

Book reviews

- 128 **Oxford science study dictionary**, *Prescott*
- 129 **Specials! Energy, electricity and movement**, *Murphy*
- 129 **Science Uncovered: AQA Science for GCSE Foundation: Student book; Science Uncovered: AQA Science for GCSE Higher: Student book**, *Clyde et al.*
- 130 **Science Foundations: Science for AQA**, *Glover, Martin and Norris*
- 130 **Gateway Science: OCR Science for GCSE – Foundation student book; Gateway Science: OCR Science for GCSE – Higher student book**, *Dawson, McDuell and Brimicombe*
- 131 **GCSE Applied Science**, *Bell, Brodie, Dawson and Tiernan*
- 131 **21st Century Science: GCSE Additional Applied Science: 1 Life care**, *Holmes, Kent and Kent*
- 132 **Outbreak: cases in real-world microbiology**, *Anderson*
- 132 **The basics of biology**, *Leth Stone*
- 133 **AS and A-level biology through diagrams**, *Pickering*
- 133 **AS and A-level human biology through diagrams**, *Pickering*
- 134 **AS and A-level physics through diagrams**, *Pople*
- 134 **The star guide (2nd edn)**, *Kerrod*
- 134 **The richness of life**, *Gould*
- 135 **Mill Hill essays**, *various authors*
- 135 **Little book of big ideas: science**, *Moore*
- 135 **Wonders of the land**, *Haven*
- 136 **100 ideas for teaching science**, *Archer*
- 136 **Does anything eat wasps?**, *O'Hare (ed)*
- 136 **Improving teaching and learning in schools: A commentary by the Teaching and Learning Research Programme**, *James and Pollard (eds)*
- 137 *Reviewers*
-

Oxford Science Study Dictionary

C. Prescott. 288 pp. Oxford: Oxford University Press, 2006. £10.99. ISBN-10: 0 19 915119 9 ISBN-13: 978 0 19 915119 6

The **Oxford Science Study Dictionary** is aimed at key stages 3 and 4. It is printed in black and blue, and uses the blue to highlight words and phrases or to shade diagrams.

The book is divided into 130 scientific themes, arranged alphabet-

ically, each a double-page spread. Each theme is further divided to include definitions of words and phrases using sentences and diagrams.

At the start, brief yet comprehensive instructions explain how to use the book. The idea is to use

the *Wordfinder*, which forms the first section of the book, to look up a word (referred to as a head-word). This is rather like using the index of any textbook and refers the reader to the page number of a theme or related themes. If there is more than one reference to the word, the page numbers are given in order of significance rather than alphabetically. For example **enzymes** has links to enzymes and biotechnology (page 80), digestive enzymes (page 45) and zany and curious facts (page 260) – did you know that there are an estimated 7000 enzymes in the human body, of which only 5000 have been identified?

The *Wordfinder* also recognises that words may be used in different contexts; for example, **field** has links to electrical, gravitational and magnetic fields.

The double-page spreads that the *Wordfinder* refers to form the second section of the book. The word under investigation is printed in blue with the definition following offering alternative words and other related words in bold. Many of the definitions are extended using italics and link to relevant diagrams, tables and equations. There is an excellent double-page spread on moles, which includes a table of examples of molar calculations.

The inside front cover provides definitions for a number of areas of scientific study which are not found in the *Wordfinder* (acoustics, dynamics, seismology...), while the inside back cover contains a time line of geological eras linked to the emergence of different groups of organisms.

I really like this dictionary; the no-nonsense format presents definitions in manageable chunks, which are quick and easy to find. Related terms are given on the same page, giving depth and

breadth to a scientific word. The layout gently leads the reader into identifying links between different themes, something that many students find difficult. There is no trawling through vast numbers of often irrelevant results as brought up by a search engine. Like a good foreign language dictionary, this book will become more and more useful as the student progresses through secondary science. I see this book as a first-rate revision and study guide, which at £10.99 offers excellent value for money and is easily affordable for the laboratory.

