# **Review Section**

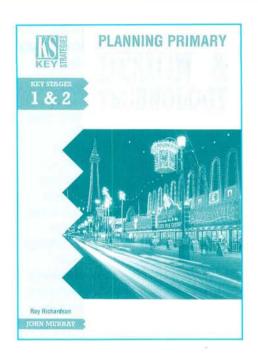
### Planning Primary Design and Technology

This useful book will be a welcome addition to the growing number of publications relating to the teaching of design and technology which have been produced in response to the needs of Key Stage 1 and 2 teachers.

There are four main sections: 'Planning for D&T', 'Writing Your D&T Policy', 'A Scheme of Work' and 'Tools and Materials'. The first section, 'Planning for D&T', is written in four stages. The first gives an overview of the Statutory Orders and provides the Orders in a format which would make good OHTs (certain sections of the book may be photocopied). This is followed by an outline audit which would enable schools to identify areas of strength and weakness in their teaching of in order to build upon their existing practice. Stage three gives guidance on writing Units of Work and stage four shows how coverage of the Statutory Orders may be mapped across the Key Stages using the photocopiable mapping sheet provided.

The second section concerns writing a design and technology policy and after consideration of what should be included, a sample policy is provided. Although clearly any school policy should reflect the ethos of the school, if the sample is used as a discussion document for modification by the school staff, it will provide an excellent starting point.

The third section is a scheme of work consisting of six Key Stage 1 and 12 Key Stage 2 units of work based on food, textiles and resistant materials. Each unit includes examples of the three types of activity specified in the Orders (focused practical tasks, investigative, disassembly and evaluative activities and designing and making assignments) as well as guidance on what is to be taught and what resources for investigation and tools and materials for making should be provided. Cross-curricular links are highlighted as are opportunities for differentiation and extension activities. It is perhaps the assessment guidance that is potentially most useful as it promises to indicate how the responses of children to the unit of work could be linked to the



Attainment Targets. However, as an example, the assessment descriptions for the Key Stage 1 unit on Cocktails make specific references to fish tanks and making fruit boats to float on the surface of the drinks at levels 1 and 2, responses which would be unlikely to occur unless the teacher had specifically themed the activity. It might have been more appropriate to be less specific about detail while indicating the kinds of likely responses.

The fourth section lists the tools and equipment required for the scheme of work, as well as tips and techniques for aspects of the knowledge and understanding section of the Orders. In the appendix are the photocopiable sheets previously referred to.

The strength of this book is that it provides a framework for the provision of design and technology in primary schools which is easily digested and instils confidence in the reader. The slight weakness is that the some of the assessment guidance is too specific and the under-confident or inexperienced teacher, at whom this aspect of the book would appear to be targeted, would not necessarily be able to make the connections between the examples given and the responses which s/he observes. However, I do recognise that this is a problematic area in which to give guidance, and perhaps the more generalised

## Planning Primary Design and Technology

Roy Richardson: John Murray: £12.99 ISBN 0 7195 7171 Orders: Judith Reinhold 0171 493 4361

Reviewed by Melanie Fasciato, Senior Lecturer, Manchester Metropolitan University

Appropriate content
Pupil/student use
Teacher resource
Visuals
Overall style

Generic use
One of a series
Photocopiable
Pupil/student activities
Cross-curricular

descriptions such as those used in the SCAA Optional Test and Tasks for Key Stage 3 might have been more useful.

Overall I would consider this to be a very useful book for a range of audiences: design and technology coordinators, underconfident newly qualified teachers and experienced teachers who would like to have a ready made scheme of work from which to choose units of work. A book of this size and format (A4, 123 pages) cannot include everything which every teacher needs to know about design and technology, but the design and technology special subject student teachers to whom I showed the book agreed that it would be useful in a school which is still struggling to come to terms with the requirements of the Statutory Orders for design and technology.



### The Food Story

The Food Story video resource pack has been produced by NATHE in association with Wicken Fen Wholesome Foods to support Key Stage 3 food technology, Key Stage 4 GCSE food technology courses and GNVQ Manufacturing. The resource pack consists of the video, plus some supporting information sheets, which also suggest further resources and sources of information on food product development, marketing and retailing. It has been matched for use with the National Curriculum for design and technology and is applicable for use in Scottish Home Economics departments.

