Connect to Nature

Environment Adventures for Students

Creativity

Fun

Laughter

Learning

TEACHER’S GUIDE 2019 - 2021

This booklet may be duplicated as needed.
You are invited to learn and explore!

Moreton Bay Regional Council’s Environment Education Centres provides hands on learning experiences for school students.

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
- Experience the aesthetic opportunities in nature, e.g. art or writing activities

All Centres cater for Prep - Year 12, with half day and full day excursions available. Bookings are preferred on Tuesday and Wednesday, however we will facilitate dates that work with your timetable.

Modules are delivered free of charge, excluding Wild about Wildlife and Insect World (small cost per student applies to cover the cost of licensed animal handlers).

Education programs are delivered by council officers and trained volunteers.

Insect repellent, hats, and sunscreen are important when visiting each centre as many of the activities are held outside and mosquitoes can be present.

How to Book

Bookings are required. Please email your booking request to esmailbox@moretonbay.qld.gov.au and include the following information:

- School name and contact person
- Preferred Environment Education Centre
- Preferred booking date
- Preferred modules for delivery (maximum of four modules)
- Number of children (maximum of 100 per day)

Council will respond to your booking request within 2 business days to confirm availability.
Environment Education Centres

Osprey House Environment Centre
975 Dohles Rocks Road, Griffin
3886 4463
Mangroves, shorebirds, ospreys and dugongs feature at this centre nestled on the foreshore of Hays Inlet

Kumbartcho Sanctuary
15 Bunya Pine Court, Eatons Hill
0417 627 309
Rainforest river trails and habitat on the banks of the South Pine River

CREEC
Caboolture Region Environment Education Centre
150 Rowley Rd, Burpengary
3888 8751
Rare lowland creek rainforest along the Burpengary Creek

Redcliffe Botanic Gardens
20 Henzell St, Redcliffe
c/o 5433 2379
Gardens filled with local native plants, wildlife and pathways though habitat samples, with a focus on botanic research
CURRICULUM LINKS

The lessons we deliver are linked to these recognised capabilities and priorities:

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

Cross curriculum areas
- Sustainability
- Aboriginal & Torres Strait Islander histories and cultures

Science Inquiry Skills
These skills are developed at age-appropriate levels:
- Questioning and predicting
- Planning and conducting
- Processing and analysing data and information
- Communicating
- Evaluating

Science as Human Endeavour
The connection between individuals and scientific methods is developed at age-appropriate levels:
- 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)
Theme: 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
- provide an aesthetic/artistic connection to the environment and 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 bush tucker plants.
3. Create a plaque rubbing from Indigenous designs along the mangrove boardwalk.
4. Provide the descriptive interpretation of each of the rubbing plaques.
5. A creative writing module or a freestyle art experience can be added, either at the Centre or as extension work at school.

Equipment provided
- rubbing plaques along the boardwalk (Osprey House only)
- crayons
- A4 paper
- explanation of each plaque drawing

Note: There is a series of 20 Indigenous artworks describing Burpengary Creek at the CREEC Environment Centre, which could be adapted for a similar experience - not plaque rubbing, but as a starting point for students to create their own artwork or descriptive writing piece about the creek, its habitat and history.
Theme:

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 Early Learning Centres, Prep - Year 2 classes and home schooling groups

Objectives

- interact with the displays in the Centre
- experience the outdoor environment
- 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.
6. Reflect upon the session, by drawing a picture, completing the worksheet or describing something special you experienced to another student.

Equipment provided

- All the interpretive displays and touch and feel items within the Centre
Theme:

Connect to nature

Nature Walk

Location All Centres

Suitable for all ages as an introductory experience to get students outdoors in their environment so that they can connect to nature.

The Nature Walk focusses on observing, describing and developing knowledge of the habitat and ecosystems at each Centre.

Objectives

- observe and describe the habitat you are walking through
- predict what animals might live in this habitat
- 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 from human impact.
Theme:

Connect to nature

Bird Watching and Identification

Location Osprey House, CREEC and Kumbartcho Sanctuary

Osprey House has an abundance of shorebirds & waterbirds and live-cam viewing of an osprey nest. CREEC and Kumbartcho Sanctuary have an abundance of forest and bush birds.

Objectives

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

Learning Experiences

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

Equipment provided

- binoculars
- telescope
- bird identification chart (data sheet)
Theme: Habitat and biodiversity

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
Theme: 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
Theme:
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; learning is enhanced by life-size dugong models inside the Centre and other marine displays.

