Ideas Bank Design Technology: Designing & Making Book 1

This booklet is one of the 'Ideas Bank' series and contains activities planned for Key Stage 1 children. It contains a number of designing and making tasks covering a broad range of materials and topic areas. Each activity covers two double page spreads, the first focusing on designing and the second on making. The 'Designing' section of each task helps the teacher set the scene for the activity and suggests 'focused practical tasks' that generate skills and knowledge to use in the 'Making' section. The teacher guidance is useful, simple and direct. A bullet point approach is used and this makes getting to the key points easy and quick. The making guidance also provides connections to other curriculum areas, illustrating how to maximise the learning potential of the design and technology. There are also suggestions to 'further technology work' that could be used as extension activities.

The following topics are covered:

- Houses and homes
- Under the sea
- Air
- Senses
- Celebrations
- Dinosaurs
- Pirates
- Movement
- Weather
- Waste
- Toys

Design and technology coordinators could easily build some of these into their scheme of work, though the book is not planned as a scheme. Each activity is also complete in itself and could be used by the non-specialist.

The 'Eight ways to help ...' flowchart on the final page is very useful. The ideas here, just like the rest, are practical and helpful.

This is a very effective booklet that would help many Key Stage 1 teachers carry out some simple but effective design and technology. It is a good 'starter' and should encourage the not so confident to have a go. Its strength, which is simplicity, is also its weakness. It does not question or explain the reason these activities are valuable. It just makes the assumption that they are. The teacher needs to be judgemental, seeking out those activities that meet pre-determined learning intentions. It is easy to be seduced, because the activities are so obviously manageable, into doing them without thinking. The key question 'why?' needs to be asked. That said, the layout of the book is very effective and the photocopiable pages provide useful starting points for children. At £9.99 it is excellent value for money and worth buying.

A second book covering Key Stage 2 is available.

Ideas Bank Design Technology: Designing & Making Book 1
Marilyn Thorp
Folens: £9.99
ISBN: 1 852 768789
Orders: 01582 472 100

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓✓	Photocopiable	⇐
Visuals	✓✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓✓	Cross-curricular	

Reviewed by Robert Bowen, Senior Lecturer, Nottingham Trent University

Reviewed by Bridget A. Egan, King Alfred's University College, Winchester

Aztecs – Your Move

This pack is one of a series designed by Graham Samuel for Heron, aimed at supporting the development of scientific and technological concepts at Key Stage 2. The set includes two packs on mechanical systems, of which this is the first. It consists of a set of sequential work cards for pupils, dealing with levers, wheels and axles, pulleys, and simple pneumatic systems using syringes, accompanied by a set of components to enable pupils to carry out the activities proposed. There is a teachers' guide and a set of teachers' notes. The general style of the pupil work cards is user-friendly and conversational, and is clearly intended to lead children through a set of concepts in a logical sequence, giving them opportunities to try things out for themselves, but offering support for those who are having difficulties in arriving at workable solutions.

The work cards

The general layout of the cards is clear and unfussy, and there are a number of picture cues. The reading level is pitched at the middle of Key Stage 2; most pupils would thus be able to manage to follow the instructions, although less able readers in the earlier part of the junior school would need help here. The style is instructional, and although some of the cards do invite children to think about solutions to needs, it is often the case that the next card - or indeed the next block of text - offers the solution, or the evaluation of a solution. There is a tension between ensuring that children understand established scientific concepts and leading them into exploration, which in my view requires that they have dialogue with an 'expert' adult. The function of the teacher in such a dialogue is not only to impart knowledge, but to assess the children's level of response, to understand the stage that they have reached in developing their understanding of the concepts in question, and to tease out any misconceptions that they have reached. In this way, the teacher is able to adjust the explanation to the audience, and maximise gains in understanding. A set of structured cards, however good, cannot be an adequate substitute for that dialogue, because it is inevitably a general-purpose tool. Sensitively used, however, by a teacher who feels at home with the concepts involved, and who can support or extend if needed, this pack could be a useful and time-saving resource. The inclusion of photocards is not a bad idea, but the black-and-white photographs are not particularly eye-catching, and one wonders whether they will hold the attention of the 21st century child. The hand-drawn quality of the graphics is pleasing in some ways, but has the effect of making some explanatory drawings less clear.

The materials

The set of materials offers an adequate supply for a small group of pupils to work through the set of cards. Considerable additional supplies would be necessary to support whole classes or whole year groups using this as a scheme of work. It is difficult to understand why the chosen material for wheels and pulleys is wood, when so many well produced and inexpensive substitutes are available.

Teachers' materials

It is in the teachers' notes and guidance that I found this pack least helpful. It is not clear why some of the explanatory and support material has been put into 'Teachers' Notes', and other into the 'Teachers' Guide'. Surely a single document could have incorporated them all? Much of the text of the guide could be deduced from the material on the work card. In my view, supporting material for teachers needs to take the concepts involved to a more adult level, introducing such concepts as work, effort, load, mechanical advantage and efficiency, in ways that will inform their explanations to children. Some of the cards use terms which children readily use, such as 'strong', but which have different meanings in different contexts. These meanings need to be clarified in relation to the context in which they are used on the card if children are not to perpetuate confusions. A non-expert teacher will thus be unlikely to find that this gives sufficient support, while the design and technology coordinator or enthusiast will not need it.

