834875 4  
48 pp. each. Pupil books  
£7.50. Teachers' notes £7.00

**A HANDY RESOURCE FOR MAKING LINKS BETWEEN SCIENCE AND LITERACY AT KS2.**

Many teachers are concerned with how to make meaningful links for their pupils between their understanding in science and work in other areas of the curriculum. These pupil books cover the non-fiction text types identified in the national literacy strategy (recount, report,

explanation, instructions, discussion and persuasion) and focus on key science topics for each age range. I was impressed with the way in which the books do not focus solely on reading and writing, but place a good deal of importance on visual literacy and speaking and listening skills.

The pupil books and accompanying teachers' notes are strong on the organisation and features of the different non-fiction text types. Each sub-genre has a pictorial representation that children could use to map the various characteristics of different text types, and there is a detailed guide in the teachers' notes exemplifying how the articles are representative of a particular type of writing.

In the books aimed at the lower end of key stage 2, the texts move rather quickly through the scientific material on occasion. For certain of the texts, the children would need to have encountered some basic information on the topic before being able to absorb the science content, as there is often a lot of detail fitted into a short article.

The information covered by the texts in these books would be of interest to children in the key stage 2 age range, although in some cases supplementing them with writing from children's science books may be appropriate where further explanation is needed. Each book contains, as well as scientific background information, details of related investigative work that could be performed in the classroom and facts about famous scientists and their experiments in the field.

Overall, I think these provide a convenient way for teachers to encourage pupils to see links between their science learning and the text types they encounter in literacy. The texts themselves offer an exciting stimulus for discussion and further investigation, which provides an opportunity for the children to develop their knowledge of science using literacy skills, at their own ability level.

**Nicky Wallis**

*Literacy and library coordinator,  
Cottenham Primary School,  
Cambridge*

### **Read and learn: Investigations**

Patricia Whitehouse  
Oxford: Raintree, 2003

**Rolling**

ISBN 1 844 21553 9

**Pulling**

ISBN 1 844 21551 2

**Floating**

ISBN 1 844 21550 4

**Pushing**

ISBN 1 844 21552 0

**Sliding**

ISBN 1 844 21554 7

24 pp. £7.99 each, pack of 5  
titles £37.95

**NON-FICTION BOOKS FOR KS1**

**READERS THAT DEMONSTRATE SIMPLE INVESTIGATIONS, PROVIDING A VALUABLE LINK WITH LITERACY.**

The five books that comprise this series of early investigations are attractively presented and would adorn any display of work that the children do on forces. Colour photographs throughout the books clearly show children involved in simple hands-on investigations that young readers could try out and experience for themselves. From a science viewpoint, I would have liked to see a greater range of investigations beyond the five detailed in each book. However, the strength of the series is the links these books make with literacy. The format of each is identical: contents page, chapters on investigations, a final quiz, glossary of simple terms and an index.

By making links between science and literacy, these books provide real 'value for effort', that is teaching two subjects at the same time, whilst remaining faithful to both. Teachers can highlight teaching points that meet science and literacy objectives. The simple text (no more than two sentences on each page) is accessible to most developing readers in year 1. The photographs alone show how to conduct the investigations and what the outcome of each is; this means the books could be used by children in the foundation stage. I have one minor criticism: the health and safety comments are tucked away on the index page at the back of the book. These need to be made more explicit and positioned at the front of the book or

embedded in each of the chapters.

Overall, these are lovely books for infant children to work with.

**David Barker**

*Primary science coordinator, St Andrew's CoE Primary School, Manchester and part-time primary science consultant, Bury LEA*

### **Heinemann infosearch: Life cycles**

Oxford: Heinemann, 2003

**The life cycle of fish**

Richard and Louise Spilsbury  
ISBN 0 431 16865 8

**The life cycle of birds**

Mike Unwin  
ISBN 0 431 16865 6  
32 pp. £10.99 each, pack of 6  
titles £62.64

**ATTRACTIVE AND INFORMATIVE BOOKS FOR KS2 CHILDREN.**

These two books are part of a very attractive series covering the life cycles of different types of animal, and exploring the challenges that they face at different stages of their lives. Others in the series deal with amphibians, insects, mammals and reptiles.

The books are written to a precise but effective formula. Excellent photographs, with clear and informative captions, illustrate the text, which is presented in a child-friendly font. Weaker readers may struggle at times but the vocabulary is well supported by a glossary; this will aid the subject knowledge of many teachers as well as extending pupils. Mike Unwin's book on birds, in particular, will stretch scientific vocabulary without putting off the majority. Given the titles, the diagrams of the life cycles were possibly the least inspired, but these are very well-designed books.

