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# Designing and Making in Nottingham Primary Schools

*Below: Two infants using a brace for boring axle holes.*

*Bottom left: Infant work on bridges.*

*Bottom right: Middle Junior design graphics.*

In January 1984 Nottinghamshire's Curriculum Development Support Service (CDSS) launched a two-year project to support Craft Design and Technology (CDT) developments in Primary schools. Now, at the end of this initiative, much has been learned about the role CDT can play in the education of children at primary school. The CDT primary pilot project was initiated by the County Advisory and Inspection Service in partnership with the CDSS and responded to enquiries from schools throughout the County.

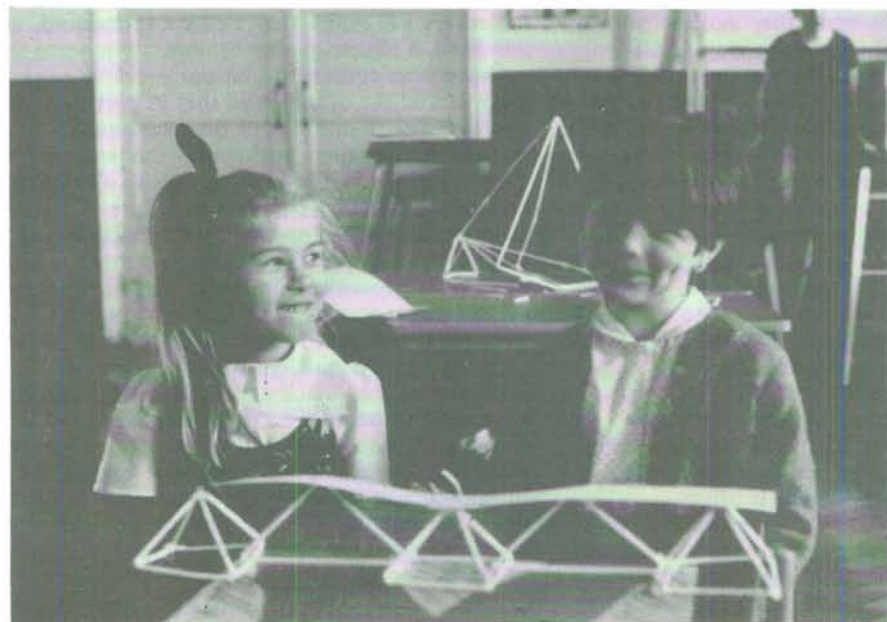
As CDT teachers with the CDSS, we were appointed to the project and 18 schools were

selected from applications, each nominating two teachers to 'link' with the project.

Given our Secondary CDT backgrounds, we were naturally aware of our limitations in primary classrooms and we took pains to make this known to our primary colleagues. Fortunately for us they had parallel misgivings about their own abilities to cope with Craft Design and Technology. This put us on an even footing and the project was established as a co-operative venture in which we pooled our ignorance as well as our knowledge. Later on we even changed the name to 'Designing and Making' so that there was a clear distinction between the practice as seen in secondaries and what was now developing in the project schools.

After the formal launch of the project, we began a weekly series of half-day in-service sessions to introduce primary colleagues to Designing and Making practice. These were held at Teachers' Centres in ordinary rooms equipped with tables, not work benches, so that conditions matched those in most primary classrooms. They usually developed into pretty noisy affairs at which an enormous amount of work was done and we became used to joining our colleagues crawling around the floor in pursuit of errant vehicles or standing on a table to complete the top of some unlikely structure.

The project in-service sessions were a lot of fun but the majority of the work took place in schools. This took the form of discussions about the nature