In terms of value for money, I find this pack overpriced at £19.95.

Aztecs – Your Move

Graham Samuel

Heron Educational Ltd: £19.95

Orders: 01246 453354

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓✓	One of a series	⇐
Teacher resource	✓✓	Photocopiable	⇐
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓	Cross-curricular	

REVIEWS

Changing Technology

Technology can be defined as the application of knowledge and skills to the solution of practical problems. At every stage of the problem-solving process decisions have to be made. However, decisions about technology are not made in a vacuum; they are value-laden and are set in a particular social and cultural context. Changing Technology helps both teachers and pupils (Key Stages 3 and 4) understand the importance and impact (both social and environmental) of value judgements in product development and technological change.

Changing Technology comprises three resource elements: teachers' workshops, student activities and photographs to stimulate creative work.

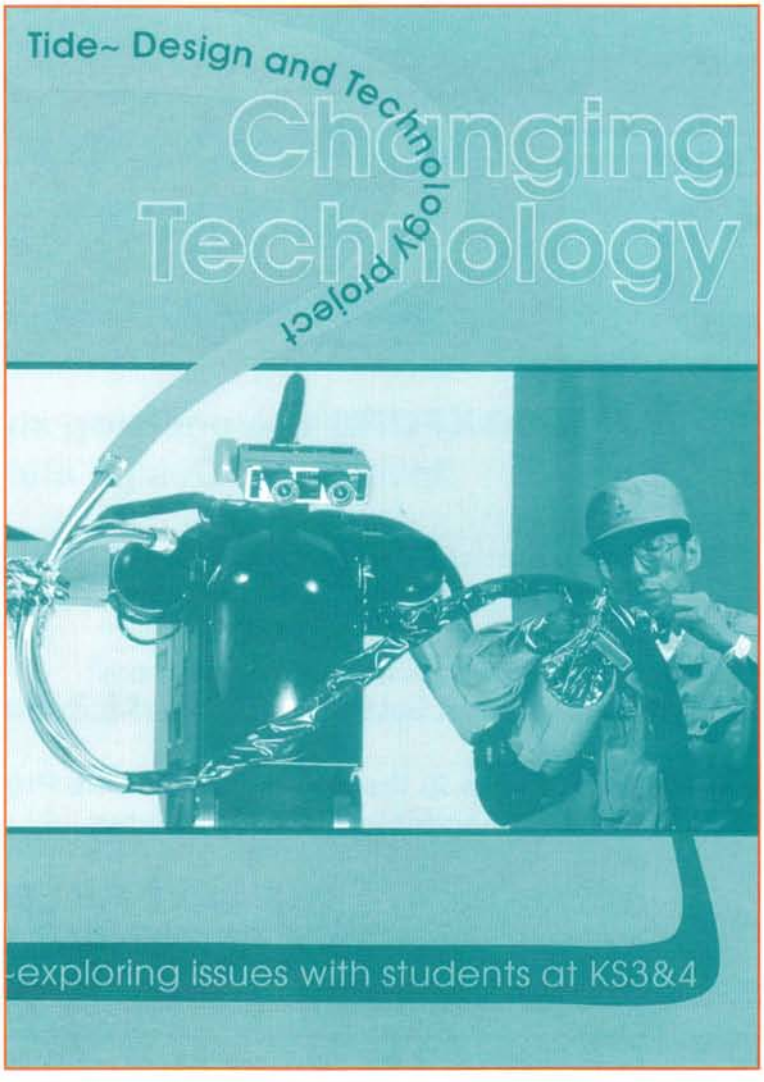
The introduction to Changing Technology states ... If technology is to be developed and used responsibly for the benefit of future generations then today's citizens need the technical literacy to participate in the decision making process that are affecting their communities and their environment". Student activities in the pack help pupils develop the ability to evaluate and question the products and processes of technology, and the decisions and value judgements that have been made. Without this literacy and understanding citizens in the coming century will be unable to participate in the technology decision making process that affect their lives, communities and their environment.

The activities cover a range of issues, including the difference between needs and wants; how values influence decisions about design and technology; benefits and disadvantages that technology brings to different people; evaluation of products and technical developments; and the importance of conflict resolution in design and technology activity. While these are difficult issues, all of them are relevant to the principles of sustainable development and appropriate technology, and the activities are very good, appropriate, and offer practical strategies. Aims are clearly expressed, the worksheets are clear and concise, and examples are given of how the worksheets can be completed. Extension exercises are not repetition of work already done, but do extend pupils' knowledge and understanding of the topic.

The teacher workshops (taking stock) are perhaps the most important resource in the pack since they:

- help develop departmental understanding and sympathy for the issues involved
- help departments develop a framework for a curriculum which addresses these issues, and
- provide a framework and rationale for the student activities.

Reviewed by John Hill and Elizabeth Wright



REVIEWS

These materials provide an introduction to a number of important themes. Suggestions for further reading are included for in-depth consideration of particular issues. The workshops enable teachers who have never considered appropriate technology and sustainable development to be introduced to their meaning and values in a gentle way allowing teachers with greater experience to help, aid and encourage understanding.

The final resource element is a set of A4 photographs with questions designed to stimulate student discussion. The questions are particularly useful and many can be applied to any relevant pictures that teachers collect.

t is all too easy to become bogged down in the minutiae of the National Curriculum. Sometimes we need to stand back and reflect on the principles that should underlie technology education. Changing Technology helps us reflect on some of these principles and is essential reading for everyone involved in design and technology education. The pack meets a need, fills a gap in the market and addresses perhaps the most important issues in technology education for the new millennium.

