

Food and fibre: Science

Science

The Australian Curriculum addresses learning about food and fibre predominantly in Design and Technologies and F-6/7HASS/Geography, however there are opportunities to make connections with aspects of Science, in particular biological sciences and science as a human endeavour.

The Australian Curriculum: Science has three interrelated strands: science understanding, science as a human endeavour and science inquiry skills. Together, the three strands of the Science curriculum provide students with understanding, knowledge and skills through which they can develop a scientific view of the world. Students are challenged to explore science, its concepts, nature and uses through clearly described inquiry processes.

Food and fibre dimensions

Science - Years 9 and 10

Year 9

Science Understanding

Biological sciences

Content description with elaborations:

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)

- exploring interactions between organisms such as predator/prey, parasites, competitors, pollinators and disease
- examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species
- investigating how ecosystems change as a result of events such as bushfires, drought and flooding

Science as a human endeavour

Use and influence of science

Content description with elaborations:

People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions and advances in science can affect people's lives including generating new career opportunities (ACSHE160)

- considering the impacts of human activity on an ecosystem from a range of different perspectives

Year 10

Science Understanding

Biological sciences

Content descriptions with elaborations:

Characteristics from one generation to the next involves DNA and genes (ACSSU184)

- controlling the characteristics of organisms
- recognising that genetic information passed on to offspring is from both parents by meiosis and fertilisation

- describing mutations as changes in DNA or chromosomes and outlining the factors that contribute to causing mutations

The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence (ACSSU185)

- outlining processes involved in natural selection including variation, isolation and selection
- investigating changes caused by natural selection in a particular population as a result of a specified selection pressure such as artificial selection in breeding for desired characteristics

Science knowledge and understanding

Earth and space sciences

Content description with elaborations:

Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere (ACSSU189)

- investigating how human activity affects global systems
- modelling a cycle, such as the water, carbon, nitrogen or phosphorous cycle within the biosphere
- examining the factors that drive the deep ocean currents, their role in regulating global climate, and their effects on marine life

Science as a human endeavour

Nature and development of science

Content descriptions with elaborations:

Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community (ACSHE191)

- considering the role of science in identifying and explaining the causes of climate change

Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries (ASHE192)

- considering how computer modelling has improved knowledge and predictability of phenomena such as climate change and atmospheric pollution

Use and influence of science

Content descriptions with elaborations:

People can use scientific knowledge to evaluate whether they accept claims, explanations or predictions and advances in science can affect people's lives including generating new career opportunities (ACSHE194)

- considering the scientific knowledge used in discussions relating to climate change
- investigating the applications of gene technologies such as gene therapy, genetic engineering

The values and needs of contemporary society can influence the focus of scientific research (ACSHE230)

- considering the use of genetic testing for decisions such as genetic counselling, embryo selection, identification of carriers of genetic mutations and the use of this information for personal use or by organisation such as insurance companies or medical facilities