

Using Teaching Aids in Primary School

Introduced by
Prof. Clare Benson, UCE

Liz Smart

Anglesey School,
Birmingham and
Richard Pearson
All Saints C of E
Primary School,
Warwickshire

The photos included in the article show some of the end of course displays from a variety of participants.

Abstract

As teachers have experienced greater pressures on their time, effective time management has become increasingly important. Priorities have to be identified and some activities that used to be carried out have had to be curtailed. Evidence from teachers' courses suggests that the making of teaching aids and support materials for design and technology has certainly been curtailed, at best, and not carried out at all in many cases. During a 10-day INSET course, teachers were given the opportunity to make a range of teaching aids and to present them in a variety of ways, appropriate to the needs of their schools. Liz Smart discusses the teaching aids she produced and Richard Pearson explains his rationale for the use of teaching aids.

Introduction

From research carried out amongst teachers attending the 10-day DATA inset courses run at the University of Central England in Birmingham (UCE) and Bromley, London, it is clearly evident (98%) that the making of such materials is felt to be crucial to the improvement of standards in school both for other teachers and for the pupils. During the course, teachers are given many opportunities to make a range of teaching aids and to present them in a variety of ways, appropriate to the needs of their schools. For example, they can make models that can be used to help understanding of a range of structures and mechanisms, of finishing techniques, and of step-by-step instructions to enable the pupils

to learn a new skill. They are presented in the form of models, folders, 3D displays and resource packs.

Whilst making the aids, the participants are developing their own practical skills through focused practical tasks, and gaining a real understanding of designing, of how things work, how they can be put together, and the problems that colleagues and pupils will encounter back in their schools.

At the end of the course, all participants create a display of their aids. Colleagues from all schools, heads, advisory teachers and inspectors are invited to the display and it provides a valuable resource in itself. As part of an assignment, the participants have to write a rationale for their end of course display and the two rationales that follow show two different approaches that participants took. Whilst readers might not have the time to complete all the ideas, it is hoped that some time may be available to create the most important ones needed for your school.

Liz Smart

I have tried to manufacture my resources to be as 'user friendly' as possible. Where appropriate, I have made sure that they are robust, easily accessible, attractive to the pupils but will encourage disassembly skills, or are suitable to be copied by staff or pupils in focused practical tasks (FPTs). For each aspect of design and technology, I have created a 'working file' containing relevant worksheets and ideas for FPTs and design and make assignments.



General Planning QCA – Key Stage 1

This folder contains various articles concerning the management and organisation skills needed to teach design and technology at Key Stage 1. The articles include safety issues and guidance for naming, and safe use of, tools. There are several suggested format sheets for task planning as well as copies of the DATA Helpsheets for Key Stage 1. I am hoping that this will be a useful starter point for non-specialist staff and classroom support. I have also now got a copy of all the QCA documents and record sheets, which will be invaluable when planning new schemes.

Designing and drawing skills

The contents of this folder are designed to aid staff and pupils as they discuss initial design ideas and to give staff information on how to help the pupils visualise and record their ideas and plans. Recent experience in the classroom has highlighted that although staff and pupils are keen to get involved in design and technology projects, it is still not viewed as a 'complete' process. Staff and pupils found it difficult to draw their 'ideas' and did not appear to grasp the concept that what they designed initially, had to have some relevance to the finished product. I feel that this could be improved by INSET training for the staff. The pupils need to have more experience of complete design and make assignments (DMAs). So far, design and technology within the school has been taught more as a series of FPTs with more emphasis on the finished product rather than the skills gained in the whole process. I am hoping to redress this balance by better planning and support in the future.

Joining and finishing techniques

This folder is aimed at demonstrating to staff different ways of joining and finishing materials. This will enable pupils to develop necessary skills while carrying out FPTs. The pupils need to develop skills of trying and testing different methods of joining and finishing various resistant materials and textiles. The folder contains ideas for working with paper and card as well as fabrics. It also contains ideas for decorating and finishing products and display. The pupils really need to develop skills for the appropriate use of glue and how the different joining methods will affect the finished product.

Paper and card engineering

Paper and card are an ideal early resource for Key Stage 1. They are usually fairly cheap and versatile to use. This folder contains many ideas for DMAs and FPTs that can be easily adapted to fit in with cross-curricular activities. Paper and card are a resource that staff and pupils often feel confident in



handling and can produce a quality, finished product fairly easily. Hopefully this folder will generate more ideas and expertise, which will promote confidence in design and technology skills throughout the school. Paper and card are a good way of introducing simple mechanisms and showing pupils the principle behind different types of movement.

Simple mechanisms for models

Having made the sample lever pack, it was difficult to find a way of displaying it to ensure relevance and possibilities for application by non-specialist staff. The folder seemed an ideal way of protecting the resources but allowing them to be used by staff and pupils for different projects. The working models I have made to accompany this folder are:

- Incy wincy spider (simple winding mechanism and levers)
- revolving cat (use of turning movement and a simple cam in a recycled card box)



- margarine tub face (winding mechanism using a moving axle attached to a cardboard tube)
- tortoise with moving head (this model is faulty as the cam falls off the fixed axle. This will be good for demonstrating the need to have only one part of the model rotating and different ways of attaching axles and wheels.)