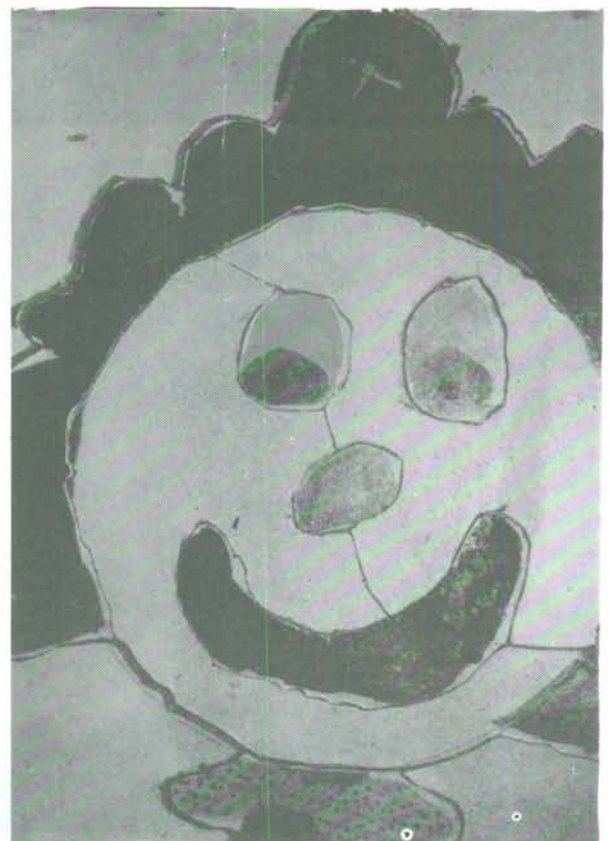
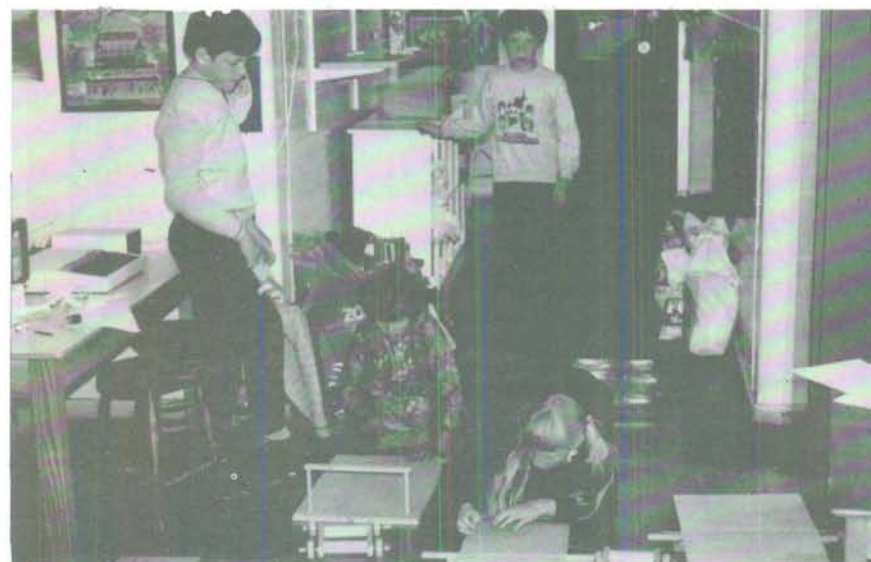
Left: Lower Junior work on moving vehicles.  
Centre Left: Display of Infant vehicles.  
Bottom left: Middle Juniors testing vehicles.  
Below right: Infant work on jigsaws.



and philosophy of primary practice and CDT in order to discover where they met, and the sharing of planning and teaching of Designing and Making activities in the classroom.

Primary classrooms were a whole new work to us; for sheer sustained activity there is nothing to match a room full of infants in top gear. After the initial culture shock, we found much that was familiar; primary practice does not over-emphasise content based learning and, like CDT, it is more interested in the process of learning. Primary children from nursery up are used to being free to explore materials; they are accustomed to open-ended enquiry. Children often work together in small groups with important effects on their social development and use of language. These and other characteristics of primary practice make it a very fertile environment for Designing and Making activities to take place.

From our discussions with the project link teachers it became clear that the most appropriate context for Designing and Making in the primary curriculum is Topic work. Teachers found that their children's Designing and Making enhances the development of those major concepts and worthwhile ideas being promoted through the Topic. The placing of Designing and Making within a broad thematic context gives the activity a relevance that is difficult to achieve when starting at the 'design brief' level. For example, top juniors







*Left: Two Top Juniors developing ideas on levers and linkages.*

*Centre left and bottom left: Infants with their moveable animal models.*

*Below right: Infants testing vehicles (card, net and cotton reels).*



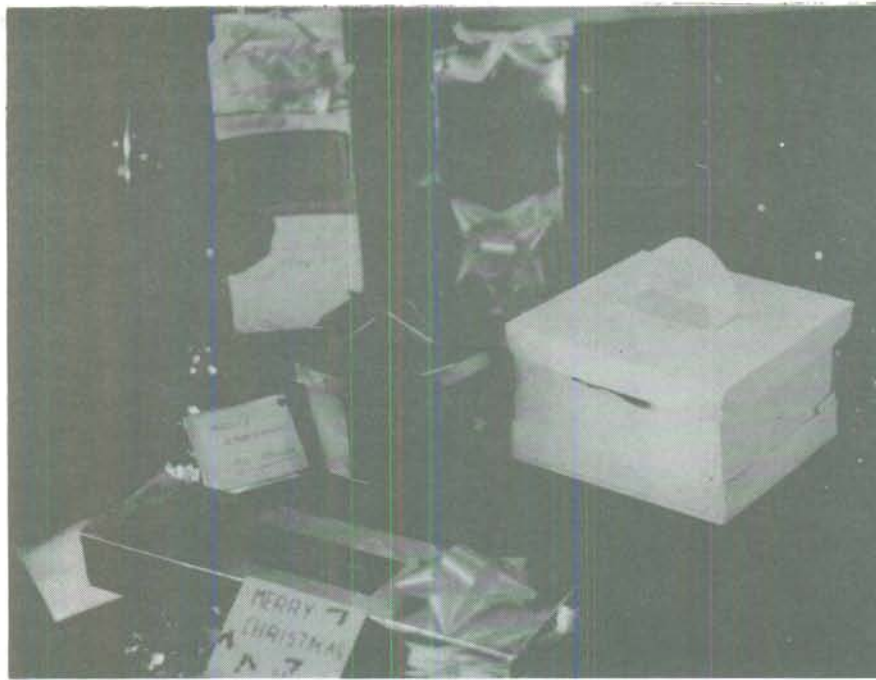
working on a topic of 'Food' designed and made balances measuring down to 0.1 grams when the scales available were not sensitive enough to illustrate the quantity of additives in food. The need for improved methods of weighing came from the children's growing understanding, not from the teacher.

