

Connect to Nature



Creativity



Fun



Laughter



Learning



Environment Adventures for Students
TEACHERS' GUIDE

You are invited to learn and explore!



Moreton Bay Regional Council provides hands on learning experiences for school students at four environmental centres, each with its own habitat.

Our programs are designed so that students:

- Have fun outdoors
- Develop science enquiry skills
- Appreciate their local natural environment
- Learn about biodiversity, ecosystems, catchments, marine environments and more



General Information

- All centres cater for Prep - Year 12
- Half day or full day trips available
- Nearly all sessions are free
- Class numbers can be anything from 10 - 130 students
- Education programs are delivered by council staff and trained volunteers
- Tuesday and Wednesdays are our preferred operating days, however, we will work with you to facilitate other days if required
- Insect repellent, hats and sunscreen are important when visiting each centre as many of the activities are held outside and mosquitoes can be present
- Toilets, a picnic area and BBQ facilities are available at each centre, along with large bus parking and turning areas



For more information:

Go to the Environmental Education Centres website at moretonbay.qld.gov.au/environmental_education

How to Book

1. Bookings are required.

Contact:

Environment Centres Coordinator

Liz Stubbs

5433 2379

0437 914 554

esmailbox@moretonbay.qld.gov.au

You may contact our Environment Centres Coordinator to discuss your class needs:

- Choose the most appropriate centre
- Select from lesson plans on offer or re-work a lesson to suit
- Tailor a program to suit your students
- Incorporate professional and technical expertise for senior students

2. Please feel free to speak directly with our staff at each Centre:

CREEC - Wayne Marsh

3888 8751

0407 627 716

wayne.marsh@moretonbay.qld.gov.au

Kumbartcho Sanctuary - Kim Pantano

0417 627 039

kim.pantano@moretonbay.qld.gov.au

Osprey House - Kim Pantano

3886 4463

0417 627 039

kim.pantano@moretonbay.qld.gov.au

Redcliffe Botanic Gardens - Liz Stubbs

5433 2379

0437 914 554

esmailbox@moretonbay.qld.gov.au

liz.stubbs@moretonbay.qld.gov.au

Environment Education Centres



Osprey House Environment Centre

975 Dohles Rocks Road, Griffin

3886 4463

Mangroves, shorebirds, ospreys and dugongs at this centre nestled on the foreshore of Hays Inlet.



Kumbartcho Sanctuary

15 Bunya Pine Court, Eatons Hill

0417 627 309

Rainforest river walks and riparian zones at this centre on the South Pine River.



CREEC

Caboolture Region Environment Education Centre

150 Rowley Rd, Burpengary

3888 8751

Rare lowland rainforest and nature walks at this centre along the Burpengary Creek.



The Wallum Centre (Redcliffe Botanic Gardens)

20 Henzell St, Redcliffe

c/o 5433 2379

Local native plants, wildlife and winding pathways through habitat samples at the Gardens which have a focus on botanic research.



Curriculum Links

The lessons we deliver and the programs our staff can develop with you are linked to recognised capabilities, skills and priorities:

General Capabilities

- Literacy
- Intercultural understanding
- Personal and social competence
- Competence
- Critical and creative thinking
- Ethical behaviour
- Numeracy

Cross curriculum

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



Science Inquiry Skills, at age-appropriate levels, are a focus for lessons delivered at our Centres:

- Questioning and predicting
- Planning and conducting
- Processing and analysing data and information
- Communicating
- Evaluating

Science as Human Endeavour is built in to the programs we deliver:

- Science involves observing, asking questions about, and describing changes in, objects and events (Prep and early grades)
- People use science in their daily lives, including when caring for their environment and living things (Prep and early grades)
- Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (Year 6)
- Scientific knowledge is used to solve problems and inform personal and community decisions (Year 6)

Indigenous culture

“Yali Moyum”
Aboriginal Art Walk
Interpretive rubbing plaques

Location Osprey House boardwalk

Objectives

- increase understanding of the interaction between aboriginal people and the natural environment
- provide the opportunity for a hands on, creative response to Indigenous culture

Learning Experiences

1. Discuss the importance of the mangrove and wetland habitat to Indigenous people as an everyday resource for food and shelter.
2. Examine bushtucker plants.
3. Create a plaque rubbing from Indigenous designs along the mangrove boardwalk.
4. Provide a descriptive interpretation to the students of the rubbing plaques.
5. Creative writing module can be provided, for extension work at school.

