

Rookery roundabout part 3

Muttonbird Island Nature Reserve
K-6 syllabus links and plans

Photo: R. Cleary/Sean Australia



nationalparks.nsw.gov.au

K-6 syllabus links and plans

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SYLLABUS LINKS K-6

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This section contains activity plans that directly relate to units of work in the current NSW Board of Studies School Syllabus.

KINDERGARTEN TO YEAR 2 (EARLY STAGE 1/STAGE 1)

Syllabus: Human Society in its Environment (HSIE)

Related Units: Places We Know;
The Need for Shelter;
Wet and Dry Environments.

SYLLABUS: SCIENCE AND TECHNOLOGY

Related Units: What's Alive?
Growing Up.

YEARS 3 TO 4 (STAGE 2)

Syllabus: Human Society in its Environment (HSIE)

Related Units: State and National Parks;
Australia: You're Standing in It

SYLLABUS: SCIENCE AND TECHNOLOGY

Related Units: Cycles in our World,
Our Australia.

YEARS 5 TO 6 (STAGE 3)

Syllabus: Human Society in its Environment (HSIE)

Related Units: Current issues: Environmental Conservation;
Global Environments.

SYLLABUS: SCIENCE AND TECHNOLOGY

Related Units: Environment Matters:
A Change for the Better.

Although based (as of 2009) on units in the HSIE syllabus, the lesson plans are also relevant to units in the Science and Technology syllabus. Suggestions for integration into other curriculum areas are also given as part of each activity plan. All activities may be modified to suit class or individual student needs.

LESSON PLAN 1: THE NEED FOR SHELTER

LEARNING OUTCOMES (HSIE STAGE 1)

- Explores the needs of people and other living things for shelter
- Investigates ways in which humans and animals depend on the natural environment.

RELATED UNITS IN SCIENCE AND TECHNOLOGY (STAGE 1)

- What's Alive?
- Growing Up

LEARNING OUTCOMES

- Living things reproduce
- Some living things change according to the seasons

MATERIALS

- Rookery Roundabout flip cards
- Worksheets from Part 1: A Wedge-tailed Shearwater, The Rookery Roundabout, A Shearwater Shelter

SUGGESTED LESSON PLAN

1. General discussion on shelter needs of living things, including, why do living things need shelter?

- people: houses, tents, units, villas, caves
- wombats: burrows,
- some possums: drey (nest like ball made of sticks)
- birds: nests, mounds, burrows

Discuss how not all birds build nests balanced on branches. It depends on where they live and look for food. For example bush turkeys and lyrebirds build a mound to lay eggs, lorikeets live in hollowed trees, shearwaters construct burrows. Students collect pictures of various types of shelter (natural and human-made).

2. How do shearwater burrows provide shelter for the chicks?

Burrows offer protection from:

- overhead predators like silver gulls (which eat the eggs), white-breasted sea-eagles (which eat chicks and sometimes adult birds);
- extremes of temperature. This is a common reason for building burrows in the natural world. Compare this to the human "burrows" in places like Lightning Ridge to protect against extremely hot weather;
- a very exposed environment which is often subject to strong winds, heavy rain and salt spray.

Generally the eggs are relatively safe from overhead predators because parent birds protect their eggs during the incubation period. Each parent take turns to sit on the eggs whilst the partner hunts for food at sea. However, predators that search for prey at ground level, such as snakes, mice or rats are more difficult to hide from. Note: These animals are not natural predators of the shearwater or their chicks, but are a threat due to Muttonbird Island being connected by a land bridge.

The need for shelter is closely related to the helplessness of the chicks for the first few months of their lives. It is at this time when they are most vulnerable to predators. The parents leave the Island during the daytime to search for food, which means that they are not present to defend the chicks.

LESSON PLAN 1: THE NEED FOR SHELTER (CONTINUED)

3. Complete relevant worksheets from the Teacher Resource section 'The Island Inhabitants'. Show the students the pictures of shearwater breeding cycle in the Rookery Roundabout flip cards at each relevant point in the lesson.

4. Other suggested activities

- a. Paint a cross-sectional picture showing an animal or bird in its burrow;
- b. Make a collage showing an animal or bird within its shelter. Natural materials such as sticks, leaves or feathers could be used;
- c. Use recycled materials to make a simple model of a shearwater burrow. The image of the bird in the section 'The Island Inhabitants' could be photocopied onto cardboard and coloured to represent an occupant;
- d. Construct a diorama;
- e. Drama lesson:

Students mime roles of the parent birds and chicks, using the Rookery Roundabout flip cards as a stimulus. Include:

- digging burrows,
- sitting on eggs, single chick is hatched
- parents take turns to "babysit", whilst other parent is out at sea hunting for food.