The series includes information on behaviour, feeding and classification, so the life cycles are put in a broader context. While it is not the main purpose of the books, attention is also given to environmental concerns and they encourage sensitivity towards animals. The balance is maintained between books that will appeal to children and sound scientific content.

Each book has a bibliography and links to websites, some of which are accessible only by

subscription. The BBC nature website, which is free, is a particularly useful resource. Being able to direct children towards specific sites can be a great time-saver, but sites do change, so teachers should remember to check them first.

There is plenty here to provoke a reaction from children, particularly in the pictures, which show a range of cute, revolting, impressive and strange animals. Another child-friendly touch is the fact-file where the record-breakers can be found. This series will stimulate both emotional and rational approaches to the natural world.

**Frank Bridgeman-Sutton**  
Science teacher, Sherborne Preparatory School, Dorset

### Science works

Jacqui Bailey and Matthew Lilly  
London: A&C Black, 2003

#### A drop in the ocean

ISBN 0 7136 6255 7

#### Charging about

ISBN 0 7136 6257 3

#### Sun up, Sun down

ISBN 0 7136 6253 0

#### Monster stones

ISBN 0 7136 6251 4

30 pp. £9.99 each

**A VERSATILE RESOURCE FOR CLASSROOMS OR LIBRARIES AT KS2.**

Each of the books in this series takes a very comprehensive look at its topic. They are written not as a collection of facts but as a story during which the facts are explained. I think this approach works well. The dinosaur is swept away by a flood, changes occur to the rocks and the fossilisation is explained before he is discovered, dug up and reassembled in a museum.

The pages are pictures, all different as appropriate to the story, with short boxes of text inserted. The layout is therefore flexible and not predictable. The excellent pictures and diagrams are very informative and can stand alone in many instances. The text is a friendly size and reinforces the illustrations, while taking understanding to a deeper level. At the end of the electricity story a double page acts as a snapshot showing the whole movement of electricity from the power station, out through power lines to homes

and farms and to the machines it works. The story of water has a similar page. The books all follow the same format. The story itself is followed by a double page of 'More great stuff to know', with snippets of additional information, and after this is a 'Try it and see' page describing a practical activity. The book ends with a few 'Electrifying facts' or 'Watery wonders' and a short list of websites to visit to find out more. Safety messages point out the dangers of electricity and of looking at the Sun and children are shown putting on sun cream.

A vein of gentle humour runs through all the books, which, together with the attractive layout and bright colours, makes them very child-friendly.

I have a couple of concerns. We are told that 'plants use their roots like straws and suck up water' which, when I was a SATs marker, I would have had to mark wrong. Also, I was sorry to see a page describing the Earth orbiting the Sun included in the 'Story of day and night'. But these are minor quibbles really. These books don't look like textbooks; they are accessible and I feel that they have a very valuable role to play as a resource in the classroom. By using simple pictures to explain quite challenging science they manage to be interesting to a wide range of ages and abilities, and provide stimulus for further investigation.

**Katharine Coleman**  
Science coordinator, Combe Bank School

### Working with soil

Nick Whitburn and ESTA Earth Science Teachers Association, 2003  
30 pp. resource pack and 28 pp. story book  
£6.00 plus postage

**A REASONABLY PRICED, COMPREHENSIVE RESOURCE FOR THIS TOPIC INCLUDING SCIENCE, LITERACY AND NUMERACY ACTIVITIES.**

Soil is messy! So if your heart sinks at the thought of trying to make studying soil inspiring, this is the pack for you. The pack comes complete with a story book, a family tree, a map, activities, worksheets and background information. My imagination has never allowed

me to think of worms having adventures in the soil but 'Waldorf the Worm' may make you, like me, think differently. Produced by the Earth Science Teachers Association, *Working with soil* is the companion to the *Working with rocks* pack published in 1999, for use with the QCA science guidance unit *3D Rocks and Soils*.

The story relates, in simple but descriptive terms, how the type of soil affects the worms that live in it. The storyline is engaging and pitched perfectly at year 3 children. The rhyme at the end will be long remembered. The intentionally monochrome pages look slightly old-fashioned, but this format does permit easy photocopying or enlargement and the pictures could be coloured to add to a wall display. The background information for teachers is comprehensive and each worksheet clearly states what is being investigated and the equipment needed. The layout is clear and well presented and the instructions explicit. I particularly like the list of questions in the 'think about' sections. Their focus on observation skills is especially relevant.

