

REVIEWS

Creative science: achieving the WOW factor with 5–11 year olds

Rosemary Feasey
London: David Fulton, 2005
108 pp. £18.00
ISBN 1 84312 305 3
DO THE WORDS 'AWE', 'WONDER' AND 'FASCINATION' SUM UP YOUR PUPILS' RESPONSE TO SCIENCE LESSONS? IF NOT THEN THIS IS THE BOOK FOR YOU.

This book is a must for everyone involved with the teaching of primary science. Each of the ten chapters provides illustrations and examples from the classroom. This is followed by analysis of how the activities support creativity in science. At the end of each chapter there is a lesson outline and a summary of the key points. The author includes a variety of teaching approaches and examples of children's work that support how theory can be put into practice. The 'science surprise box' in Chapter 7 should become a must for every classroom! In the final chapter, 'The outer limits: creativity and science fiction' is the 'icing on the cake', showing how science and imagination can really challenge the children to solve problems alongside really getting them to think.

Some readers would find the lack of reference to the National Curriculum and QCA a little remiss; however, I found it truly refreshing. This book really does put the WOW back into science teaching.

Judi Bainbridge
Senior lecturer in science
education at Bradford College

Junior simulation insight: the primary science modelling toolkit

CD-ROM and 50 pp. activity guide
Guide by Laurence Rogers
Cambridge: Logotron, 2005
£55.00 for single user licence,

£121 for 10 copy licence, £173 for 20, £231 for 40
TWELVE SCIENCE-RELATED SIMULATIONS USEFUL AS INTERACTIVE REVISION AND EXTENSION TOOLS.

This easily accessible CD-ROM consists of a series of simulations for investigating the behaviour of a variety of systems relating to all aspects of the science curriculum. The simulations can be demonstrated using an interactive whiteboard or on a stand-alone computer. The user can alter the input variables involved in the system and predictions can be made concerning the outcomes. These can then be observed. The simulation on circuits was reviewed by a class of year 5 and 6 children (9–11 year-olds) and their teacher, as part of a session on energy and electricity. The class teacher liked the way that the different elements were given numerical value and felt, if used on the interactive whiteboard, this simulation could reinforce practical work the children had done first. There were, however, some operational aspects that could be confusing; for example, when pressing the down arrow you get negative values for the cells and the current reversed. For that reason it was felt unsuitable for children to use the simulations unsupervised. It would, however, be a great activity to allow gifted and talented mathematicians to work with to calculate more complex ideas such as Ohm's law.

The children particularly liked the visual aspect of the simulations, especially the 'electrons' altering speed around the circuit when the numbers of batteries and bulbs were altered. They liked the interactive nature of the exercise and the fact that they could control the different variables. They did however feel that it was unrealistic because, as one astute year 6 pointed out, 'the bulbs should have exploded [with the additional batteries]'.

The teacher's guide is fully comprehensive and takes the

teacher through the modelling and simulation process. It includes information about the 12 science-related simulations available on the CD-ROM. Although the guide suggests that the language used is easy and accessible the activities would need to be teacher-directed at primary level because the vocabulary used is more in tune with the secondary curriculum. The images on the CD-ROM are clear and accessible at this age range but the teacher would need to be completely conversant with both the background science and the resource in order to make effective use of it. Essentially this is a useful revision and extension tool but its use at primary level may be limited by the level of scientific knowledge it requires; for example, the circuits simulation uses the terms *voltage* and *resistance* and refers to Ohm's law. The 'Buying energy' simulation is an excellent idea but limited in use unless the children have been introduced to the terms *power*, *watts* and *joules*. Other simulations, however, are less prohibited by vocabulary. These limitations and the cost factor may restrict uptake at primary level, but if the budget stretches and you are looking for an interactive revision and extension tool, this may be your answer.

Liz Lakin
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Junior Science 1: Life processes and living things

CD-ROM
Malmesbury: Sherston
Software, 2005
£44.95 single user licence
ATTRACTIVE, INTERACTIVE CD LIKELY TO BE A USEFUL ADDITIONAL TOOL FOR TEACHERS OF 7–11 YEAR-OLDS.

This is the first in a series of three CDs. The 150 different activities, all quite short, come in 11 separate styles and are pitched across the age and ability range of the majority of junior children. They provide comprehensive cover of the content of this programme of study.

It has a teacher's section and a pupils' section – both are

simple to use, even for teachers with little computer knowledge! It can be run on a network for the entire class, or alternatively could be used for individual or small-group study sessions. Used on an interactive whiteboard it would be a way of working with the whole class, taking advantage of the diagrams and pictures, and using them as a basis for discussion or revision.