Lorna Monroe

Specials! Energy, electricity and movement

Gill Murphy. 64 photocopyable pages. Dunstable: Folens, 2006. £19.99.
ISBN-10: 1 84303 881 1

Folens **Specials!** are aimed at 11 to 14-year-old pupils with lower reading abilities and they endeavour to give these pupils a feeling of success in their work. They cover a range of areas in the National Curriculum and each book contains 10 topics, each of which has detailed teacher's notes and links to the National Curriculum scheme of work and the 5–14 Scottish guidelines.

Energy, electricity and movement contains the physics topics required for key stage 3. Each topic contains a starter activity and then several activity sheets, which contain a variety of tasks, such as sequencing work, Cloze exercises, cut-and-paste, using ICT, and practical sessions. The book concludes with an assessment sheet as an aid in determining the level at which each pupil is working and which areas he/she found difficult.

Most of the sheets are clear but some pupils will require more explanation or help than others. While the activity sheet uses one symbol for a lamp, the introductory sheet (Electrical circuits) used a different symbol, which will be confusing. The latter really only represents warning lamps but is commonly used at key stage 3. There are also two errors on this sheet, both relating to the battery symbol. The + and – lines are both the same size and the singular version is for a cell not a battery.

However, the book will be a very useful addition to whichever scheme is used for key stage 3 science.

Sandra Bagglely

Science Uncovered: AQA Science for GCSE Foundation: Student book

Clyde, B., Cox, B., Hirst, K., Hiscock, M. and Stirrup, M. 245 pp. Oxford: Heinemann, 2006. £15.99.

ISBN-10: 0 435 58601 7
ISBN-13: 978 0 43 558601 0

Science Uncovered: AQA Science for GCSE Higher: Student book

Clyde, B., Cox, B., Hirst, K., Hiscock, M. and Stirrup, M. 246 pp. Oxford: Heinemann, 2006. £15.99.

ISBN-10: 0 435 58600 9
ISBN-13: 978 0 43 558600 3

This pair of books covers the AQA Science specification at GCSE Higher and Foundation (14–16 year-olds). The books are closely linked and could be used within the same class. They start with a small section on 'How science works', and continue with the specification following B1a, B1b, C1a, C1b, P1a and P1b.

The relevant sections of the textbook have an introduction that describes the work that is to follow in the double-page spreads that cover the examined work. The content pages always try to place the ideas within a context, the facts being questioned and the key points summarised, within a double-page spread. Sections that focus on interpreting data and evidence are placed within the various topics and these will help cover the 'How science works' part of the specification. The basic format of the books I found easy to follow and 'in-line' with the specification.

I found the pages attractive to look at. The contexts are relevant and should hold a pupil's interest. Occasionally I found the pages rather full, but generally the content is easy to follow.

These books form just one part of a package; there are also online resources that include interactive teaching activities, item plans and student activity sheets. A 30-day free trial is available.

Jim Hudson

**Science Foundations:
Science for AQA**

Glover, D., Martin, J. and Norris, H. 365 pp. Cambridge: Cambridge University Press, 2006. £15.95.

*ISBN-13: 978 0 52 168673 0
ISBN-10: 0 521 68673 3*

A textbook linked to the AQA specification. The bulk of the text covers biology, chemistry and physics, with smaller sections at the end that look at 'How science works', revision and revision notes.

The style adopted by this text is significantly different to others on the market; it might not suit all tastes, whereas others might love it. Each double-page spread con-

sists of a reasonably small amount of stimulus material that is then extensively questioned, requiring both shorter and longer answers. At the end of most spreads a summary is given, and it is stressed that these are critical and they must be checked against the answers at the back of the book. The feel of the text to me is one of: fact, question; fact, question; summary.

The section that deals with 'How science works' could be of value to pupils. It will need to be referred to, as and when, during the delivery of the other material, but does give useful support.

The teacher support files and additional CD-ROMs are a very important part of this package; however, they were not available for review. The whole package will clearly need to be evaluated by a centre before a decision about purchase can be made.

Jim Hudson

(Book reviews editor: A free *Science Foundations* evaluation pack is now available; register online or call 01223 3205013.)

**Gateway Science: OCR
Science for GCSE –
Foundation student book**

Dawson, B., McDuell, B. and Brimicombe, M. 233 pp. Oxford: Heinemann, 2006. £15.99.

