

Using IT in Food Technology: why use a computer when baking?

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Roy Ballam rues the fact that food technology is lagging behind other areas of technology in the use of IT, and suggests some applications that will enhance learning for pupils of all abilities

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The argument goes that to be hi-tech you've got to have all-singing-and-dancing machines linked to computers doing CAD/CAM work, as in industry. For technology, you'll find most of these machines working with plastic, wood and metal, although textiles is also being tackled, albeit through embroidery with the POEM and Brother machines.

If, however, the same kind of financial (and political) emphasis was put towards equipment in food (and textiles technology) then surely the same types of activities would happen: high quality products being produced, emulating industrial practices. So why isn't this taking place?

Maybe it is to do with the past life of food technology. I remember myself hoovering the flat at school and then preparing a grapefruit with the correct knife. I also remember the computer being on a trolley and being wheeled out on special occasions — usually to keep some noisy person quiet. Surely this isn't a good use of IT, is it? (I'll come back to this point later.)

Food in the past has been driven by the context of the home, preparing pupils to become good home makers able to cook for themselves. Although these were desirable life skills, computers and IT were rarely mentioned. In other areas of technology, computers were being used, because industry dictated that they should be. BBC computers were controlling lathes and the programming language Logo

was being taught to enable pupils to control output devices such as turtles and robot arms.

Food had never really been associated with them in schools, in spite of numerous attempts having been made. Nutritional analysis was one of the first major uses with IT — and still is in many schools today. It offered the chance to enhance pupils' work. It relieved them of mundane tasks and replaced them with a hi-tech alternative. It also meant that all pupils (and all abilities) could now perform this type of analysis (even if this was still dependent on whether the computer was wheeled out of the store cupboard!).

Maybe another reason is because of the traditional gender split in technology. I could go on, but my point is that, where other areas of the curriculum have had time to develop and 'show off' their IT usage, in food technology we are still at the starting place.

■ What can I do at school?

When people start to talk about how to use IT in food or textiles, the list is nearly always the same — you just *know* that they are going to mention word processing and nutritional analysis. The reason is that they use them and they work. So why not try it yourself? Below I have listed some of the areas in which I use IT in my food technology lessons:



Databases — on nutrition, and others created by pupils

Graphics — to produce data-collection sheets/visual specifications and dimensions

Plotters — to produce sheets for viscosity tests

Cutters — for plastic projects such as moulds

Milling — to produce a former so that it can be vacuum formed e.g. a chocolate/jelly mould

Scanner — to record structures of products e.g. bread structures or egg foams

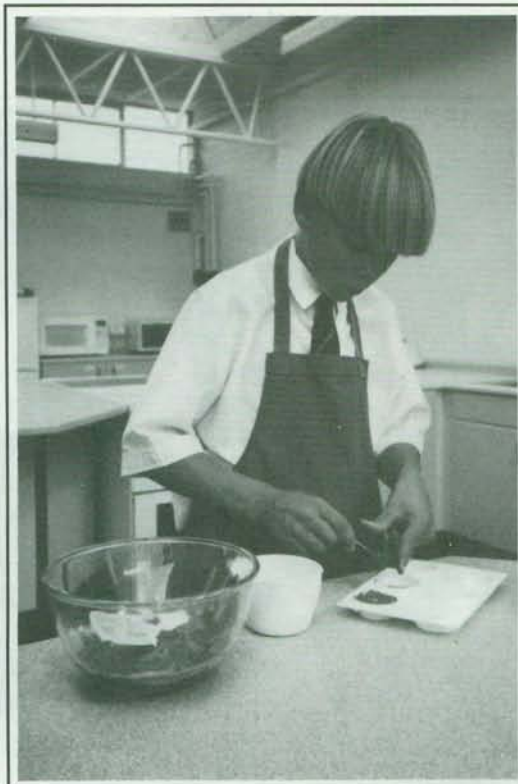
CD-ROM — for research

Interactive media — MLC Fast Food Diner

I also use IT to support survey work — recording data, making charts, writing — and spreadsheets for costing and recipe modification. For presentation and marketing we have also used hyperstudio.