Equipment provided

- plaques
- crayons
- A4 paper

Connect to Nature

Explore an Environment Centre

Location All Centres

Each Centre has its own unique habitat, boardwalks, discovery areas and interpretive displays.

Most suitable for preschool - Year 2 classes.

Objectives

- interact with the displays in the Centre
- enjoy the outdoors environment and *Connect to Nature*
- identify and appreciate local features, animals and plants in the habitat of each Centre

Learning Experiences

1. Explore the environment centre.
2. Use the interpretive displays to answer questions.
3. Draw features of the centre which each student finds interesting.
4. Interact with the touch and tell table displays and see a working worm farm.
5. Gain an understanding of relationships and systems in the natural environment.

Equipment provided

- workbook

Connect to Nature

Nature Walk

Location All Centres

Most suitable for Prep -Year 2 as an introductory experience to get students outdoors in their environment so that they can 'connect to nature'.

Objectives

- understand what makes up an 'ecosystem'
- identify ecosystems related to plant communities eg mangroves/wetlands
- identify the animals which inhabit the ecosystem at the Centre.

Learning Experiences

1. Explore the boardwalks and nature paths of the Centre.
2. Observe and name any ecosystems at the Centre (approx. 1-3 ecosystems at each Centre).
3. Identify plant species in each ecosystem and the adaptations that assist them to survive.
4. Identify native animals which rely on the ecosystem for food and shelter.
5. Discuss the impacts to the natural environment as a result of human impact.

Equipment provided

- workbook

Connect to Nature

Bird Watching and Identification

Location Osprey House

Osprey House has an abundance of shorebirds & waterbirds and live-cam viewing of an osprey nest.

Objectives

- competently use binoculars and telescopes for fieldwork
- observe and identify birds of a wetland environment
- sort and analyse observations
- explore the wetlands in an environmentally sensitive way

Learning Experiences

1. Walk to various bird hides, introduction to typical wetland birds with reference to local bird chart; data sheets provided for individual observations.
2. Observe using a range of methods: naked eye, binoculars, telescope.
3. Record observations on data sheets.
4. Small group discussion of observations - features observed (eg beak shape); sort data into characteristics of types of birds.
5. Discussion and analysis of how particular features assist the bird's activities.

Equipment provided

- binoculars
- telescope
- bird identification chart (data sheet)
- student worksheet

Connect to Nature

Living Mangroves Web of Life

Location Osprey House

Objectives

- awareness of mangroves as an important ecosystem, a web of life
- observation of the mangrove community
 - identifying fish habitat areas
 - considering relationships between fauna and flora species
 - evaluating adaptations of living things to suit the habitat

Learning Experiences

1. Students use all senses to observe, experience and consider:
 - a. What is a wetland?
 - b. What is a mangrove?
 - c. What adaptations do mangroves have?
 - d. What impacts on biodiversity result from human actions?
2. Students walk along the boardwalk:
 - a. Identify types of mangroves and fauna species.
 - b. Understand the relationships at all levels of our diverse environment.

Equipment provided

- binoculars
- telescope
- mangrove identification chart
- mangrove food chain chart

Habitat and biodiversity

Endangered Species

Location All Centres

Each Centre provides a protected habitat for some of our local threatened and endangered species, such as Richmond birdwing butterfly, koalas, the wallum froglet and powerful owls.

