

A Sandwich Snack for Mr Grinling: A design and technology project

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Abstract

The following design and technology project was carried out in the autumn term of 2001 with a Year 2 and 3 class in a small rural primary school. There were 25 children in the class. The project was carried out on a Thursday and Friday afternoon for four weeks.

Planning

The school has adopted the QCA design and technology Scheme of Work. Using the unit 3B Sandwich Snacks, a medium term plan of clear objectives and activities was planned. The main aims of the project were:

- to develop children's basic food preparation techniques and ways of combining ingredients to create simple food products
- to develop their design skills by using their own experiences and evaluating existing products to develop ideas
- for children to design and make a sandwich by combining ingredients according to taste, appearance and texture to create a product for a specified purpose
- to build upon and expand children's knowledge and use of key vocabulary
- to develop children's awareness that the quality of a product depends on how well it is made and presented
- develop an awareness of the importance of health and safety
- to build upon and develop skills acquired from QCA unit 1C Eat More Fruit and Vegetables.

In addition to the pure design and technology knowledge and skills that were to be delivered, it was acknowledged that,

'Throughout the teaching of design and technology in primary schools it is crucial that language and literacy are developed.' (Breckon, 1997: 15)

This point was considered very carefully during the planning stage. The integration of literacy and design and technology became an important objective of the project, and led to the decision to use a children's story, *The Lighthouse Keepers Picnic* by Ronda and David Armitage, as the initial starting point which was to be introduced to the children during the literacy hour. Planning of the design and technology unit and the corresponding four weeks of literacy were completed simultaneously with coordinators working alongside and supporting each other. The outcome was that the design and

technology unit would support much of the non-fiction elements of literacy for that term.

With co-coordinator's confidence growing and enthusiasm for subject integration developing, more consideration was given to the point that design and technology is:

'an area of the curriculum which provides a natural focus for many subjects and a means of reinforcing those subjects or bringing them to life through meaningful practical activities.' (Breckon, 1997: 13)

The key word from the above quote that coordinators focused on was meaningful. Throughout the planning phase a conscious effort not to make contrived links was made and only do so where it was felt the curriculum areas concerned would be enhanced and key skills and knowledge for design and technology would not be lost.

In addition therefore to literacy, links were made with numeracy, ICT and PHSE. A brief summary is shown here and shown in the medium term planning sheet in the appendix.

Literacy	Reading and writing instructions. Non-chronological writing. Non-fiction reading and writing.
Numeracy	Collecting data.
ICT	Using graphing programme to handle data.
PHSE	Developing skills such as responsibility, commitment, teamwork, co-operation and compromise.

Teaching and learning

Delivery

The *Primary-based INSET Manual for Design and Technology* (DATA, 1998: 135) highlights three teaching strategies that can be used to deliver the design and technology curriculum, incorporating whole class or group teaching. The model of whole class teaching with all the children involved in similar activities was adopted. To mirror current practice in other curriculum areas, in particular literacy and numeracy, objectives were to be delivered through a three-part lesson. This format followed that suggested in the *Primary-based INSET Manual for Design and Technology* (DATA, 1998: 143) and consisted of an introduction where key targets and objectives for the lesson were explained. A main body that involved teacher demonstrations and children's activities, concluded with a plenary session where objectives were recapped, evaluations made and ideas extended.

When deciding on the most appropriate teaching and learning strategy to deliver the

objectives set for each lesson, it needed to be remembered that:

'any design and technology activity should be a learning experience whereby children's repertoire of knowledge, skills and understanding is extended and applied in increasingly more diverse and sophisticated ways' (Brekon, 1997: 13)

In order to allow this to happen it was important to ensure that a range of strategies were adopted that were appropriate to the nature of the design and technology activities the children were involved in. Moreover, issues concerning classroom organisation also needed to be addressed in order to maximise children's ability to fulfill objectives set.

Differentiation

Throughout the unit it was a key teaching objective to differentiate wherever possible design and technology activities. The *Primary-based INSET Manual for Design and Technology*, sets out four elements of differentiation (DATA, 1998: 144)

'Differentiation by response to task
Differentiation by task
Differentiation by resource
Differentiation by support'

I would add to this differentiation through targeted questioning.

During the planning stage, it was felt important to try and incorporate a range of these five styles of differentiation when delivering the curriculum and not just stick to differentiation by outcome in order to allow all children to develop their design and technology capabilities to the highest possible standard. Examples of how activities were differentiated are shown on the planning sheet in the appendix.

It was also important to remember that within the delivery of the curriculum it was important not to be too prescriptive about the set task. As it has been highlighted by Richard Ager:

'It is vital that you offer at least two or three alternative approaches to each aspect of the task. If you only offer one method children will be unable to show that they are able to make choices about how to go about a particular task and are therefore unable to show that they can operate at higher levels of design and technology capability.'