Changing Technology
Roger McBrien
Development Education Centre
(Birmingham): £15 (plus VAT and p+p)
ISBN: 0 948838 49 3
Orders: 0121 4723255

Appropriate content	✓✓✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓	One of a series	
Teacher resource	✓✓✓✓	Photocopiable	
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓	Cross-curricular	⇐

Electronic Circuits and Components/ The Parts Gallery

Reviewed by Mark Hudson, Director of Technology, Thomas Telford CTC

The conversation went like this:
"What's that then, Sir?"

"It's a new CD ROM I have been asked to review."

"Oh! would you like us to have a look at it?"

Thinks "This is for student,s so why not?" " OK ... but you have to write up a review too."

So this is what two Year 10 students think:

"Installation is simple and relatively straightforward for the average user, however complications may be encountered when using the Windows 95 platform and trying to install the program to an extended directory name (i e. up to 255 characters). This is not a serious problem but one that should be rectified for ease of use and to increase overall compatibility and bring the product up to date.

Once installation is complete the package then makes evident its compatibility with another electronics application and the standard Windows tools, however we could not get the examples to export into Electronics Workbench because of recent version requirements.

The package itself is presented in an attractive, easy to use format, and the buttons are large, bold, and easy to activate, so even a novice computer user will find exploration easy.

The purpose of the package

There are two programs in this package, both in the form of an information browsing database. The first is concerned with electronic circuits, components and their uses. The information is presented attractively, with full colour diagrams, often interactive and detailed explanations which, in comparison with other GCSE texts, go relatively deeply into the subject matter.

The other program in this package is concerned with testing the information you have learned in the first program and teaching you about circuit symbols. The combination of the two packages makes the information in the package viable because of the testing, and the clear way it is presented.

Although we did not run the package on a machine with a sound card, most of the information was fully documented with sound and animation.

As users progress through the package, they are presented with more and more complicated information which is relevant to the progression of the subject matter. A basic layout, aided by colourful and interesting pictures, lets users quickly and effectively find the and retrieve the information they are looking for and the links with other programs, when they work, will allow the information to be put to practical use quickly, which is what a student really needs.

Overall we give the package the a rating of 80% in terms of user friendliness and 75% in terms of functionality and usefulness."

As for me? Well, The CD is easy to load through Windows 95 and presents you with a very good contents page and clear instructions. I was particularly pleased to see the guidance on classroom use, which was realistic and helpful. The recommended resources was likewise very helpful for further study.

I was very pleased with the inclusion of the soundtrack, a great boon to SEN students who could concentrate on the interactive side rather than reading the technical language from the screen. Work sheets were helpful though rather lacking in differentiation for the lower end of the ability scale. Useful bookmarks let you jump forward and back to follow up themes or areas of enquiry. The section on fundamental was good though rather theoretical for many students to cope with.

Overall I felt this material was of a high standard but rather challenging for many students. The target group for the CD would, I feel, struggle or find much of the material beyond the requirements of a GCSE Electronic products course. At A-level or for the able student this would be an invaluable independent study resource.

It is well priced and affordable for the students to purchase themselves. This product is moving this subject area in the right way for students to relate to and for that it must be praised.

Electronic Circuits and Components/ The Parts Gallery
Mike Tooley
Matrix Multimedia Ltd
Price: £89 (institution); £169 (10-user); £29 (student)
Orders: 01274 730808

Appropriate content	✓✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓✓	One of a series	
Teacher resource	✓✓✓✓	Photocopiable	
Visuals	✓✓✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓✓	Cross-curricular	⇐

GCSE Design and Technology: Resistant Materials

This book appears to be an excellent resource for those engaged in learning and teaching GCSE Design and Technology (Resistant Materials). The book is paperback in format and is divided into six major sections that are further subdivided into 25 units.

The first section deals with designing activities and takes the reader through the main points associated with the formulation of a design solution. The second and third sections deal with types and properties of resistant materials, while section four deals with production and production techniques. Here the book utilises examples from school-based workshop activities, and also industrial techniques. The use of industrial/household brand names as examples in this section and throughout the book has brought a sense of realism to the examples being analysed. Section five examines systems and structures, investigating such issues as mechanisms, structures, electrics, electronics and control. Not only is the content presented in an interesting manner, but also, as with other sections, it is interlaced with some case studies, giving examples of real life problems and how they have been solved.

The final section deals with the evaluation, testing and analysis of products. The reader's attention is drawn to a range of evaluative techniques and case study material that will certainly help pupils when analysing products.