Objectives

- identify local fauna and flora species which are endangered or under threat in this region
- understand why these species are under threat
- identify ways to make a difference to the survival of species

Learning Experiences

1. Clarify what is an 'endangered' or 'threatened' species.
2. List local fauna and flora species which are endangered or threatened.
3. Identify reasons why these species are vulnerable in this region.
4. Through discussion, identify changes that we can all make to help these species survive.

Equipment provided

- list of endangered species in the local area
- worksheet

Habitat and biodiversity

Threats to our Oceans

Location Osprey House

Osprey House is on the edge of Hays Inlet, with platforms to look out over the mangroves to the estuary; lifesize dugong models inside the Centre add to marine awareness.

Objectives

- understand the threats which face our local marine life
- create a 3D artwork from recycled materials, to enable a personal, creative response

Learning Experiences

1. Discuss things that impact on our oceans, eg pollution.
2. Identify ways to make positive changes to improve marine health and reduce pollution.
3. Create a 3D mural or individual artwork using recycled materials, to respond to the issue.

Equipment provided

- activity sheet mural
- samples of items that should not be in the ocean and their impact

Habitat and biodiversity

Where have the dugongs gone?

Location Osprey House

Objectives

- stimulate interest and awareness of dugongs, a vulnerable, local marine mammal
- raise awareness of the impact of human actions on dugongs and their habitat

Learning Experiences

1. Provide information about dugongs with the aid of a lifesize model.
2. Identify physical characteristics and adaptations that enable dugongs to live in Moreton Bay.
3. Discuss why the dugong is listed as vulnerable and consider why it is in decline.
4. Students take information back to the classroom to write a report on how they can help this species.

Equipment provided

- life size dugong models
- dugong information poster
- underwater habitat and animal photographs

Habitat and biodiversity

Native Plants - Why we need them

Location All Centres

CREEC, Redcliffe Botanic Gardens and Kumbartcho Sanctuary have their own native nurseries attached to their Centres.

This session is also available at Osprey House, which has a mix of ecosystems representing native plants and their link to native animals.

Objectives

- understand that native plants are preferred plants to grow in our gardens, creating animal and bird habitat and supporting backyard biodiversity
- understand the difference between the terms native plants and exotic plants, and weeds

Learning Experiences

1. Discussion and information on:
 - a. What is a plant and what does a plant require to grow?
 - b. What is an Australian native plant?
 - c. Why are some exotics a poor choice?
 - d. Why is it better to grow native plants? eg drought tolerance, adaptation to local soils, bird attracting, butterfly attracting, native animal habitat corridors.
2. Discuss the plants students see around them in their local community, eg parks, reserves, school grounds, backyards, street planting.
3. Walk around the Centre grounds and identify any plants that are weeds, exotics or natives.
4. Pot a native plant to take home and grow in own backyard.

Equipment provided

- posters identifying weeds, natives, exotics
- research book class set: "Mangroves to Mountains"
- potting mix and a native plant

Habitat and biodiversity

Propagating Native Plants

Location CREEC, Kumbartcho Sanctuary and Redcliffe Botanic Gardens

CREEC, Redcliffe Botanic Gardens and Kumbartcho Sanctuary each have a native plant nursery attached to their Centres.

Objectives

- understand the processes involved in the propagation of native plants
- appreciate the importance of native plants in our natural environment
- awareness that loss of vegetation affects habitat and that habitat loss affects native animals

Learning Experiences

1. Outline of processes involved in the propagation of native plants, eg seed collection, preparation, sowing and pricking out.
2. Tour through native nursery, highlighting how each section relates to the propagation processes and why new plants must pass through each section to survive.
3. Individuals pot a native plant to take back to home or school.
4. Guided walk through the bushland habitat to become more familiar with native plant species and their importance to biodiversity.

Equipment provided

- native plant seeds
- tube stock plant
- potting mix
- worksheet

Sustainability

Sustainability Tour

Location: All Centres + additional location(s) selected by school

Each Centre has sustainability initiatives in place, including a focus on energy and water efficiency as well as a focus on small footprint, waste, biodiversity.