ISBN-13: 978 0 43 567523 3

**Gateway Science: OCR
Science for GCSE – Higher
student book**

Dawson, B., McDuell, B. and Brimicombe, M. 233 pp. Oxford: Heinemann, 2006. £15.99.

ISBN-13: 978 0 43 567522 6

Two books that are endorsed by OCR and cover either the Higher

or Foundation tier work for Gateway Science. Briefly, the books are divided into six sections, and subdivided into a further eight items. Taking biology as an example, B1 and B2 are expanded into B1a to B1h or B2a to B2h.

The items start with a short list covering what will be 'found out' and then a context is given. For example, in C2g, 'Closer and hotter' uses the cooking of kidney beans to show how higher temperatures alter the cooking time of chilli con carne. This is followed by a more traditional discussion of particles reacting at higher temperature and differing concentration. Later in the item, or in this case at the end of the next linked item, examination questions are given.

The text is really well presented; it is inviting to read and obviously covers the specification. The tiered texts could be used in parallel and there is much to refer to during teaching, homework or self study.

Online resources, interactive activities and pupil activity sheets support the texts; however, none of these support materials were available for review. The two textbooks are well worth a look, but they are only a part of the 'whole package'.

Jim Hudson

(Book reviews editor: You can now evaluate the course free for 60 days, with an evaluation pack containing the relevant student book(s) and sample material from the other course components, including Gateway Science Online, available from the publishers.)

GCSE Applied Science

C. Bell, D. Brodie, B. Dawson and A. Tiernan, 324 pp. Dunstable: Folens, 2006, £15.99. ISBN-10: 1 84303 971 0

This book is an updated version of the original Folens *Applied Science* textbook. It is much improved from the original and I would be happy to recommend it to schools teaching Applied Science. It covers the examined material in very good detail. The book is well set out with use of colour and photographs that draw the eye. Each double-page spread is clearly headed and sub-headed to lead pupils to the correct section. Key words are separately boxed on many pages. Each spread has a 'key facts' question box which pupils can use to check their understanding – these are easy questions. Within the text, other questions and suggested activities are included in red. These questions and activities vary in levels of difficulty and can be quite high-level in demand. Some of these questions are linked to the portfolio units and may be used as a portfolio activity. At the end of each topic there are review questions, which could be used as tests or for homework. Again, the level of demand in these questions varies.

As a textbook, this is very well written and comprehensive. It has an interesting look to it and makes an effort to split material into 'bite-sized' chunks. At times, the use of language may be rather stretching for some learners, although the key words are defined. The most challenged learners may find the reading levels high. The authors have made efforts to make the more complex theoretical material easy to understand by using analogy (for example car

brakes and insulin to slow down/keep down glucose in the blood) and keeping sentence lengths reasonably short.

The first, main, section of the book on 'Developing scientific skills' is aimed towards portfolio work. This cannot be regarded as a comprehensive guide to the portfolio work and is really only an outline. As such, it is possibly not that useful except as an extra. The final section, 'Science in the workplace', is a short summary of what needs to be carried out in this section of the portfolio. It is clearly intended as an introduction to the assignment. If followed in class, it would provide the pupils with a low-level grade in this section. It is an excellent basis for then continuing to write a more detailed project. At the end of this section, the review questions take the pupil through more tasks that can also be included in their portfolios. For both these major sections of work, the school will have developed, or need to develop, their own assignments and activities in addition to the work in the book.

Ceinwen Upton

21st Century Science: GCSE Additional Applied Science: 1 Life care

R. Holmes, M. Kent and M. Kent. 63 pp. Oxford: Oxford University Press, 2006. £8. ISBN-10: 0 19 915026 5 ISBN-13: 978 0 19 915026 7

This book is intended to support pupils studying the 'life care' section of Additional Applied Science in the new curriculum. It is one of a suite of six books covering the available modules. Also available in the suite is a teacher and technician guide and a pupil workbook. Both of these might be worth looking at if you are con-

sidering teaching this option.

