

Food and fibre: Geography

Geography

The Australian Curriculum: Geography identifies the concepts of place, space, environment, interconnection, sustainability, scale and change, as integral to the development of geographical understanding. These are high-level ideas or ways of thinking that can be applied across the subject to identify a question, guide an investigation, organise information, suggest an explanation or assist decision-making. These concepts also relate strongly to the food and fibre connection and are integrated with geographical inquiry and skills.

Geographical inquiry is a process by which students learn about and deepen their holistic understanding of their world. It involves individual or group investigations that start with geographical questions and proceed through the collection, evaluation, analysis and interpretation of information to the development of conclusions and proposals for actions. Inquiries may vary in scale and geographical context. Geographical skills are the techniques that geographers use in their investigations, both in fieldwork and in the classroom. Key skills developed through Geography in the Australian Curriculum include formulating a question and research plan, recording and data representation skills, using a variety of spatial technologies and communicating using appropriate geographical vocabulary and texts.

From Foundation to Year 10, students build on their understanding of place, space, environment, interconnection, sustainability and change and apply this understanding to a wide range of places and environments at the full range of scales, from local to global, and in a range of locations.

Food and fibre dimensions

Geography - Years 9 and 10

Year 9

Geographical knowledge and understanding

Biomes and food security

Content descriptions with elaborations:

Distribution and characteristics of biomes as regions with distinctive climates, soils, vegetation and productivity (ACHGK060)

- identifying and describing the major aquatic and terrestrial biomes of Australia and the world, and their spatial distribution
- examining the influence of climate on biomass production (as measured by Net Primary Productivity) in different biomes

The human alteration of biomes to produce food, industrial materials and fibres, and the use of systems thinking to analyse the environmental effects of these alterations (ACHGK061)

- identifying the biomes in Australia and overseas that produce some of the foods and plant material people consume
- investigating ways that the production of food and fibre has altered some biomes (for example, through vegetation clearance, introduction of exotic species, drainage, terracing and irrigation)
- identifying the differences between natural and agricultural ecosystems in flows of nutrients and water, and in biodiversity

Environmental, economic, and technological factors that influence crop yields in Australia and across the world (ACHGK062)

- describing how environmental factors (for example, climate, soil, landform and water) can support

higher crop yields and investigating the environmental constraints on agricultural production in Australia (for example, soil moisture, water resources and soils)

- investigating how high crop yields (for example, from wheat, rice and maize) around the world are related to factors such as irrigation, accessibility, labour supply, landforms and agricultural technologies (for example, high-yielding varieties)

Challenges to food production, including land and water degradation, shortage of fresh water, competing land uses and climate change for Australia and other areas of the world (ACHGK063)

- exploring environmental challenges to food production from land degradation (soil erosion, salinity, desertification), industrial pollution, water scarcity and climate change
- identifying the impacts on food production from competing land uses (for example, sacred sites, urban and industrial uses, mining, production of food crops for biofuels, production of food crops for livestock, and recreation (such as golf courses))

The capacity of the world's environments to sustainably feed the projected future global population (ACHGK064)

- examining the effects of anticipated future population growth on global food production and security, and its implications for agriculture and agricultural innovation
- researching the potential of agricultural production in Northern Australia
- identifying how poverty, food wastage, government policies or trade barriers could affect future food security

Geographical inquiry and skills

Observing, questioning and planning

Content description with elaborations:

Develop geographically significant questions and plan an inquiry that identifies and applies appropriate geographical methodologies and concepts (ACHGS063)

- developing questions of geographical significance about an area of focus in the geographical knowledge and understanding strand (for example, questions about the importance of food security or types of interconnections)
- using a range of methods including digital technologies to plan and conduct an information search about human alteration to biomes in Australia and another country

Collecting, recording, evaluating and representing

Content descriptions with elaborations:

Evaluate sources for their reliability, bias and usefulness and select, collect, record and organise relevant geographical data and information, using ethical protocols, from a range of appropriate primary and secondary sources (ACHGS064)

- gathering relevant data from a range of primary sources (for example, from observation and annotated field sketches, conducting surveys and interviews and experiments, or taking photographs), about challenges to food production or the effects of people's travels, recreational, cultural or leisure choices on places

Represent multi-variable data in a range of appropriate forms, for example, scatter plots, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies (ACHGS065)

- creating a diagram to illustrate the flows of nutrients and energy within a biome, and the alterations to these flows produced by agriculture
- developing a table to show the types of challenges to food production in Australia compared to other areas of the world, or the ways that places and people are interconnected through trade

Represent the spatial distribution of geographical phenomena by constructing special purpose maps that conform to cartographic conventions, using spatial technologies as appropriate (ACHGS066)

- creating a map to show the relationship between biomes and world food production, using a

spatial technologies application

Interpreting, analysing and concluding

Content descriptions with elaborations:

Interpret and analyse multi-variable data and other geographical information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to make generalisations and inferences, propose explanations for patterns, trends, relationships and anomalies, and predict outcomes (ACHGS067)

- constructing a graph to show the relationship between growth in world population and world food production

Reflecting and responding

Content descriptions with elaborations:

Reflect on and evaluate findings of an inquiry to propose individual and collective action in response to a contemporary geographical challenge, taking account of environmental, economic, political and social considerations; and explain the predicted outcomes and consequences of their proposal (ACHGS071)

- explaining how the application of geographical concepts and methods has contributed to deep understanding of the causes of and solutions to issues related to biomes, food production and security, interconnections or spatial change
- examining the environmental, economic and social factors that need to be considered in an investigation of a contemporary geographical issue such as ways of increasing Australian or global food production or the effects of information and communications technologies on the location of manufacturing or services and debating alternative responses that consider environmental, economic and social factors

Year 10

Geographical knowledge and understanding

Environmental change and management

Content descriptions with elaborations:

Human-induced environmental changes that challenge sustainability (ACHGK070)

- discussing the concept of sustainability in relation to environmental functions identifying human-induced environmental changes (for example, water and atmospheric pollution; loss of biodiversity; degradation of land, inland and coastal aquatic environments) and discussing the challenges they pose for sustainability
- evaluating the concept of ecosystem services and the importance of these services for sustainability and biodiversity

Select ONE of the following types of environment as the context for their study: land (e.g. forests, deserts, grassland, farmland), inland water, coast, marine or urban.

A comparative study of examples selected from Australia and at least one other country should be included.

Content descriptions with elaborations:

The application of systems thinking to understanding the causes and likely consequences of the environmental change being investigated (ACHGK073)

- describing the nature of the environmental change and its effect on the sustainability of environmental functions

The application of geographical concepts and methods to the management of the environmental change being investigated (ACHGK074)

- comparing strategies in Australia and another country to manage the environmental change

being investigated

The application of environmental, economic and social criteria, in evaluating management responses to the change (ACHGK075)

- discussing the extent to which achieving sustainability in one place should take account of the effects on the environmental conditions in other places in the context of the environmental change being investigated