

Summary	Duration
<p>This excursion addresses outcomes from the Science, Mathematics and English K-6 Syllabuses.</p> <p><i>Focus</i> - Science</p> <p><i>Knowledge and Understanding</i> - Natural Environment</p> <p><i>Substrand</i> - Living World</p> <p>Students explore the natural environment and learn about science as a unique way of answering questions about the health of plants, animals and ecosystems, and the importance of this information in decision-making and problem solving. There are a range of highly engaging hands on activities that provide students with the opportunities to develop improved visual and scientific literacy.</p>	<p>4 hour on-site excursion to Penrith Lakes Environmental Education Centre.</p> <p><i>Arrival time</i> - 10:00am</p> <p><i>Departure time</i> - 2:00pm</p> <p>Arrival and departure times are guides only. Distance and bus schedules may require modifications to the timetable.</p>

About Penrith Lakes Environmental Education Centre	Learning across the curriculum
<p>Penrith Lakes Environmental Education Centre is located on Old Castlereagh road near Sydney International Regatta Centre. This great location allows us to provide studies of land and water management at Penrith Lakes along with local heritage sites and the environmental issues associated with the Nepean River and Blue Mountains.</p>	<p><i>Cross-curriculum priorities enable students to develop understanding about and address the contemporary issues they face.</i></p> <p>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.</p>

Outcomes	Assessment overview
<p>Science K-10</p> <ul style="list-style-type: none"> › ST2-1VA shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunities › ST2-2VA demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futures › ST2-4WS investigates their questions and predictions by analysing collected data, suggesting explanations for their findings, and communicating and reflecting on the processes undertaken › ST2-10LW describes that living things have life cycles, can be distinguished from non-living things and grouped, based on their observable features › ST2-11LW describes ways that science knowledge helps people understand the effect of their actions on the environment and on the survival of living things <p>Mathematics K-10</p> <ul style="list-style-type: none"> › MA2-17MG uses simple maps and grids to represent position and follow routes, including using compass directions <p>English K-10</p> <ul style="list-style-type: none"> › EN2-1A communicates in a range of informal and formal contexts by adopting a range of roles in group, classroom, school and community contexts › EN2-5A uses a range of strategies, including knowledge of letter–sound correspondences and common letter patterns, to spell familiar and some unfamiliar words 	<p>Key Concepts</p> <ul style="list-style-type: none"> ▪ Living things can be grouped on the basis of observable features and can be distinguished from non-living things. ▪ Living things have life cycles. ▪ Living things, including plants and animals, depend on each other and the environment to survive.

Content	Teaching and learning and activities	Resources
<p>Stage 2 - Living World</p> <p>Living things, including plants and animals, depend on each other and the environment to survive. (ACSSU073)</p> <p>Students:</p> <ul style="list-style-type: none"> ▪ investigate the role of living things in a habitat, e.g. plants as producers and microbes (micro-organisms) as decomposers  ▪ gather information about some relationships between living things, e.g. predator-prey, competitors and mutually beneficial relationships  <p>Stage 2 - Spelling</p> <p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> ▪ use morphemic, visual, syntactic, semantic and phonological knowledge when attempting to spell unknown words ▪ identify spelling errors in own writing and unknown texts and provide correct spelling <p>Stage 2 - Speaking and listening 1</p> <p>Students:</p>	<p>Activity 1 - Introduction to Penrith Lakes</p> <p>Students are welcomed to the Centre and introduced to Penrith Lakes. The following questions are answered:</p> <ul style="list-style-type: none"> ▪ Where is Penrith Lakes located? ▪ How long has Penrith Lakes been a part of the Penrith Community? ▪ What activities are occurring at Penrith Lakes? ▪ Why is Penrith Lakes being established? ▪ How is Penrith Lakes being established? ▪ What products are being created as Penrith Lakes is being established? <p>Activity 1 - Introduction to Australian Environments</p> <p>Students are welcomed to the Centre and taken into the interactive classroom where they are taught about different Australian environments through Yowies, a beloved children's character, to foster understanding and empathy for the natural world.</p>	<p>Provided by PLEEC:</p> <ul style="list-style-type: none"> ▪ Interactive whiteboard ▪ Interactive PowerPoint presentation