The book has sections that could also be used to support BTEC Science and OCR Nationals level 2. It begins by placing the biology in the context of health and fitness. It continues through the science, then covers procedures and techniques, and the final part has a (very) brief guide to the work-related portfolio. It is a well thought out and useful resource.

The book is clearly set out, makes good use of colour and has lovely photographs and clear artwork throughout. This makes it very inviting to look at and the reader is drawn in to the page. The text is clearly sectioned off with sub-headings. This ensures the reader is focused on the topic content, which is very much needed because in some sections there is a concentration of related material on the same page. Many of the little topics are illustrated by a range of diagrams. For example, the section on control of body temperature has four separate boxed diagrams over a two-page spread. I personally like this and find it helpful, but some pupils might find it a little confusing and would need to be carefully directed to the correct part of the page.

At the end of each topic, there are questions that direct the reader to the text and activities to aid understanding. In the cardiovascular system, the pupil is asked to make a table to compare the three types of blood vessel, why arteries have thicker walls than veins and why the human circulation is called a double circulation. The questions, although useful, are fairly standard and do not present a high level of challenge. There are interesting sections on imaging techniques such as MRI and X-rays. These would be especially useful if used in conjunction with

the Internet as part of a project. In procedures and techniques, the use of specified techniques, such as using a sphygmomanometer, is explained. This is very helpful in preparing for the practicals.

The final, very short, section is about the work-related portfolio. This comprises a two-page spread and gives some information as to what might be put in the portfolio and how to find it out. Having worked through this kind of portfolio, I would not find this sufficient support for my pupils. Pupils find the work-related report very difficult indeed and will need more specific guidance on what to do and how to do it. For each part of this portfolio, the course leader will have to additionally provide specific tasks and guidance on how to complete each part successfully using the subject specification. For that reason, I consider this to be the least helpful part of the book.

The book seems to be aimed at the middle-ability learner. There is necessarily some subject-specific vocabulary that will be new to many pupils and require clarification. Most of the text will be easily readable for most pupils. This book provides a generally useful resource and will be sufficient to support the work of less able learners. There is, however, little material in the book designed to stretch the more able learner. This could easily be rectified by other supporting activities and materials made in-house.

Ceinwen Upton

Outbreak: cases in real-world microbiology

Rodney P. Anderson. 318 pp. Washington DC: ASM Press, 2006. \$49.95. ISBN-10: 1 55 581366 6

This textbook is aimed primarily at undergraduate students of microbiology and their instructors. It provides a series of real-life case studies of outbreaks of a variety of infectious diseases, including examples of medical, environmental and industrial microbiology, and bioterrorism. Comprehensive reference sections detail the major features of each micro-organism and its mode of transmission, and provide the content required for students to work on the case studies. Questions at the end of each case study provide a resource for either individual work, assessment of understanding or stimulus for group discussion.

One of the strengths of this book is the way in which it utilises material that directly impacts on the lives of students, allowing them to apply their knowledge and develop their understanding in relevant contexts. Each section of the book features a global perspective which encourages students to consider how social, religious, economic and political factors have an impact on the treatment and prevention of infectious diseases.

Whilst this book is written for undergraduates, it would also be a useful resource for any secondary science department. Much of the material would perhaps be too demanding for students to use directly, but it would be relatively easy to adapt the case studies and reference material given to make them suitable for use in the classroom at key stages 4 and 5. It contains all the information that

would be necessary to create activities to help develop discussion and analysis skills, which would be particularly useful in addressing some of the elements of 'How science works' in the new key stage 4 specifications.

Katrina Fox

Book reviews editor: The review below replaces an incorrect review of the same book published in a previous issue of *SSR*, which used the title and details for this book, but described a different book. Apologies for any confusion this may have caused.

The basics of biology

Carol Leth Stone. 280 pp. London: Greenwood Press, 2004. £42.99. ISBN-10: 0 313 31786 0

This American book has much to commend it. Presented as part of a series called 'Basics of the hard sciences', which also covers chemistry and physics, it sets out to provide a reference book which will give the reader enough background to make sense of biology articles in the *New York Times* or *Scientific American*. Indeed, there are many links given to further sources of information in the Bibliography and Further reading sections, as well as a section on useful Internet sites. However, the fact that these references are so American-based perhaps blunts some of the good intentions behind these sections, and a separate UK edition with references to journals such as *New Scientist* or *Nature* might be more appropriate.

