

Food technology at work

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With the changes in Food Technology, Roy Ballam offered the DATA conference an insight into real food technology at work.

Many of the assignments mentioned in this article appear in his new pack *Food Technology at Work*, published by Technopacks, PO BOX 216, Epsom, Surrey KT19 9YH. He can be contacted on CompuServe 100332,1330.

From an early age I have been interested in food, especially when I was allowed the freedom to experiment and develop my own tasty treats. Now I teach in an all-boys college, showing students how to design using the medium of food. Every time I work with my students I get excited, filled with the hope that they too will enjoy the food experience.

■ So what is food technology?

People still seem not to know what it is, even though they teach it. Below is my interpretation of what food technology and home economics are. In no way am I devaluing Home Economics (being home economics trained myself), as there are many skills that need to be taught in order to design and progress through technology. It is the approach to designing with food and making the changes (personal, resourcing or environmental) to facilitate the move to teach technology. It's not what you do, it's the way that you do it!

Food Technology Home Economics

Industrial context	Image — what is it?
Open ended (can be closed task)	Intrinsic values/beliefs
Skills — generic	Context of home, family (food, clothing & shelter)
Management of resources	Who was it originally aimed at?
Creative ability	Set way to do something
Design driven	Approach — didactic
Changes in society/technology	
Ingredients properties/characteristics	

In order to explain my view of technology, I shall draw upon various assignments which I use at college with my students. Through these it is hoped that a true technological perspective can be illustrated in my working methods, and how rigorous food is as a design material.

Many people say that you can not design with food because you make it too quickly. Or that you can put chocolate chips in one cake and raisins in another — call that designing? In industry food has to be quickly processed, often in 24 hours, due to the nature of the food material.

Surely this is part of the design brief and specification. True, changing chocolate chips for raisins isn't much, but looking in depth at

ingredient changes in food products leads to nutritional, physical and sensory changes. So why is food still being viewed poorly, especially as it has so much technological potential?

■ Assignments

Year 7 — Funny Face Pizza

This is a simple project for young food designers. The idea is that the pupils design and make a pizza with a funny face on top. All really enjoy the challenge, and all have the opportunity to develop an understanding of the ingredients they use. They also record what happens to the ingredients when cooked — with some amazing results! Pupils are always amazed that mushrooms shrink, cheese melts, bright green peppers go brown and bright yellow sweetcorn turns yellow-brown!

The approach

- A starting place for young food designers
- Working from a design brief and following a list of criteria (design specification)
- Looking at the nature and physical characteristics/properties of the foods
- Self-motivating and rewarding activities
- Using equipment
- Looking at the changes in ingredients
- Health and hygiene
- Cutting, chopping, using the oven

For nearly a year now, a local SEN school, Rectory Paddock, has on many occasions worked with my Year 7 classes. All pupils have the same brief, and all design and work together on practical sessions. This relationship has meant that both SEN and mainstream pupil work together and all perform a design assignment.

An excellent example of this was at Christmas when I set the design problem below. Both SEN and mainstream worked together to produce quality pies.

Design brief

Not everyone likes mince pies. Do you? What would you put in a Christmas pie? Using the food charts, design your own Christmas pie.

The pupils then used 'picture-word' cards of the foods they were allowed to use in their design (see figure 1). This was because of cost and keeping the pupils to a strict specification.