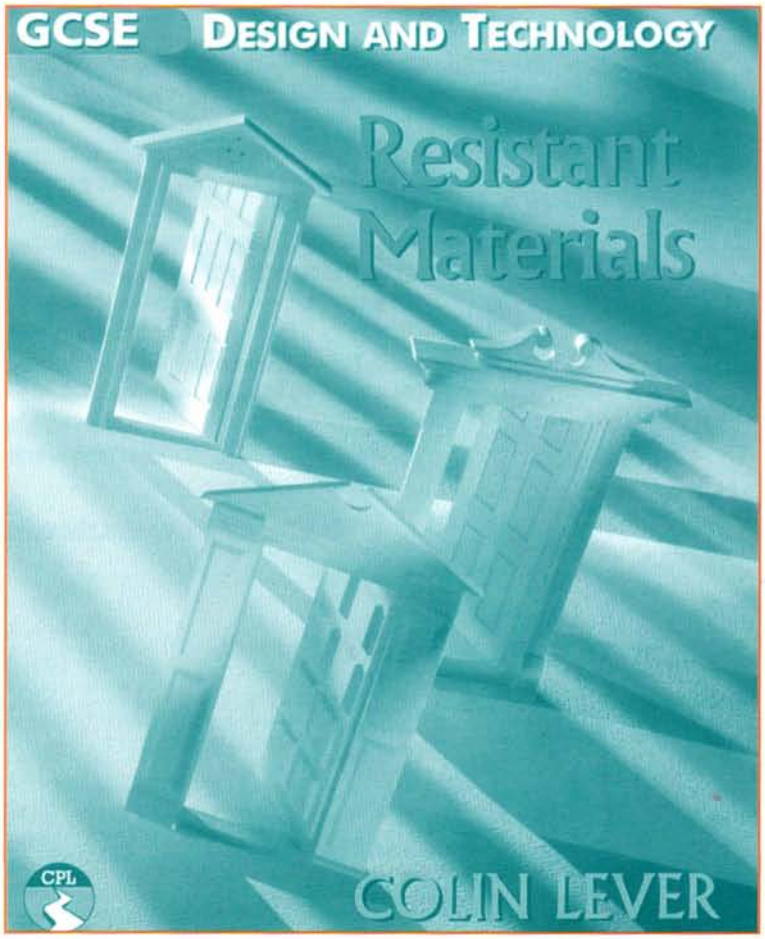
In the main it uses colour photographs or diagrams to help explain the text. Within each unit there are a number of pupil activities which test knowledge and give opportunity to demonstrate skills and techniques developed in the text. Each section uses a similar style of self-test pupil activities. The use of these activities appears to be topical, with current issues where possible, being chosen to illustrate areas dealt with in the main text.

The book has a wide variety of design and technology activities, and would allow teachers working with any of the current GCSE Resistant Materials syllabuses to be satisfied with the syllabus coverage.

It would be a good class textbook. It is very well presented. The author has obviously put a good deal of effort into researching the various examples for the pupil activities and relating the industrial/classroom links. The pupil activities suggested by the book would, it is felt, generate a great deal of enthusiasm with children and make design and technology fun to learn. The text gives pupil support for the activities. It is an excellent platform textbook, in that it facilitates a broad understanding of design and technology, which would encourage many pupils to want to engage in further study. However, it may be the case that in some areas, pupils would need to engage in more sophisticated texts in order to gain a greater understanding of the topic.

With a current price of £8.99, I would suggest that the book is extremely good value for money. It is very well presented with a language level that is appropriate for

Reviewed by John Durrell, University of Greenwich



REVIEWS

its intended Year 10/11 users. The activities are well conceived and well researched.

I could not find any reference in the text to this book being photocopiable, so I assume it is not. The book comes with a teacher's guide, which I have not been asked to review and have not seen. However, I note that this guide is produced in a photocopiable format.

If you are looking for a good class textbook for GCSE, I would certainly seriously consider this title.

GCSE Design and Technology: Resistant Materials
Colin Lever
Causeway Press: £8.99
ISBN: 1 873929 61 7

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓✓	Photocopiable	
Visuals	✓✓✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓✓	Cross-curricular	

Global contexts: an introduction for design and technology teachers

On reading this resource from Intermediate Technology I recalled the panic I experienced when, in high summer, my freezer full of food stopped working. I suspect I am not alone when I say that food preservation is something I rarely think about. My only effort at preserving food is to place it in the refrigerator or freezer.

The trigger for this recollection was the photographs and descriptions of women drying food in Sudan and selling street food in Bangladesh. These are two examples of seven cast studies in the pamphlet. Others describe recycling materials to make toys in Sri Lanka and to produce means of transporting people and goods in India and the Sudan. Slightly different are the case studies concerned with non-verbal communication. Information about the safe use of electricity is conveyed in street theatre performances in Nepal and animal health care by symbolic and pictorial representation in Kenya.

The main aim of the resource is to encourage teachers and pupils to assess a technology in terms of its appropriateness. The only way to do this is to evaluate the technology within the contexts in which it is produced and used. Pupils are asked to investigate familiar technologies within familiar contexts. By looking at the different approaches to problems in less-industrialised and industrialised countries pupils have to assess how appropriate it is. Drying food in the open air is not a good idea in a UK city and a juggernaut wagon would not cope well on narrow roads turned to mud in the Monsoon season.

The resource provides useful ideas for addressing the Products and Applications section of the National Curriculum requirements for design and technology which require pupils to evaluate in terms of components available, chosen materials, the market for the product and, in the Quality section, judge how far a need is met and whether resources have been used appropriately. Such evaluation cannot be done if the technological process and the use of a product are looked at independently of the human context.

At first glance this seems an expensive pamphlet. It is four folded A4 size sheets, but given that it is for teachers, one copy per school may suffice. It is packed with ideas, and the format and the price are probably acceptable. It should achieve its aims of introducing teachers to appropriate technology and providing ideas and activities which will help when evaluating products and applications.