The text is concise and clearly laid out in two columns per page, interspersed with tables and some black and white figures. While the language is very easy to un-

derstand, some more diagrams would help; for example, there is a diagram of blood flow through the heart, but not one of the structure of the eye.

The book tries to be as up to date as possible, but in doing so runs the risk of becoming dated fairly rapidly. For example, on page 61 there is the statement that '*no extraterrestrial amino acids are yet known*', whereas a simple Internet search reveals that glycine was discovered in interstellar dust clouds as long ago as August 2003. There are a few colour plates, which would be more informative if there were colour keys along with the false colour satellite images.

In terms of the coverage and level of the content, this book lies somewhere between GCSE and AS-level. For reference to specific topics it is very clear, but the investigations suggested towards the end of the book are often too superficial for this to be a stand-alone textbook to support a course. Many of today's readers would expect a lot more colour for the price, which must surely limit sales to the odd purchase for the library.

Norman Henderson

AS and A-level biology through diagrams

W. R. Pickering, 209 pp.
Oxford: Oxford University Press, 2006. £9.99.
ISBN-10: 0 19 915076 1

Most teachers will already be familiar with earlier editions of this excellent revision guide. What will surprise them is to learn that this new edition manages to surpass its predecessors.

The guide has all the outstanding features of the original. Each page is simply presented using illustrations and small chunks of

text in boxes. Difficult concepts are clearly explained: I especially appreciated the clarity with which the resting potential of a nerve axon was explained, and how an action potential occurs. The biochemistry of respiration and photosynthesis, and the mechanism of muscle contraction, are explained simply and clearly, yet in enough detail to satisfy the most advanced students. Many pages include an element of humour, which students will enjoy.

The new edition incorporates new pages on topics found in the latest specifications. Examples are physiological adaptations of crop plants, such as sorghum, rice and maize; management of marine fisheries; the chi-squared test; and respirometers and the measurement of respiratory quotients. In addition, there is a most helpful specification guide, showing the student where to find the pages relevant to their specification. Impressively, the book offers full coverage, including optional modules. Another very useful section guides students through different kinds of examination questions and uses examples to show students how to tackle them effectively. A well-written and illustrated double spread offers valuable advice on how to revise. There is a very clear section offering step-by-step guidance on how to produce a first-class piece of coursework. This is followed by three well-illustrated pages on designing experiments, dealing with data and plotting graphs. A page shows students how to develop their key skills through the study of biology. Finally, there are four pages of self-assessment questions (written in the style of A-level questions) with answers.

The book is not only useful for AS and A-level students, however: it would be very helpful to under-

graduates embarking on a biological science or medicine degree course. In summary, this book is excellent value for money. Teachers should consider buying sets of these books to help their students to revise, or, better still, encouraging their students to buy their own copy.

Pauline Lowrie

AS and A-level human biology through diagrams

W. R. Pickering, 181 pp.
Oxford: Oxford University Press, 2006. £9.99.
ISBN-10: 0 19 915075 3

This book is similar to the biology book already described above, and has all the same outstanding features to commend it. Many of the pages are common to both volumes, but this book covers some topics specific to human biology, such as malaria. There is a clear specification guide for AQA A and Edexcel. The specification match is not quite perfect: for example, pancreatitis and schistosomiasis, both required for specification A, are not covered. The specification guide does not include OCR human biology, presumably because this is a very new specification. Nevertheless, most of the topics on the OCR specification are covered by the book. These criticisms are, however, very minor. The clarity of presentation of the topics will make difficult concepts much more accessible to students. Many students will wish to buy this for themselves, and many teachers will wish to buy class sets of the books to use in lessons, as well as in revision.

Pauline Lowrie

AS and A-level physics through diagrams

Stephen Pople. 160 pp. Oxford: Oxford University Press, 2005. £9.99.