An additional location, for comparison, can be selected, eg Bunnings Carseldine can be paired with Kumbartcho Sanctuary.

Objectives

- identify and understand different strategies that can be put in place to make different places more sustainable
- evaluate if strategies embraced by one sector can be implemented in another sector
- identify the benefits of these strategies across all sectors

Learning Experiences

1. Tour the Centre and observe and document the different strategies that have been put in place to reduce consumption of water, energy and materials.
2. What waste management and recycling strategies are in place?
3. In what other ways does this Centre try to act in a more sustainable manner? eg biodiversity.
4. Group discussion to analyse successes, barriers, and issues that may work at different sites.
5. Repeat exercise at school, home or other sites as determined by school.
6. Extension in class: Encourage students to apply critical thinking across sectors and identify opportunities that can be applied across sectors.

Equipment provided

- workbook

Sustainability

Renewable Energy

Location CREEC, Kumbartcho Sanctuary, Osprey House

Objectives

- understand the difference between renewable and non- renewable energy
- describe which energy sources fall under each category
- understand why renewable energy sources are environmentally friendly

Learning Experiences

1. Discuss and then define 'renewable' and 'non-renewable' energy.
2. Identify and sort energy sources into either category.
3. Demonstrate house models, allowing students to take turns to interact with them.
4. Identify the benefits or shortfalls of each type of energy.
5. Identify ways to be energy efficient.
6. Brainstorm possible renewable energy resources and future energy technologies.

Equipment provided

- model of solar-powered house
- model of wind-powered house
- model of water-powered house
- workbook

Sustainability

Reduce, Reuse, Recycle

Location All Centres

Objectives

- understand the need for recycling
- understand what can be recycled
- realise that most food waste can be recycled as compost

Learning Experiences

1. Sort out the rubbish into food waste and recyclables.
2. Students to assess different types of garbage found at home and record in workbook.
3. Discussion of issues:
 - a. What can we do with waste aside from binning it?
 - b. How can food waste be re-used? eg composting or worm farms.
 - c. What can we recycle in our local area? eg yellow bins, recycle shops, e-waste.
 - d. If we recycle efficiently, how much waste should there be at the end of a week?

Equipment provided

- samples of rubbish eg paper, tins, bottles, plastics, bones
- booklets containing a Litter Survey Form

Sustainability

Worm Farms and Composting

Location All Centres

Objectives

- introduce students to good gardening practices
- connect food waste re-use to good gardening practices
- show how food waste can become a resource

Learning Experiences

1. Discussion on avoiding waste, recycling, and re-using food waste.
2. Around the class group, students are each given various 'waste' items to identify whether they can be used for composting, recycling or in a worm farm; this is shared across the group.
3. Discussion on how else can we reuse food scraps and paper.

Equipment provided

- examples of food waste
- worm farm/ compost bin

Sustainability/Water in the environment

Urban Water Cycle and Water Saving

Location All Centres

All Centres have a variety of water-saving initiatives in place.

Redcliffe Botanic Gardens has water-saving practices in use in its permaculture and herb gardens.

Objectives

- understand that water is a natural, limited resource
- understand of the water cycle and the urban water cycle
- knowledge of water saving practices and their effectiveness

Learning Experiences

1. Discussion and presentation on where water comes from - the water cycle.
2. Discuss how we use water and what would happen if we didn't have water.
3. Discuss the urban water cycle - how humans interrupt the cycle to ensure water supply to our communities, use the water, treat it and return it to the natural water cycle.
4. Discuss how we can change our behaviours and devices to save water.

Equipment provided

- buckets
- water cycle cards and poster
- buckets poster

Water in the environment

Catchment Story and Water Pollution

Location All Centres

Students all take a turn in this narrative approach to the impact of pollution in our local waterways.

This lesson connects with all learning styles - kinaesthetic, visual and auditory.

Kumbartcho Sanctuary is located in the riparian rainforest corridor of South Pine River which makes it an ideal location to discuss catchment pollution.

