Food technology: Year 8 unit plan
Glossary

The following glossary includes terms and definitions that are particularly useful for the Year 8 unit plan [1].

Attribute

The functional and physical nature of a **technological outcome**.

Functional attribute: what an outcome, or part of an outcome, does, e.g. 'provides grip', 'stores water', 'joins surfaces'.

Physical attribute: a spatial or sensory aspect of a technological outcome. Physical attributes describe how the outcome looks and feels, e.g. 'hard', 'salty', 'spherical', 'loud', 'luminous', 'big'.

Attributes differ from **specifications**, in that specifications define the physical and functional nature of the technological outcome in a measurable way. For example, an attribute may refer to the outcome being small enough to be comfortably held, whereas the specification would give the precise measurement in terms of length, width and depth.

Brief

A description of a desired **outcome** that would meet a **need** or realise an **opportunity**.

Initial brief: a conceptual statement developed at the beginning of a project that communicates what is to be done and why, and a set of potential attributes/specifications that define the expected requirements of the outcome in terms of its physical and functional nature.

Final brief: a final brief results from the dynamic process (technological practice) of developing, testing, and trialling ideas by undertaking ongoing research, functional modelling, resource exploration, and key, and wider community, stakeholder consultation. The final brief, which includes a developed conceptual statement and specifications, is based on a reflection of the initial brief and any further amendments to it, and serves as an evaluation tool against which the final outcome, and the practice undertaken to develop it, is judged.

Conceptual design

A description of a proposed **technological outcome**, using media such as scaled plans or drawings, scale models, computer simulations, written descriptions, lists of components and assembly instructions.

Conceptual statement

The conceptual statement in a **brief** communicates the purpose of the **technological practice** to be undertaken – what is to be done and why.

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Context

Context in technology education can refer to the overall focus of a technological development or to describe a technological learning experience.

The **context of a technological development** refers to its wider physical and social environment. For example:

- The context is rebranding an airline, with a focus on the manipulation of information.
- The context of wind generation is sustainable energy generation, with a focus on the storage and control of energy.
- The context of a packaged scallop product is marketable food products, with a focus on the manipulation, transport, and storage of material and information.

When talking about **the context of a technological learning experience**, the term refers to all the aspects that must be thought about to situate the learning. For example:

- The context was outdoor seating within a school environment, with a focus on aesthetics, robustness, and vandal-proofing.
- The context was programme development in ICT, with a focus on the control and storage of information.
- The context was hair care, with a focus on the manipulation and storage of materials.

To ensure that the contexts chosen provide for a range of diverse learning opportunities, programmes should include contexts in both senses as explained above. These contexts should cover a range of transformations associated with technology. That is, the transformation of energy, information and/or materials for the purpose of manipulation, storage, transport, and/or control.

Critical evaluation

The objective analysis and evaluation of an issue or an opportunity in order to form a judgement.

Deconstruct

To interpret a text or artwork by discovering, recognising and understanding the underlying assumptions, ideas and frameworks – both unspoken and implicit.

Design ideas

Ideas inspired by research, past practices, and life experiences that have the potential to contribute to a design (conceptual or otherwise) that meet the specifications of the **brief**. The term is used in both the 'Generic Technology and Design' and 'Visual Communication' indicators of progression.

Drawing conventions

The range of accepted practices (line types, projection methods, dimensions, scale, etc.) associated with formal **working drawings**. Drawing conventions need to be appropriate to the drawing type and correctly applied. Drawing skills also draw on relevant standards and codes of practice.

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Fit(ness) for purpose

The ability of a **technological outcome** to serve its intended purpose, 'to do the job', within its intended **context**, where the 'job to be done' is clearly defined by the brief.

Fitness for purpose, in its broadest sense, extends the **context** to the practices involved in the development of the **outcome**, including such things as the sustainability of resources used, treatment of the people involved in manufacture, ethical nature of testing practices, cultural appropriateness of trialling procedures, determination of life cycle, and ultimate disposal.

Functional modelling

Modelling is a critical element of technological knowledge. Functional modelling is a component of **technological modelling** which may be undertaken during the development of a project.

Functional modelling tests suitability of design, enabling the ongoing evaluation of design concepts for yet-to-be realised **technological outcomes**. Evidence gained from functional modelling can be used to establish a defendable case for further development.

Compare with: **Prototyping**

Manipulating materials

Working with existing materials in ways that do not change their properties, as their composition and structure is not altered.

Manufacturing processes

Manufacturing processes include such things as milk powder manufacture, beer brewing, meat packing and freezing, carpet manufacture, urea from natural gas, newsprint, oil refining, injection-moulded plastics, electronics, fish filleting and freezing, rotationally-moulded plastics, superphosphate, agricultural machinery, possum and merino yarn, marine/leisure products, niche furniture, and garment manufacture.

Mind map

A mind map (or brainstorm) is a diagram used to represent words, ideas, tasks or other items linked to and arranged radially around a central key word or idea.

Model

A model is a physical representation of a **technological solution** (sometimes scaled) that enables a solution's feasibility to be tested/predicted.

Need

An identified requirement of a person, group, or environment. A need is identified from an issue and sits within a **context**. **Technological practice** can be undertaken in an attempt to meet an identified need.