The video runs for 32 minutes, providing an extensive coverage of the design and manufacture of a chilled food product. Wicken Fen Wholesome Foods was chosen as a small to medium sized business where the food manufacturing process could be examined in case study style - vegetablebased sausages being the main focus of the case study. The video tracks a food product from the initial concept through its development and manufacture to eventual marketing and sale. The fact that it takes a fairly exhaustive journey throughout this process means that it can either be considered a very thorough tour or one which skates the surface in a couple of places where it would have been better to concentrate on fewer aspects in more depth. In particular, the introduction of a comparison with larger scale manufacturing of dairy products makes for rather disjointed viewing. These are small points, however, and overall the video is successfully constructed.

The pack has been developed as a collaboration between practising teachers and industrialists who have combined their areas of expertise in a worthwhile way. The number of ways in which the video can be used with groups of pupils is diverse. It has been put together so that it may be viewed in sections, with teacher input and pupil activity in between. Suggestions are given for this. There is also a helpful time-line chart provided so that teachers can control fast forwarding and rewind to exactly the point they wish to view, or review, with pupils. The video is very informative about the technical and production details to which it might otherwise be difficult for teachers



and pupils to gain access and is the next best thing to a factory visit. It is a recommended resource for teachers who want to introduce and reinforce concepts of industrial practices, production systems and their control to their pupils in a realistic and relevant food context. The Food Story NATHE/WFWF Industry Links: £30.55 Orders: NATHE/WFWF Industry Links, PO Box 47, Ely, CB7 5GS

Reviewed by Ali Farrell, Technology Education Consultant

Appropriate content	11111
Pupil/student use	11
Teacher resource	11111
Visuals	11111
Overall style	1111
Generic use	
One of a series	
Photocopiable	
Pupil/student activities	S
Cross-curricular	4

### Mechanisms Projects

Phil Thane
First and Best in
Education Ltd:
£12.95
Orders: 01832
274716

Reviewed by lan Wilford, Faculty Coordinator Science and Technology, Thomas Hepburn Community School, Gateshead

### Mechanisms Projects

Mechanisms Projects is a book about mechanisms using cams and levers. It is split into two separate booklets – titled 'Mechanical Puppets' and 'Weighing Machines' respectively – with each covering a different aspect of the topic.

The book clearly outlines two design and make tasks which can be used in Key Stages 3 and 4 or can be modified to suit individual schools and their needs. Both projects have a clear statement indicating the contents of the booklet so that pupils know what they are going to make. This is then followed up by simple background information which gradually expands in content and complexity to allow pupils to progress satisfactorily. Pupils with special educational needs will undoubtedly benefit from this approach whilst pupils with higher aspirations will find the concepts easily adaptable.

The Key Stage 3 mechanism project, which requires pupils to design and make a mechanical puppet, begins with several pages outlining simple levers before progressing to linkages. Further mechanisms are shown when changes of motion are illustrated using cams. This then progresses to a suitable base board on which a puppet or puppets can be mounted followed by a basic methodology for pupils to use as a means of progressing towards designing their puppets. This project can also be extended for the really bright pupils by introducing an electronic application for the movement of the linkages by using Nitinol (an alloy of nickel and titanium ) to make the mechanism work. Finally, after construction has been completed, an evaluation process is given to pupils which is clear, understandable and relevant.

The Key Stage 4 mechanism project is based on weighing machines and takes a similar approach. The earlier work on the puppet is extended with the introduction of torque, moments, suitable linkages, springs, elastic bands, friction and size of pivots. A simple design process is used to steer students through the pathway of the design process culminating in a working drawing of their design. Good advice is given with regard to making, calibration, quality and evaluation.

Pupils can follow these booklets by themselves or can be steered through the pages by their tutors. Both pupil and teacher will find the contents easily understandable, self-explanatory and allowing progression and pace in a lesson. Resources like this which are suitable and photocopiable are rarely available, and this book has the added advantage of being low in cost. The strength of this book is its simple step by step approach to a design pathway which is easily followed by pupils and can be modified and used by teachers in other contexts. It can be used as a firm basis for practical work whilst allowing additional work to be completed for homework.