Objectives

- describe a water catchment and why it is important
- identify sources of catchment pollution
- propose ways to improve the health of a catchment
- understand that waterways are part of an overall system

Learning Experiences

1. Presenter leads the 'Story of a Catchment' narrative.
All students have the opportunity to take a role in the story, representing a land use that creates pollution.
2. The visual effects of pollution are created in a large clear water container.
3. At the end of the story, students summarise land uses and human impacts on catchments.
4. Students discuss ways they can help improve the health of a catchment.
5. Presenter outlines how catchments are managed to ensure they are kept healthy.

Equipment provided

- materials for 'Story of a Catchment', including 'mystery' canisters containing each type of pollution mentioned in the narrative
- map and catchment model for local creeks and rivers

Water in the environment

Erosion

Location CREEC on Burpengary Creek
Kumbartcho Sanctuary on the South Pine River

Objectives

- knowledge of what causes erosion and different types of erosion
- visual identification of types of erosion in situ
- understanding of the importance of native plants in our natural environment

Learning Experiences

1. Explanation of erosion, different types of erosion and the three natural forces which cause erosion.
2. Student activity highlighting the actions of people which leaves the riparian zone vulnerable.
3. Guided walk through bushland habitat along South Pine River or Burpengary Creek.
4. Visually identify and become familiar with areas in which erosion has occurred.

Equipment provided

- worksheet

Water in the environment

Healthy Streams and Creeks

Location CREEC on Burpengary Creek
Kumbartcho Sanctuary on the South Pine River

Objectives

- develop science skills with water testing and observation of macro-invertebrates
- observe and record the presence of macro-invertebrates in water samples
- evaluate stream health based on analysis of macro-invertebrate data
- understand health factors for waterway habitat

Learning Experiences

1. Discuss the Habitat Record, identifying health factors such as:
 - bank vegetation and verge vegetation
 - in stream cover
 - bank erosion and stability
 - riffles, pools and bends
2. Assess water samples from the stream/creek at the Centre.
3. Identify macro-invertebrates present in the sample.
4. Rate the water quality in the river.
5. Guided walk through habitat at the Centre to become familiar with a riparian rainforest zone.

Equipment provided

- water samples
- magnifying glasses
- petri dishes
- macro-invertebrate identification chart
- worksheets

Sessions with a fee

Insect World

\$5 fee per student

Location All Centres

This module is presented by external providers, [Bugs Ed](#), at a cost of \$5.00 per student.

Study streams are selected by the school, in discussion with our Centre staff.

Topics available include:

- *Amazing ants*
- *Friends or foes*
- *Predators and prey*
- *Secrets to success*
- *Insect lifecycles*
- *Endangered insects*
- *Days of our hives*

Objectives

- learn about the fascinating hidden world of insects and minibeasts
- examine specimens of insects, spiders and other creepy crawlies from around the world
- get up close and personal with live Australian insects, eg giant stick insect, preying mantis

Equipment provided

- activity sheet/ sample insects/ live specimens

Learning Experiences

1. Presenter outlines the insect study stream selected by the school.
2. Presenter explains the diversity of the insect world and highlights their importance to other animals as they are a vital food source.
3. Life cycles are presented and differences explained.
4. Students study samples of insects during session.
5. Students set up and conduct their own insect searches, recording observations

Sessions with a fee

Wild about Wildlife

\$5 fee per student

Location All Centres

This module is presented by external providers, [Geckoes Wildlife](#), at a cost of \$5.00 per student.

Study streams are selected by the school, in discussion with our Centre staff.

Topics available include:

- *Wildlife encounter*
- *Frogs*
- *Flying foxes*
- *Animal classification*
- *Adaptations*

Objectives

- stimulate children's senses with a close-up and tactile encounter
- learn interesting facts about native animals
- appreciate native animals and therefore value their habitat

Equipment provided

- activity sheet
- live specimens, creatures to see and touch

Learning Experiences

1. Presentation by Geckoes staff of the study stream selected by the school.
2. Hands on experience with native animals.
3. Explain the diversity of local wildlife and highlight their importance to our natural environment.
4. Clarify topics such as biodiversity, life cycles, habitats and wildlife/urban interactions.