See also: **Opportunity**

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Opportunity

An opportunity in technology refers to an identified possibility for a person, group or environment. An opportunity is identified from an issue, and sits within a **context**. **Technological practice** can be undertaken in an attempt to realise an identified opportunity.

See also: **Need**

Outcome

Information, event, object, or state of being produced as a result or consequence.

Performance properties

Performance properties of materials refer to such things as thermal and electrical conductivity, water resistance, texture, flexibility, colour, etc. Subjective measurement is reliant on people's individual perceptions (tasty, evokes a sense of natural beauty, warm and inviting, etc.), whereas objective measurement is not (conductivity, UV resistance, etc.).

Plan of action

A planning tool that outlines intended actions to accomplish a specific goal. It sets out how resources such as time, expertise, materials and finance will be used in a coherent and systematic manner during the development of a **technological solution**. It establishes key milestone **outcomes** and states how each of the resources is to be used to achieve the outcome at each milestone stage.

Planning tools

Planning tools may include, but are not limited to: brainstorms, mind maps, idea banks, reflective journals and scrapbooks, plans of action, Gantt charts, flow diagrams, graphical organisers, spreadsheets and databases.

Prototyping

Prototyping is the **modelling** of a realised, but yet-to-be-implemented, **technological outcome**. The purpose of prototyping is to evaluate the fitness for purpose of a technological outcome against the **brief** and is undertaken to potentially establish a defendable case for its implementation, refinement or further development.

Compare with: **Functional Modelling**

Scheduling

The planning of actions and events to a timescale. This could be done as a list or flow diagram or other graphic organiser. Scheduling includes such things as planning construction orders or a production sequence.

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Specifications

Specifications in a **brief** define the nature of the appearance and performance requirements, against which an **outcome** can be evaluated as **fit for purpose** (by key, and wider, **stakeholders**). The specifications may also include constraints on both the **outcome** and the **technological practice** that can be undertaken to develop it.

Stakeholder

A person or groups of people (families, whānau, communities, iwi, organisations, businesses) with a vested interest in a **technological outcome**, and/or its development.

Key stakeholders are those people that are directly influential or will be directly impacted on by the **technological practice** itself and/or its resulting **outcomes** (including the technological outcome and any other by-products).

Wider (community) stakeholders are those people that are less directly influential for or impacted on by the **technological practice** or **outcome**. They can, nonetheless, be identified as having some level of influence, often through others, and/or they may be affected by the project or its outcome in the future.

Sustainability

The use of resources, the creation of products and/or the provision of services in such a way as to meet present needs, without compromising the ability of future generations to meet their needs by the same or similar means.

Technological modelling

Technological modelling is the testing of design ideas to see if they can contribute to a **fit for purpose technological outcome**. There are two types of technological modelling.

Functional modelling: is the ongoing testing of design concepts.
Prototyping: is the realisation of a fully functioning model.

Taken together, the two types of modelling provide evidence of factors that may impact on, and consequences that may result from, the development of a technological outcome.

Technological modelling involves two kinds of reasoning:

- Functional reasoning: how to make it happen? how is it happening?
- Practical reasoning: should we make it happen? should it be happening?

Technological outcomes

Products and systems developed through **technological practice** for a specific purpose. A technological outcome is evaluated in terms of its **fitness for purpose**, and can be described by their physical and functional nature.

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Technological practice

The incremental practices involved in creating a **technological outcome**: including identifying needs or opportunities, exploring, defining, and developing potential outcomes, and modelling, evaluating, and testing to ensure resulting outcomes are **fit for purpose**.

Technological practice is one of the three main strands of technology in *The New Zealand Curriculum*.

Technological solution

The realisable means proposed by a technologist for meeting the requirements of a **brief**. It will be presented in a sufficiently detailed and clear manner, that it is both fully realisable (suitable for implementation in practice), and can be fully tested against the specifications in the brief.

Transformation processes

Processes that occur within a system to ensure the inputs are changed into the outputs in a controlled and intended way, without need for additional human design input.

Transforming refers to changing the structure or particle alignment within an existing material in order to change some of its properties, but, in terms of its composition, it remains the same material. For example: felting; beating an egg white; heat treating metals to harden or anneal them; steaming timber to soften its fibres so that it can be manipulated (bent).

Usability

Usability is a term used to denote the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal. In human-computer interaction and computer science, usability usually refers to the elegance and clarity with which the user interface of a computer program or a web site is designed. The concept of usability also includes learnability, retainability and user satisfaction.

Usability testing

Usability testing is an effective way to verify an existing design or system. It is a structured observation of users in a laboratory setting. Users are observed performing important tasks with a working system or prototype. They are asked to 'think aloud' while completing the tasks. This includes describing what they are trying to do, the hypotheses they are forming, their expected results of an action, etc. The evaluator observes the user's performance noting problems, comments, circuitous paths, etc. Usability tests are useful for collecting quantitative data regarding time per task and number of errors (Rubin, 1994).

Working drawing

See: **Drawing conventions**

References and further reading:

1. TKI – Te Kete Ipurangi. Glossary – technology online. Retrieved May 31, 2018, from http://technology.tki.org.nz/Glossary