Module 4 Human Impacts | Stage 6 | Year 11 ESS

Summary

Outcomes

A student:

› develops and evaluates questions and hypotheses for scientific investigation EES11/12-1

› designs and evaluates investigations in order to obtain primary and secondary data and information EES11/12-2

› conducts investigations to collect valid and reliable primary and secondary data and information EES11/12-3

› describes human impact on the Earth in relation to hydrological processes, geological processes and biological changes EES11-11

Content:

Salinity and Erosion: Inquiry question: How does human use of land affect soil?

Students:

- explain causes of salinisation, including but not limited to: (ACSES024)
  - land clearing
  - irrigation
- investigate the rehabilitation of salinity-affected area(s) by preparing a case study (ACSES070)
- conduct a practical investigation into soil erosion prevention and analyse the efficacy of the method(s) used (ACSES060, ACSES102)
- investigate sources and effects of soil contamination, including but not limited to:
  - heavy metal contamination

Effects of Introduced Species: Inquiry question: How do introduced species affect the Australian environment and ecosystems?

Students:

- outline the biotic and abiotic effects of introduced species
- conduct an investigation into a local introduced species, including:
  - reason for introducing the species

Total package

- 2 optional pre-visit lessons that contribute to depth study (45-50 minutes)
- On-site excursion – data collection 9.30am – 2.00pm (5 hours) times can be adjusted to suit school times
- 2 optional post-visit lessons that contribute to depth study (45-50 minutes)

About Longneck Lagoon EEC

Longneck Lagoon Environmental Education Centre is located in Scheyville National Park and includes a terrestrial environment (Cumberland Plain Woodland) and a freshwater aquatic environment (lagoon and creek).

These lesson programs have been prepared by Department of Education teachers in line with the 2018 Stage 6 Earth and Environmental Science syllabus.

– biotic and abiotic effects of the species – area affected by the species – human impacts that favour the introduced species – control or mitigation methods – economic impact of the species – different views about the value of and/or harm caused by the introduced species, including the views of Aboriginal and Torres Strait Islander Peoples • analyse ways in which human activity can upset the balance of ecosystems and favour introduced species (ACSES027) • describe ways in which introduced species contribute to the decline or extinction of native Australian species (ACSES081)	

Inquiry questions	Excursion outline	Resources/links
How does land use affect salinity and erosion at Longneck Lagoon? **What introduced species exist at Longneck Lagoon?** **What impact do introduced species have on the ecosystem at Longneck Lagoon?** **What human impacts can be observed at Longneck Lagoon?**	**Longneck Lagoon EEC staff introduction**: • Acknowledgement of Country. • Longneck Lagoon EEC/Scheyville National Park. • Review pre-visit work (if completed). **Data collection** **a. Specific site studies** Students will collect data from 3 different sites including: • dominant vegetation species (trees, shrubs, ground cover) • vegetation characteristics (shrub density, canopy density, light level) • soil characteristics (organic content, pH, chlorides). **b. Erosion profile** Students will collect data along a transect line including: • soil compaction • leaf litter density • slope • erosion.	Student worksheets available on the Longneck Lagoon EEC website

	c. Evidence of introduced species Students will use a GPS to record the location of a variety of introduced flora and fauna they observe during field work. This data can be used in a mapping exercise to plot the location of introduced species at Longneck Lagoon as part of a follow-up lesson or as part of a depth study. **d. Human activity** Students will record evidence of human activity and reflect on the environmental impact.	