

## CP807: Food Technology Toolbox

### Abstract

**Reference:** CP807

**Classroom Practice:** Years 7-12

**Title:** Food Technology Toolbox

**Overview:** The Food Technology Toolbox is a document that provides a framework and tools to support planned progression of Food Technology knowledge and skills from Years 7-13. The content provides a guide to assist teachers planning a Food Technology course over several years. Teachers can select appropriate knowledge and skills topics to apply to their programme to suit their students' learning and school environment.



### Focus Points:

- Collaborative planning of progression through three levels – Years 7/8, 9/10, 11/12
- Seamless transition from senior primary to senior secondary school
- Food Technology as a multi-disciplinary area of study

## Background ...

[Tararua College](#), Pahiatua, is a decile 4 school with a roll of approximately 428 students. Bush Primary School's Technology Centre provides Technology education to Year 7/8 students from 14 primary schools. It has been located at the college since the Technology suite was constructed in 2002.

Diana Eagle (Teacher in Charge - Food Technology, Tararua College) and Jacquey Neilson (Food and Soft Materials Technology, Bush Primary School's Technology Centre) established a working relationship after Jacquey's arrival in 2003. The following year they jointly applied to become a Beacon Practice school, with a focus on establishing a smooth transition process for students moving from Years 7-8 Food Technology through to Years 9-13. See the [BP623 - Value-added Noodles](#) case study.

The two teachers worked together to ensure that students use the same routines, terminology and technological processes through their Year 7-13 Food Technology. A student taking the subject at college level would add new skills and depths of knowledge, based on the training established at Year 7.

The 'seamless transition' approach has been successful and Year 8 students now enter the Year 9 class with a Food Technology background and expectation already developed.

In 2002, her first year of teaching Food Technology, Diana contacted food technologist Carol Pound, to help her develop a trial unit. Their collaboration has continued; Carol was able to advise her on how to incorporate industry-oriented Food Technological Practice into her units and Diana has gained a wide base of knowledge in the subject. Carol in turn has gained understanding of how much students could be expected to learn from the vast amount of knowledge available. See the [BP642: Links with a practicing food technologist](#) case study.

Carol and Jacquey have also worked together to strengthen the Food Technology aspects in the Year 7-8 programme.

By 2006 Diana felt that she had a strong foundation in the subject so felt ready to look at progression. She was concerned that her Year 12 students were finishing with good technological practice but with their Food Technology skills, techniques and knowledge a bit of a "hotchpotch". She wanted to provide better progression through from Years 9 to 12 and her association with Jacquey provided an opportunity to include Years 7 and 8 in this.



### **Diana Eagle:**

*"I felt ready to look at progression because I had the technological practice fairly well under my belt and was looking at how to get more substance into the teaching programme. To do that I realised that something had to give; that meant you can't just keep churning out one project after another –you've got to do some planned teaching".*

## Pre-planning

The Toolbox didn't suddenly materialise - the idea had grown over the previous two years. Diana and Carol wanted to replicate the seamless progression, happening in Food Technology from Years 7/8 to 9, through Years 9-12; each student beginning Year 13 would have the solid foundation of Food Technology skills and knowledge required to successfully plan and execute an independent project.

The Toolbox would also provide teachers with information specific to Food Technology. Carol notes that they are often asked the difference between generic Technology knowledge and Food Technology knowledge. She and Diana didn't want to reproduce a Components of Practice-type document. Instead the Toolbox aims to encourage teachers to pick it up, use it and test it to find out if it works for them.

In 2007 Diana and Carol spent four days in the school holidays creating the basis of the Toolbox, ready for Term 1. "From our experience of working together, we just sat down and tried to nut out the knowledge that a Year 13 student would need to know in order to do Food Technology at a reasonable level to pass NCEA Level 3" says Carol. "We worked out what we'd been doing, what students needed out of that, and tried to put together a framework it could fit into".

They decided to concentrate on five main topics:

- Food Formulation
- Food Safety and Legislation
- Food Production
- Food Packaging and Labelling
- Food Product Testing

For ease of use these would be organised in the document in two ways under:

- Topic headings to show progression levels, and
- Year levels to show knowledge/skills specific to the level.