Sessions with a fee

Nest Box Workshop

\$5 fee per student

Location Bunnings, Carseldine

This workshop is run in partnership with Bunnings, at a cost of \$5 per student.

Alternative sites can be negotiated.

\$5.00 covers materials for nest box, which are provided pre-cut by the local Men's Shed.

Objectives

- understand the importance of hollows in trees for native wildlife
- understand why nest boxes are important to native wildlife
- build a nest box to create habitat in the school or home

Learning Experiences

1. Discussion on how hollows form in the natural environment.
2. Build a nest box.
3. Evaluate whether a nest box can be used as a substitute to tree hollows.
4. Discussion on which native animal species can use both hollows and nest boxes to enhance their survival in an urban environment.

Equipment provided

- workbook
- materials and tools to build a bird box

Children learn naturally at our Environment Centres

The Environmental Centres run by Moreton Bay Regional Council ensure that all lesson plans comply with the current Australian Curriculum.

Lesson	Description	Literacy	Inter cultural Understanding	Personal & Social	ICT	Critical Creative	Ethical Behaviour	Numeracy	Sustainability	ATSI
"Yali Moyum" Aboriginal Artwork	Investigate how Indigenous communities of the region used their surroundings to eat, hunt and make shelter.									
Bird Watching & Identification	Guided bird watching session with discussion on the unique bird life in the habitat at each Environment Centre.									
Catchment Story and Water Pollution	Fun, participative demonstration on the impact and prevention of pollution in our local waterways.									
Endangered Species	Identify issues affecting priority species such as koalas, swamp orchids and the Richmond birdwing butterfly.									
Erosion	Observe the local creek and discover ways to combat one of the biggest threats to our waterways - erosion.									
Explore an Environment Centre	Interact with displays in and around each Environment Centre and take a closer look at the local flora and fauna.									
Healthy Streams and Creeks	Observe healthy riparian vegetation, then discover hidden wildlife in local water sample and rate our stream health.									
Insect World	Learn about the fascinating hidden world of insects and mini-beasts, with live Australian creepy crawlies.									
Living Mangroves Web of Life	Discover the importance of the mangrove ecosystem and what lives amongst the trees and mud.									

Lesson	Description	Literacy	Inter-cultural	Personal & Social	ICT	Creative	Critical Behaviour	Ethical Behaviour	Numeracy	Sustainability	ATSI
Native Plants - Why we need them	Explore differences between natives and exotic plants and discover how native plants create lively backyard habitats.										
Nature Walk	Explore the habitats around the Environment Centre, identifying plant and animal species adapted to this habitat.										
Nest Box Workshop	Build a bird box to install at school or home and discover the importance of hollows in trees as habitat for native wildlife.										
Propagating Native Plants	Learn about seed collecting and growing native plants, with hands on experience of potting a plant to take home.										
Reduce, Reuse, Recycle	Discover the wonders of waste and how to reuse, recycle, compost or avoid waste at home.										
Renewable Energy	Interactive models are used to explain the difference between renewable and non-renewable energy.										
Sustainability Tour	Tour two sites, observing and identifying different sustainable strategies used at each location.										
Threats to our Ocean	Learn about healthy oceans, then create a recycled artwork showcasing the threats which face our marine wildlife.										
Urban Water Cycle and Water Saving	Trace the water cycle in this interactive presentation and discuss water saving practices in the urban environment.										
Where have the dugongs gone?	A life-sized dugong model sparks discussion on this marvellous marine mammal and its marine habitat.										
Wild about Wildlife	Stimulate the senses with a close-up and tactile encounter with live native animals.										
Worm Farms and Composting	Learn about good gardening practices, at the same time as seeing how food waste and worms can become a resource.										