All these options are wonderful if they are used appropriately by both teacher and pupil. There is no point, for example, in a pupil typing text into a word processor if when printed it still has spelling mistakes. Most word processors have spelling checkers, and these should be used to 'enhance' the work.

It is often a good idea to map out the use of IT in technology work to see exactly what is being achieved through its use. If you then analyse the work being produced, you can see if it has been enhanced or whether it has simply been through an electronic cosmetic change



(I believe it is good practice to include this type of information in lesson plans and schemes of work). Enhancement of pupils' work (and therefore achievement) must be the major use of IT, not just to make work look pretty or perform a task in a fraction of the time. Equally, the computer or other elements of IT should not be used simply to keep pupils quiet or 'baby sit' them. Too often teachers may think a pupil is working because they are quite in front of the monitor.

■ What's next?

It is now possible for pupils to take electronic photographs of their products and store them on the computer. These can then be simply 'cut and pasted' into other documents to produce a manufacturing report or a visual specification (normally on production lines there are photographs showing the final appearance of the product, for example checking that a product surface isn't too burnt or cracked). These cameras (the Apple Quicktake camera and the Canon Ion camera, for example) plug straight into the computer, require no camera film and therefore no processing costs! Other developments include a cheap small camera for making quicktime movies and voice recognition.

■ Sensory analysis

Data from a star diagram can be transferred and represented on a computer. Using Microsoft Excel (4/5) pupils can enter the data into the spreadsheet, then using a ChartWizard produce a perfect star diagram. Using the computer in this fashion allows pupils to see the relationship of computers and food, and allows them, no matter what their ability, to enhance their work through the use of IT. (Wizards are a new concept from Microsoft packages. They are a step-by-step set of instructions and options which appear on the computer to make the software easier; a few clicks of the mouse and a brilliant star diagram is produced.) In addition a complete sensory analysis package is under development at present by Technopacks. This will allow pupils to research vocabulary, investigate how taste panels are set up and help in the running of a sensory session.



■ IT in controlling plastic cutters and moulds

Although not directly involved with the food, using IT to design and make a mould for food can be part of the total assignment. This way IT is being used to control the shape and form of the final product. It is being used to make a precise and good quality tool.

Possible Plastic/Food Projects

- Cheese making
- Biscuit cutters
- Lolly mould
- Chocolate bar mould
- Luxury chocolates
- Jelly mould
- Easter egg/Christmas figure — or any other religious/cultural festival
- Making a die for an extrusion device (icing tube/sausage maker/mincer).

■ Why integrate a multimedia approach to design?

Apart from the obvious benefits which IT can bring to food technology — as a tool, to increase speed or improve presentation — there are other, less tangible benefits too. Using IT:

- shows pupils how 'resistant' materials help food products
- demonstrates that food design and other areas of design have similar core elements
- brings staff together to a common goal

- helps pupils make products/prototypes that can be used in real life
- promotes team work (teacher and pupil/pupil and pupil)
- increases quality outcomes
- teaches pupils about quality assurance and control
- enables batch production (many products of similar specification)
- helps pupils' understanding and practical experience of working towards tolerances in design.

■ IT enhancement

If your school or college is lucky enough to have CAD/CAM facilities, these types of assignments could potentially be enhanced through their use. Imagine a pupil sitting down at a terminal, plotting a mould design, modelling it on the monitor and then using the milling machine to manufacture it. Shortly after this the mould/former may then be vacuum formed or used as wanted — simple, precise and of good quality. These facilities are also excellent for those pupils with learning difficulties, including motor impairment.

At present the best pieces of software available are the generic packages (word processors, spreadsheets and databases). All these have common features and pupils learn how to use them in many parts of the curriculum. When it comes to purely food programs the choice is far more limiting, but I'm sure that in the next few years as food technology takes a grip in the curriculum and points to a firm direction, new software will become available.

■ Conclusion

The use in your school depends on your vision and your willingness for it to happen. INSET may not be available, but sitting down after school with the computer for half an hour can make all the difference. Experiment with the computer programs yourself: you can't break them. There is no mysterious jargon or secret hand-shakes to keep you out. IT is there for everyone to use. It is up to us to become up to date with these developing technologies and to lead the way forward.