Using a published scheme for Key Stage 3 design and technology

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

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 tasks\(^1\) and capability tasks\(^2\) 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

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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 straightforward 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

Task Files

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