The story format also allows the material to be used as part of the literacy or numeracy hours and includes supporting activities and worksheets. It is suggested that the literacy and numeracy work be done in parallel with the science activities and it can also be linked to work in geography on rivers. As a science teacher, I would be unlikely to use the literacy and numeracy sheets but their benefit as part of a whole topic can easily be seen. Suggestions for using them are included plus details of their curriculum relevance.

Like many good things, you usually come across them when you don't need them. Having just taught this topic, I can appreciate how much preparation time this pack would have saved me.

A valuable resource, full of good ideas, well thought out and presented. I look forward to using it next time I cover this topic.

**Gillian Long**  
St Michael's School, Otford, Sevenoaks, Kent

### That's science! Learning through song

Tim Harding  
Stafford: Network Educational Press, 2003  
30 pp. plus CD. £19.95  
ISBN 1 85539 170 8

**USEFUL REVISION MATERIAL FOR YEAR 6.**

*That's science!* is just what it claims to be: 'an invaluable resource for SATs revision'. Thirteen songs cover the content of the key stage 2 science programme of study. After the introductory number 'That's science!', there is a song covering each topic in the study programme. The songs are catchy and it is quite easy to pick up the tunes from the accompanying CD. Some teachers I am sure would appreciate a copy of the music, perhaps just a melody line and chords. Because of the need to cram quite a lot of information into each piece the songs are quite 'wordy', but with the lyrics in front of them, year 6 classes will happily be joining in after a couple of plays.

The book contains useful suggestions on how best to use the materials. Careful preparation will ensure that pupils get the most out of this resource pack. Each topic is set out in a clear but lively style with photocopiable worksheets linking the songs to written comprehension and activities.

Each of the songs is in a distinctive style, such as rock, calypso, etc., so there is much here that relates also to the key stage 2 music programme of study, particularly as the music is well recorded and features a live band performing with energy and enthusiasm.

**Peter Harrison**  
Lecturer in music education, Scarborough School of Education

### Have a go! Science tests

William Hartley  
London: A&C Black, 2004  
**Ages 9–10 year 5**  
ISBN 0 7136 6892 X

**Ages 10–11 year 6**

ISBN 0 7136 6893 8  
32 pp. £3.99 each

**PRACTICE TESTS – A BETTER BUY FOR PARENTS THAN FOR TEACHERS.**

These are two-colour paperback workbooks that contain two

tests for children to complete. The year 5 book covers the material found within the optional year 5 tests while the year 6 book obviously mimics SATs. The pages of the books are laid out to resemble the tests but each paper is out of 50 rather than 40 on SATs. At the centre of each is a pull-out section aimed at parents, which includes instructions, answers and a vocabulary list.

These books join a huge pile of previously published materials to prepare children for national tests and do not seem to offer anything more. They are aimed according to the publisher at parents and teachers but I feel have very little place in a classroom situation as they are more expensive than some of their competitors and have nothing 'extra' to offer. I am sure some parents would find them useful if they wanted their child to prepare at home and to improve their understanding of the tests but I personally think they would be better off purchasing some past SATs papers which are readily available in shops.

**Vicki Thomas**

*Director of Studies, Stockport Grammar Junior School*

### Colours we eat

Patricia Whitehouse  
Oxford: Raintree, 2003

### Yellow foods

ISBN 1 844 21608 X

### Odd one out

ISBN 1 844 21610 1

24 pp. £7.99 each, pack of 6 titles £45.54

**INFORMATION BOOKS ABOUT GROUPING FOODS BY COLOUR FOR 4-6 YEAR-OLDS.**

*Yellow foods*, as its title implies, is about yellow food. It is one of a set of six books in the Read and Learn series 'Colours we eat'. It is an attractive hardback book, easy for small hands to manipulate. Every page contains a large, colourful photograph which focuses on a particular yellow food, such as egg yolk, melons, squash and butter. Underneath each photograph are between seven to fifteen words of text describing the food and stating where it is found or grown. Each double page is headed with a simple question, such as 'What drinks are yellow?' or 'Have you tried

*these yellow foods?*' Some text is in bold and these words can then be found in a glossary at the back with an explanation.

There is also a recipe for making fruit kebabs and a quiz to identify various yellow foods. The answers to the quiz are in the form of small black-and-white pictures which are so densely labelled that I think young children would have difficulty with them.

The format is ideal for an independent reader or an adult reading and discussing with a small group of children.