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<p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> ▪ interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and information (ACELY1687) ✨ <p>Understand and apply knowledge of language forms and features</p> <ul style="list-style-type: none"> ▪ understand that successful cooperation with others depends on shared use of social conventions, including turn-taking patterns, and forms of address that vary according to the degree of formality in social situations (ACELA1476) 🧑🧑 <p>Respond to and compose texts</p> <ul style="list-style-type: none"> ▪ use interaction skills, including active listening behaviours and communicate in a clear, coherent manner using a variety of everyday and learned vocabulary and appropriate tone, pace, pitch and volume (ACELY1688, ACELY1792) ✨ 		
<p>Stage 2 - Working Scientifically</p> <p>Students plan investigations by:</p> <ul style="list-style-type: none"> ▪ suggesting appropriate materials, tools and equipment they could use in conducting their investigations and recording their findings, identifying appropriate safety rules 🖨️ <p>Students conduct investigations by:</p> <ul style="list-style-type: none"> ▪ following the planned method, adjusting procedures as necessary, including exploration, fieldwork, surveys and researching secondary sources ▪ safely using appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSYS055, ACSYS066) 🖨️ ⭐ 📊 <p>Stage 2 - Speaking and listening 1</p> <p>Students:</p> <p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> ▪ interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and information (ACELY1687) ✨ <p>Respond to and compose texts</p> <ul style="list-style-type: none"> ▪ interact effectively in groups or pairs, adopting a range of roles 🧑🧑 <p>Stage 2 - Position 1</p> <p>Students:</p> <ul style="list-style-type: none"> ▪ use given directions to follow routes on simple maps 🗺️ ▶ use and follow positional and directional language (Communicating) 🗺️ 	<p>Activity 2 - Yowie Hunt</p> <p>After being introduced to each Yowie, the students must now find them as they hide around the Centre. Each Yowie has its own environmental domain and distinct personality. Through this activity, the concept that there are six key natural habitats is reinforced, and students learn how to use a compass.</p>	<p>Provided by PLEEC:</p> <ul style="list-style-type: none"> ▪ Student worksheet (soft copy) ▪ Clipboards ▪ Yowies ▪ Compasses <p>Provided by visiting school:</p> <ul style="list-style-type: none"> ▪ Student worksheet (hard copy) ▪ Lead pencils ▪ Student hats ▪ Sunscreen ▪ First aid kit and student medications
<p>Stage 2 - Speaking and listening 1</p> <p>Students:</p> <p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> ▪ interpret ideas and information in spoken texts and listen for key points in order 	<p>Activity 3 - Investigating a Dry Environment</p> <p>Students are taken out into a bushland environment to investigate the types of plants, mini-beasts and birds that live there.</p> <p>Plants and mini-beasts:</p>	<p>Provided by PLEEC:</p> <ul style="list-style-type: none"> ▪ Student worksheets (soft copy) ▪ Clipboards ▪ White posts

