STAGE 2 GEOGRAPHY: Natural environments

Focus area: The Earth's environment	
Different environments	**Significance of environments**

Key inquiry questions

- How does the environment support the lives of people and other living things?
- How can people use places and environments more sustainably?

Content focus

Students:

- explore the climate, natural vegetation and native animals of wetlands on the Central Coast of NSW
- examine the importance of natural vegetation and natural resources to the environment, animals and people
- learn about the ways people value environments, including Aboriginal and Torres Strait Islander Peoples

Outcomes

A student:

- examines features and characteristics of places and environments **GE2-1**
- describes the ways people, places and environments interact **GE2-2**
- acquires and communicates geographical information using geographical tools for inquiry **GE2-4**

Overview

The geographical inquiry process will locate the natural vegetation types of Australia, investigate the ways vegetation is used by animals in the environment and the ways people use natural resources.

Assessment

Many of the activities require students to demonstrate their learning. These activities can be used to assess student progress at various stages throughout the inquiry process.

Different environments Students: • investigate the natural characteristics of Australia and a country in Asia, for example: – comparison of climate, natural vegetation and native animals **Significance of environments** Students: • investigate the importance of natural vegetation and natural resources to the environment, animals and people, for example: – identification of types of natural vegetation eg forests, grasslands, deserts	**Inquiry 1 – Natural vegetation of Australia** Students map and describe the characteristics of Australia's natural vegetation types and associated wildlife **Acquiring geographical information** **Question:** - What are the natural vegetation types of Australia? - Where are the natural vegetation types located in Australia? **Acquire data and information:** - Reference a virtual **vegetation map** of Australia e.g. http://www.gondwananet.com/geography-of-australia.html Discuss vocabulary of vegetation zones. - Discuss reasons for there being different vegetation zones in Australia (climate). - Observe and annotate **photographs** of each vegetation type. - Research **information** on native animals that are typically found in two vegetation types. **Processing geographical information** - On a base **map of Australia**, add a mapping overlay to represent the major vegetation types. Analyse the results. How does climate influence vegetation? - Match **photographs** of each vegetation type to the vegetation types overlay. - Construct a **summary table** of two Australian vegetation types, illustrating and describing each type, its location and associated native animals for example rainforest and grassland. **Communicating geographical information** **Communicate:** Students create a visual representation of one major vegetation type of Australia and its animals.

Significance of environments Students: • investigate the importance of natural vegetation and natural resources to the environment, animals and people, for example: – identification of types of natural vegetation e.g. forests, grasslands,	**Inquiry 2 – Case study of a natural environment – fieldwork investigation** Select a specific Australian natural environment that is readily accessible for a fieldwork investigation: Porters Creek Wetland or Avoca Lagoon. See case studies in Central Coast Council's Wetlands Multi-Touch Book available on the iBookstore Students investigate the environment and produce a fieldwork report describing the importance of the environment to animals and people. **Acquiring geographical information** **Question:** How does a wetland provide for the needs of animals, people and the

deserts – explanation of the importance of natural vegetation to animals and the functioning of the environment eg provision of habitats, production of oxygen	environment? - Where is the wetland located? - What are the characteristics of the wetland? - What habitats are found in the wetland? - How do native animals use habitats in the wetland? - Why is this wetland significant? **Acquire data and information:** - Locate the wetland on a **satellite image** of the region. Identify other nearby natural environments. Use the aerial photographs on Central Coast Council's Wetlands Multi-Touch Book. - View **photographs** of the wetland and identify the main vegetation type. - **Fieldwork** – visit the wetland. Use tools such as **field sketches, photographs, plant surveys, invertebrate and vertebrate surveys** and **habitat checklists** to record the natural and human features of the environment. - Consult with the Darkinjung people to share traditional knowledge on interrelationships between plants and animals in the wetland. **Processing geographical information** Students use geographical tools to represent, organise and analyse the data and information, for example: - Create a **map** of the site that labels key features. - Use native **animal identification apps or field guides** to identify the animals found in the environment and discuss how they use the natural vegetation. - Collate, categorise and annotate **photographs** taken during fieldwork. - Create a **table** that lists the main plants and explains how they are used by animals in the environment. - Construct a **concept map** for one habitat and list the animals that use it. Use arrows to identify the connections between the animals. - Represent connections between a plant and animals using an **illustrated flow chart**. **Communicating geographical information** **Communicate:** Students compile a **fieldwork report** that includes: o a location map o labelled field sketch and/or annotated photographs o description of the features of the environment

