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Teaching Food Technology in the Primary School Curriculum

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Abstract
This paper will explore a number of key issues surrounding the teaching of food technology in primary schools ten years after the introduction of design and technology in the National Curriculum in England and Wales.

The issues covered include the teaching of food before the introduction of the National Curriculum and the situation following its implementation. The paper will draw from findings of a small-scale research project into food technology in the primary schools of a local authority and the work of The Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA). Reference will be made to the results of a trial by PGCE and BA QTS primary students of a food technology unit from the Nuffield Primary Design and Technology Project.

The paper finishes with a summary concluding that a range of resources are now in place to support the development of food technology in a large number of primary schools.

Key words
food technology, primary design and technology, Nuffield Primary Design and Technology Project, teaching resources

Prior to the introduction in England and Wales in 1990 of National Curriculum design and technology, food activities in primary schools were generally limited to ‘fun’ sessions taught by ‘mums’. In the early days there was considerable debate about the place of food technology in design and technology (Newton, 1990; Moran 1990; Martin and Coleman, 1991). Despite these concerns, Ridgewell (1992) reported that primary teachers were using food as a material in their design and technology activities.

Preliminary findings
Ridgewell found that the key issues raised included food hygiene and the organisation of food activities in a primary classroom. She reported that the children thought ‘food is fun’, but noted that primary teachers needed help with safe food handling and the choice of equipment. Ridgewell commented that one of the major differences between secondary and primary food work was the lack of purpose-built primary food rooms, with teachers expected to teach food activities in a multi-purpose primary classroom. She highlighted the need to handle food in a clean environment, short- and long-term storage of food, protective clothing for children and adults, and basic health and hygiene requirements such as ‘washing-up’ equipment.
Early curriculum development
At this time, Jewiss (1992) described a technology project exploring the business and industrial understanding for Year 6. The project, based on healthy lifestyles, contained a mini-topic on cereals where children designed and made a high-fibre breakfast cereal and a new variety of bread roll from a basic dough. Similarly Eaton (1993), a Humberside advisory teacher, outlined a series of primary food technology activities. A reception class working on the topic of growth and 'Jack and the Beanstalk' made biscuits from a ready-made biscuit dough with a choice of flavourings for the Giant's wife to give to Jack. Year 2 children were asked to help Farmer Parsnip persuade consumers to buy more of his vegetables. They modified a coleslaw recipe to include other vegetables and compared their product with a commercial version. Year 4 children compared commercial and home-made pizzas, and Year 6 children investigated how to update the menu on the children's hospital ward.

Eaton emphasised that she did not think of food technology as the traditional 'baking' activities that had taken place in the past led by a parent or another helper. She considered that the main problem for the primary teachers was that previously food work had been based on 'following a recipe' rather than a creative 'process', and they found it difficult to conceptualise the change of emphasis.

Hallett (1993) agreed with Ridgewell in that there was a serious lack of available safe and hygienic food facilities. She saw limited involvement by primary children in food activities, which were all too often controlled by parents or a helper. Hallett thought that the content of the design and technology Orders emphasised secondary practice and that there was a lack of expertise amongst primary teachers. She agreed with Eaton (1993) that simply learning to 'cook' and follow a recipe, though enjoyable, was not a sound rationale in late twentieth century society. By 1996 Ridgewell noted that food technology was firmly on the primary curriculum, that schools were looking more carefully at how it could be taught in the classroom and treating it in a different way to 'cooking'.

Materials to support the 1995 Orders
The debate about the place of food technology in design and technology continued and in the revision of 1995 it became compulsory for all primary children. The British Nutrition Foundation supported a whole curriculum approach with specific reference to the subjects of science and technology (Fine, 1994). It developed two food units, for children aged five to seven (Key Stage 1) and children aged seven to eleven (Key Stage 2). A Department for Education and Employment and Ofsted food technology publication (1996) emphasised that in food technology, unlike 'cooking', children design food products to meet specific requirements. These activities are underpinned by knowledge and understanding of food, safe use of basic tools and equipment, hygienic practices and sensory evaluation. Progression for primary food technology was outlined through a
series of case studies, including a Key Stage 1 project based on fruits for a fruit salad, with vegetables, specifically potatoes, used to develop a soup product at Key Stage 2. At Key Stage 2 the skills and knowledge become more sophisticated and the children learn about the properties of potatoes, what happens when they are cooked, sensory evaluation and how to use a wider range of tools and equipment to produce a food product. Links with science were clearly highlighted through the use of investigative, experimental activities.