Primarily, however, this CD has been set up as an assessment tool. Records are kept of the score that each child achieves on each task and this provides a very convenient record for the teacher of what they have remembered at the end of any topic.

Children I tested it with enjoyed the characters, who make encouraging comments when a correct answer is provided; it is a pity the questions are not spoken too, as this would be of great benefit to children who are not such competent readers. On top of the basic model, the makers have provided *Quiz plus* (with helpful graphics) and *Quiz plus plus* (possible answers as graphics only), but in both cases the user still has to read the question.

It is also a pity that the graphs are rather small and not always clear, as children can find graphs, particularly line graphs, difficult. If they are not simple and well-designed children will merely resort to guessing – as opposed to learning. Neither the children nor I were impressed by the comprehension activities, which required the answers to be typed out. However, apart from that they were unanimous in finding it a very positive experience. They felt that they were learning – not just being tested – and of course, the certificates were a big hit!
Katharine Coleman
Science coordinator, Combe Bank
Prep School

Fusion

Oxford: Raintree, 2006
Plant secrets
Anna Claybourne
ISBN 1 844 21458 3
The disappearing mountain
Richard and Louise Spilsbury
ISBN 1 844 43157 6
Voyage of a light beam
Andrew Solway
ISBN 1 844 43855 4

32 pp. £11.99 each
STRIKINGLY DESIGNED BOOKS THAT COVER AN EXCITING RANGE OF TOPICS SUITABLE FOR KS2 AND BEYOND.

These three hard-back books form part of a new series of 30 books covering science and geography topics. The series aims to offer a diverse and stimulating set of titles that will attract and engage pupils at key stage 2 (7–11 year-olds) and beyond.

Each book has a strikingly designed front cover, aimed at attracting reluctant readers to the science non-fiction corner of the library. The innovative design continues inside, where a very effective blend of photographs, child-friendly diagrams and text boxes enhances each chapter. As well as the customary glossary and weblinks at the rear of each book, each page also contains a mini-glossary footnote of relevant vocabulary.

One of the attractions of this series is the novel approach taken by the authors in covering each topic. A particular favourite is *Voyage of a light beam*, which traces the journey of a beam of light from the star *Deneb* across space and into a human eye on Earth. Along its journey, reference is made to fundamental principles of light, as well as other interesting facts and explanations, all beautifully illustrated. The book manages to explain some abstract concepts within this clear and relevant context.

The publishers correctly claim the text is accessible to low-ability readers, and in general it is pitched firmly within the 7–11 age range (my 7-year-old son had no difficulty reading it). However, the language may fail to engage and sustain more able readers, particularly beyond key stage 2.

Plant secrets has some excellent photographs of plants including exotic members of the plant kingdom, together with some amazing facts and figures guaranteed to interest children. However, it fails to challenge the common misconception that the plant kingdom consists principally of flowering plants. There isn't a mention of any non-flowering plants, such as mosses, ferns or conifers, which is a shame.

The disappearing mountain targets the geography market, but it will nonetheless provide a

stimulating read for those children who enjoy researching the natural world. Full of glossy photos and diagrams, it traces the effects of weathering on natural landscape features, as well as providing an interesting insight into some natural phenomena.

Overall, these books are a very welcome addition to the primary science range and will encourage reluctant readers. Stunning design and eye-catching titles are guaranteed to attract interest in your school library. The price tag of £11.99 for each 32-page hardback may be considered by some a luxury.

Richard Watkins
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Explorer series

G. Pyers
 Oxford: Raintree, 2004

Ocean explorer

ISBN 1 74070 143 7

Mountain explorer

ISBN 1 4109 0509 8

32 pp. £10.99 each or £52.20 for a pack of five titles

REFERENCE BOOKS ON NATIVE HABITATS SUITABLE FOR KS2.

These books are from a series of ten exploring different world habitats and are pitched as a reference resource to support work in Sc2, *Living things in their environment*. The publishers target the books at ages 6+ but I feel that there would be few 6-year-olds who could cope adequately with the text and would suggest the titles would be more suitable for lower key stage 2 children (7–9 year-olds).

The presentation is a balance between accessible text and high-quality images. There is a useful glossary system with key words highlighted in the text. The opening sections introduce background concepts, which are followed up in the form of a narrative journey through the various habitats. This narrative form might have linked the sections together well but it gets rather lost amongst the factual content. Worse still, many of the features mentioned in the narrative are not followed up or illustrated, which will be both confusing and frustrating for the children. For example, *Ocean explorer* talks of prions (oceanic birds) yet there is no illustration of these. Finally, the books conclude with a brief section on

threats to the habitats.