Ask the students about threats to chicks, for example, a careless visitor trampling on the nests after walking off the track, or a sea eagle or cat attacking the chicks.

LESSON PLAN 2: WET AND DRY ENVIRONMENTS

LEARNING OUTCOMES: HSIE (STAGE 1)

- Investigate and give an explanation about a natural environment in the local area.
- Identifies ways in which people's interactions can change an environment.

RELATED UNITS IN SCIENCE AND TECHNOLOGY (STAGE 1)

- Kids Care

RELATED UNITS IN SCIENCE AND TECHNOLOGY (STAGE 3)

- Environment Matters

LEARNING OUTCOMES

- Develop curiosity about the natural and man-made environment
- Combine images to make simple models and structures.
- Know and understand that the activities of people can change the balance of nature.

MATERIALS

- Map of Muttonbird Island
- Aerial photo of island available at: www.google.com.au/maps/place/Muttonbird+Island+Nature+Reserve
- Worksheets from Part 1: Where the Land Meets the Sea, Mapping Around Muttonbird

SUGGESTED LESSON PLAN

1. Show the map and aerial photo of Muttonbird Island.

- Students look for the main features such as: jetty, main town area, breakwall, Muttonbird Island. Some student groups may complete the mapping exercise in 'The Island' section.
- Visiting school groups may need to spend more time in the jetty area to become familiar with the setting. Emphasise that it is only one island of the Solitary Island group which are all protected by the Solitary Islands Marine Park. A brochure about the Solitary Islands Marine Park is included in the kit. One big difference between Muttonbird Island and others in the group, is the accessibility without a boat or helicopter.

2. Define an island.

Emphasise that an island is a dry environment surrounded by a wet environment. The influence of surrounding water is closely related to the size of an island, for example, Australia is a very large island with some extremely dry areas in the interior. Muttonbird Island is only 8 hectares (16 football fields) in size, so it is heavily influenced by the ocean.

Is Muttonbird Island really an island? It once was, but it was joined by breakwall in 1925. This changed the environment by allowing easy access for humans and predators like rats and feral cats (species found on the mainland). An island may provide a refuge from feral animals, such as Rottnest Island off the coast of Western Australia. This is one of the last refuges of the Quokka, which is threatened by fox predation on the mainland.

3. Discuss how humans have changed the environment on Muttonbird Island.

- For many thousands of years Muttonbird Island was a true island, being a sacred place for the Gumbaynggirr people, who named it, Giidany Miirlarl, meaning 'moonsacred place'. See Information in 'The Island'.
- The breakwall finished in 1924 provided shelter for the fishing and coastal trading fleet at Coffs Harbour. It was built using rocks quarried from Corambirra Point, directly to the south of Muttonbird Island, also causing massive change to a local environment. Corambirra Point was itself once an island before being joined to the mainland.
- Once the breakwall was built, rock fishermen visited the island more often, making paths over the island and compressing the soil.
- The island was declared a Nature Reserve in 1971 in order to preserve the wedge-tailed shearwater colony. The rebuilding of the jetty has meant that the area adjoining the island is now a very popular tourist destination, leading to increasing foreshore development such as the yacht club, fishing co-operative, restaurants, and public facilities.

4. How have these changes affected the natural environment?

The breakwall has allowed feral cats and rats to cross over to the island and hunt the chicks. Human visitors have considerable impact on the island. The pathways were constructed by the National Parks and Wildlife Service in 1988 in order to encourage people to stay on the track. Unfortunately some thoughtless visitors fail to observe this simple rule, leading to burrow damage and sometimes the death of chicks. Discuss why rules are necessary to protect the island. Other problems have included a deliberately lit fire, ongoing rubbish and vandalism issues.

LESSON PLAN 2: WET AND DRY ENVIRONMENTS (CONTINUED)

5. Visit Muttonbird Island

- Experience first hand the characteristics of this unique environment.
- View other islands of the Solitary group from the island. Note the exposure to salt spray on the eastern side of the island where low growing plants such as wandering jew and dusky coral pea grow. A few wind sheared tuckeroo trees grow on the sheltered side of the island.
- Observe shearwater burrows and the ways in which the shearwaters have modified their immediate habitat in order to rear their chicks.
- Observe changes to surrounding environment by humans.
- Look for seabirds with binoculars, and label sketches.

Important Aboriginal cultural note

Muttonbird Island is a 'special place' and many stories exist. Some of these stories are concerned with gender restrictions. Aboriginal people should consult with their families before going on the island.