Technology is a cultural activity. Even if we always remember that technology cannot be separated from culture, it is unfortunately all too easy to think only of our own culture which we probably share with the majority of pupils. In today's world of global communication and economies there lies a potential pitfall in such a narrow view. Too often studying the technologies of less industrialised countries has led to a view of these technologies as primitive, unsophisticated and inferior. Asking questions about appropriateness in terms of context should lead to respect for and a willingness to learn from, the technology of other cultures. Given the current worries about food safety in the West perhaps we should study production and processing in other countries.

Reviewed by Anne Riggs, Head of Science and Technology Dept, University College of St Martin, Lancaster

Global contexts: an introduction for design and technology teachers

Intermediate Technology: £3.50

Orders: 01788 560631

Appropriate content	✓✓✓✓✓	Generic use	⇐
Pupil/student use	N/A	One of a series	
Teacher resource	✓✓✓✓	Photocopiable	
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓	Cross-curricular	⇐

REVIEWS

Reviewed by Richard Ager, Deputy Director of School of Maths, Science and Technology, UCE

Science Resources for Key Stage 2: SATIS 8-14 Technology

This is a repackaged selection of materials which first appeared in the SATIS 8-14 Yellow Box 2. It consists of 7 units of work which are free-standing and can be used in very flexible ways. The topics in this book include looking at production from the customer's point of view, investigating ways in which technology is applied in the theatre, discovering the potential of telephone communications, tackling issues of the cleanliness of water, modelling control technology systems, exploring the role of pylons in electricity distribution and an investigation of industrial contexts through the use of a LEGO construction kit. Each unit consists of an overview of the material, some more detailed teachers' notes and pupil materials. The complete pack is copyright free within the purchasing institution, and in fact you are encouraged to 'cut and paste' the material in order to customise it to your individual requirements.

The material in this book seems to provide some excellent resource material for design and technology work at Key Stage 2.

Through interesting contexts, such as the theatre, children can investigate a whole range of issues - in particular the importance of scenery being stable and structurally rigid.

As would be expected from materials from the ASE there are strong links with science, which make some very good cross-curricular links between the two subjects. However, whilst it is not particularly necessary for children at Key Stage 2 to know whether they are doing science of design and technology, it is vital that teachers using the material are aware of the aspects which help develop design and technology capability within children and those aspects which support the science curriculum.

For example, in the unit on electricity pylons, one section focuses upon designing and making a structure using art straws whereas the rest of the unit concentrates on the scientific and safety aspects of power distribution. The material therefore provides a useful resource which will provide some interesting and useful material for IDEAs and FPTs. However, the teacher will need to take great care in selecting the most relevant and appropriate material, and this will almost certainly necessitate "cutting and pasting" to produce material which can be profitably used by children for design and technology work.

Science Resources for Key Stage 2: SATIS 8-14 Technology

Association for Science Education: £9.50
ISBN: 0 86357 260 X
Orders: 01707 267411

Appropriate content	✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓	Photocopiable	⇐
Visuals	✓✓	Pupil/student activities	⇐
Overall style	✓✓✓	Cross-curricular	⇐

REVIEWS

Science Resources for Key Stage 2: SATIS 8-14 Health

This is a repackaged selection of materials which first appeared in the SATIS 8-14 Yellow Box 2. It consists of 10 units of work which are free-standing and can be used in very flexible ways. The topics in this book cover looking at the nutritional value of cornflakes, information on orthodontic treatment, work on head lice, an exploration of the smoking debate, some activities linked to a swimming pool, tracing the source of a nineteenth century cholera outbreak, looking at fitness and a significant quantity of work on ice cream, butter, milk and cream. Each unit consists of an overview of the material, some more detailed teachers' notes and pupil materials. The complete pack is copyright free within the purchasing institution, and in fact you are encouraged to "cut and paste" the material in order to customise it to your individual requirements.

As its title suggests the material has very much of a science feel to it, but because of the flexibility in use of the background material, children engaged in a particular technological problem may find some information of use to them. The material which seems to be most appropriate to Key Stage 2 design and technology teaching are the units related to food. There are some useful research activities in the sections on ice cream that would form the basis of some excellent IDEAs and the unit on milk and butter provides the basis of a useful FPT.

However, most of the work in this collection is more appropriate to the science curriculum than for design and technology. I can envisage that considerable work will need to be done by teachers in order to customise the material so that it can effectively enhance a Key Stage 2 design and technology scheme of work.

Science Resources for Key Stage 2: SATIS 8-14 Health

Association for Science Education: £9.50
ISBN: 0 86357 258 8
Orders: 01707 267411

Appropriate content	✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓	Photocopiable	⇐
Visuals	✓✓	Pupil/student activities	⇐
Overall style	✓✓✓	Cross-curricular	⇐

Reviewed by Richard Ager, Deputy Director of School of Maths, Science and Technology, UCE

REVIEWS

Reviewed by Robert Bowen, Senior lecturer, Nottingham Trent University

Science Resources for Key Stage 2: SATIS 8-14 Materials/Transport/ Environment

The titles of these resources might make you wonder why the DATA journal is reviewing them. This is misleading. The three books reviewed (there are five in all) contain many activities that are design and technology focused. They are a useful resource for both design and technology and science.

