

# Connect to Nature

Environment Adventures for Students



Creativity



Fun



Laughter



Learning



**TEACHER'S GUIDE 2018 - 2021**

*This booklet may be duplicated.*

## 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

Experience the aesthetic opportunities in nature, eg art or writing activities



### General Information

All centres cater for Prep - Year 12

Half day or full day trips available

Nearly all sessions are free

Class numbers can range from 20 - 120 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  
[www.moretonbay.qld.gov.au/  
environmentaleducation](http://www.moretonbay.qld.gov.au/environmentaleducation)

## How to Book

Bookings are required.

Contact:

### **Environment Centres Coordinator**

Liz Stubbs

5433 2379

0419 764 329

[esmailbox@moretonbay.qld.gov.au](mailto:esmailbox@moretonbay.qld.gov.au)

You are welcome to contact our team to discuss your class needs:

Choose the most appropriate centre

Select from lesson plans on offer or re-work a lesson to suit

Incorporate professional and technical expertise for senior students

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](mailto:wayne.marsh@moretonbay.qld.gov.au)

### **Kumbartcho Sanctuary - Kim Pantano or Caitlin Ziviani**

0417 627 039

[kim.pantano@moretonbay.qld.gov.au](mailto:kim.pantano@moretonbay.qld.gov.au)

[caitlin.ziviani@moretonbay.qld.gov.au](mailto:caitlin.ziviani@moretonbay.qld.gov.au)

### **Osprey House - Kim Pantano**

3886 4463

0417 627 039

[kim.pantano@moretonbay.qld.gov.au](mailto:kim.pantano@moretonbay.qld.gov.au)

### **Redcliffe Botanic Gardens - c/o Liz Stubbs**

5433 2379

0419 764 329

[esmailbox@moretonbay.qld.gov.au](mailto:esmailbox@moretonbay.qld.gov.au)

[liz.stubbs@moretonbay.qld.gov.au](mailto: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 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 bushtucker 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 homeschooling 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

- Worksheet
- 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.

### Equipment provided

- Worksheet



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)
- worksheet

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
- worksheet



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 lifesize 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, 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
- art materials
- samples of items that should not be in the ocean and their impact to use as art materials

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 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 about on how they can help this species.

### Equipment provided

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

Theme:

Habitat and biodiversity

## Native Plants

### Why we need them and how to propagate from seeds

**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.*

#### 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, eg 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, eg seed collection, preparation, sowing and pricking out.
5. Individuals 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
- worksheet



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.*

### Objectives

- identify and understand different actions to make different places more sustainable
- evaluate sustainability strategies embraced by different types of buildings
- consider the benefits of sustainability actions across several sectors eg hospitals, schools and private homes

### 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 for different places.
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.

### Equipment provided

- workbook

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
- workbook

Theme:

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



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 in particular, 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
- worm farm/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

- worksheet

Theme:

Water in the environment

## Healthy Streams and Creeks

**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
- petri dishes
- 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

**Location** All Centres

*This module is presented by external providers, Bugs Ed, at a cost of \$5.00 per student.*

**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, eg 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

**Location** All Centres

*This module is presented by external providers, Geckoes Wildlife, at a cost of \$5.00 per student. **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 (eg 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 displayed.
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.