ISBN-10: 0 19 915078 8

ISBN-13: 978 0 19 915078 6

This revision guide is part of a series (see page 133 for reviews of biology guides, and *SSR*, 88(322) p. 129 for a review of the chemistry guide). It has been around for over five years, and in its second edition has no obvious errors in the physics content. At the start of the book there is a summary table outlining all the different specifications and charts showing how the content is covered by different AS and A-level specifications. The only one not mapped is Salters–Horners A-level physics (SHAP), because of the context-driven nature of the course. However, there may be occasions when this mapping may worry students – for example section ‘E4’ includes moments of inertia, and is described as required for (for example) *Advancing Physics*, but only the first half of this section is required by the specification.

The book begins with ten pages of revision and examination techniques. The specification content is divided into topics, and each topic has a double-page spread. The pages are subdivided into boxes, most containing clear, labelled diagrams. The book is black and white only, with some grey shading in the diagrams. There are occasional numerical calculations. At the end of the book there are short self-assessment questions for the compulsory topics, with answers. There is also the usual table of physical constants, and two pages of equations, the first usefully quoted in words as well as symbols, the second referring specifically to

the OCR specification. The index has the helpful innovation of printing in bold the reference the student should first consult (not always the earliest reference in the book).

Students like revision books, and this would be a good one to show them to consider, with the caveat (as with all revision guides) that students need to check against their specification exactly what they need to learn. It is a shame that most students are likely to skip the techniques pages – if the book were adopted by a class the teacher might like to highlight some of that section. I was disappointed that there was not more use of diagrams, as promised by the title; but cost constraints probably limited this. At under £10 the guide offers very good value.

Wendy Swarbrick

The star guide (2nd edn)

Robin Kerrod. 160 pp. London: A & C Black, 2005. £14.99.

ISBN-10: 0 7136 7612 4

Robin Kerrod’s large-format book, now in its second edition, is beautifully designed and printed. The reader is taken on a tour of the skies, constellation by constellation, and month by month, and a selection of relevant deep-sky objects is described and illustrated with the best available images. The series of double-page spreads is nicely managed and the maps are very clear. The Sun is included, with good illustrations of solar and lunar eclipses. Given the book’s title, it is a little odd that the Moon and solar system are also discussed at length. (In passing, one picture of Mars on page 144 does not correspond to its caption.) There is a good Moon map, naked eye orientation, and thus very suitable for binocular use. There is a handy planisphere

tucked into a rear pocket.

If I had one criticism, it would be to note that there is too much of a quantum leap from the naked eye star-charts to the Hubble space telescope images that dominate the book, with almost nothing to fill the gap. If **The star guide** is truly intended to encourage readers to learn their way round the sky, there should have been many more images by amateur astronomers to show the appearance of the various objects with simple equipment.

In summary, the book is an attractive prospect for a school library, but there are several other books of a similar nature on the market, any one of which may be equally suitable.

Richard McKim

The richness of life

Stephen Jay Gould. 646 pp.

London: Jonathan Cape, 2006.

£25-00.

ISBN-10 0 22407 607 8

ISBN-13: 978 0 22407 607 4

By the time of his death from cancer in 2002, Stephen Jay Gould had become one of the best-loved scientists and science writers. His written legacy, on both the history of the natural world and the history of its scientific study, is prodigious. It ranges from a series of 300 essays published in *Natural History* magazine to his academic papers and a clutch of books, culminating in the 1400-page *Structure of evolutionary theory*, which was published just months before Gould’s death.

This book is a selection of some of the best and most representative of Gould’s writing. The 44 choices, which include some of Gould’s most famous essays and extracts from his books, are divided into eight sections, each with a brief introduction. They

cover such areas as Gould's autobiography, evolutionary theory, the size, form and shape of living organisms, scientific racism, socio-biology, evolutionary psychology and religion. Each section is relatively independent and so this is a book that can be dipped into rather than read as a coherent whole. The great value of the book is as a means of raising important issues for reflective discussion, and also to allow the reader to gain some insight into a man who possessed one of the finest scientific minds of the late twentieth century and who was also one of the greatest essayists of his time.

The book would be a useful addition to the sixth-form or college library. It should be compulsory reading for anyone interested in presenting complex ideas in an entertaining, exciting, lucid and accessible way.