For this to be achieved during the designing and making assignment, it was decided to offer children a wide range of ingredients to choose from and vary the number of ingredients children needed to combine. In



Figure 1:
Children engaged in investigating, disassembling and evaluating products.



this way it was hoped that each group would produce a different style of sandwich with a range of ingredients. In addition, the degree of teacher intervention offered to children at the making stage of the assignment was not as direct as it had been during the IDEAs and the FPTs again allowing for more independent decision making by the children.

To assist with differentiation, particularly during the DMA, careful consideration was given to the grouping of the children. It was decided in order to allow each child to operate at an appropriate level, they should be grouped according to ability. The judgements being made on children's ability to use appropriate vocabulary, skill in using equipment and responses to questioning in the early stages of the unit. This led to five different working groups being established.

Analysing Sandwiches						
Filling	Appearance	Smell	Flavour	Texture	dislike	like
1						
2						
3						
4						
Word bank	colourful dark pale grainy moist	fruity meaty smoky oniony garlicky fishy	salty herby spicy fatty smoky	crispy crunchy soft sticky smooth hard chewy		

✓ a good attempt Oliver, we will work on the meaning of these new words

Figure 2: Example of recording tables used to record findings.

Figure 3: Examples of planning, designing and making as a team.

Whole class teaching

At the beginning of the project, children were involved in a range of activities that investigated, disassembled and evaluated existing products. Children looked at a range of sandwiches, different breads and spreads and carried out evaluations, preference and discrimination tests.

These activities were carried out with the whole class. As Breckon clearly points out in his discussion on training teachers to teach design and technology:

'Design and technology provides rich opportunities for questioning, discussion, describing and explaining in both concrete and abstract forms.' (Breckon, 1997: 15)

These whole class sessions provided an ideal opportunity for these skills. Their development and promotion was a key objective during these sessions and indeed my role within these sessions was to allow children to develop the vocabulary to talk about a product and encourage children to vocalise their feelings about a product beyond 'it was nice' or 'I didn't like it'.

My role also included promoting discussion, enthusiasm and understanding through open-ended questioning, building upon previous knowledge and personal experience, modelling use of vocabulary, completion of tables and diagrams and promoting health and safety issues.

Children completed a range of recording tables of their findings and used exploded diagrams to record what they had observed.

While children were involved in investigating existing sandwich and bread products, the class was organised in a 'board room' style with a central table on which the products were displayed while the class sat around on chairs with clipboards. This was used to emphasise the discussion aspect of the lesson to the children and to ensure that all the children felt welcomed into the discussion. It was also important that children could see the product and be able to pass round samples to be tasted.

Small group work

Children were then involved in a range of focused practical tasks where children looked at how to prepare a range of vegetables and



salad ingredients that included chopping and slicing cucumber and tomatoes, peeling onions, hardboiled eggs and carrots, grating cheese and carrots and mixing together ingredients to form a sandwich filling.

After initial demonstrations children the worked in small work groups operating a round robin system to practise these skills.

For this session, equipment and ingredients that the children would need for each task were placed on the children's work stations ready for them to use. At this stage the choice available to the children was limited, in order to really focus their attention on the correct equipment to use with the given ingredients.

The children then remained in these small work groups for the design and make assignment. After the DMA being introduced to the whole class and a product specification written together, children then undertook the planning and designing and making as a team.

For the design and making sessions, equipment and ingredients that the children would need or may wish to use were clearly labeled and set out on separate tables away from the work stations. It was ensured that there was enough equipment for each group to have what they wanted to use. The class was organised in this way in order to allow children maximum independent choice and for them to demonstrate skills and knowledge acquired during focused practical tasks. In this way it proved to be a useful assessment tool.

My role during these activities was again to promote correct use of vocabulary, develop understanding through questioning, continue to model techniques, encourage ongoing evaluation of their work, make assessments of skills, support and extend those children who required it and continue to promote health and safety issues. In addition, it was also very important to encourage the personal qualities that design and technology promotes such as inventiveness, teamwork and compromise, responsibility and flexibility.