The models demonstrate to staff and pupils different types of movement and ways of controlling and utilising the movement. The pupils will initially use construction kits to model the movement of the mechanisms. This folder also contains more ideas for control, including information on electricity. The 'model face' highlights some simple methods of control and has all the wires of the circuit clearly visible to assist with disassembly skills.

Making wheeled vehicles

Transport is one of the key areas currently covered by topics in the school, therefore I felt it was very relevant to create a folder to cover vehicles. The folder contains all the necessary information and planning sheets to carry out a quality design and make assignment. The models I have made to accompany this folder are ones demonstrating different ways of attaching wheels and a simple wooden frame showing construction using timber and card triangles.

Textile technology

This folder gives details of general ideas for textile technology including embroidery skills, puppet making, and techniques for dyeing. The models I have made to go with this folder are a set of finger puppets displayed on hands as well as samples of the different textile techniques. I feel that teachers under use tie dyeing and batik technology in Key Stage 1 because of organisational skills and safety implications. I hope to address this when I rewrite the scheme and planning.

Food technology

Food technology is carried out currently in school, but as with other areas, at present tends to focus more on FPTs rather than linking it to a design and make assignments. I hope to introduce the QCA plan into school and support staff to enable them to follow through a complete programme with the pupils and teach a range of skills and techniques.

Structures

I learnt a lot from this session and have made a structure model display, a selection of different shelf brackets and a variety of photograph frames. I hope to use these to promote other activities within the school. Although under the new orders structures do not now have their own area, they are very much part of any design and technology activity and therefore I feel that it is still relevant to have a separate folder to demonstrate different techniques.

The folders are designed to be ongoing and updated or changed where necessary. Hopefully with better insight and training we can improve the quality of design and technology currently offered at school.

Richard Pearson

Rationale for the Use of Teaching Aids in a Primary School

This rationale will look at the types of teaching aids produced on the 10-day design and technology course and how these teaching aids can be used at All Saints Primary School.

'Children learn from everything that happens to them and the classroom environment is a tool for the teacher to use.' (Dean, 1995)

During the course I was given the opportunity to produce a variety of teaching aids which I would categorise into the following types:

- interactive displays - how things work
- information displays - how things are made
- exemplar models - what finished quality products can look like
- practical teaching aids - step-by-step procedures.

'It is important that displays are often interactive and 3D in nature.' (Ager, 1997)

The interactive displays showed how different switches made a bulb light and how pulley systems work. They were specifically designed to allow pupils to experiment by changing wire connectors to use different switches and moving elastic bands to change the direction of pulleys (cotton reels). These displays have already been mounted in the school library since they were made and have created a considerable amount of interest amongst both staff and pupils. By their very nature these displays have suffered some minor damage i.e. wires coming loose, but have proved quite robust which indicates a quality finish. In future I will encourage staff to use these displays when they are introducing a new design and technology topic. For example, Year 4 'Lighting it up', especially when teaching focused practical tasks.

'Children learn best when there is a sense of purpose, a degree of motivation and when their work is grounded in first hand experience.' (Baynes and MacIntyre, 1990)

I particularly enjoyed making the information displays, joining and finishing techniques in wood and card, and have decided to choose these for my display at college. The reason for

this is because the staff at my school were not confident in their own knowledge of the basic techniques and I will be starting with these joining and finishing techniques in two INSET sessions planned for this term. I shall use these to explain FPTs and allow the staff the opportunity to produce examples for themselves, to gain the experience and also to give them guidance as to how they should introduce FPTs to their pupils. From this I hope the quality of work throughout the school will rise above the level of 'junk' modelling, though I am conscious that this will involve more INSET.

'The teacher sets a standard of displaying work and teaching material which will be reflected in the children's own work.' (Dean, 1995)

Having the time to build examples of work for display and teaching purposes has been one of the most beneficial aspects of this course. It is important, especially in schools where there is a lack of pride amongst the pupils, to use exemplars that show how good quality products can be made. This must act as a beacon to staff and pupils to raise the general self-esteem and standard of work, not only in design and technology, but also in other areas of the curriculum. It could be argued that all of the displays made are exemplars of good work but I would specifically use the model vehicle construction using the Jinks method because it demonstrates a completed design and make assignment. As Bentley and Watts state,

'Displays not only make the environment interesting they also convey messages about the ethos of the school.' (Bentley and Watts, 1994)

Finally I would identify those teaching aids that give step-by-step instructions for the pupils to follow, for example 'How to make a Finger Puppet' made on the textile day. These can often replace the worksheet and serve to focus the pupils' attention onto the task. With pupils who have low reading ages, the need for clear and precise instructions with little writing becomes a necessity and a display like the one mentioned above becomes a useful tool for any teacher to use.

In conclusion I see the teaching aids produced on the course as being a valuable tool for all staff to use to enhance the teaching of design and technology. They also serve as a means for the design and technology subject leader to run INSET so that staff confidence and competence can be raised throughout the school.

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