The content and layout are user friendly – diagrams are clear, uncluttered, practical and understandable, and the style is organised, logical and usable. The one weakness is the need for additional and complementary material.

Having used the book to introduce the puppet project after following a series of simple cardboard mechanisms beforehand, I feel this book achieves its aim.

Appropriate content
Pupil/student use
Teacher resource
Visuals
Overall style

Generic use
One of a series
Photocopiable
Pupil/student activities
Cross-curricular

### **Electronic Building Blocks**

Electronic Building Blocks brings together three booklets, each of which covers an aspect of the design and technology syllabus that can cause problems for many teachers. These are the 555 timer, the 741 op amp and the Darlington Pair.

Delivery of electronics from this book at both Key Stages 3 and 4 can be modified to suit individual schools and may also be used for A-level. Each booklet clearly indicates its contents so that pupils know what they are going to investigate. This is followed by simple background information that gradually expands in content and complexity to allow pupils to progress satisfactorily. Pupils with special educational needs will undoubtedly benefit from this approach, allowing them to build circuits, while other pupils will find the ideas easily adaptable to a higher level.

The 555 timer booklet is not a complete project in itself but rather a series of building blocks. The introduction begins with a basic circuit to explain conventional electrical current flow, illustrated by a pictorial view of the circuit. This idea of circuit building moves onto switches, prototype boards, LEDs and resistors. Further practical work ensues before introducing capacitors and the 555 chips. Once again this is followed by practical work in the form of an astable circuit. Further experiments take place before the monostable circuit is paraded along with some simple work to help understanding. The booklet at this stage introduces a higher GCSE input or A-level usage for the more discerning pupils to use.

The next booklet introduces the 741 op amp in such a way as to make it understandable and usable for Key Stage 3 and 4 pupils. Preliminary work on understanding sensors precedes simple work using them with the 741. Once the initial work is completed an explanation of the events they have witnessed is given to ensure that the concepts have been understood. The initial work is then progressed through other common set-ups, microphones, feedback, schmitt triggers, to circuits using lots of chips or using one LM324N chip. The latter really extends the higher level GCSE student or the A-level candidate.

The final booklet takes the student through the realms of the transistor by introducing BC108, BFY 51, ZTX 300 and the TIP 41 types. Two simple circuits using 741 and 555 chips are given before the introduction of the Darlington Pair. The more discerning students will realise these circuits can be simplified by using BC 517 and TIPP 112 transistors. Finally the ULN 2805 chip with 8 Darlington on one chip is used.

Pupils can follow these booklets by themselves or can be steered through the pages by their tutors. Both pupil and teacher will find the contents easily understandable, self-explanatory and allowing progression and pace in a lesson. It is a resource which is suitable for Key Stage 4 and A-level students and is photocopiable. The content and layout of the book are user friendly and it can be used as a firm basis for practical work whilst allowing complementary work to be completed for homework.

The strength of this book is its simple yet effective approach. Diagrams are clear, uncluttered, practical and understandable. The style is organised, logical and usable.

I intend to use the book as an excellent introduction to electronic projects, along with further supplementary information. I feel this book achieves its aim. It is easy for students to use and the reinforcement of earlier work gives the projects the impetus they need.

### Electronic Building Blocks

Phil Thane First and Best in Education Ltd: £12.95 Orders: 01832 274716

Reviewed by lan Wilford, Faculty Coordinator Science and Technology, Thomas Hepburn Community School, Gateshead

Appropriate content	1111
Pupil/student use	11111
Teacher resource	11111
Visuals	1111
Overall style	1111
Generic use	=
One of a series	=
Photocopiable	=
Pupil/student activities	=
Cross-curricular	

Products and Packages: A Partnership Investigated

Industry Council for Packaging and the Environment: £5.95 Ref: C431/XX/5XX/

G/JG

Orders: 0171 409

0949

Reviewed by Ali Farrell, Independent Technology Education Consultant

# Products and Packages: A Partnership Investigated

This very useful teaching pack has a number of key elements which include photocopiable resource tasks, capability tasks, case studies and teachers' notes. It has been designed for use at Key Stage 3, but would also be appropriate for Key Stage 4. Its aim is to educate young people about the role which packaging plays in the modern world in terms of health, safety, cost, convenience and resource management.

