

Association Eli-S Australia

Education Program



Modules

1.a. Introduction to the environmental science course

- This module introduces the students to the topics delivered throughout the course. Students will:

- Identify the topics delivered in the environmental course
- Understand the interconnectedness of human beings and the natural world
- Communicate existing knowledge of marine life and make connections to personal experiences
- Participate in guided investigations to identify features of some marine animals
- Compare the basic features of fishes, turtles, dolphins, whales
- Identify and group marine animals using their features
- Communicate findings of observations of living things in their environment

2.a. Introduction to the environment

- This module introduces students to the environment and its features. Students will:

- Identify the difference between living and non-living things, animals and plants, human and non-human things
- Communicate findings of observations of living and non-living things, animals and plants, human and non-human things in the environment
- Be able to provide a definition of environment

2.b. The natural environment

- This module delves further in to the environment and focusses on the different natural environments of Australia. Students will:

- Locate Australia on a world map and identify which continent Australia belongs to
- Describe Australia's climate
- Recall the different types of environments present in Australia
- Define natural environment
- Demonstrate knowledge of where different natural environments occur in Australia
- Use critical thinking to formulate ideas about different environments

3.a. Distinctive features of the ocean

- This module introduces students to the ocean and its features. Students will:

- Differentiate between aquatic and terrestrial environments
- Define photosynthesis
- Use a microscope safely and effectively to identify plankton in sea water
- Describe the phenomenon of tides
- Demonstrate understanding of tides through role-play

3.b. Salinity and ocean temperature

- This module further explores specific features of ocean water. Students will:

- Identify the differences between seawater and freshwater
- Describe factors that influence water density

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3.c. Ocean currents

- This module explores and explains ocean currents. Students will:

- Recall the different currents of the world's oceans
- Explain how currents move water around oceans
- Name the major oceans

4.a. Amazing Artemia

- This module introduces students to the fascinating world of Artemia (or Sea Monkeys). Students will:

- Describe the features and lifecycle of Artemia
- Describe the habitat of Artemia
- Learn the importance of Artemia to the environment and the economy

4.b. What are mangroves? (Part 1)

- This module teaches students about mangrove habitats, their ecology, and their importance to the environment. Students will:

- Encounter vocabulary associated with mangroves from research
- Learn to use interaction skills to engage in a discussion about their knowledge of Mangroves
- Identify the structural features and adaptations that allow mangroves to survive in their environment
- Identify the importance of mangroves to Indigenous cultures
- Develop an understanding of how mangroves can prevent damage from natural disasters such as a Tsunami

4.c. What are mangroves? (Part 2)

- This module further explains the importance of mangrove environments and introduces students to the animals that live in mangrove environments

- Encounter vocabulary associated with mangroves from research
- Learn to use interaction skills to engage in a discussion about their knowledge of Mangroves
- Identify animals that live within a Mangrove environment and identify the purpose Mangroves serve to each species
- Understand how mangroves protect oceans and reefs

5.a. Birds biology and ecology

- This module introduces students to the biology and ecology of birds. Students will:

- Identify the features of a bird
- Describe the role of feathers in different environments
- Explain why birds sing
- Recall the function of nests

5.b. Birds of Australia

- This module delves further into the world of birds, focusing specifically on Australian bird species. Students will:

- Name main characteristics of birds
- Identify some commonly seen species of Australian birds
- Identify threatened or endangered species

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6.a. Cetaceans biology and ecology

- This module introduces whales and dolphins to students and focusses on the biology and ecology of cetaceans. Students will:

- Identify differences between fishes and cetaceans
- Describe differences between baleen and toothed whales
- Label external features of a humpback whale
- Understand the function of blubber
- Understand the concept of the food chain in the marine environment

6.b. How big is a whale?

-This module focuses specifically on the size of whales and other sea creatures. Students will:

- Understand the size of different whale species
- Compare and contrast the size of whales to themselves and other animals
- Understand the size ratio of a humpback whales' body parts

6.c. Cetaceans of Australia

-This module delves further into the world of cetaceans, focusing specifically on Australian cetacean species. Students will:

- List cetacean species found in Australian waters
- Identify the species found in Australian waters
- Understand the migration of whales along the east coast of Australia

6.d. Migration of whales in Australia

- This module explores the wonderful world of migrating whales in Australia. Students will:

- Be familiar with the migration routes of whales in Australian waters, particularly humpback whales and southern right whales along the east coast of Australia
- Understand the reasons why whales migrate to different areas each year
- Understand why whales need both Antarctic and warmer Australian waters to survive
- Understand factors that may impact whale migration

6.e. Photo identification

- This module introduces students to a core component of whale and dolphin research; photo identification. Students will:

- Explain what photo identification is and how it is used to identify individual animals
- Describe how photo identification is used in scientific research