**Research into practice**
Golding (1997) carried out research into the situation in all the primary schools in the London Borough of Kingston upon Thames. A main aim of the research was to gain an understanding of the place of food within the design and technology Key Stage 2 primary curriculum. She was interested in testing her perception that, as a secondary food specialist, the inclusion of food in design and technology in primary schools was limited, resulting in pupils at the beginning of Key Stage 3 being less familiar with food than with resistant and other compliant materials. In addition, Golding wanted to find out the suitability of food as a medium at Key Stage 2, and what problems it presented in the classroom.

Golding concluded that she now had a better understanding of the place of food in the primary curriculum, and the potential difficulties related to classroom practice. These included working without specialist accommodation or resources, limited time and large classes. She noted that a simple disassembly task could take five weeks to complete with a support adult, if groups of seven children took it in turns on a set day to carry out the task. Golding was encouraged to find that food technology was included in the primary schools in Kingston, but the extent to which it was being used varied. In general, the results indicated that food was one of the least used materials within design and technology. Its infrequent use was not because it was viewed as unsuccessful, but due to the particular problems related to implementation and delivery. When it was carried out, teachers were extremely positive about it in terms of teaching and learning, providing opportunities for children to approach problems, think creatively and work flexibly and collaboratively.

A key finding of the research was the constraints for the successful delivery of food technology in primary schools and the need for these to be addressed. Golding (1997: 83) considered that if teachers are to “be clear and confident about the knowledge and skills to be taught they would need training, access to better equipment, appropriate accommodation and funding, availability of trained helpers to take small groups, better allocation for tasks and relevant teaching resources.”

Recently issues related to standards for health and safety in primary design and technology have been addressed through a DATA (1998) publication, with realistic guidance given to practising teachers and initial teacher education institutions.
A national campaign
The RSA ‘Focus on Food’ campaign is a recent initiative that aims to help teachers. Its principal aim is to raise the profile and highlight the importance of food education in primary and secondary schools, and to help sustain and strengthen the position and status of food in young people's learning (Cormac, 1998). It is funded by the food company Waitrose and it makes it very clear that it intends to complement food technology within design and technology. The principal purpose is to train primary teachers by developing links between primary and secondary teachers through practical food activities and a range of teaching support materials.

The Nuffield approach
During 1997 and 1998 a range of primary food technology resources have been being developed within the Nuffield Primary D&T Project to address the issue of tried and tested teaching resources highlighted in Golding's study. They have been written and trialled in primary schools by experienced primary teachers. In general they focus on six important issues:

a) A clear statement of the design decisions that children should be making within a particular design and make activity ('big task' in Nuffield parlance).
b) A description of the small tasks ('focused practical tasks' in National Curriculum parlance) that will teach the children the knowledge, understanding and skill likely to be needed in making those design decisions.
c) A detailed description of how to teach the activity on a session-by-session basis which includes the small tasks, showing how they are used to inform the work in the big task.
d) A deliberate attempt to introduce children to the idea of a specification which they use to inform their design decisions and against which they evaluate their product.
e) A deliberate attempt to incorporate a range of ICT-based activities within the overall suite of big tasks.
f) A deliberate attempt to show how learning in other subjects can be achieved through the design and technology activity.

For food technology in particular, the Nuffield Project sees progression in terms of the complexity of the product that the children design and make. So at Key Stage 1 there are two units: ‘How do you like your toast?’ and ‘Fruit salad’. At Key Stage 2 there are four units: ‘Cold drinks’, ‘Hot drinks’, ‘Jam tarts’ and ‘Bread’. The nature of these activities is described in Table 1, below. Neither of the Key Stage 1 activities requires complex cooking equipment or expensive materials, but together they teach children a lot about food materials, what you can do with them and the tools and equipment you need to do this. The progression achieved across the activities suggested for Key Stage 2 is considerable, both in terms of children’s understanding of food as a material with which to design and make, and the more general design skills of matching your product to the needs and wants of those who will use it.
Table 1: Use of food.