Individual work

During the evaluations, children were initially involved in a class 'show and tell' session. They were encouraged to explain, using appropriate technical vocabulary, the best thing about their sandwich and an improvement needed. This was followed by an evaluation of each group's sandwich by the head teacher. The head was to consider appearance and presentation, taste and texture, talking through his thoughts and opinions and was to model to the children the process of evaluation. Children went on to complete their own evaluations as individuals. They were

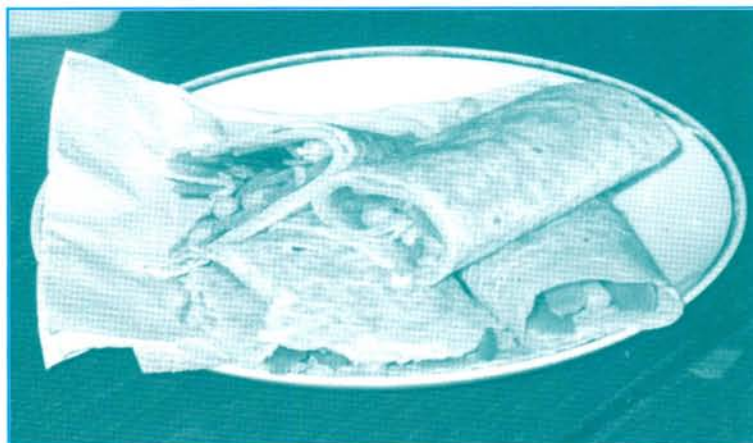


Figure 4: The finished products.

encouraged to reflect on the strengths and weaknesses of their team's product both in a verbal and written way. The level of detail that children were encouraged to talk and write about was increased to match the group's ability. It was felt that working individually was the most appropriate way of working because evaluations, particularly at this early stage of development, are children's personal feelings towards a product. Evaluations are based on questions regarding their own thoughts and opinions and by working individually, a true reflection of their thoughts would be gained. Some of the children's evaluations are included in the appendix.

Assessment and recording

'Assessment is a key aspect of teaching and improving learning. Good practice occurs when teachers gradually build up a picture of a child's developing capability and use this information to enhance their planning and teaching.' (DATA, 1996)

It was essential that assessments of children's work both during and at the end of this unit could provide the information needed in order to fulfill this crucial objective. The purposes of assessment as set out in the *Design and Technology Coordinators' File* in Section 3.3.3 (DATA, 1997) are:

‘to identify children’s achievement and progress
to identify the next stage in a child’s learning
to evaluate the effectiveness of teaching strategies
to provide information about a child’s progress that can be shared with colleagues, parents and governors.’

It is school policy that assessment and recording should take two forms. Informal assessments which are completed at the end of a lesson and give a general picture of how the class responded to the activities set, how well they achieved the objectives set, notable occurrences and indication of next steps to be taken. These notes are recorded on the termly planning sheet.

Secondly, a more formal assessment is made at the end of the unit. It is important to understand that children’s developing capability in designing and making a product is,

‘at the very heart of design and technology’. (DATA, 1996: 3.3.3)

It was important that the capabilities we wanted to focus on for our formal assessments, mirrored the objectives that had been set for the unit. The objectives were turned into key headings upon which judgements were to be made at the end of the unit and recorded on an observation grid.

The children were assessed within three groups and each group were assigned a key target for next term’s design and technology project.

Evaluation

Initially when analysing existing products, children found the use of descriptive vocabulary quite challenging, they would use lots of non-descriptive phrases such as ‘it is nice’ or ‘yuk’! However, after lots of modelling and constant use of key vocabulary, it was pleasing to see how quickly they became confident users of technical vocabulary to talk about their work and products.

It was pleasing to see the growing confidence of the children when using a range of equipment. During the making of their sandwiches, children showed great independence and technical skill. They were careful and responsible, showing a good understanding of health and safety issues practised during focused practical tasks.

Children worked well together and strived hard to cooperate as a team. The more able children needed no input from me to help

them organise jobs and activities within their groups during the making stage. Other groups only needed a suggestion that each person be responsible for a different job in the group.

Children strived hard to ensure their finished product was of a high quality, both in taste and appearance.

I did feel that although the children were given a good choice of ingredients to make their sandwiches from, the groups chose very similar ingredients, particularly cheese and sweetcorn. When we evaluated the sandwiches, as a class, children realised this and commented on the similarity of ingredients. Children also recognised after they had made their sandwiches how important colour is in food presentation. Some children felt their sandwiches looked ‘boring’ and wished they had used a greater range of ingredients. Indeed I feel if I repeated the DMA, even without changing the choice of ingredients, the sandwiches that the children would produce would be more colourful, be more varied and have a greater combination of ingredients.

This was an immensely enjoyable unit to plan for and deliver. Analysing each stage of the unit in detail has really provided an opportunity for my practice to develop and improve and as a result children’s skills, I feel, have moved forward tremendously. Their responses throughout were very encouraging. They were enthusiastic, motivated and hard working. Parents’ comments at a recent parents’ evening were also very positive, despite having to eat sandwiches made by their proud children almost every night since!

Bibliography

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