Packaging is a topic with which design and technology teachers and students are often confronted when dealing with product development and manufacture. This resource is useful in two main ways. Firstly it presents a range of industrial case studies and examples which teach students about particular packaging issues. Secondly, the photocopiable student activity sheets provide some excellent focused practical tasks and investigative, disassembly and evaluative activities where pupils are encouraged to do more than a superficial styling exercises around packaging. As the introduction points out, "packaging is a hightech industry, deploying a wide range of design criteria, materials and manufacturing techniques". It is possible, with the help of

this resource, to ensure that packaging is rigorously dealt with as a key aspect of design and making and that cost, appropriateness of materials and techniques and other real factors are considered.

A reasonable attempt has been made within the pack to address some of the value judgements relating to safe disposal and further use of packaging materials, although this aspect would need extension by the teacher to be explored in any real detail.

The case studies, presented in colour on A3 folded sheets, are a particularly noteworthy feature of the pack and take a refreshingly novel approach. Six different types of packaging are featured and dealt with in some detail (e.g. products which are packed to protect and preserve; a product packed to protect and preserve - but with style, a product that would be impossible to handle without its packaging; a product packed to deliver a measured amount of the contents). Information is given about the packaging in relation to the products being discussed and about design, manufacture, distribution, storage and display and safe disposal or further use. A glossary of key technical terms is included.



The Teachers' Notes explain the structure, contents and use of the pack in straightforward terms and with additional teaching tips.

Food and other household/consumer goods are well represented in the pack, as are the use of construction materials for packaging materials, although opportunities to show uses of textiles for packaging have not been developed. There are some areas of repetition and over-complexity in the structure of the pack, which do not work as well as they might, but the content is generally sound.

Overall this is a practical and useful classroom resource which supplements many other design and technology resources currently available. It has been developed by the University of Salford Technology Education Development Unit and Hobsons Publishing for Incpen (The Industry Council for Packaging and the Environment). One pack per school was

available free of charge until October 1996. It can now be purchased at £5.95 from Incpen, who also produce other useful resources on packaging, at Tenterden House, 3 Tenterden Street, London, W1R 9AH. Tel: 0171 409 0949.

A version of this review has previously appeared in MODUS (the journal of the National Association of Teachers of Home Economics).

# The 1997 TEP Summer School July 14th-18th

at

## Middlesex University Technology Education Centre



The third national TEP Summer School is open to all teachers who wish to enhance or update their competence in specific areas of design and technology. The school comprises a series of specialist modules which teachers follow during the day. These cover topics such as:

Electronics, Manufacturing, Desktop publishing, the Internet and CAD/CAM.

This programme is enriched by a programme of early evening lectures by outside speakers, These cover topics ranging from the design of Formula 1 racing cars, the technology of forecasting and presenting the weather to the design and installation of major firework displays. This year one of the guest speakers is Richard Seymour of Seymour Powell.

The all-inclusive residential fee is £
The non-residential fee is £

£500. £330.

This fee covers all the materials and resources required during the week long programme. For members of TEP there is a subsidy of £100 for residential students and £80 for non-residential students.

For more information contact:

Ann Richmond, Summer School Administrator,

Middlesex University, Trent Park, Bramley Road, London, N14 4YZ

Tel No 0181 447 0342 Fax 0181 447 0340 E mail Ann15@mdx.ac.uk

Alternatively visit our web site at: http://www.tec.mdx.ac.uk/sumsch.html

### Working with Materials – Wood Metal Plastic

Colin Chapman and Mel Peace Collins Educational: £10.95 ISBN 000327351 Orders: 0141 306 3455

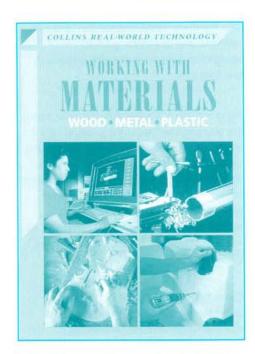
Reviewed by David Foster, Head of Technology, Tibshelf School, Derbyshire