<table>
<thead>
<tr>
<th>5 to 7-year-olds</th>
<th>How do you like your toast?</th>
<th>Children will make and serve toast to the specification of an identified user. They will learn to find out that person's preferences and how to record such preferences. Then they will learn how to make toast which satisfies those preferences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit salad</td>
<td>A bowl of fruit salad will be made by a group to share with the other children in the class and it should look, smell and taste different from the other fruit salads as they will have been made to different specifications. The evaluation after the tasting will bring together the experiences of each child in learning to choose, prepare and combine fruits in a purposeful way.</td>
<td></td>
</tr>
<tr>
<td>8 to 11-year-olds</td>
<td>Baking bread</td>
<td>The task is to make bread rolls. It is necessary to set the context for the activity. This may be to agree a theme as a class or group, such as to make bread rolls for a children's party or to base their designs on the characters in a book that the class has read.</td>
</tr>
<tr>
<td>Hot drinks</td>
<td>Hot drinks are an important part of social and domestic life, and in this design and make activity children investigate the uses of hot drinks in their own family. They find out the preferences of a named family member and design and make a drink for them.</td>
<td></td>
</tr>
<tr>
<td>Cold drinks</td>
<td>A healthy cold drink will be designed and made for another class member. Each child will have to find out the preferences and needs of their partner, and should include feedback from them as part of the evaluation process.</td>
<td></td>
</tr>
<tr>
<td>Jam tarts</td>
<td>These Key Stage 2 children will design and make a pastry product based on their experience of the traditional jam tart. Their products will be for a special occasion, so</td>
<td></td>
</tr>
</tbody>
</table>
some market research will need to be done to identify the needs and preferences of their consumers.

The Nuffield Primary D&T Project has a website which provides more detailed information, plus the opportunity to download some of the food technology units. The address is: http://www.nuffieldfoundation.org/PrimaryDandT

The work of one school in trialing the materials, including some of the food technology units, has been written up in Update, the Nuffield Secondary D&T Project newsletter (Messenger, 1998).

**Using Nuffield units for initial teacher training**
The Nuffield Primary D&T Project (1998) Key Stage 1 ‘Fruit salad’ unit was trialled by BA QTS and PGCE primary students at Roehampton Institute in London in 1997/8. They were introduced to the colourfully illustrated unit booklet, which contained clear guidance on how the unit could be introduced, managed, taught and assessed. As suggested in the booklet, the students worked as a whole class, groups and individuals. The activities making up the unit, each of 20 to 30 minutes duration, included an introduction to fruits, sensory evaluation of fruits, using tools, making a design specification, making the fruit salad and final evaluation. All proved a positive experience.

Each group of students spent a considerable time discussing issues related to health and safety and the knowledge and skills required, including the choice and preparation of fruits, aprons, washing hands, work surfaces, washing up, resources and tools (for example sharp knives), storage and tasting activities. The general consensus was that with careful planning, food technology activities were possible and desirable for primary children. Success was strongly linked to motivation and interest. The students felt they did not need to be taught how to prepare the basic food products from the primary curriculum; their main concerns were related to the successful planning and management. They considered that the Nuffield food unit provided good background and support for teachers and children.

**Summary**
Early curriculum development has shown that designing and making with food can be an effective and powerful means of teaching design and technology in the primary school. However, research into practice has shown that a wide range of factors often mitigate against this, including lack of teacher expertise and confidence, the availability of ancillary support and the provision of specialist facilities. The progress made since the introduction of design and technology into the primary curriculum has been such that there is now a much clearer understanding of the requirements of using food to teach design and technology.
This, coupled with the availability of in-service training opportunities, a definitive statement about health and safety requirements and the availability of curriculum materials that help teachers plan and manage the teaching, creates a scenario in which we can expect to see a greater number of schools becoming successful at teaching design and technology through the medium of food in the future.

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