To keep things simple, information was mapped onto the year, rather than curriculum level. With three levels of progression – Years 7/8, 9/10, 11/12 – and five topics, a teacher could focus on one topic a term over two years and cover most of the content.

The pair looked at what they'd expect a student coming into Year 13 to know, and what 'tools' they should be able to choose from for use in their project work. Then it was a matter of working out the required progression from Year 7 to that point.

The hardest part in developing the Toolbox was deciding what, from a huge subject area, to leave out. This decision was made by assessing what was reasonable for a student of a particular age to learn. For example, 'sensory' would cover only consumer sensory testing, on the grounds that the more difficult technique of trained panels is more suited to university level education. Carol points out that they'd tried many things over a five-year period, some successful and others not. So it wasn't a situation of starting from scratch and guessing; they already knew what would or wouldn't work.

Carol has 'upskilled' Diana in Food Technology knowledge over the years and, in turn, has learnt from Diana so is now better able to place information into the classroom context. Between them they looked at the information that a food technologist knows, what a teacher knows and what the students need to learn. Diana and Carol didn't prioritise any of the 'tools'; a teacher would choose what to use, and it could also depend on their students' background in Food Technology. Jacquy's students enter Year 9 with an understanding of the language, some food chemistry, and "a little smattering of everything", whereas students at other schools mightn't have had any experience in it.

Teachers could select the knowledge they wanted to cover, or a project might lend itself to certain parts of the Toolbox. The Toolbox can be used for projects done over a term or a year. Diana teaches the Toolbox in the first term so that her students can apply it to their project later in the term; this means she can plan her use of the Toolbox to fit around the project.



### **Carol Pound:**

*"When Food Technology was first introduced teachers would sometimes focus on skills to use in technological practice. But once their students had those good skills they found they didn't have anything to do with them, that they couldn't make the projects any more difficult as they moved up the school. Rather than making planning, brief writing, etc, harder, the Toolbox means students can get new material every year on Food Technology knowledge. They can make their projects technically harder as well as develop those good planning skills, etc. Instead of 'we've done this already' there is always new material they can follow through."*



There are a lot of practical activities that students can do while they're learning, so it's not just theory - if students are learning about a certain functionality of ingredients they need to cook with them to fully understand what is happening.

Teachers can 'pick' from the Toolbox. Diana teaches production with a little bit of nutrition, where someone else might focus on nutrition; those students will still come out with a good broad knowledge of Food Technology knowledge but with a stronger understanding of nutrition. Carol comments that a teacher enthusiastic about legislation could do a similar thing, with students stronger in that area. "It's not 'you've got to teach all this in five years – go! It's more 'if you're going to teach these areas you need to cover them, but you can still focus on the one you're happy with'".

**Carol Pound:**

*"That's its strength, that it is a toolbox, so if you want to use your spanner most of the time that's fine, but you've got to use a screwdriver occasionally to do whatever you have to do. It's not a 'you must teach this' sort of thing, it's just to give guidance."*

## Delivery

Trialling of the Toolbox was done in Jacquey's Year 7-8 classes and Diana's Year 9-11 classes. The first test, however, was to look at Jacquey's programme to see where her units fitted into the framework. Once it was established that they fitted perfectly, Diana and Carol were able to level the rest of the Toolbox. They then rechecked her programme to ensure that everything was being taught and at a reasonable level, and how the Toolbox might apply. Jacquey doesn't teach anything on ethics and this doesn't come into the Toolbox until later, so discussion on these aspects helped confirm that the Toolbox was pitched correctly.



Jacquey notes that she found it very empowering seeing where her programme fits into the Toolbox framework – it confirmed that she was already covering all those sections and providing a good range of activities. She has constructed a table showing where each of her units fits into the Toolbox, colour coding each topic; thus food chemistry (in orange) shows as being covered in each unit in a different way. In the [Food Preservation: Space Nuggets](#) case study, the class looks at what happens during dehydration and tests for pH levels in food. The table serves as a reminder to cover certain things in a unit, although Jacquey now has it committed to memory.

