



Program Overview

Students will undertake a variety of scientific investigations to develop an understanding of the abiotic and biotic features of the mangrove ecosystems at Bobbin Head. They will use observation to describe energy and material flow in this system.

These investigations will assist them to understand the health of the estuary and both cultural and current management strategies employed to conserve this important ecosystem.

Inquiry Questions

1. What are the biotic and abiotic features of mangrove ecosystems?
2. How does energy and nutrients flow in mangrove ecosystems?
3. How are mangroves at Bobbin Head managed?
4. What Aboriginal cultural practices contribute to conservation and management of this ecosystem?

Learning Experiences

Water Quality Analysis

Students will use scientific equipment to test the quality of the water at Bobbin Head. Together with their observations, students will determine human impacts on the water and mangrove ecosystems.

Abiotic and Biotic Features of Mangroves

Using scientific equipment, students will measure and record abiotic features of mangrove ecosystems including temperature, soil pH and light. They will then use scientific techniques to identify the different biotic features of the ecosystem and how they have adapted to the abiotic conditions.

Current Management and Aboriginal Management of Mangroves

Students will visit Aboriginal cultural sites to develop an understanding of Aboriginal management of mangroves and look at current issues and National Parks management strategies in this ecosystem.

Energy and Nutrient Flow in Mangroves

Students will observe and record the trophic level of different species of plants and animals during the day. They will use this information to complete food chains and food webs. They will also observe and discuss nutrient cycles.

Key Syllabus Outcomes and Content

Outcomes

> relates the structure and function of living things to their classification, survival and reproduction SC5-14LW

Content

LW2 Conserving and maintaining the quality and sustainability of the environment requires scientific understanding of interactions within, the cycling of matter and the flow of energy through ecosystems.

Students:

- a. Recall that ecosystems consist of communities of interdependent organisms and abiotic components of the environment (ACSSU176)
- b. Outline using examples of how matter is cycled through ecosystems such as nitrogen (ACSSU176)

- c. Describe how energy flows through ecosystems, including input and output through food webs
- d. Analyse how changes in some biotic and abiotic components of an ecosystem affect populations and/or communities
- e. Assess ways that Aboriginal and Torres Strait Islander peoples' cultural practices and knowledge of the environment contribute to the conservation and management of sustainable ecosystem
- f. Evaluate some examples in ecosystems, of strategies used to balance conserving, protecting and maintaining the quality and sustainability of the environment with human activities and needs.