

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 7 and 8

Year 7

Science Understanding

Biological sciences

Content description with elaborations:

Interactions between organisms, including the effects of human activities can be represented by food chains and food webs (ACSSU112)

- constructing and interpreting food webs to show relationships between organisms in an environment
- investigating the effect of human activity on local habitats, such as deforestation, agriculture or the introduction of new species

Earth and space sciences

Content description with elaborations:

Some of Earth's resources are renewable including water that cycles through the environment but others are non-renewable (ACSSU116)

- investigating factors that influence the water cycle in nature
- exploring how human management of water impacts on the water cycle

Science as a human endeavour

Nature and development of science

Content description with elaborations:

Science knowledge can develop through collaboration across the disciplines of science, and the contributions of people from a range of cultures (ACSHE223)

Elaborations:

- considering how water use and management relies on knowledge from different areas of science, and involves the application of technology
- identifying the contributions of Australian scientists to the study of human impact on environments including local environmental management projects
- investigating how land management practices of Aboriginal and Torres Strait Islander peoples can help inform sustainable management of the environment
- recognising that traditional and Western scientific knowledge can be used in combination to care

Use and influence of science

Content descriptions with elaborations:

Solutions to contemporary issues that are found using science and technology may impact on other areas of society and involve ethical considerations (ACSHE120)

- considering issues relating to the use and management of water within a community
- considering how human activity in the community can have positive and negative effects on the sustainability of natural and managed ecosystems
- investigating ways to control the spread of introduced animals and plants such as the cane toad and nut grass

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121)

- investigating how advances in science and technology have been applied to the treatment, of water in industrial and household systems
- investigating how Aboriginal and Torres Strait Islander knowledge is being used to inform scientific decisions, for example care of waterways
- researching the different scientific responses to rabbit plagues in Australian agricultural areas
- recognising that water management plays a role in areas such as farming, land management and gardening
- considering how seasonal changes affect people in a variety of activities such as farming

Year 8

Science Understanding

Biological sciences

Content descriptions with elaborations:

Cells are the basic units of living things and have specialised structures and functions (ACSSU149)

- recognising that some organisms consist of a single cell
- recognising that cells reproduce via cell division
- describing mitosis as cell division for growth and repair

Multi-cellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce (ACSSU150)

- comparing similar systems in different organisms such as digestive systems in herbivores and carnivores, respiratory systems in fish and mammals
- distinguishing between asexual and sexual reproduction

Science as a human endeavour

Nature and development of science

Content descriptions with elaborations:

Scientific knowledge has changed people's understanding of the world and is refined as new evidence becomes available (ACSHE134)

- investigating developments in the understanding of cells and how this knowledge has impacted on areas such as health, medicine

Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures (ACSHE226)

- researching the use of reproductive technologies and how developments in this field rely on scientific knowledge from different areas of science

Use and influence of science

Content description with elaborations:

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE136)

- describing how technologies have been applied to modern farming, forestry and fisheries techniques to improve yields and sustainability
- describing the impact of plant cloning techniques (asexual production) in agriculture such as horticulture, fruit production and vineyards
- recognising the role of knowledge of the environment and ecosystems in a number of occupations
- recognising the role of knowledge of cells and cell divisions in the area of disease treatment and control