	○ plant and animal lists ○ interrelationships between animals and plants ○ actions that can protect the environment. The report could be digital and/or multimodal, combining photographs, videos, sketches, diagrams and verbal or written explanations. Students describe actions that people can take to protect the natural environment, e.g. bells on cats in surrounding areas, staying on walking tracks, native habitat gardens. **Resources** Environmental and Zoo Education Centres NSW (DoE fieldwork opportunities) Australian Museum, Field Guide to NSW Fauna Mobile App Field of Mars EEC, Habitat Multi-Touch Book **Learning connections:** *Science and Technology K–6 Syllabus*: Living world (Living things depend on each other and the environment to survive.)

Significance of environments

Students:

- investigate the importance of natural vegetation and natural resources to the environment, animals and people, for example:
  - identification of types of natural vegetation e.g. forests, grasslands, deserts
  - explanation of the importance of natural vegetation to animals and the functioning of the environment eg provision of habitats, production of oxygen

Inquiry 3 – Animal habitats

Student-centred inquiry into a natural animal habitat

Students select a **migratory shorebird** that migrates between Australia and an Asian country. They investigate its wetland habitats and produce a fact sheet describing the importance of wetlands to the bird, which they present to the class, advocating for their selected bird. For example Bar-tailed Godwit – refer to *Circle* by Jeannie Baker.

Note: The syllabus requires an investigation of natural characteristics in Australia and a country of Asia. Examining the natural characteristics of an Asian country forms part of a cultural study of Australia's neighbours in the focus area *Places are similar and different*.

Acquiring geographical information

Question:

Inquiry questions should be specific to the bird selected for investigation, and its habitat, e.g. How does a Bar-tailed Godwit use natural vegetation?

- Where does the Bar-tailed Godwit live?
- What are the features of its habitat?
- How does a Bar-tailed Godwit use its habitat?
- What other plants and animals does a Bar-tailed Godwit interact with and how?
- How is the Bar-tailed Godwit and its habitat protected?

Acquire data and information:

Support students to access a range of information sources and use a variety of geographical tools to support the geographical inquiry. For example:

- Use a wildlife **fact sheet** or **websites** to identify:
  - Flight path and home habitats of the bird
  - diet
  - behaviours (interactions with the environment, breeding, migration)
- View **photographs and videos** showing the relationships between the selected bird and the environment.
- Access **information** that describes threats to the habitat and measures that protect the bird and its habitat.

Processing geographical information

Students use geographical tools to represent, organise and analyse the data and information, for example:

- Plot the flight path and distribution of the selected bird on a **map**.
- Record and organise the information collected into a **table**.

	- Represent connections between the selected bird and other species using an **illustrated flow chart**. - Construct a **cause and effect chart** explaining threats to the habitat and measures that protect it. **Communicating geographical information** **Communicate:** Support students to draw conclusions on the importance of wetlands for the selected bird. Students create an **illustrated fact sheet** on the bird, describing its habitat, diet, behaviours and other uses of the environment. Students present their information to the class in a creative way, advocating for their bird. If only five birds and their habitats were to be protected, determine as a class the five to 'save'. Students work collaboratively on a **'SWOT' analysis** of each bird researched by students. Use strategies to reach consensus on five. **Resources** Australian Museum, Animals Birds in Backyards Field of Mars EEC, Habitat Multi-Touch Book **Learning connections:** *Science and Technology K–6 Syllabus*: Living world (Living things depend on each other and the environment to survive.)

Significance of environments

Students:

- investigate the importance of natural vegetation and natural resources to the environment, animals and people, for example: (
  - identification of types of natural vegetation eg forests, grasslands, deserts
  - discussion of the importance of natural vegetation and natural resources to people eg provision of food, medicine, fuel, timbers, fibres, metals

Protection of environments

Students:

- investigate sustainable practices that protect environments, including those of Aboriginal and Torres Strait Islander Peoples, for example:
  - examination of how environments can be used sustainably e.g. sustainable agricultural, commercial
  - discussion of ways waste can be managed sustainably

Inquiry 4 – Using natural resources sustainably

Students investigate the importance of natural resources to people and consider how they can be used sustainably. They create a presentation such as an animation that shows the steps involved in delivering clean drinking water to their house (rain, dam, treatment works, pipes etc.).