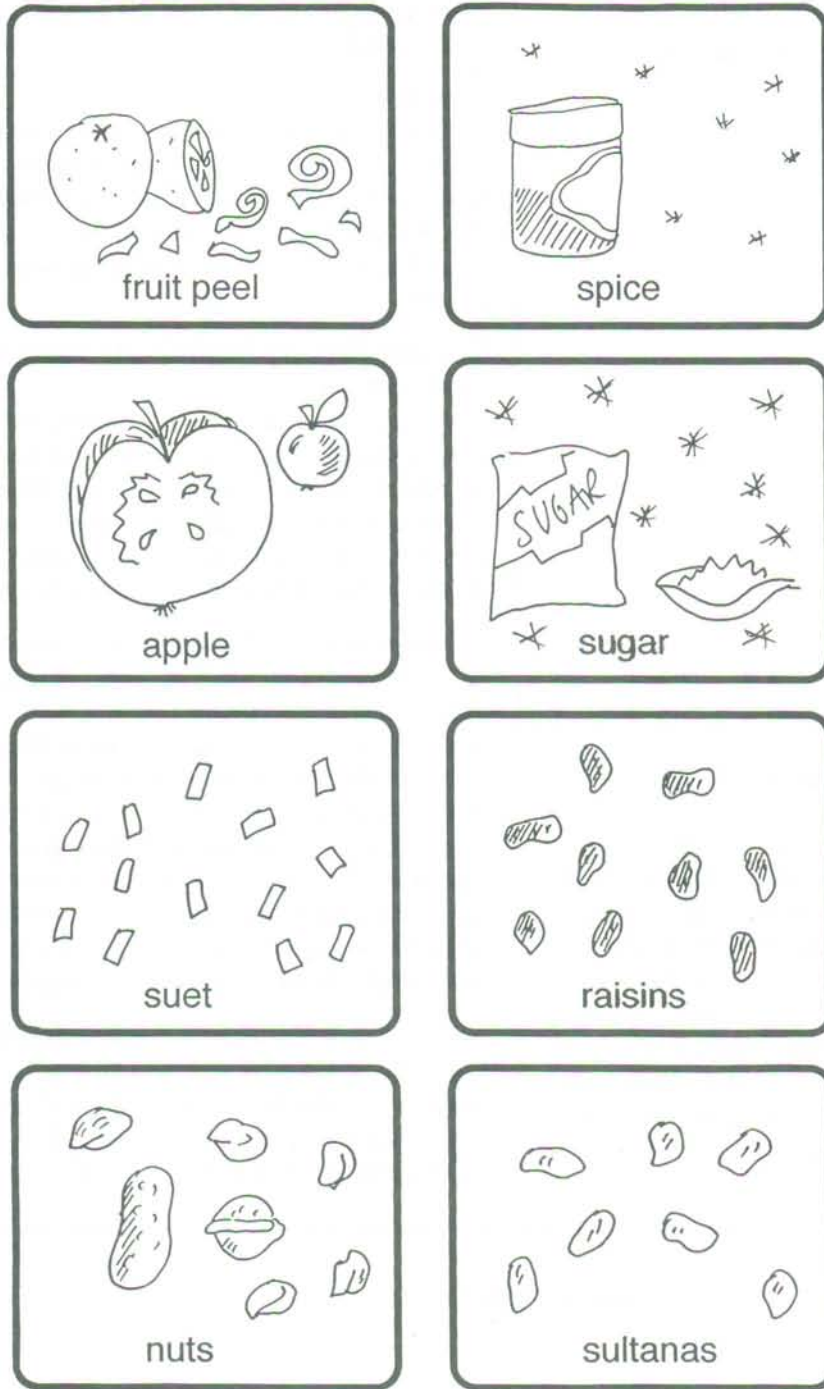


Figure 1: 'Picture-word' cards for good design

A large pie was then drawn on a piece of paper and the ingredients selected glued on top (see figure 2). All pupils enjoyed this working method, and followed their designs in the practical stage. It enabled the SEN pupils to design a product, by selecting ingredients they thought would be suitable.

Ways forward with SEN pupils

- Language development
- Making the task appropriate for a range of abilities (closed task)
- Building confidence using food
- Life skills
- Using pictures to aid design
- A sense of achievement at the end of a lesson

Year 8 — Mega Brilliant Chocolate Factory

When I started at Kemnal Technology College all pupils performed a project making a chocolate bar mould and packaging. However, the project then stopped. Now we take it one step further and design the filling and test the mould. The starting place is looking at other chocolate bar products to see how they are made and using this information as a basis for design work. This gives pupils a clear indication of what can be achieved, how they are made and the types of ingredients used.

Experimentation is an important part in this project, as pupils have the chance to make their bars at least three times. This is important as too often pupils make their product once, giving no time for reflection and real change from their evaluations. One pupil, Jake, wanted to produce green chocolate. He experimented by adding food colouring but discovered that the colour prevented the chocolate from setting. Only through experimentation did Jake succeed in his quest. Another area which is developed is ingredient analysis. All pupils must justify the ingredients used, then analyse their use in the manufacture of their product (see figure 3).