The content of these books is not new. ASE have repackaged previous SATIS 8-14 materials first published in 1992 into a more manageable format. However, the activities are still relevant. Each book is built around a theme. Pupil activities are then grouped to explore a sub-set of the theme. For example, in 'Transport' there are activities related to 'A Safer Steering Wheel'. The book provides insight into key learning covered and teacher notes explaining how the activities can be managed. The pupil activities are in a worksheet format. All the materials are photocopiable.

There are many good ideas here and the books provide an excellent teacher resource. I am less certain about using the pupil worksheets directly with younger children as the level of language might get in the way. They could be easily adapted, however. The layout of the book is good with simple use of line drawings to illustrate children's worksheets. Each book contains a summary of the series and illustrates the activities covered. This makes seeking particular activities very easy.

The major problem with the resource is the lack of acknowledgement of the very strong relationship to design and technology. Most of the activities are could be seen as focused practical tasks and many could be developed into assignments. It is a pity that the authors did not use the opportunity provided by repackaging to make these links more obvious. Nevertheless, the information provided for both pupil and teacher is useful. The resource would be of value for teachers of junior and lower secondary pupils. At £9.50 per book and photocopy free the resource is good value for money and worth purchasing.

The activities covered by each book are listed below:

Materials: Fireworks; Packaging; Natural bounce; Which crisps would you buy?; Bleaching in the sun; Lotta bottle problems; Wrapping chocolate; Which wash?; Reporting science; Using energy at home; Waste on a holiday island

Transport: A safer steering wheel; Take to the air; Build your own space probe; Take the strain; The kneeling bus; The magnetic train; The SATIS aeroplane; Does your town need a bypass?

Environment: Chimps; Frogs, toads and turtles; Slugs; Dinosaur discovery; Visiting the seashore; Earth Tours Incorporated; Lettuces for profit?; Bats; Why weeds?; Do we need zoos?

Science Resources for Key Stage 2: SATIS 8-14 Materials

Association for Science Education: £9.50
ISBN: 0 86357 259 6
Orders: 01707 267411

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓	Photocopiable	⇐
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓	Cross-curricular	⇐

Science Resources for Key Stage 2: SATIS 8-14 Transport

Association for Science Education: £9.50
ISBN: 0 86357 256 1
Orders: 01707 267411

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓✓	Photocopiable	⇐
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓	Cross-curricular	⇐

Science Resources for Key Stage 2: SATIS 8-14 Environment

Association for Science Education: £9.50
ISBN: 0 86357 257 X
Orders: 01707 267411

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓	One of a series	⇐
Teacher resource	✓✓✓✓✓	Photocopiable	⇐
Visuals	✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓	Cross-curricular	⇐

REVIEWS

Technology an Enterprising Approach
This useful resource for teachers of Key Stage 2 pupils results from a partnership between Durham University, Esso, Merseyside Education Business Partnership, Girobank, Marks and Spencer and Mid Glamorgan TEC. It has been written by a team of teachers and piloted in Liverpool schools.

The material is intended to encourage links between business and education through curriculum activities related to technology. The introduction is short and offers a brief account of how pupils can become enterprising through their use of a cyclical problem solving process. Some pro formas are provided to support teacher assessment, pupil target-setting, designing, and pupil recording of project work.

The main sections focus on the contexts of the 'Bank', 'Garage' and 'Supermarket' - valuable, familiar contexts for making design and technology relevant to pupils' everyday lives. Each topic includes 10-12 activities supported by a teacher sheet and pupil task sheets (copyright free). The activities are varied: the 'Bank' topic, for example, covers finding out about a bank's purpose, designing cheques and identification cards, designing a bank interior, evaluating and designing uniforms, designing and making a money holder, investigating cash dispensers and keeping money safe. For each task teachers are provided with clear aims, resource lists, suggestions for involving local business and the community, practical guidance on organising the activity and an audit of skills and National Curriculum programmes of study covered by the work. For the less confident teacher additional sheets provide pupils with possible solutions to the problems set.

The guidance supplied is sound and there are plenty of good ideas to give teachers helpful stimuli for their planning, even if they do not use the detailed guidance. The tasks provide a good balance of different media (for example creating garage snacks for different customers and using construction kits to model car-wash machines). There is a balance of environmental and system outcomes (such as a supermarket checkout system) as well as the more obvious artefacts. As the 'Bank' examples indicate, designing is encouraged (despite the title of the resource and its reference throughout to technology). The constant reminders of the potential for involving local businesses and the community is, of course, to be expected in a publication with this pedigree, but it is welcomed and will help teachers include more enterprise awareness into the curriculum they provide their pupils. The writers show awareness of some sensitive issues, such as gaining parental permission before surveying packed lunches. It is also pleasing to see health education addressed.

My main criticism of the material concerns its failure to recognise the need for gender issues to be taken seriously. References to policeman, fireman and air stewardess are disappointing in terms of the language used, but more worrying are the visuals used - of 19 people featured in the rather poor drawings only three are female. The writers provide an evaluation sheet for feedback from teachers, so I hope they will receive some comments about this weakness.

However, despite this reservation, which is perhaps a reason for teachers to use some of the pupil material selectively, the resource deserves a place on the staff-room shelf. It is a genuinely enterprising venture that has produced a useful contribution for teachers looking for help in implementing the National Curriculum requirements.

