

## Wet and Dry Environments | Stage 1 | Science

### About Brewongle EEC

Brewongle Environmental Education Centre is located in Sackville North and includes a terrestrial environment (Sydney Sandstone Gully Forest) and a man-made aquatic environment (ponds). Brewongle EEC is in Darug Country and more specifically the land of the Boorooberongal clan.

### Unit Summary

This excursion addresses outcomes from the Revised NSW Science and Technology K-6 Syllabus

*Knowledge and Understanding strand - **Natural Environment**; Substrand - **Living World***

*Topics addressed - **Wet and Dry, Growth and Change, Mini-beasts***

It provides opportunities for students to engage in their natural world through a range of hands-on activities, observing and questioning while learning about living things in their natural habitat.

The teaching and learning activities provide students with the opportunities to develop improved visual and scientific literacy.

This excursion provides opportunities for teachers to assess students' capabilities against a range of markers from the Literacy Continuum. These are located at the end of this document

### Excursion duration

4 hour on-site excursion to Brewongle EEC. Arrival time: 10 am. Departure time: 2 pm

Arrival and departure times are guides only. Distance and bus schedules may require modifications to the timetable



**Unit overview**

- Students:
- show an interest in science and technology by responding to questions, perceived needs and wants
  - suggest ways that science and technology can help people care for the environment and shape sustainable futures
  - show curiosity about the Natural Environment and the Made Environment
  - safely and carefully manipulate available tools, materials and equipment
  - describe the features of and ways in which living things grow and change, and how living things depend on places in their environment to meet their needs.

**Learning across the curriculum**

*Cross-curriculum priorities enable students to develop understanding about and address the contemporary issues they face.*  
**Sustainability** is concerned with the ongoing capacity of the Earth to maintain all life. It provides authentic contexts for exploring, investigating and understanding systems in the natural and made environments. Relationships, cycles and cause and effect are explored, and students develop observation and analytical skills to examine these relationships in the world around them to design solutions to identified sustainability problems.

**Quality Teaching Elements**

- Intellectual Quality**  
***Metalanguage*** - using and explaining scientific language and identifiers  
***Substantive communication*** - sustained and reciprocal communication throughout the lesson
- Quality Learning Environment**  
***Engagement*** - sustained interest, attentiveness and focus on the tasks at hand  
***High expectations*** - learning important knowledge and skills of a challenging nature  
***Students' Self-Regulation*** - activities are purposeful and interesting resulting in low levels of interruption and high levels of initiative
- Significance**  
***Background Knowledge*** - opportunities to make connections between their knowledge and experience and the content of the lesson  
***Connectedness*** - content has meaning beyond the classroom and the site.

**Key concepts**

- Living things grow and change
- Living things have defining characteristics and can be classified
- Living things have a range of needs
- Living things have a range of habitats

**Knowledge, skills and values**

**Students will develop:**

**knowledge and understandings about:**

- the nature and function of ecosystems and how they are interrelated; the impact of people on environments

**skills in:**

- applying technical expertise within an environmental context; adopting behaviours and practices that protect the environment

**values and attitudes relating to:**

- a respect for life on Earth; an appreciation of their cultural heritage and a commitment to act for the environment by supporting long term solutions to environmental problems.

**Outcomes**

- Science K-10**
- › ST1-10LW describes external features, changes in and growth of living things
  - › ST1-11LW describes ways that different places in the environment provide for the needs of living things
  - › ST1-1VA shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunities
  - › ST1-2VA demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futures
  - › ST1-4WS investigates questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know
  - › ST1-9ES identifies ways that people use science in their daily lives to care for the environment and the Earth’s resources.

- English K-10**
- › EN1-1A communicates with a range of people in informal and guided activities demonstrating interaction skills and considers how own communication is adjusted in different situations
  - › EN1-4A draws on an increasing range of skills and strategies to fluently read, view and comprehend a range of texts on less familiar topics in different media and technologies.

Content	Teaching & learning activities
<p><b><u>Science and Technology</u></b></p> <p><b>Stage 1 - Living World</b></p> <p>Living things have a variety of external features.</p> <ul style="list-style-type: none"> <li>describe some external features of a variety of living things, including plants and animals</li> <li>use a range of methods, including fieldwork, to identify plants or animals in their local area</li> </ul> <p>Living things grow, change and have offspring similar to themselves.</p> <ul style="list-style-type: none"> <li>compare the appearance of adult living things with their offspring, e.g. trees, insects, birds, reptiles, cats or humans</li> </ul> <p>Living things live in different places where their needs are met.</p> <ul style="list-style-type: none"> <li>observe the different places in a local land or aquatic environment where living things can be found, e.g. a schoolyard, pond, beach or bush</li> <li>explore the needs of a plant or an animal in its environment</li> </ul> <p><b>Stage 1 - Working Scientifically</b></p> <p>Students conduct investigations by:</p> <ul style="list-style-type: none"> <li>using a range of methods to gather data and/or information, including using their senses to make observations safely and carefully, using simple tools and equipment</li> </ul>	<p>Following a welcome to the Centre and Acknowledgement of Country students will rotate through a series of activities designed to meet the outcomes identified above. The activities may vary depending on weather conditions.</p> <p><b>Water Bugs</b> (approx 35 mins)</p> <p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>what is a water bug, characteristics of the pond - what creatures might live in, around and on top of the water, types of habitat</li> </ul> <p><b>Set up and demonstration</b></p> <ul style="list-style-type: none"> <li>how to dipnet and transfer what they have caught</li> </ul> <p><b>Fun and Action in the Pond!</b></p> <ul style="list-style-type: none"> <li>collect as many different types of water bugs as they can</li> <li>discuss their different habitats within/around the water</li> </ul> <p><b>Sharing of findings and reflection</b></p> <ul style="list-style-type: none"> <li>use magnifying pots with specimens in them to observe characteristics and identify using ID charts</li> <li>discuss the three important ingredients for survival. What is needed to keep this pond area happy and healthy for our water bugs? Why are water bugs important?</li> </ul> <p><b>Bush Bugs</b> (approx 35 mins)</p> <p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>what is a bush bug? Where do they live and what do they look like?</li> <li>why are bugs important?</li> </ul> <p><b>Set up and demonstration</b></p> <ul style="list-style-type: none"> <li>each pair is assigned a trowel, a magnifying glass and a sieve</li> <li>how to collect bush bugs safely</li> </ul>