*Odd one out* is similar in form to *Yellow foods*. However, this time the child has to identify from the photograph the food that does not belong to the group. For example, a dish of red soup is placed within a group of white foods. Facing the colour picture is an identical one in black and white with only the 'wrong' food in colour. The text on each page, whether asking the question or answering it, follows the same format.

Books which group food by their colour are quite novel, but I'm not convinced they would be that useful a non-fiction addition to the school classroom or library. I would be more inclined to spend the money on buying the foods and letting the children have first-hand experience of them.

**Ruth Thomas**

*Primary science coordinator, The Cavendish School, London*

### Ooey-goey animals series

Lola Schaeffer  
Oxford: Raintree, 2003  
24 pp. £7.99 each, 8 titles for £53.13

**SLIME AND GOO MAKES THIS SERIES OF INFORMATION BOOKS A MUST FOR YOUNGER READERS.**

*Ooey-goey animals* introduces foundation stage and infant years children to the delights of mucus in the life processes of six slimy creatures. With chapter titles asking such pertinent questions as 'Where do jellyfish live?' and 'What do leeches eat?', the reader is encouraged to think about moving, feeding, growth, reproduction and – of course – what such creatures feel like. The answers are to be found in short bursts of text

accompanied by colour photographs. There are opportunities to look up close at earthworm bristles, gasp at the length of jellyfish tentacles or squirm at the sight of an arm with leech in situ.

*Ooey-goey animals 123* is a novel counting book with numbers to 10 superimposed over the photographs. These relate either to the number of animals, or to particular features: the leech has two suckers, while six newts have 'goey mucus on their bodies'.

All titles in the series have an index, quiz and a glossary that includes terms such as invertebrate and cocoon (as well as the proverbial mucus). They provide a stimulating introduction not only to the gooiest members of the animal kingdom, but to the skills required to access information from non-fiction sources.

**Gillian Ravenscroft**

*Science coordinator, Woodthorpe Primary School, Kings Heath, Birmingham*

### The facts about solids, liquids and gases

Rebecca Hunter  
London: Franklin Watts, 2003  
32 pp. £12.99  
ISBN 0 7496 4875 9

**USEFUL RESOURCE FOR KEY STAGE 2 WORK ON MATERIALS.**

This book, part of the 'Science: the facts' series, is a useful resource for key stage 2 work on materials. It investigates the nature and behaviour of materials, such as the change from a liquid to a gas, when a change is irreversible, and how materials can be mixed or separated. Well organised with a clear layout, this book contains clear-worded explanations ideal for children of this age. Each double-page spread contains vibrant colour photographs and a box of key facts summarising the scientific context. The language is pitched just right for upper key stage 2, with words in bold being explained in the very useful and comprehensive glossary at the end of the book. There are also six simple and safe 'you can do it' experiments that could be done either at home or in the classroom.

**Christine Carruthers**

*Teacher, Hexham Middle School*

### Weather and climate

Barbara Taylor  
London: Franklin Watts, 2003  
32 pp. £11.99  
ISBN 0 7496 5080 X

**STIMULATING AND WELL-WRITTEN BOOK FOR UPPER KS2 WITH A CROSS-CURRICULAR APPROACH.**

*Weather and climate* is part of the 'Focus on science' series, which promises to explain the basic facts while exploring a wide range of subject areas including science and technology, history and social history, geography, language and literature and art, craft and music! Sounds a lot to pack in but this combination has produced a very stimulating and well-written book. Like others in this excellent series, it explores the scientific principles behind the weather and aims to provide a holistic view of weather and climate in the past, present and future. Its coverage is admirable, spanning the definition of weather, as well as investigating its constituent parts: the seasons, clouds, extreme weather and many more. Over a double-page spread, each section contains engaging photographs, illustrations and clear diagrams with vibrant colour schemes to capture the youthful imagination.

Each section combines the cross-curricular dimensions. For example, 'rainy days' explains scientifically why it rains and the causes of acid rain, whilst monsoons and rain-making ceremonies from around the world are covered in the geography bit and why we say 'it's raining cats and dogs' is explained in the language and literature part (the saying may be based on the ancient Chinese spirits for rain and wind, which were sometimes illustrated as a cat and a dog). There is also glossary explaining the scientific terms and some wonderful weather facts: the Empire State building was struck by lightning 48 times in one day; and every year there are about 16 million thunderstorms!

I would say that this book has something for everyone and am sure that upper key stage 2 children would love it.

**Christine Carruthers**

*Teacher, Hexham Middle School*