Reviewed by Dr. Ron Ritchie, Head of Department for Professional Development, Bath College of Higher Education

Technology an Enterprising Approach
Durham University Business School:
Price: £10.50
ISBN: 1 85773 112 3
Orders: 0191 374 2228

Appropriate content	✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓	One of a series	
Teacher resource	✓✓✓✓✓	Photocopiable	⇐
Visuals	✓	Pupil/student activities	⇐
Overall style	✓✓✓	Cross-curricular	⇐

REVIEWS

Reviewed by Dr Rowland Dye and Phil Norman, Filton College, Bristol

Understanding Electronic Circuits CD-ROM

Electronics is a fascinating but complex subject. The foundations of the subject must be a thorough understanding of basic factual knowledge and understanding of components and circuits. We are sure all electronics teachers wish they could spend the time with individual students to explain these basics. They would like to draw pictures, provide verbal and written information, show short video clips, and provide animated explanations and simulations. Dr Shepherd aims to use the multimedia potential of the CD-ROM to provide this ideal teacher that would never get weary of explaining the same things over and over again and would be available as and when the student needed them. The information on the CD-ROM is organised into four main sections.

The **Simple Circuit Theory** section starts from the basics of electricity and proceeds through parallel and series circuits, voltage, current, and resistance, power, power supplies, and circuit diagrams. Mathematics, such as Ohm's Law calculations, is also introduced and explained. Each screen typically contains text explaining the concepts involved and with headphones the student can listen to an audio commentary. Also on the screen at the same time is an ACE simulation. This resembles a circuit diagram with the flow of electricity displayed as moving dots and colour coded display of voltage levels. The ACE simulation also carries an audio commentary. By clicking on the Go button a pointer moves around on the simulation, closing switches and pointing to important components as the audio commentary explains what is happening in the circuit.

The **Components** section aims to take the student through commonly encountered individual components ranging from resistors, through LDRs, capacitors, diodes, LEDs, Op-Amps, and digital logic gates. In this section the student sees a photograph of the component and its symbol, together with a text box and ACE simulation of the component in a basic circuit. Both have audio commentaries describing the action of the component.

Components can't do anything on their own so the student is led onto the **Circuits** section. This starts from Resistors in series, parallel, and as potential dividers, through RC and CR circuits, rectifiers, light, heat, and time delay transistor switching circuits, both transistor and logic gate based monostables and astables, the op-amp in its various configurations, flip-flops, and logic circuits. Here again the student sees the ACE simulation, reads text, and listens to the audio commentaries.

Finally, electronic circuits are divided into Input/Process/Output building blocks in the **Systems** section. Here the student sees text plus diagrammatic video clips explaining processing functions such as amplification, monostables, bistables, astables, buffers, and decision makers.

Also supporting the CD-ROM is a pack of some 20 worksheets that the author explains are for the student to build some of the actual circuits encountered on the CD-ROM. These have instructions for measuring and investigating the parameters and action of each circuit.

When the CD-ROM first arrived and we read the advertiser's description we were very enthusiastic. There is so much foundation knowledge to be learnt in Electronics that it can't all be covered in traditional lessons. Why shouldn't students learn for themselves in their own time? Unlike traditional text books, the CD-ROM actually explains all the important concepts using the on-screen simulations. And what's more the author is there talking you through things as you go along! Having several images on the screen at the same time should help students translate from the physical appearance of components, for example, to their circuit symbol and through to their operation. Finally, the audio commentary could be a boon for students who are slow readers.

Thus we are sad to report that on the whole we were disappointed. The author has pioneered some excellent ideas. The use of the ACE simulations is brilliant and our expectations of multimedia CD-ROM information as outlined above are fully justified. It is frustrating that this product

strives so hard to fulfil these ambitions but doesn't make the grade. Here are some of our grumbles:

The author gives a flow chart leading the student through each section, which is fine. But where is the alphabetical index? For example, when we were checking for comprehensive coverage of the Components section we couldn't find some commonly used items such as switches, buzzers, and speakers. These, in fact, turned up later in the Systems section. Omitting an index from a textbook would be unacceptable and so it is for a CD-ROM! We never did find batteries, bulbs, relays, piezo-sounders, or motors. Furthermore, the author builds his monostables and bistables, etc. from transistors or logic gates, which is fine. But he omits completely the 555 IC. This is incredible as several exam syllabuses rely heavily on this popular chip.

The multi-image presentation of information is a very good idea. Perhaps the text is rather heavy in places and could be better arranged into brief introductory overviews followed by deeper and more complex descriptions. Students could then dip in at the level they need. The ACE simulations are brilliant, or they would be if you could see them! They really are too small for comfortable viewing on a standard size monitor. There is a slider control on the ACE simulation to rewind sections if necessary. So wouldn't it be nice if there were identical controls for the text and its audio commentary? Finally the audio commentary was absent on the maths sections. We wondered if this would tempt students to skip these vital sections.

The CD-ROM does have its own user instructions section, but we feel this is inadequate and in any case should be supported with the printed word. This brings us to the subject of the supporting documentation, which seems to have been put together hastily. Documentation for a visually rich product such as a CD-ROM could perhaps have screen-shots, not just a few pages of dull text and an incomplete index of the content plus an apology that μ has been printed as u! Finally, the worksheets are for building circuits seen on the CD-ROM. However the style and layout differ so much from what the student would have seen on the screen that it is difficult to relate them.