Terry Jennings

Mill Hill essays

Various. 36 pp. London: National Institute for Medical Research, 2006. Free. ISBN-10: 0 95 463023 8

This collection of short essays aims to address aspects of current medical science of interest to the public. The essays are free and available on the NIMR website: www.nimr.mrc.ac.uk/millhillessays.

In this edition, issues addressed include the HIV pandemic, diseases of the developing world, cancer, cardiovascular disease and avian flu. Written in clear, everyday language these essays are highly readable and make complex issues very understandable. The narrative style adopted in most of the essays helps to place the scientific and medical issues in their contemporary social con-

text. Whilst the text is dense and not very appealing to students at a first glance, these essays are actually very accessible, clearly explaining difficult concepts such as how a cell becomes cancerous, without the use of extensive technical vocabulary.

The Mill Hill essays would provide a valuable alternative resource to enhance interest and extend knowledge at advanced level. As a free resource, it would definitely be worth obtaining a copy of this collection for students' use and also for teachers wishing to refresh and update their knowledge about the most recent developments relevant to advanced level topics on disease.

Katrina Fox

Little book of big ideas: science

Peter Moore. 144 pp. London: A & C Black, 2006. £9.99. ISBN-13: 978 0 7136 7494 1

The title is exactly what the book is about! Two pages are devoted to each of fifty key contributors (from Aristarchus of Samos to contemporary scientists) to the development of major scientific ideas and processes, grouped under six headings: The body; Biological systems; Combating disease; Planets and stars; Physics and chemistry; Mathematics. The vignettes are enriched by ten two-page themes, for example: Anatomy, Evolution, The solar system, Pi, and Computing, which help towards the synthesis of developing ideas over time. The author, a medical journalist, has produced a useful book, which could remind the teacher and the pupil that science is a human endeavour and: '*As a way of thinking, science has produced remarkable results*'. The introduction states that the book spans

'two and a half thousand years of civilisation', the dust cover: '*four thousand years of civilization*'. The former is more accurate.

A good addition to the secondary school library.

J. Keri Davies

Wonders of the land

K. Haven. 219 pp. USA: Libraries Unlimited, 2006. \$30. ISBN-10: 1 59158 318 7

This is the fourth book in the series 'Wonders of nature: natural phenomena in science and myth'. The author uses myths or stories to explain some of the major concepts of earth science. The book is in two sections: the first covers forces that create the land with chapters on the origins of land, volcanoes, creating rocks, crystals and mountains. The second section covers forces that change the land with chapters on water, wind, glaciers, earthquakes and living things. Each chapter includes a story or myth, which is then discussed and clearly explained in scientific terms with diagrams. Each chapter also includes topics for research and discussion and activities, suggested websites and separate reading lists for students and teachers.

I found the book very readable, and would recommend it for the science library for student research as well as for teachers wishing to enhance teaching and learning in earth science lessons. It would also be of use in cross-curricular lessons linking science, history and RE.

Silvia Newton

100 ideas for teaching science

S. Archer. 130 pp. London: Continuum Publishing, 2006. £8.99. ISBN-10: 0 8264 8547 2

The 100 ideas to help science teachers are grouped into chapters. The first chapter covers general strategies, such as ideas for providing a stimulating environment or reducing the stress involved in producing and using worksheets. Other chapters have ideas for starter activities, plenary activities, homework and revision activities. Each idea usually includes specific examples that the author has used, an idea of timing and target audiences. For example, idea 12 gives clear details for how to produce and use a card loop for a starter or plenary activity for any year group, and suggests that it would work for many topics including 'neutralisation' and 'human organs'. Idea 70 is about using true and false cards for revision: some statements about the greenhouse effect are given and different ways of using the statements are suggested.

Other chapters include ideas for dealing with (organising) practicals, effective class discussions, teaching practical skills for investigations, such as selection of appropriate apparatus and writing a method, using ICT and reducing the marking load. The section on science in the outside world gives ideas on using newspaper articles and school trips.