6. Other Suggested Activities

- a. Paint or draw an island, perhaps viewed from an unusual angle such as out at sea or from the air (birds-eye view).
- b. Collect pictures of islands from magazines and travel brochures. Posters of islands should be displayed in the classroom if available. Note that not all islands are tropical, such as Tasmania, Kangaroo and Muttonbird islands.
- c. Create a map of an imaginary island showing natural and human-made features. (This could be modelled on old sea-faring maps).
- d. Produce a collage showing plants and animals from dry environments in one half and wet environments in the other. Use 'hot' and 'cool' colours as backgrounds to show the different feeling of wet and dry.
- e. Students try to match colours to paint colour charts from a hardware store whilst on the island. Look at the island from a distance: What colour is the rock? What colours can you see in the plants on the island, e.g. blue flowers (wandering jew) and berries (rough flax lily), red flowers (dusky coral pea), purple flowers (pigface), and many shades of green. Circle any colours you find on the chart for later discussion. Refer to the colour chart to mix similar colours with water paint or pastels on return to school.

LESSON PLAN 3: WHAT IS A NATURE RESERVE?

LEARNING OUTCOMES: HSIE (STAGE 1)

- Describes places in the local area and explains their significance.
- Describes people's interactions with environments and identifies responsible ways of interacting with environments.
- Identifies ways in which people's interactions can change an environment.

RELATED UNITS IN SCIENCE AND TECHNOLOGY (STAGE 1)

- Kids Care

LEARNING OUTCOMES: SCIENCE AND TECHNOLOGY (STAGE 1)

- Be curious about the natural and made environment

RELATED UNITS IN SCIENCE AND TECHNOLOGY (STAGE 3)

- Environment Matters

LEARNING OUTCOMES: SCIENCE AND TECHNOLOGY (STAGE 3)

- The activities of people can change the balance of nature.
- Describe ways in which resources can be conserved

MATERIALS

- Part 2 (Rookery Roundabout flip cards)
- Aerial photo of island available at: www.google.com.au/maps/place/Muttonbird+Island+Nature+Reserve
- Worksheets: The Guardian of Giidany Miirlarl, The Need For a Nature Reserve, Muttonbird Review

SUGGESTED LESSON PLAN

1. General discussion on national parks: Why do we have national parks and nature reserves?

- To protect our environment: this includes areas of great scenic beauty, large areas of relatively unspoiled habitat for native plants and animals, places containing threatened species;
- To keep these places "special" for future generations to enjoy;
- To provide places for educational activities, especially scientific research;
- To care for cultural heritage, both indigenous and European.

Show posters of national parks if available.

2. Why do we have rules for visitors to national parks and nature reserves?

- Ask students if they have visited a national park. Where? when? what did they do there?
- Students assist to write a list of rules they think are important for a national park.

These may include:

- to ensure that native plants and animals are kept safe, by not picking flowers or plants, leaving pets at home and staying on the path. Notethat visitors who leave the path on Muttonbird Island can kill chicks if the burrows collapse.
- For the safety of all visitors, such as taking care with fire, staying on marked paths or trails to avoid getting lost.
- to keep the environment as healthy as possible e.g. plastic bags that end up in the ocean can kill sea turtles and other sea creatures such as dolphins and whales. (Ask students what happens if they eat plastic).

3. Why is Muttonbird Island a Nature Reserve?

- Nature Reserves are declared to protect places of special scientific value. Muttonbird Island is a unique place because it provides an opportunity to visit a seabird rookery within an urban setting. Most seabirds nest on inaccessible islands that can only be reached by boat.
- The wedge-tailed shearwaters are not an endangered species, but by studying their life cycle, changes in the number of shearwaters on the island and their migratory patterns, scientists and bird banders can learn about other similar species which may be much rarer e.g. Black-browed Albatross (*Diomedea melanophrys*), a threatened seabird species found off the north coast of NSW.

LESSON PLAN 3: WHAT IS A NATURE RESERVE? (CONTINUED)

4. Other suggested activities

- Write to the NSW National Parks and Wildlife Service and find out about other nature reserves in the area or go to the NPWS website at www.npws.nsw.gov.au
- Design a poster telling people how they can help the shearwaters to survive on Muttonbird Island (see worksheet) ideas include: follow rules when visiting island, control domestic cats, especially at night, ring WIRES (Wildlife Rescue Service) if chicks are found on the mainland (Ph: 0500 559 559).
- Write a story from the point of view of a very old shearwater, describing the changes seen in the area over the last thirty years (recovery of individual birds by bird banders has shown that they can live up to 23 years).
- Interview a local bird bander, WIRES volunteer or NSW NPWS ranger about the importance of Muttonbird Island as a place to study sea-birds.