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

Learning Experiences
1. Discuss things that impact on our oceans, e.g. 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
- art materials
- samples of items that should not be in the ocean to use as art materials (e.g. plastics)
Theme:

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 life-size 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.

Equipment provided

- life size dugong models
- dugong information poster
- video of underwater habitat and animal photographs
Theme:

Habitat and biodiversity

Native Plants

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

Osprey House can offer this module without the tour through a community nursery.

Students take home a potted plant to plant at home or school.

Objectives

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

Learning Experiences

1. Discuss the plants students see around them in their local community, e.g. parks, reserves, school grounds, backyards, street planting.
2. Discussion to clarify ‘what is a native plant’; explanation of why exotics are a poor choice and why planting local native plants is so important.
3. Tour through native nursery, highlighting how each section relates to the propagation processes and why new plants must pass through each section to survive.
4. Outline of processes involved in the propagation of native plants, e.g. seed collection, preparation, sowing and pricking out.
5. Individuals (or pairs) pot a native plant to take back to home or school.
6. 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, potting mix and small pots
- posters identifying weeds, natives, exotics
Theme:

Sustainability

Sustainability Tour

Location All Centres

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

*However, CREEC Environment Centre is the primary location for sustainability initiatives.*

Objectives

- identify and understand different actions to make different places more sustainable
- evaluate sustainability strategies for different types of buildings, e.g. at home and at school

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. Identify what waste management and recycling strategies are in place
3. Discuss in what other ways this Centre tries to demonstrate sustainable actions e.g. by enhancing habitat and encouraging biodiversity.
4. Group discussion to analyse successes, barriers and issues for different sustainability actions.
5. Repeat exercise at school, home or another site as needed.
6. Extension in class: Encourage students to apply critical thinking across sectors and identify opportunities that can be applied across sectors e.g. shopping centres, sports fields.

Equipment provided

- Models for solar energy and wind power demonstrations
Theme: 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
Theme:
Sustainability

Reduce, Reuse, Recycle

Location All Centres

Objectives
- understand the need for recycling
- understand what can be recycled
- learn good strategies for recycling at home
- 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? e.g. composting or worm farms.
   c. What can we recycle in our local area? e.g. 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 e.g. paper, tins, bottles, plastics, bones
- booklets containing a Litter Survey Form
Theme: Sustainability

Worm Farms and Composting

Location All Centres

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

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. Demonstration of live worm farm.
4. Discussion on how else can we reuse food scraps and paper.

Equipment provided
- examples of food waste
- demonstration of worm farm and compost bin
Themes:

Sustainability & Water

Urban Water Cycle and Water Saving

Location All Centres

All Centres have a variety of visible water-saving initiatives in place; additionally, Redcliffe Botanic Gardens has water-saving practices in use in its permaculture and herb gardens.

Objectives

- understanding that water is a limited resource
- understanding 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
Theme:

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.

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 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
Theme:
Water in the environment

Erosion

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

Objectives
- knowledge of what causes erosion and different types of erosion
- identify types of erosion in the landscape
- 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. Observe and analyse areas in which erosion has occurred.
5. Discuss solutions to prevent erosion, both natural and man-made erosion.

Equipment provided
- Catchment models showing effects of wet weather events
Theme:
Water in the environment

Healthy Streams and Creeks
(Macro invertebrates)

Location CREEC on Burpengary Creek or 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 for the creek, 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 river/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
- macro-invertebrate identification chart
- worksheets
Theme:

Animal demonstrations

These sessions have a fee per student to pay for licensed animal handlers that provide the lesson.

Insect World - Bugs Ed nature show

Location All Centres

This module is presented by external providers Bugs Ed, with a fee per student to cover the cost of the presenter. **Minimum 40 students required to run this program.**

Study streams are selected by the school in discussion with Centre staff. **All streams include live animals and hands on opportunities.**

Topics available from Bugs Ed 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, e.g. giant stick insect, praying 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.
Theme:

Animal demonstrations

These sessions have a fee per student to pay for licensed animal handlers that provide the lesson.

Wild about Wildlife - Geckoes Wildlife Show

Location All Centres

This module is presented by external providers Geckoes Wildlife, with a fee per student to cover the cost of the presenter. Minimum of 60 students required to run this program.

Study streams are selected by the school, in discussion with Centre staff. All streams include live animals and hands on opportunities.

Topics available from Geckoes Wildlife include:

- Wildlife encounter (e.g. possums, lizards, snakes)
- 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 animals

Learning Experiences

1. Presentation of the content in 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.