# Working with Materials – Wood Metal Plastic

This is an excellent book. I had purchased the original Lincolnshire text books at the time when we taught CDT and, on initial viewing, Working with Materials - Wood Metal Plastic seemed to be a slimmer volume and obviously couldn't be as good! I was wrong! The technology team in my school was so impressed that we rushed off an order for 50 copies to be used by this year's Year 10 pupils and fully expect to purchase at least as many again for the Year 10 groups next year. The book is thinner but we are convinced that there is a wealth of experience between its covers. It is written in such a way that our students have admitted to reading it and even to browsing through it in quiet moments. It has even provoked some pupils to ask questions that they never did previously! Surely this can't be good for them! It's making them all inquisitive about how things are made and where materials come from. The best thing of all is that some of the group have found some pupils' projects examples and have decided that they might have a go at a recumbent bike themselves. A pile of bike bits is building by the week.

The book is very well presented with an excellent balance of colour photographs and clear diagrams. It is obvious that the authors, Colin Chapman and Mel Peace, know how to capture the interest of pupils from across the ability range. I know that this is true because I have seen it working. The book is approved by the Technology Enhancement Programme (TEP) and by the Midland Examining Group to support the teaching of their design and technology syllabuses.

One of the biggest problems that I find is the organisation of appropriate industrial visits during the GCSE design and technology course. On our last visit we watched a tapecontrolled flame-cutting machine slicing through 100mm plate steel and leaving a superb finish. The machine operator gave us a strip of tape as we left. Page 14 of this book explains how to understand what all the holes mean! It was fascinating to read of the manufacturing processes that occur at exemplar firms like Walker and Preece who explain how they make joints in wood using special power tools. Similarly, Richard



Pullen, a jeweller and silversmith, is used to illustrate the processes involved in the manufacture of a silver plate chalice.

Plastics too is well catered for with excellent, clear photographs of the main processes all explained in sufficient detail. Industrial examples are included as appropriate and include blow moulding and injection moulding examples.

A good book is 'unputdownable' I once read. This is such a book. The enthusiasm that the pupils have for the book Is obvious. They have one complaint though. They say that they find it difficult to resist dipping into all sorts of areas in the book when they intended to look for a particular piece of information. Colour photographs and simple effective diagrams are used on every page. My pupils find themselves reading about more than they intended simply because of the style and the ease with which the content is explained. I can only 'forgive' them for this since I know only too well that they will absorb more than I ever imagined (and hoped for!) as we use it as a class resource. I cannot recommend it highly enough.

Appropriate content
Pupil/student use
Teacher resource
Visuals
Overall style

Generic use
One of a series
Photocopiable

Pupil/student activities

Cross-curricular

### Engineers in School

This is a very comprehensive and useful resource handbook. It has been designed by The TELS partnership, a forum for engineering, science and technology activity in the West Midlands, as a 'Guidance and reference "aide" for Engineers and Teachers working in partnership in the West Midlands'. The forum includes The Engineering Council and SATRO.

It contains a wealth of information in 16 sections as follows:

A The TELS partnership

B The engineer in schools

C The engineer's guide to the curriculum

D The engineer working in the curriculum

E The engineer and special events/activities

F The engineer and experience of the working environment

G The engineer and the local partnership network

H The engineer and national awareness schemes

I The engineer and accreditation awards

J The engineer and presentations in schools

K The engineer and careers conventions

L The engineer and engineering careers choices

M The engineer and the school library

N The engineer as mentor

O The engineer and mock interviews Appendix

This handbook is aimed mainly at the engineer who wishes to be a coordinator or member of a schools/industry link team, particularly science, maths and technology. It is designed to offer guidance and support and to give insight into the education system, particularly at school level. In Section C, for example, advice is given as to how the 'Partnership between industry and education will help pupils acquire the ideas, skills and attitudes they will need in work'.

However, while the title and contents of the handbook might appear to suggest 'for Engineers Only' there are ideas and suggestions which would make it a valuable resource for any person, industrialist or teacher, interested in industrial/business links in schools. For example, Section F concerns experience of the working

environment which includes a 'Code of practice for work experience' and 'How the quality of (Work) experience can be improved'.

Obviously, this is not a book for students although there are references to various projects which may be used for presentation to students. These are dealt with in Section D where there is a particularly useful set of notes available for an 'engineer' making a first presentation to students!