Finally, and most importantly, if we put this CD-ROM in our computer room how do we know our students use it, and how do they know if they learn anything from it? The answer is none of us do because there is no, repeat no, self-assessment facility. For example, in the maths section of combining resistors couldn't we test ourselves by using the formula on examples? Ditto resistor colour codes, time constant calculations, etc. Couldn't the CD-ROM ask questions at the end of each page or section? Couldn't there be interactive worksheet printouts to be completed and shown to the teacher? Couldn't there be a quiz type percentage score as seen on computer games and other CD-ROM products? Without something of this sort the busy teacher just won't be able to check and in the end the CD-ROM will gather dust.

We have been very hard in this review, rather like marking the work of a student who we know should be doing so much better! Dr Shepherd has a potentially brilliant product here for which electronics teachers would be very grateful. CD-ROMs and multimedia presentation are the way forward. But for them to be successful they must be comprehensive and run independently in the hands of the students. Dare we suggest a full revision to turn a potentially brilliant idea into a fully achieved reality.

Understanding Electronic Circuits CD-ROM
Dr Philip Shepherd
BTL Publishing:
£99 ex VAT
Orders: 01274 841320

Appropriate content	✓✓✓✓	Generic use	
Pupil/student use	✓✓✓✓	One of a series	⇦
Teacher resource	✓✓	Photocopiable	
Visuals	✓✓✓	Pupil/student activities	⇦
Overall style	✓✓	Cross-curricular	

REVIEWS

Reviewed by Jillian Mellor, Technology Coordinator, John Hunt of Everest School

Textiles and Technology

A long-awaited text book for design and technology textiles, this book covers a wide range of areas. Each chapter has a good blend of the written word and illustrations. At the end of each section there are some excellent activities and questions which would be appropriate as lesson activities or homework tasks. All chapters are informative and relevant without being too wordy or over-simplified. Each chapter begins with bullet points on the focus of the chapter area to be covered and concludes with a summary of the main issues.

The book starts traditionally by covering Fibres and Fabrics but then compensates by moving into new ground such as the design and manufacture of textile products, disassembling, computer aided manufacture and design production systems, all of which are vital in delivering Key Stage 4 Textiles. I found the book highly readable and some of the activities would easily fit into an existing teaching programme. There is also a chapter on the design process and how to carry out a research piece of work with some simple graphics and illustrations which make it easy to follow. The section on 'How Textile Products Are Made' covers seams and fastenings with large easy-to-follow illustrations that make the task look easy. The chapter covering 'Systems' is very logical and removes the mystery of what happens in the industry. In this area, it is sometimes difficult for people to find the the necessary information for their students to use, but this book has it all. I would highly recommend this book as a textbook for GCSE Design and Technology Textiles and feel confident that with this book pupils will gain the relevant knowledge and understanding about textiles and be able to apply it in their work.

Textiles and Technology
Margaret Beith, Kate Baulch, Kristine Oppermann
Cambridge University Press: £6.95
ISBN 0 521 57657 1
Orders: 01223 312393

Appropriate content	✓✓✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓✓✓	One of a series	
Teacher resource	✓✓✓✓✓	Photocopiable	
Visuals	✓✓✓✓	Pupil/student activities	⇐
Overall style	✓✓✓✓	Cross-curricular	

Art and Design 97

This CD provides a complete picture of well over 3,800 art, design and architecture courses available throughout the UK, from GNVQ and Foundation through to National Diploma, degree and post graduate courses. This comprehensive resource covers almost all known courses including Product Design, Fashion and Textiles, all types of Graphic Design, Illustration, Photography, Fine Art, Interior Design, History, Furniture Design, Ceramics, Architecture, Theatre Design and Teaching.

Although the instructions could initially be a little clearer, once into the product it is easy to use. You can search for colleges and courses by subject, level, type and location, read descriptions of what they and their departments have to offer, and look at pictures of their facilities.

Art and Design 97 includes over 1,500 captioned images of student work, from colleges all over the country. These images are intended to show students what it's like to go to the college concerned, but of course they are an excellent visual resource for teachers. Users can search by type of work – or find all the work from, say, Foundation or GNVQ courses – and save collections for future use.

There are five major fields to search through: courses, regions, directory, students work and collections. There are useful details for each course, which enable potential students to identify specialisms and particular strengths of the courses. There is also an attempt to show the working environment in some colleges. This makes the material more visually acceptable although its value is questionable.

The students' work is excellent and of considerable interest not only to those choosing a course but also to a wider design community. Many GCSE and A-level students will benefit from viewing this excellent work as a stimulus for their own design activities.

Art and Design 97 runs on both Windows (Windows 3.1, 3.11, Windows 95 and NT) and Apple Macintosh (system 7.1 or later). A single copy costs just £45+ VAT, plus £3.50 post and packing and there are substantial discounts for multiple copies at the same site.

Art and Design is available direct from the publishers, Design Edge Limited. Further details, including a brief demonstration of the main options provided by the CD-ROM, are on the Design Edge website. This includes a listing of all 366 colleges with courses on the disk, and their world wide web addresses.

Reviewed by Andy Breckon, Chief Executive, DATA

Art and Design 97
Design Edge Ltd: £45 ex VAT and p&p
Orders: 0181 265 5432

Appropriate content	✓✓✓✓	Generic use	⇐
Pupil/student use	✓✓✓✓	One of a series	
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Visuals	✓✓✓✓	Pupil/student activities	
Overall style	✓✓✓✓	Cross-curricular	⇐

REVIEWS