### Stage 1 - Earth and Space

Earth's resources, including water, are used in a variety of ways.

- share their observations and ideas about the ways that water is used by people in their daily lives
- identify some actions which could be taken to care for and use water sustainably, e.g. turning off dripping taps and/or taking shorter showers
- explore ways in which people use science knowledge and skills in their daily lives to care for the environment and use resources sustainably

### English

#### Stage 1 - Reading and viewing 1

Respond to, read and view texts

- use comprehension strategies to build literal and inferred meaning and begin to analyse texts by drawing on growing knowledge of context, language and visual features and print and multimodal text structures

#### ***Fun and Action in the Bush!***

- collect as many different types of bush bugs as they can
- discuss their different characteristics and habitats

#### ***Sharing of findings and reflection***

- use magnifying pots with specimens in them to observe characteristics and identify using ID charts
- discuss the three important ingredients for survival. What is needed to keep the habitat happy and healthy for our bush bugs? Why are bush bugs important?

#### **Bird Watching (approx 35 mins)**

##### ***Introduction***

- Dreaming Story - How the Kookaburra got his laugh
- discuss the features of birds such as beaks and wings using models and posters

##### ***Set up and demonstration***

- how to use binoculars

##### ***Fun and Action with Binoculars!***

- listen and look for birds in a variety of habitat sites around the centre using the binoculars
- discuss the needs of birds and how the different habitats are suited for different birds

##### ***Sharing of findings and reflection***

- identify the range of birds located and discuss the important role birds play in the environment.

#### **Story of a River (approx 35 mins)**

**Story of a River** is an interactive narrative illustrating the effect of common activities in our urban environments on a waterway

##### ***Sharing of findings and reflection***

- discuss how our behaviour effects the waterways and what they can do differently in the future.

**Stage 1 - Speaking and listening 1**

Develop and apply contextual knowledge

- listen for specific purposes and information, including instructions, and extend students' own and others' ideas in discussion.

***Unfavourable weather alternatives***

In the event of extremely wet or windy weather, alternative activities will be provided. These may include:

- viewing bush and water bugs in resin through magnifiers
- a range of visual and creative art activities such as leaf and bark rubbing/printing/scratchboards
- digital activities on the smartboard.



Links to literacy continuum	Useful links or resources
<p><i>The markers below have been selected as possible assessment opportunities while on this excursion.</i></p> <p><b>Cluster 5</b>  <b>Comprehension:</b> Interprets information in factual texts, e.g. using contents page and screen icons to locate specific information e.g. bug ID charts  <b>Aspects of speaking:</b> Provides elaboration to questions seeking further information                      Recounts events and experiences in logical sequence                      Consistently makes relevant contributions to class discussions and asks questions to clarify meaning                      Listens and responds to instructions, information and peer opinions.</p> <p><b>Cluster 6</b>  <b>Comprehension:</b> Shows awareness that information about one topic can be sought from a number of sources, e.g. graphs, posters, reference texts, websites  <b>Aspects of speaking:</b> Expresses a point of view with supporting information about an expanding range of texts/topics                      Speaks clearly and confidently in a variety of informal situations to a known/familiar audience                      Demonstrates attentive listening across a range of school contexts, e.g. assemblies, performances.</p> <p><b>Cluster 7</b>  <b>Aspects of speaking:</b> Demonstrates attentive listening and viewing for extended periods of time.</p> <p><b>Cluster 8</b>  <b>Aspects of speaking:</b> Listens and understands a series of instructions related to a task and successfully completes the task.</p>	<p><a href="#">Brewongle EEC</a></p> <p><a href="#">Program risk assessment</a></p> <p><b><i>Find out about Australian bush and water bugs</i></b>                      From the <a href="#">CSIRO</a>                      From the <a href="#">Australian Museum</a>                      Aust. Museum <a href="#">Bugwise</a>                      From <a href="#">Entomology Australia</a>                      From <a href="#">Streamwatch</a>                      From <a href="#">Riverina EEC</a></p> <p><b><i>Find out about birds in this area</i></b>                      From the <a href="#">Australian Museum</a>                      Birds of <a href="#">Western Sydney</a></p>