Of particular interest for those involved in technology, science and maths, is Section H which deals with 'The engineer and national awareness schemes'. This includes WISE (Women into Science and Engineering), INSIGHT courses for girls, the Technology Enhancement Programme and the 'Engineering Education Scheme', all of which were designed to encourage students to take up engineering as a career.

This is a comprehensive handbook which really ought to be considered as a reference guide for any school/industry (with special reference to Neighbourhood/Link Engineering schemes) which might be considering, or already have in place, such a scheme. It is very easy to read and to follow. There are no 'essays', just simple guideline notes, advice, recommendations and suggestions which avoid unnecessary padding. There are few diagrams and all are straightforward and easy to follow.

The handbook is a hard backed, four ring binder (for updating and amendments) and printed on A5 100gm paper to make it more durable.

It is expensive at £25 but it is intended as a reference book and therefore will not be needed as a class set!

### Engineers in School EnTra Publications: £25 Orders: 0161

4805285

Reviewed by Richard Foulger, Coordinator for KS4 and Post 16 Technology, Hove Park School, Brighton

## **Guidelines for contributors**

The Journal of Design and Technology Education is the professional journal of the Design and Technology Association. DATA is a recognised professional association which represents all those involved in design and technology education. The journal provides a forum for the exchange of views on design and technology education and welcomes contributions to all sections.

The journal has three sections:

- · Research
- · Curriculum development
- Reviews

All contributions should be supplied as word-processed text on disk, preferably in an Apple Mac or IBM-compatible format, with a hard copy, double spaced. Where possible, graphics, tables and other illustrations should also be supplied on disk. The author's name, title and contact details should also be stated, as well as the section for which the article is intended. Contributors should contact DATA for further information before submitting material as additional quidance is available.

#### Research

The research section of the journal is refereed and the normal academic criteria will apply. An abstract of 100-150 words must be included at the start of each paper, as well as six key words for indexing. Papers should usually be between 3,000-5,000 words though in exceptional circumstances papers of a maximum of 8,000 words will be considered. Footnotes to the text should be avoided where possible but, if essential, should be placed at the end of the paper. Full references must be supplied in the following standard forms:

GRONLUND, N. E. and LINN, R. L. (1990). Measurement and Evaluation in Teaching (6th edn) New York: Macmillan.

ROBERTS, T. (1991). 'Gender and the influence of evaluation on self-assessments in achievement settings', *Psychological Bulletin*, 109, 2, 297-308.

The research papers in the Journal of Design and Technology Education will emphasise the provision of a better understanding of design and technology and the improvement of the quality of design and technology education in schools, colleges and universities.

### Curriculum development

This section has a number of sub-sections focusing on particular areas (primary, secondary, initial teacher education, special needs, etc) although some articles may be relevant to more than one area. The section contains reports of a less formal kind on developments in and aspects of interest to those involved in design and technology. Please send a short synopsis (about 150 words) in advance to see whether your article is likely to be of interest.

Contributions should be written in straightforward language and an informal style and should identify with a particular audience. Articles should be 1,000-2,000 words long and full references should be supplied where appropriate, including details of any material and equipment mentioned. Six key words must be supplied for indexing.

Please include photographs where possible. Any illustrations (planning sheets, pupils' work, etc) should be on separate sheets, clearly labelled, and should be as clear as possible to assist reproduction.

Where possible please keep a copy of the article and supporting material since the editor takes no responsibility for material which may be lost in the post.

#### Reviews

This section reviews books, software (including CD-ROMs), teaching resources and special events.

Reviews should be 500-800 words long and should follow the format outlined below. They should include a description of the book/resource and its intended target and should evaluate:

- · the content of the book/resource
- its effectiveness in catering for its target audience
- · its value to the user
- its capacity to support pupils and/or teachers
- its particular strengths and any weaknesses.

Book reviews should also include an evaluation of the language and physical form (design and layout, illustrations etc) of the book.

#### Other contributions

Contributions are also welcomed for the following regular sections:

Personal perspectives – these should be about 800 words, giving your views on design and technology issues.

Letters – These should be short and punchy, and should clearly state which article/letter they are responding to, or to which issue they refer.

Noticeboard – Information on conferences and other events, initiatives, etc.