

Using a published scheme for Key Stage 3 design and technology

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This article details the way in which one school developed and implemented its Key Stage 3 curriculum by working from a published scheme – in this case the Nuffield materials. The account highlights:

- the importance of the departmental team establishing their own guiding aims and principles in advance of looking at the published materials
- the value of providing quality professional development for the teachers and quality time for planning and development
- the importance of including, from the outset, implementing, monitoring and evaluating procedures in the agenda

A context for development

The school had been unable to appoint a coordinator for the introduction of design and technology in the early days of the National Curriculum. The result was an absence of direct management for the Key Stage 3 curriculum. This had led to a situation where there was a disparate approach from staff and wide variations in the experience of the students. The result was frustration for a very capable, young staff and students failing to make progress and achieve their potential. The appointment of a coordinator for Key Stage 3 design and technology in 1994 was seen as the first step in resolving the problem. A major priority was to develop a scheme of work for the key stage which would harness the energy and enthusiasm of staff and enable students to regain a sense of purpose and enjoyment in the design and technology curriculum.

Why Nuffield design and technology?

The team believe it is crucial that the curriculum reflects what we value most in design and technology education.

Three key elements of our values are:

- pupils should enjoy quality, practical experiences of designing and making

- pupils should develop the attitudes and skills for solving problems
- pupils should develop an appreciation and understanding of design and technology activity in its wider social and human context.

We believe that the Nuffield approach enables these values to be addressed through a simple and effective pedagogical model in which pupils can acquire knowledge and understanding; learn, practise, and apply skills; and have the opportunity to debate the place of design and technology in society.

Introduction through INSET

The Nuffield Design and Technology INSET Guide and the related introductory session on the Nuffield approach had enabled the whole design and technology team to develop an appreciation of the approach and the supporting materials. Once the team members were familiar with the structure of resource tasks¹ and capability tasks² we agreed that it would be valuable to apply the approach throughout Key Stage 3.

A time and a place for planning

As soon as we decided to make a major development to the Key Stage 3 curriculum we made a bid for a department planning day. We were successful in getting cover for the whole department but had to wait until July which proved rather late for being prepared for a September start. However, it gave us time to plan the day to achieve the maximum benefit. We persuaded a local company to host us for the day in their conference facilities as well as provide us with a great lunch! Getting away from school was vital in order to concentrate on the job in hand with no disturbances. The good facilities reinforced the value we put on the day and provided an environment which enabled us to work efficiently and effectively.

Focusing the task

A resistant materials/control specialist and a textiles/food specialist reviewed the existing schemes to identify those that were working well. As it happened there were very similar capability tasks in the Nuffield material to

these good existing schemes. It was felt that good work should be built on and the extra workload of new schemes should be kept to a minimum. The Nuffield Teacher's Guide was then useful in identifying other capability tasks which would provide a broad and balanced design and technology curriculum for Key Stage 3. We felt it would be much easier to make these decisions in a small group rather than using valuable time on the planning day debating the pros and cons of the numerous capability tasks on offer. It also meant the team had a chance to look over the capability tasks selected in advance of the planning day.

Partners in planning

We booked David Barlex, the director of the Nuffield project, to work with us on our planning day. Getting the director himself to come added weight to the importance we attached to the day which sent a clear message to senior management. We invited our line manager from the senior management team so that she could contribute to the development process and also be made more aware of nature of our work. We also invited both our part-time technicians in order to benefit from their experience as support workers and parents. Finally, we were delighted that two of our hosts joined us in the planning groups which added an industrial and commercial perspective.

Resources

Having decided to use the Nuffield approach we made the purchase of the support materials a priority in our department budget. We managed to purchase a set of 10 Student's Books for each teacher and made a curriculum bid for the money for 10 Study Guides for each teacher. For the planning day it was essential to have four copies of the Task files and the Teacher's Guide.

The planning day

We started the day with a summary of the new order for design and technology in the national curriculum. This provided a context for the development work we were going to do on our schemes. We then had an overview of the Nuffield approach from David Barlex. This was extremely valuable in providing those members of the team who

were not as familiar with the approach with an insight into its potential. It also raised our expectations of what we and our pupils could achieve.

After the break we then worked in four teams of four, dissecting the Nuffield capability tasks and reworking them to meet our requirements. We used the Nuffield format for describing projects and teaching sequences but wrote our own version that was tailored to our timetable, to our resources, and to our liking.

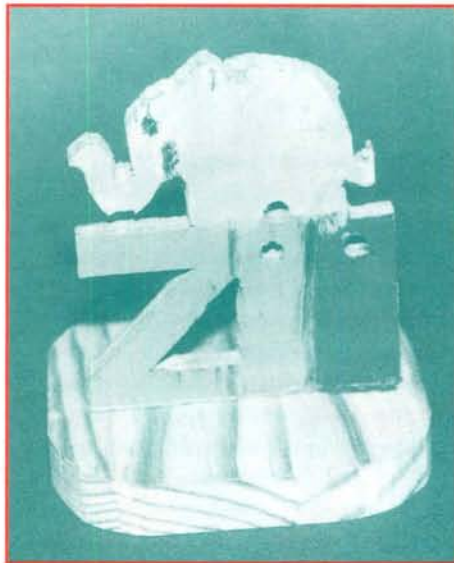
For example, we developed the Nuffield capability task Novelties Incorporated for a Year 7 project in resistant materials. We had 24 lessons of 70 minutes for this project. It had to provide our Year 7 pupils with basic skills and knowledge of resistant materials and processes. We also wanted to make sure Year 7 pupils were thoroughly hooked on design and technology by the end of this project.