7.a. Sea turtles biology and ecology

- This module investigates sea turtles of Australia, focusing on their biology and ecology. Students will:

- Identify the species of sea turtles present in Australia
- Describe the external features of sea turtles
- Identify threats to sea turtles and propose possible solutions to threats
- Summarise the differences in feeding and habitat of the various sea turtle species

8.a. Corals and biodiversity

- This module introduces students to corals and biodiversity of coral reefs. Students will:

- Describe coral and coral reefs
- Identify the coral reefs of Australia
- List some flora and fauna of coral reefs

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- Describe the importance of coral reefs
- Predict the outcome of an ocean acidification experiment

8.b. Threats to coral reefs

- This module delves further in to the coral reef world, specifically focusing on the threats to our coral reefs. Students will:

- Describe coral bleaching
- Explain how coral bleaching affects coral reefs
- Summarise what ocean acidification is and why it is a threat
- Identify ways that humans can mitigate the problem of ocean acidification

9.a. The forest ecosystems of Australia

- This module introduces students to the forest ecosystems of Australia. Students will:

- Provide a definition of a forest and a tree
- Identify the different types of forest in Australia and where they occur
- Recall why trees and forests are important
- List some species of Australian trees
- List some species of Australian forest animals
- Differentiate between carnivores, herbivores, and omnivores

9.b. Human impacts on forests

- This module explores how human behaviours can impact forests and what we can do to mitigate it.

Students will:

- Describe the functions of a forest
- Identify threats to forests
- Recognise the impacts these threats can have
- Learn some ways to mitigate deforestation

10.a. Fish and overfishing

- This module introduces students to the fisheries industry and focuses on the problem of overfishing. Students will:

- Name main characteristics of fish
- Identify destructive and sustainable fishing methods
- Describe the effects of over-fishing on fish stocks

By the end of the lesson, students should understand that the removal of many individuals from a fish stock makes it difficult to replenish and sustain a population. Increased distances between individuals make it difficult to reproduce. Also, for some species, the separation from their stock makes it difficult to find protection (e.g. schooling fish), difficult for some species to find food, difficult for young to survive, etc.

- Contrast destructive fishing techniques with sustainable fishing techniques

11.a. Rubbish

- This module is all about rubbish and the threat it poses to the natural world. Students will:

- Provide a definition of rubbish
- Identify the '3 R's (reduce, reuse, recycle)
- Develop plans to reduce rubbish in their environment

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11.b. Recycling

- This module teaches students about recycling and why it is important. Students will:

- Define recycling
- Describe what items can be recycled
- Explain why it is important to recycle
- Categorise recycled items by material type
- Design a recycled item from recycled material

11.c. Recycling practical activity

- This module further explores recycling and focuses on how we can recycle in Australia. Students will:

- Categorise waste in to different types
- Identify ways that waste can be recycled
- Perform an audit of waste

11.d. The plastic problem

-This module explores plastic and why it is increasingly becoming a problem in our environment. Students will:

- Understand how plastic is produced
- Describe the production of single use plastic
- Evaluate the impact of single use plastic items
- Recognise ways that plastic enters the ocean and food chain
- Identify ways to reduce plastic use

Each module of the education program includes lesson goals that link to the Science and Technology K-6 syllabus, and the Geography K-6 syllabus. In the header of each module you will also see the codes and icons which link the module to the Coding and Thinking Skills and Learning Across the Curriculum from the Science and Technology K-6 syllabus (as described below). Where modules do not have links to the syllabus, these are offered as 'extra-curricular' interest modules.

Coding of Thinking Skills

| Course tools | Code |
|------------------------|------|
| Computational thinking | ComT |
| Design thinking | DesT |
| Scientific thinking | SciT |
| Systems thinking | SysT |

Coding Key (From the NSW Geography K-10 Syllabus)




| STAGE | CODE | GEOGRAPHICAL TOOLS | CODE |
|---------------|------|-----------------------|------|
| Early Stage 1 | e | Maps | M |
| Stage 1 | 1 | Field work | F |
| Stage 2 | 2 | Graphs and statistics | GS |

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|-------------|----|------------------------|----|
| Stage 3 | 3 | Spatial technology | ST |
| Life skills | LS | Visual representations | VR |

Learning Across the Curriculum Icons




Cross-curriculum priorities

-  Aboriginal and Torres Strait Islander histories and cultures
-  Asia and Australia's engagement with Asia
-  Sustainability

General capabilities

-  Critical and creative thinking
-  Ethical understanding
-  Information and communication technology capability
-  Intercultural understanding
-  Literacy
-  Numeracy
-  Personal and social capability

Other learning across the curriculum areas

-  Civics and citizenship
-  Difference and diversity
-  Work and enterprise