# Food and fibre: Design and Technologies

## Design and Technologies

The technologies contexts content descriptions in Design and Technologies provide a framework within which students can gain knowledge and understanding about technologies and design across a range of technologies contexts. 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 provide a progression of learning from Foundation to Year 8 and optionally to Years 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.

Food and fibre production is one of the prescribed technologies contexts. Students will progressively develop knowledge and understanding about the managed systems that produce food and fibre through creating designed solutions. (Food and fibre production includes food specialisations from Foundation to Year 6.) The knowledge and understanding strand and processes and production strand are integrated to enhance learning.

## Food and fibre dimensions

### Design and Technologies - Years 7 and 8

**Year 7**
**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, sustainability considerations are prioritised in the development of technologies and designed solutions for preferred futures (ACTDEK029)

- 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
- identifying needs and new opportunities for design and enterprise, for example promotion and marketing of designed solutions

Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable (ACTDEK032)

- comparing land and water management methods in contemporary Australian food and fibre production with traditional Aboriginal systems and countries of Asia, for example minimum-tillage cropping, water-efficient irrigation
- investigating the management of plant and animal growth through natural means and with the use of chemical products like herbicides and medicines when producing food and fibre products
- recognising the need to increase food production using cost efficient, ethical and sustainable production techniques
- describing physical and chemical characteristics of soil and their effects on plant growth when producing food and fibre products
- investigating different animal feeding strategies such as grazing and supplementary feeding, and their effects on product quality, for example meat tenderness, wool fibre diameter (micron), milk

fat and protein content when producing food and fibre products
- recognising the importance of food and fibre production to Australia's food security and economy including exports and imports to and from Asia when critiquing and exploring food and fibre production

**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)

- considering community needs when identifying opportunities for designing, for example gardens for a community centre cost effective food service for a sport club
- 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

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
- 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

Independently develop criteria for success to assess design ideas, processes and solutions and their sustainability (ACTDEP038)

- 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)

- 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

**Year 8**

**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, sustainability considerations are prioritised in the development of technologies and designed solutions for preferred futures (ACTDEK029)

- 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
- identifying needs and new opportunities for design and enterprise, for example promotion and marketing of designed solutions

Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable (ACTDEK032)
- comparing land and water management methods in contemporary Australian food and fibre production with traditional Aboriginal systems and countries of Asia, for example minimum-tillage cropping, water-efficient irrigation
- investigating the management of plant and animal growth through natural means and with the use of chemical products like herbicides and medicines when producing food and fibre products
- recognising the need to increase food production using cost efficient, ethical and sustainable production techniques
- describing physical and chemical characteristics of soil and their effects on plant growth when producing food and fibre products
- investigating different animal feeding strategies such as grazing and supplementary feeding, and their effects on product quality, for example meat tenderness, wool fibre diameter (micron), milk fat and protein content when producing food and fibre products
- recognising the importance of food and fibre production to Australia's food security and economy including exports and imports to and from Asia when critiquing and exploring food and fibre production

**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)
- considering community needs when identifying opportunities for designing, for example gardens for a community centre, cost effective food service for a sport club
- 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

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
- 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

Independently develop criteria for success to evaluate design ideas, processes and solutions and their

sustainability (ACTDEP038)

- 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)

- 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