There are a variety of problems with the books. Attempting to cover such a spread in content is very ambitious; even within a page, one can jump from the Rockies to the Alps. There is nothing wrong with wide coverage but it doesn't fit the narrative structure of these books and because the references are so brief, the results can be confusing. For example, in *Mountain explorer* there is a text box on viviparous lizards, which does not relate to the narrative text, has no illustration and does not explain what viviparous means. The 'Explorer's notes' text boxes are also not well integrated into the broader text.

The books do contain useful knowledge and children will enjoy leafing through them. I cannot help feeling, however, that publishers see a market for such reference books in schools and assume that if they have good illustrations, text boxes and a glossary, they will be effective in supporting children's learning. In fact, very careful organisation is required and these titles, although appealing at first glance, do not have that level of organisation behind them.

Neil Rutledge
Science lecturer, St Martin's College, Carlisle

How do they work?

Andrew Farrow and Dan Nunn
 Oxford: Heinemann Library, 2005

Toys with springs
 ISBN 0 431 04968 8

Puppets

ISBN 0 431 04966 1
 32 pp. £9.99 each or £56.94 for pack of 6 titles

HIGH-QUALITY INFORMATION BOOKS TO EXTEND THE INTERESTS OF 5–7 YEAR-OLDS.

The key feature of these titles is that they start from children's everyday experiences and interests. They focus on the science and technology behind how different types of toys work. The books cover scientific topics such as materials, shadows, movement and forces. The photographs are of excellent quality and show a broad range of examples of toys in action, from children playing and experimenting, to professional puppeteers from various

traditions and television characters. The language used throughout is clear and child-friendly without being patronising, and offers readers genuine explanations of how things work. The glossary is well used and is an important part of what the books have to offer.

I was impressed by the weblinks included at the end of each of the books. These lead children on to related activities such as making their own puppets or taking a look inside a wind-up clock. These could be used equally well by children on their own at home, or to develop themes explored in class.

The scientific principles behind the explanations are sound. There are features such as arrows to indicate forces, which could be discussed in more detail with older or more able children, but the books could be enjoyed equally by children who are simply interested in the physical aspects of how the various toys work.

The only slight criticism I have is that there seems to be no logical sequence within the texts. The puppet book, for example, seems at first to be describing the mechanisms used in order of complexity, moving from finger puppets, through hand puppets to puppets with strings and rods. However, after the animatronics section, the text seems to move backwards to simple shadow puppets. This is not a serious problem, as the books are more likely to be dipped into according to interest rather than read from cover to cover.

Overall, these would be an enjoyable and informative addition to a school library or topic-based book selection.

Nicola Wallis
Teacher, Beach Babies Children's Nursery

Look closer at ...

Penny Smith
 London: Dorling Kindersley

Birds

ISBN 1 4053 1165 7

Reptiles

ISBN 1 4053 1167 3

23 pp. £4.99 each

COLOURFUL, INFORMATIVE BOOKS FOR 5–7 YEAR-OLDS.

At first glance these books are both colourful and appealing to children. My year 3 children

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were attracted to delve deeper by the cover illustrations alone. In fact, the photographs throughout both books are very clear and of high quality; the children examined them in detail.

The contents pages are valuable when looking for specific information, in conjunction with the page numbers. They do not 'give away' too much, but aroused the children's curiosity to find out what each section was about. The children noticed the way the writing was laid out around the pictures, but also commented that in some places they would have liked some more text to elaborate on the information given, rather than just large illustrations. They were very interested in the 'Did you know' parts throughout the books and discussed these at great length with each other. The children also noted that, unusually in a non-fiction book, the captions to the illustrations are written in the first person and they enjoyed the fact that the animals are narrating facts about themselves. The size and type of font varies throughout the books and this contributes to the appeal. The illustrations usefully show the size of the animals relative to humans.

The children liked the index and glossary and were able to find their way around the books quite easily. When asked to research a specific animal, they managed to work together to produce a short description independently.

Overall, these books make ideal reference material and certainly captured the interest of the children in my class. When asked if they would like to read more books of this type, the answer was a definite yes.

Alison Cuthbert

Primary Teacher, Longforgan Primary School, Perth and Kinross

Investigations

Patricia Whitehouse
Oxford: Raintree, 2004

Cooling
ISBN 1 844 43671 3

Heating
ISBN 1 844 43672 1
24 pp. £5.25 each

ATTRACTIVE SCIENCE

INVESTIGATIONS BOOKS FOR 5-7 YEAR-OLDS.