The remaining chapters give some ideas for biology, chemistry and physics teaching, some fun class activities and some exiting practical demonstrations. These generally include safety advice, although any teacher using the ideas should carry out their own risk assessment.

Although many of the ideas in this book are not new, I think it would be useful to any science teacher looking for ways to enhance teaching and learning in the classroom and reduce their own stress levels! I personally would want to dip into it from time to time for ideas.

Silvia Newton

Does anything eat wasps?

M. O'Hare (ed). 218 pp. London: Profile Books, 2005. £7.99.

ISBN-10: 1 86197 973 8

This collection of 102 questions and answers comes from the *New Scientist*. The answers are often witty but there are also weird, wacky and wise answers, collected from all over the world. Some of the questions are quite gruesome, which would appeal to many students. This compendium brings together many of the best questions and answers and these will be irresistible to anyone who is curious about the world around them.

Chapters are provided on 'our bodies', 'plants and animals', 'domestic science', 'our universe', 'our planet', 'weird weather', and 'troublesome transport'. There is also an index.

The book would be useful for adding a little entertainment to science lessons. For key stage 3 pupils some questions could be part of the starter or plenary activities. For example; the title question could be used with food webs, and 'What is the maximum length of a vertical straw?' could be used when investigating pressure. There are many other questions which students may have asked or would like to ask and often the questioners themselves are young people, asking ques-

tions such as: 'How long would it take for me to become a fossil? Why is the sea blue? What is cellulite?'

It would be well worth having a copy of this book in the school or science library.

Sandra Bagglely

Improving teaching and learning in schools: A commentary by the Teaching and Learning Research Programme

Mary James and Andrew Pollard (eds). 47 pp. London: TLRP, Institute of Education, 2006. Free.

ISBN-10: 0 85473 741 3

This booklet is the second of a planned series of Teaching and Learning Research Programme (TLRP) commentaries, providing an overview of research findings in particular aspects of education. In all, it covers 20 projects, grouped under the following themes: Learning in specific areas of the curriculum, Learning across the curriculum, The use of ICT to enhance learning, Environments for better learning and School conditions for the improvement of teaching and learning. The booklet not only provides summaries of each individual project but also draws together the findings across all the themes to identify what characterises effective teaching and learning.

The booklet itself is colourful and attractively presented. Each project summary is very short – typically less than a page – and provides contact details. The TLRP website, at www.tlrp.org, provides further information and downloadable resources. While this is not a publication specifically for secondary science teachers, I could see it being of interest

to heads of science or other teachers who have responsibility for the professional development of colleagues, or indeed to anyone

who is keen to consider how they might make their own teaching more effective. For all these people, selected sections could pro-

vide a helpful starting point for reflection and discussion.

Miriam Chaplin

Reviewers

Sandra Baggley is an assistant head, recently retired, but still a moderator and examiner for GCSE sciences and an author for Exploring Science KS3 books.

Miriam Chaplin is a consultant for the Science Enhancement Programme, an OU PGCE tutor, and *SSR* book reviews editor.

J. Keri Davies is an independent consultant in higher education.

Katrina Fox is key stage 4 co-ordinator in science at Twynham School, an 11–18 comprehensive school in Christchurch, Dorset.

Norman Henderson teaches biology and science.

Jim Hudson teaches science and chemistry at a comprehensive school in Bristol.

Terry Jennings is a former science teacher and university lecturer in education, now a full-time educational writer and consultant.

Pauline Lowrie is head of biology at Sir John Deane's sixth-form college, Northwich, Cheshire. She is also an A-level principal examiner, and has co-authored several A-level biology books.

Richard McKim teaches science in Northamptonshire. He is a past president of the British Astronomical Association and the current Director of its Mars section.

Lorna Monroe teaches biology at Glenlola Collegiate School, an 11–18 grammar school for girls in Bangor, Northern Ireland.

Silvia Newton, a former head of science in schools in Hertfordshire and London, is now a freelance educational writer and consultant.

Wendy Swarbrick is a science teacher in the south of England.

Ceinwen Upton is second in science at the Howard of Effingham School, teaching science and, in particular, biology, to A-level, and applied science and BTEC science; and is a marker and moderator for applied science at EDEXCEL.