Year 9 classes worked on a Technology unit (instead of Food and Materials Technology) taught by Diana and Hard Materials teacher Geoff Craig. Diana incorporated the Toolbox into the section of Cool Food that she taught.

Diana, trusting that this new approach to curriculum delivery would benefit her Year 11 and 12 classes, decided to implement the Toolbox at the beginning of 2007. Rather than starting a project and working the skills and knowledge into it, she would spend the first two terms teaching students the knowledge they would need for the year. This meant anything they would have need of, whether it related to technological practice, Food Technology knowledge and skills, or ensuring students were equipped for NCEA assessment. As the Year 12s obviously hadn't done all this the previous year, there was a little bit of catch-up built into their programme.



The Year 11 class worked on a Lunchbox project, in which each student designed a food product to meet the needs of a particular target market. See the Student Showcases [Delight in a Bite](#) and [Spud in a Tub](#).

In the Food to Fit project, Year 12 students had to identify an issue related to a key food or health trend and develop a food product to suit this.

Each student had a book in which file all their Toolbox paperwork, so later in the year she could tell them to go to their Toolbox when they needed to concentrate on a particular feature, such as sensory, or processing.

## Outcomes

Although Carol isn't usually in the classroom, she noticed that the student work she saw in 2007 was a lot better than before. She feels they've picked up the Toolbox knowledge relatively well and this is reflected in their work. Having the Toolbox first, working on various activities around it, and then starting a project, appears a much more successful way of working than in the past when the focus was on assessment. "If a student doesn't understand something and it hasn't been taught as a class exercise, then, unless it's part of their project, they've missed the boat, they don't really pick it up again".



Students are taught Food Technology skills along with writing a brief or key factor, and if this is all stored together that's when the Toolbox comes in. A teacher can tell a student to "go to your Toolbox, look at all the ways you could test your product, pick two you think would work for your project and come back to discuss it with me".

This shared understanding means the teacher isn't telling the student what they could do but supporting them through discussion; "Well, that's an okay choice but there are some others, why have you chosen this one?" The student can confidently discuss the merits because they have done the testing already as a class exercise. Diana would also refer to the Toolbox when commenting on student work "Is that really how to write a process flow diagram? I don't think so, go and look at your Toolbox". It was also useful when students claimed they didn't know how to do something because she knew they did!



This was a lot more successful than previous years where students had launched into their projects and tried to work it out. Some students work very well under that method but a lot don't, especially if they're struggling with the topic area.

Diana, Carol and Jacquy presented their Food Technology Toolbox at the 2007 TENZ conference as a draft document, and asked for comment.

## What next?

Carol assumes that the more people using the Toolbox, the more likely it will develop, especially if teachers want more content to enable them to go further with their students.

"As students get better at Food technology there will be a need to increase the breadth, and in some cases the depth, of knowledge in the Toolbox. If everyone were doing Food Technology from Year 7-13 then some students would be able to handle for more complexity in the Toolbox, or extra topics areas could be covered in the senior school," she says. "As seniors gain more Food Technology knowledge they will push the boundaries with their own research and the

teachers will learn along with them. This will cause the toolbox for that school to grow of its own accord. Of course each school, as they develop links with certain food industries, will also find the need to expand the knowledge to match the type of projects their students are doing. However, there is a danger with these sorts of things that the knowledge required at each level gets harder and harder. There will be a need at some point for nominal levels to be set, but that is not possible until the Toolbox has been used, tested and its performance evaluated in a number of schools: a project for the future."

Carol and Diana both comment that someone who isn't really teaching Food Technology is less likely to pick up the Toolbox, so ideally there should be some professional development attached to starting with it. They feel that the human link helps make a connection more than a computer or paper, and that the Toolbox is only meaningful when teachers use it in their own classroom.

Diana thinks a section on resources could be a useful addition to the Toolbox. It is much simpler for a teacher to choose what to check when they know that a textbook, or section of a resource, has been particularly recommended. She has drafted a document with information on resources but, until she decides if it will actually be useful or even be used, will leave it at that stage.

Diana decided to take a break from teaching at the end of 2007, and is presently working with her husband on the family farm.