These are two books designed

for young readers in a series that explores physical processes in familiar activities. Each title provides the reader with five experiments to do. The chapter headings are each designed as questions to help the children to focus and learn about the world around them. Reflection is encouraged based on observation, and further questions prompt the children to make predictions.

Each investigation spans four pages and they follow a step-by-step format. The full-colour photographs on each page help to clarify the text and make it more appealing and accessible to the children. There are typically two sentences on each page, making these books very child-friendly. Text-level objectives in literacy can be reinforced. The contents page guides the children to the science questions and the index helps them to locate specific items. Scientific vocabulary is shown in bold and explained in the glossary. Each book features a quiz at the back, which tests children's thinking on the subject.

Cooling and *Heating* would relate particularly well to the unit 'Grouping and changing materials' in the QCA Science Scheme of Work for year 2 (6-7 year-olds). The books would help to reinforce some of the science learning objectives as the starting point for an investigative approach to the teaching of changing materials.

The cooling and heating activities are all located in the kitchen and the photographs clearly demonstrate that it is an adult who is involved in the 'risky' parts of the activities, such as removing hot biscuits from an oven (wearing oven-gloves). Nothing is mentioned about the dangers of steam or boiling hot liquids. The text should make these health and safety issues more explicit.

By relating cooling and heating to everyday life, these books will undoubtedly encourage the children to 'Read and Learn' - as the umbrella series is called. Many young children will enjoy these colourful and informative books.

David Barker

Senior lecturer in education, Leeds Metropolitan University

What's in my garden?

Sally Hewitt
London: Aladdin/Watts, 2005
32 pp. £8.99
ISBN 0 7496 6245 X

TWO FOR THE PRICE OF ONE - AN INFORMATION BOOK WITH A STORY FOR CHILDREN WHO ARE JUST BEGINNING TO READ ALONE.

This is one of a series of books, pitched at three different levels, aimed at helping children with both science and reading. *What's in my garden?*, at level 2, is for children who are beginning to read on their own.

The book introduces children to a host of animals that could be found in gardens, for example, woodlice, centipedes, birds and mice. It is beautifully illustrated with colour photographs of the animals, some in close-up. The children and adults in the book include those from minority ethnic groups. The text is suitable for key stage 1 children (5-7 year-olds) and appropriate vocabulary is used and explained, such as *nocturnal* and *compost*.

Each double page highlights any new vocabulary, for example, *damp*, *slug*, *snail* and *trail*, and includes a question about the text such as *How are slugs and snails different?* There is a short quiz at the end of the book which children would enjoy doing.

The book claims to include an exciting story that recalls the key vocabulary introduced in the non-fiction section. The problem is that it isn't really a story and it is not exciting; it is rather reminiscent of the 'Peter and Jane' books. There are so many excellent stories for young children featuring animals, such as, *The very hungry caterpillar*, *Rosie's walk* and *The bad tempered ladybird*, that children have high expectations of stories. *What's in my garden* fails to deliver in this respect.

As an information book this would be a welcome addition to any school library. The idea of a story within a non-fiction book is a good one, but the authors haven't pulled it off.

Christine Khwaja

Principal lecturer in primary science education, Middlesex University

Watch it grow

Barrie Watts
London: Franklin Watts, 2005
Pumpkin
ISBN 0 7496 6120 8

Duck
ISBN 0 7496 6119 4
32 pp. £5.99 each

EXCELLENT VALUE FOR MONEY RESOURCE FOR KS1.

These two titles are from a set of four paperbacks, with another eight titles available in hardback. Apart from one of the paperback titles (*Snake*) all the organisms featured in these books are well within the experience of a key stage 1 child (5-7 year-old) and therefore likely to be of interest to the age group for which they have been designed. By choosing to feature organisms with which children are likely to be already familiar, the author and publishers have been able to show how extraordinary 'ordinary' things can be when looked at properly.

The books are extremely well produced and packed with excellent, and sometimes quite amazing, photographs of the featured organism throughout its growth cycle. Even adults will find some of these photographs fascinating and they are certain to appeal to children. The text is generally clear and at an appropriate level, while still being scientifically accurate. There are just one or two quibbles with regard to the text. For example, the word 'incubates' is introduced about the duck without explanation in the book, and, although the word appears in the glossary at the end, a sentence to put it in context earlier would have been useful.

Having photographs alongside the text, rather than drawings, lifts these books out of the ordinary, but they include other features that teachers will find useful. The word bank, summary life cycle and clear index are all of value, although teachers might find the paragraph entitled 'How to use this book' a little redundant!

Even the paperback versions of these titles are reasonably sturdy and should withstand being handled by KS1 children. At £5.99 each they represent excellent value for money.

Carole Naylor

Senior lecturer, University of Chester