Acquiring geographical information

Question:

Inquiry questions should be specific to the supply of drinking water, e.g. Where does my drinking water come from and how does it get there?

- What ways do we use water on a daily basis?
- Why is it important that drinking water is clean?
- Where does your drinking water come from?
- What are the steps involved in delivering clean drinking water to your house?
- How can the source of your water be managed sustainably?

Acquire data and information:

Support students to access a range of information sources and to use a range of geographical tools to support the geographical inquiry. For example:

- Use natural resources and Central Coast Council **websites** to collect information on water supply.
- Locate **flowcharts** showing the steps involved in water distribution. *(Note: The focus in geography is on the interconnection between natural resources and people.)*
- Consult with the Darkinjung people on the importance of water to 'country'.

Processing geographical information

Students use geographical tools to represent, organise and analyse the data and information, for example:

- Construct a **flowchart** to explain the steps involved in delivering clean water to your house.
- Plot the location of the source of the water on a **map**, e.g. river, dam.
- Construct a **table** listing daily uses of water in your house. Include a column to identify sustainable management practices.

Communicating geographical information

Communicate:

Support students to draw conclusions on the importance of water to people. Students create a presentation such as an animation that shows the steps involved in delivering clean drinking water to their

	house (rain, dam, treatment works, pipes etc.). For example, an animation can be created using 3D materials in apps such as iMotion or using the Slowmation technique. Alternatively it can be created in 2D with a narration using an app such as Show Me or Explain Everything. Explain ways of reducing water use though actions at home and school, e.g. turning off taps, fixing leaks, using half flush buttons on toilets. **Resources** The Central Coast water supply map https://www.wyong.nsw.gov.au/my-property/water/water-supply-system/central-coast-water-story

Geographical concepts	Geographical inquiry skills	Geographical tools
The following **geographical concepts** have been integrated into the teaching and learning sequence: **Place:** *the significance of places and what they are like* eg natural and human features and characteristics of different places and their similarities and differences; how people's perceptions about places influence their responses and actions to protect them. **Space:** *the significance of location and spatial distribution, and ways people organise and manage spaces that we live in* eg settlement patterns within Australia, neighbouring countries and other countries. **Environment:** *the significance of the environment in human life, and the important interrelationships between humans and the environment* eg how climate and environment influence settlement patterns; interconnections between people and environments; differing ways people can use environments sustainably. **Interconnection:** *no object of geographical study can be viewed in isolation* eg interconnections between people, places and environments; influence of people's values on the management and protection of places and environments and the custodial responsibilities of Aboriginal and Torres Strait Islander Peoples. **Scale:** *the way that geographical phenomena and problems can be examined at different spatial levels* eg types of settlement across a range of scales; the influence of climate across a range of scales. **Sustainability:** *the capacity of the environment to continue to support our lives and the lives of*	The following **geographical inquiry skills** have been integrated into the unit: **Acquiring geographical information** • develop geographical questions to investigate • collect and record relevant geographical data and information, for example, by observing, by interviewing, conducting surveys, or using maps, visual representations, the media or the internet **Processing geographical information** • represent data by constructing tables, graphs and maps • represent information by constructing large-scale maps that conform to cartographic conventions, using spatial technologies as appropriate • interpret geographical data to identify distributions and patterns and draw conclusions **Communicating geographical information** • present findings in a range of communication forms, for example, written, oral, digital, graphic, tabular and visual, and use geographical terminology • reflect on their learning to propose individual action in response to a contemporary geographical challenge and identify the expected effects of the proposal	The following **geographical tools** have been integrated into the unit. Examples may include: **Maps –** • large-scale maps, world map, globe, sketch maps • maps to identify location, direction, distance, map references, spatial distributions and patterns **Fieldwork –** • observing, measuring, collecting and recording data, conducting surveys or interviews • fieldwork instruments such as measuring devices, maps, photographs **Graphs and statistics –** • tally charts, pictographs, data tables, column graphs, simple statistics **Spatial technologies –** • virtual maps, satellite images, global positioning systems (GPS) **Visual representations –** • photographs, illustrations, diagrams, story books, multimedia, web tools

other living creatures into the future eg ways in which people, including Aboriginal and Torres Strait Islander Peoples, use and protect natural resources; differing views about environmental sustainability; sustainable management of waste.		