The first 12 lessons are spent doing resource tasks in resistant materials. We looked at the suggested resource tasks in the capability task and selected one which introduced pupils to wood and plastics and enabled them to make a container in three lessons. We adapted it slightly by getting the students to vacuum form a lid for the container. We selected a second resource task in which pupils made a picture frame in acrylic. This was adjusted to cut down on the use of resources and, in the light of experience, has been altered again to make a large paper clip. Finally, we developed a simple resource task of our own in aluminium to introduce some simple metalwork. So, by half term, the pupils had taken home three simple artefacts and learned a considerable amount about wood, metal and plastics and how to work with these materials.

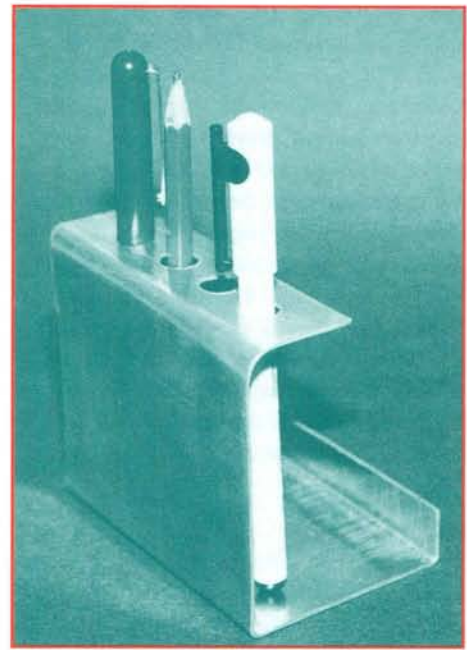
The following 12 lessons are devoted to the task of designing and making a gift appropriate for sale in a zoo gift shop. We draw heavily on the strategy resource tasks and the student book to introduce pupils to the identification of needs and wants, design briefs, specifications, brainstorming and simple graphics.



The results of resource tasks to help pupils develop basic skills in working with wood, metal and plastics



By lunch we had managed to produce the rough outline for all four Year 7 projects. After lunch we worked on the Year 8 projects so that by the end of the day the team felt that the bulk of the work had been done and were considerably more familiar with the Nuffield approach and the supporting materials. In the remaining weeks of term the Year 7 and 8 schemes were polished up and during the summer the schemes and the accompanying resource tasks were typed, copied and sent to the team so that everything was in place for September.



Detailing the teaching

Alongside the introduction of the Nuffield approach we have also introduced a new implementation model. In line with our belief that pupils need continuity of approach and staff need knowledge of pupils in order that pupils can work at an appropriate level and make progress we have attempted to keep the number of design and technology teachers any one pupil meets in a year to a minimum.

We were in the fortunate position of having three members of staff already teaching right across the material range so it was relatively straight forward to make sure such staff stayed with a group for the whole year. Three other members of the team were keen to develop their skills in new materials such that they could teach a Year 7 group for the entire year. These three members of staff have provided each other with mutual support and professional development. This model of implementation ensures that students see design and technology as an integrated subject with the same approach being taken regardless of the material. It also ensures that staff develop a good knowledge of individual pupils thus enabling them to provide differentiated work to match abilities.

Monitoring and evaluating

As this article goes to press the first projects are being completed. The signs so far are

that pupils and staff are benefiting from using the Nuffield approach and the new model of delivery. The Year 7 pupils who took three products home by half term certainly had no doubt about which subject they enjoyed most at secondary school! As staff now see groups twice a week on the same project they get to know the pupils much quicker and the more intense experience of the project enables pupils to achieve more. We are about to undergo our first review of the schemes. Each scheme has had its teething problems and we hope to learn how to make sure these do not happen next time round. Some resources tasks have worked better than others and some adjustments will be made. Some staff have found it all too easy to over run on some resource tasks and these need to be looked at to see how the time can be used to maximum benefit. We are also canvassing the pupils' opinions of the projects. One of our aims is that pupils enjoy their design and technology education

so their opinions of the project are important to us particularly as they may highlight advantages and disadvantages that we do not always perceive.

Notes

1. Resource tasks are short focused activities designed to teach pupils specific knowledge and understanding, design strategies or making skills.
2. Capability tasks are broader more open tasks in which pupils have to design, make and evaluate a product

References

Barlex, D et al (1994) Nuffield D&T INSET Guide, Longman.

Barlex, D (1995) Nuffield Teacher's Guide, Longman

Barlex, D et al (1995) Nuffield Design and Technology Student's Book, Longman

Barlex et al (1995) Nuffield Design and Technology Study Guide, Longman

Task Files

Barlex et al (1995) Nuffield Design and Technology Resource Task File, Longman

Barlex et al (1995) Nuffield Design and Technology Capability Task File, Longman

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