Food and wellbeing: Design and Technologies

Design and Technologies

In Design and Technologies, students learn how to apply knowledge of the characteristics of food, along with nutrition principles (as described in HPE) to food selection and preparation through the design and preparation of food for specific purposes and consumers. They will also develop understandings of contemporary technology-related food issues such as ‘convenience’ foods, highly processed foods, food packaging and food transport. The knowledge and understanding strand and processes and production strand are integrated to enhance learning.

The technologies contexts content descriptions provide a framework within which students can gain knowledge and understanding about technologies and design. These content descriptions focus on the characteristics and properties of technologies and how they can be used to create innovative designed solutions.

The technologies contexts in Design and Technologies related to food and wellbeing are:

F–6: Food and fibre production and food specialisations

7–10: Food specialisations, and materials and technologies specialisations.

They provide a progression of learning from Foundation to Year 8 and optionally to Year 9–10 or lead to more specialised Technologies subjects in Years 9 and 10. They also reflect national priorities including workforce needs, food security and sustainable food and fibre production and health and wellbeing priorities.

When learning about food specialisations, students will progressively develop knowledge and understanding about: the characteristics and properties of food to and apply these to food selection and preparation; and contemporary technology-related food issues through creating designed solutions.

Food and wellbeing dimensions

Design and Technologies - Years 7 and 8

Year 7 and 8
Design and technologies knowledge and understanding
Content descriptions with elaborations
Investigate the ways in which products, services and environments evolve locally, regionally and globally and how competing factors including social, ethical and sustainability considerations are prioritised in the development of technologies and designed solutions for preferred futures (ACTDEK029)

- considering factors that influence the selection of appropriate materials, components, tools and equipment, for example Aboriginal and Torres Strait Islander Peoples’ sustainable practices, custodianship and connection to Country
- investigating how ethics, social values, profitability and sustainability considerations impact on design and technologies, for example animal welfare, intellectual property, off-shore manufacturing in Asia

- considering the rights and responsibilities of those working in design and technologies occupations, for example consideration of Aboriginal and Torres Strait Islander protocols
- investigating traditional and contemporary design and technologies, including from Asia, and

predicting how they might change in the future in response to factors such as social change and the need for more sustainable patterns of living
- identifying needs and new opportunities for design and enterprise, for example promotion and marketing of designed solutions

Analyse how characteristics and properties of food determine preparation techniques and presentation when designing solutions for healthy eating (ACTDEK033)
- planning and making quality, safe and nutritious food items, using a range of food preparation tools, equipment and techniques
- examining the relationship between food preparation techniques and the impact on nutrient value, for example steaming vegetables
- investigating how a recipe can be modified to enhance health benefits, and justifying decisions, for example by replacing full cream milk with skim milk
- analysing food preparation techniques used in different cultures including those from the Asia region and the impact of these on nutrient retention, aesthetics, taste and palatability, for example stir-frying
- explaining how food preparation techniques impact on the sensory properties (flavour, appearance, texture, aroma) of food (for example, the browning of cut fruit, the absorption of water when cooking rice)

Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (ACTDEK034)
- investigating aspects of technologies specialisations, for example in architecture, critiquing the design of an existing building to identify features of passive design or in fashion, evaluating the sustainability of different fibres
- investigating and selecting from a broad range of technologies - materials, systems, components, tools and equipment - when designing for a range of technologies contexts
- considering the ways in which the characteristics and properties of technologies will impact on designed solutions (for example, the choice of building materials and housing design in Australia and the countries of Asia; the properties of textile fibres and fabrics determine end use)

Design and technologies processes and production skills

Content descriptions with elaborations

Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas (ACTDEP035)
- experimenting with traditional and contemporary technologies when developing designs, and discovering the advantages and disadvantages of each approach
- investigating emerging technologies and their potential impact on design decisions (for example, flame retardant fabrics or smart materials such as self-healing materials, digital technologies and agriculture)
- examining, testing and evaluating a variety of suitable materials, components, tools and equipment for each design project (for example, the differences between natural hardwood and plantation softwood timbers), which determine their suitability for particular uses related to durability (for example, interior or exterior use)
- selecting appropriate materials to acknowledge sustainability requirements by using life cycle thinking

Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)
- using a variety of critical and creative thinking strategies such as brainstorming, sketching, 3-D modelling and experimenting to generate innovative design ideas
- considering which ideas to further explore and investigating the benefits and drawbacks of ideas

(for example, using digital polling to capture the views of different groups in the community)
- identifying factors that may hinder or enhance project development, for example intercultural understanding
- developing models, prototypes or samples using a range of materials, tools and equipment to test the functionality of ideas
- producing annotated concept sketches and drawings, using: technical terms, scale, symbols, pictorial and aerial views to draw environments; production drawings, orthogonal drawings; patterns and templates to explain design ideas
- documenting and communicating the generation and development of design ideas for an intended audience (for example, developing a digital portfolio with images and text which clearly communicates each step of a design process)

Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions (ACTDEP037)
- developing technical production skills and safe working practices with independence to produce quality solutions designed for sustainability
- practising techniques to improve expertise, for example handling animals, cutting and joining materials
- identifying and managing risks in the development of various projects, for example working safely, responsibly, cooperatively and ethically on design projects,
- assessing uncertainty and risk in relation to long-term health and environmental impacts
- developing innovative ways of manipulating technologies using traditional and contemporary materials, components, tools, equipment and techniques and
- considering alternatives including emerging technologies that could be substituted to reduce waste or time

Independently develop criteria for success to assess design ideas, processes and solutions and their sustainability (ACTDEP038)
- developing criteria for success to assess the success of designed solutions in terms of aesthetics, functionality and sustainability
- considering how to improve technical expertise
- evaluating designed solutions and processes and transferring new knowledge and skills to future design projects

Use project management processes when working individually and collaboratively to coordinate production of designed solutions (ACTDEP039)
- explaining and interpreting drawings, planning and production steps needed to produce products, services or environments for specific purposes
- organising time, evaluating decisions and managing resources to ensure successful project completion and protection of the work space and local environment
- identifying risks and how to avoid them when planning production
- investigating the time needed for each step of production