The approach

- Product and applications (looking at how other bars are constructed)
- Making links with other parts of Technology: graphics, card construction, wood, plastic, clay
- Simple to set up and manage
- Gain pupils' interest and motivation
- Gives an understanding that Food Technology is involved — it is not just baking!
- Working towards a design brief/specification
- Develops pupils' creative and aesthetic awareness
- Food properties

Figure 2: The 'ingredients' are then pasted on the pie



**Other year 8 protects in brief
Cheese project**

Links with plastics ingredient analysis and sensory analysis. This project started when I took 30 boys to France on a cuisine trip. One day we visited a small cheese farm, where an elderly lady showed us how she made the cheese. She held up a huge plastic mould to pour the cheese mixture in and my brain started thinking of how pupils could do this in school, using acrylic strips and designing and making their own cheese — excellent for sensory work

cross media scientific principles — boys are amazed how two liquids (milk and rennet) can make a solid!

Pop tarts

Disassemble products, taking a product which is known to this youth culture and exploiting its properties. Look at alternative designs. how they fit together, different cultures — pop tarts around the world, 3-course pop tart, the brunch pop tart!

Year 9 — Sensory Analysis and Product Development

During this year much work is completed with sensory analysis. It is intrinsic to food, as it is the only material that you can safely eat. It is a skill that needs to be taught and pupils need to learn different methodologies to evaluate and modify products which they will be producing.

I remember boys sticking spoons in saucepans saying 'Yeah — thats nice!' or 'That's pukka, mate!' Through this I decided that this skill needed to be taught. During a visit to the Meat and Livestock Commission I saw how much importance industry paid to it so I developed a short course at college. The approach was to make it a posh affair, have a tasting box with lime cordial, plates, napkins, cups and cocktail sticks. The pupils saw how seriously I took it and now take their time in the tasting sessions

Another area of development is enabling pupils to understand and work towards a product specification. This I have found aids the design process and gives pupils clear targets and useful reference criteria during evaluations. A

Figure 3: Chart used for ingredient analysis

Ingredient Analysis

Ingredient	Why did you use it? Colour, Flavour, Texture, Size, Shape, Smell?	What was it like before you used it?	What happened when you used it?	What was it like after you used it? Colour, Flavour, Texture, Size, Shape, Smell?

The final product:

simple assignment was 'Cake Designer', where a strict specification was set, using ingredient and economic limitations.

The main idea is that pupils can see the inter-relationship of money in the design and manufacture of a product. Pupils keep a production planner of their design, and record all stages of making (including the time spent!). They are then asked whether any economic savings could be made in the manufacture of their product. Analysis of ingredient use and making is then undertaken.

■ **Quality**

To understand the notion of 'quality' pupils evaluate a range of sausages. These range from *economy, skinless, low fat, normal(!), vegetarian, black sausage* and *luxury*. All are cooked in the same way. The class then analyse each sausage being cooked through stages of preparation, cooking and tasting. This is achieved by questioning the pupils, and completing a food evaluation chart. Through this pupils build up a bank of knowledge about what makes a good quality sausage, but more importantly the understanding of how to

evaluate the quality of other products (including their own). In time they build a library of criteria of what makes a quality product.

■ **Learning outcomes**

- Business and Industrial understanding of the food industry
- Sensory analysis skills
- Team work/building
- Producing a product to a strict specification
- Quality control
- Batch production
- Portion Control

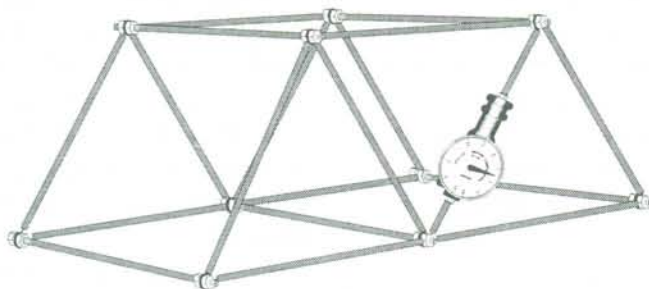
■ **And lastly . . .**

At college I teach only food technology; I'm not interested in making pretty cardboard boxes for the food I produce in my lesson time. I talk to many people who spend enormous amounts of time on packaging. I'm here to show students how to design with food and exploit their working characteristics, not spend six weeks making a piece of packaging!

Just because food surrounds us, it doesn't mean that we all understand it. It needs to be taught by specialists, just as construction and graphics. Food technology isn't cooking — exploiting the characteristics of ingredients is.

Food is fun, but also a serious design medium with technological potential! We should celebrate the use of food in schools, as it enriches our lives and brings us all much pleasure!

Build on our experience



Last year at D&T, we revealed the Frame Structures Investigations Kit, a versatile, economical resource for technology... and our compact Materials Testing Kit with PC or Acorn RISC OS Software... carefully designed by teachers to meet your students' needs.

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