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<p>to carry out tasks and use information to share and extend ideas and information (ACELY1687) ✨</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> ▪ interact effectively in groups or pairs, adopting a range of roles 🧑🧑 <p>Stage 2 - Working Scientifically</p> <p>Students conduct investigations by:</p> <ul style="list-style-type: none"> ▪ following the planned method, adjusting procedures as necessary, including exploration, fieldwork, surveys and researching secondary sources ▪ safely using appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (AC SIS055, AC SIS066) 🖨️ ⭐ 📊 <p>Stage 2 - Living World</p> <p>Living things can be grouped on the basis of observable features and can be distinguished from non-living things. (ACSSU044)</p> <p>Students:</p> <ul style="list-style-type: none"> ▪ identify some features of living things that distinguish them from non-living things, e.g. reproducing, growing and responding to stimuli <p>Living things, including plants and animals, depend on each other and the environment to survive. (ACSSU073)</p> <p>Students:</p> <ul style="list-style-type: none"> ▪ identify some factors in the local environment that are needed by plants and animals for survival ▪ outline the relationship between plants and animals, including that plants are able to use light to make food, while animals must eat plants or other animals to obtain food 🍷 	<ul style="list-style-type: none"> ▪ The study area will be marked out with seven white posts, each with a number on it. Beside each post is a native tree that contains two hidden 'mini-beasts'. ▪ Using worksheets, students must match pictures of leaves to the correct tree and consequently write down the corresponding post number. ▪ Then students must find the two 'mini-beasts' hiding in each tree and again write down the corresponding post number. <p>Birds:</p> <ul style="list-style-type: none"> ▪ Using binoculars, students record the different types of birds they observe as they go on a bushwalk. ▪ Each bird has a predetermined score. This score has been allocated according to their sensitivity to pollution. ▪ At the end of the bushwalk students add up their total score to determine whether the bushland environment they have been studying is healthy. 	<ul style="list-style-type: none"> ▪ Bushland environment with native trees and birds ▪ Binoculars <p>Provided by visiting school:</p> <ul style="list-style-type: none"> ▪ Student worksheets (hard copy) ▪ Lead pencils ▪ Student hats ▪ Sunscreen ▪ First aid kit and student medications
<p>Stage 2 - Speaking and listening 1</p> <p>Students:</p> <p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> ▪ interpret ideas and information in spoken texts and listen for key points in order to carry out tasks and use information to share and extend ideas and information (ACELY1687) ✨ <p>Respond to and compose texts</p> <ul style="list-style-type: none"> ▪ interact effectively in groups or pairs, adopting a range of roles 🧑🧑 <p>Stage 2 - Working Scientifically</p> <p>Students conduct investigations by:</p> <ul style="list-style-type: none"> ▪ following the planned method, adjusting procedures as necessary, including exploration, fieldwork, surveys and researching secondary sources ▪ safely using appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (AC SIS055, AC SIS066) 🖨️ ⭐ 📊 	<p>Activity 4 - Investigating a Wet Environment</p> <p>Students investigate a wetland and attempt to catch different freshwater insects. The technique used by the students to catch the freshwater insects is called dip netting.</p> <ul style="list-style-type: none"> ▪ Students are shown how to move the dip net through the water to most effectively catch different freshwater insects. ▪ As the students collect freshwater insects, PLEEC staff will collect one of each of the species caught and put them in a specimen jar. 	<p>Provided by PLEEC:</p> <ul style="list-style-type: none"> ▪ Freshwater ecosystem with freshwater insects ▪ Dip nets <p>Provided by visiting school:</p> <ul style="list-style-type: none"> ▪ Student hats ▪ Sunscreen ▪ First aid kit and student medications

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<p>Stage 2 - Speaking and listening 1</p> <p>Students:</p> <p>Understand and apply knowledge of language forms and features</p> <ul style="list-style-type: none"> ▪ understand that successful cooperation with others depends on shared use of social conventions, including turn-taking patterns, and forms of address that vary according to the degree of formality in social situations (ACELA1476) 🧑🧑 <p>Stage 2 - Working Scientifically</p> <p>Students process and analyse data and information by:</p> <ul style="list-style-type: none"> ▪ describing patterns and relationships in data collected from investigations (ACSHE050, ACSHE061) ▪ comparing results with predictions, suggesting possible reasons for findings (ACSIS215, ACSIS216) 🧑🧑📊⚙️ <p>Students communicate by:</p> <ul style="list-style-type: none"> ▪ sharing what they did and found out, including identifying some strengths and limitations of the method they used and what could be done differently to improve their investigation, including fairness as appropriate ⚙️🧑🧑 <p>Stage 2 - Living World</p> <p>Living things have life cycles. (ACSSU072)</p> <p>Students:</p> <ul style="list-style-type: none"> ▪ identify ways that the environment can affect the life cycle of plants and animals 	<p>Activity 5 - Identifying Fresh Water Insects</p> <p>Back at the Environmental Education Centre, PLEEC staff help students to understand the data they collected in the field.</p> <ul style="list-style-type: none"> ▪ The insects collected from the freshwater ecosystem are put under a video microscope and identified. ▪ Each freshwater insect has a predetermined score. This score has been allocated according to their sensitivity to pollution. Students record these scores as different species are identified. ▪ Once all freshwater insects have been identified, students add up their total score to determine whether the freshwater ecosystem they have been studying is healthy. ▪ As students identify certain freshwater insects, PLEEC staff will describe the stage of their lifecycle. Students are also given the opportunity to sequence the life cycle stages of certain species. 	<p>Provided by PLEEC:</p> <ul style="list-style-type: none"> ▪ Interactive whiteboard ▪ Interactive PowerPoint presentation ▪ Video microscope ▪ Student worksheet (soft copy) ▪ Clipboards <p>Provided by visiting school:</p> <ul style="list-style-type: none"> ▪ Student worksheet (hard copy) ▪ Lead pencils