The project was able to supply each project school with quite an extensive tool kit to allow them to pursue whatever kinds of Designing and Making activities teachers found appropriate. When we delivered these kits to schools we were surprised when some teachers found them threatening and these colleagues only became reassured as the project progressed. Some did find them immediately attractive and all have subsequently found the wide range a liberating, not an inhibiting, factor.

Experience has shown which tools are most useful and we would now recommend a different and rather smaller set to help schools beginning Designing and Making. Only those tools requiring a strong wrist proved unsuitable for primary children; watching a pair of infants operating a full-size brace perfectly comfortably gave us pause for ergonomic thought. For safety reasons no edge tools were included. Hot glue guns proved invaluable for rapid constructions and the children quickly learned to use them safely. Our primary colleagues' limited craft experience has not proved a significant handicap. Perhaps the closeness of their







*Left: Infant's jigsaws: the finished products!  
Centre left and bottom left: Lower Junior: moving greetings cards.  
Bottom right: 4th year Juniors with steerable coke-can vehicles.*



own learning experience increased teachers' understanding of the children's point of view.

Information about sources of appropriate materials and resources has been compiled throughout the project. Timber off-cuts and empty coke-cans do have an important part to play, but there is also a need for small electric motors, a lot cheaper than the ones in the catalogues as well as centimetre-moduled sections of planed timber, battery clips, wheels and a range of other useful bits and pieces. Primary teachers are justly famed for their ability to improvise from squeeze bottles and yoghurt cartons but with a very few extras they can extend the children's experience of Designing and Making significantly.

Information on materials and resources has been collated into a database which will continue to be updated by a group formed from project teachers and their secondary CDT colleagues, who, of course, need these things too.

Working this closely with primary colleagues and children has given us fresh perspectives on our own teaching and our views on children's learning through CDT. There is no doubt that young children can design, and their relative freedom from preconceptions often leads them to perfectly satisfactory solutions that an older person would simply fail to see. Looking for a way of pumping water uphill, a lower junior child brought from home a lilo airbed inflator, stood it in a bowl of





*Middle Juniors: moon  
buggies.*





*Below: 4th Year Juniors with steerable coke-can vehicles.*

*Bottom: Vehicles taking part in East Midlands Young Scientist competition at Trent Polytechnic, Clifton, 1985.*

water and treadled it. She had correctly identified it as a pump for fluids, not just for air as an adult might have seen it. (Having to get your foot wet should be regarded as being an additional advantage over other methods . . .)

The amount of Designing and Making activity which takes place within a Topic will vary depending on the orientation the teacher chooses so that in some Topics Designing and Making is the main theme of the children's work whilst at other times it makes a much smaller contribution. For

example, during a class Topic centred on 'Transport' the children might visit a nearby Roman road, examine local road systems and their historical development and undertake research into many other aspects of 'Transport'.

As well as writing, illustrating, modelling and discussing there are clearly many opportunities for technological activities offered in this Topic. The most obvious of these include traffic control by switched lights, bridge structures and vehicles powered and controlled in various ways, the teacher selecting whichever activity will most effectively enhance the children's conceptual development. The pictures show children in several project junior schools doing technological work of this kind.

The Designing and Making element may not be the teacher's main concern, but might allow the children to extend their experience. For example, infants thinking about the suitability of gifts for other people, in a topic on 'People', designed and made jigsaw puzzles to give away. The children had to make some initial decisions concerning the appropriateness of the picture and the complexity of the pieces, before testing and evaluating their first attempts. Subsequent re-design led to puzzles suitable for elderly relatives with arthritic hands, or very young children in the pre-school playgroup, as well as for 'average' people. The pictures illustrate children working on the puzzles.

These two examples demonstrate the ways in which Designing and Making can play a significant part in the educational experience of primary school children. The first showed work in which design and technology were especially important, whilst in the second design and craft predominated. The elements of craft, design and technology have, however, appeared in work throughout the whole primary age range within the project, at levels appropriate to the children's ability.

Having begun the project wary of offering a package of secondary practice to our primary colleagues, we finish it wary of doing the reverse. The structure of primary teaching creates a learning environment different from that in secondaries and practice is not necessarily transferable. Nonetheless, there are lessons for us, as CDT teachers, in the ways our primary colleagues are enthusiastically integrating Designing and Making activities into their classrooms.

From the work of the project we have come to recognise that the process of design, make, evaluate and re-design is fundamental to our culture and that all children should have the opportunity to participate in it throughout the period of compulsory schooling.

Reports and project documentation are available from:

Curriculum Development Support Service  
Mundella Centre  
Green Street  
The Meadows  
Nottingham NG2 2LA  
0602 860232

