

<p>Summary</p>	<p>Duration</p>
<p>This excursion addresses outcomes from the NSW BOSTES Stage 4 Science Syllabus.</p> <p><i>Focus – ‘Living World’</i></p> <p>This unique and highly engaging program allows students to perform a first-hand investigation of a freshwater ecosystem using various scientific equipment and data collection methods to:</p> <ul style="list-style-type: none"> • identify a range of plants and animals that exist in Penrith Lakes and learn about some of their adaptations for survival; • construct and interpret food chains and food webs using the organisms found; • describe some of the interactions between freshwater aquatic organisms in food chains and food webs, including producers, consumers and decomposers. <p>Students are guaranteed to be involved in a number of engaging and hands on experiences during the course of the day. Through these students will further develop their knowledge and understanding, field work and group work skills.</p>	<p>Approximately 4 hour on-site excursion to Penrith Lakes Environmental Education Centre.</p> <p><i>Arrival time - 10:00am</i> <i>Departure time – 2:00pm</i></p> <p>Arrival and departure times are guides only. Distance and bus schedules may require modifications to the timetable.</p>

<p>About Penrith Lakes</p>	<p>Learning across the curriculum</p>
<p>Penrith Lakes Environmental Education Centre is located on Old Castlereagh road inside the 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>

<p>‘Living World’ Outcomes</p>
<p>LW1 There are differences within and between groups of organisms; classification helps organise this diversity. (ACSSU111)</p> <ul style="list-style-type: none"> * use simple keys to identify a range of plants and animals * identify some examples of groups of micro-organisms * explain how the features of some Australian plants and animals are adaptations for survival and reproduction in their environment

LW5

Science and technology contribute to finding solutions to conserving and managing sustainable ecosystems.

- a. construct and interpret food chains and food webs, including examples from Australian ecosystems
- b. describe interactions between organisms in food chains and food webs, including producers, consumers and decomposers (ACSSU112)
 - i. describe examples of beneficial and harmful effects that micro-organisms can have on living things and the environment

Skills: follows a sequence of instructions to safely undertake a range of investigation types, collaboratively and individually SC4-6WS

Teaching and learning activities	Resources
<ul style="list-style-type: none">▪ Station 1: <u>Introduction to Penrith Lakes Scheme</u> and its unique local freshwater environments.▪ Station 2: <u>Water Tests</u> (e.g. turbidity) that affect a range of plant and animals species. Measured by the students using a range of fieldwork equipment (e.g. Dissolved Oxygen Meter).▪ Station 3: <u>Freshwater Aquatic Plants</u>, where students identify various plant species and their impact/role within the freshwater aquatic ecosystem.▪ Station 4: <u>Freshwater Invertebrates</u> (e.g. dragonfly nymphs), students use a dip netting method to catch invertebrates. This is followed by an identification activity where students identify each species caught and learn about their unique adaptations.▪ Station 5: <u>Freshwater Fish</u>, here students identify various fish species and their impact/role within the freshwater aquatic ecosystem.▪ Station 6: <u>Waterbirds</u>, here students identify and learn about some of the waterbirds at Penrith Lakes and appreciate their overall importance as the 'top of the food chain' predators in a freshwater ecosystem. Students also learn about some of the adaptations they have developed in order to survive in a freshwater aquatic ecosystem.▪ Station 7: <u>Wrap Up/Food Chains and Food Webs</u>, here students will analyse all of the data collected and construct a food chain and a food web using the animals and plants they found at Penrith Lakes as examples.	<p>Provided by PLEEC:</p> <ul style="list-style-type: none">▪ Freshwater ecosystem with freshwater insects▪ Water testing equipment▪ Dip nets▪ Viewers▪ Binoculars <p>Provided by visiting school:</p> <ul style="list-style-type: none">▪ Student hats▪ Sunscreen▪ First aid kit and student medications