

Summary	Duration
<p>This excursion addresses outcomes from the NESA Stage 5 Geography Syllabus.</p> <p><i>Focus – ‘Changing Biomes’</i></p> <p>This new, unique and highly engaging fieldwork program allows students to investigate first hand how humans have altered the natural biome in the Penrith Lakes Parkland Area.</p> <p>Students will see remnant (last remaining) vegetation of the original woodland biome. The theme of changing a natural biome for food production by Aboriginals and Europeans is highlighted. The reduction in agricultural yields led to a further change in human activities - quarrying.</p> <p>An examination of mining altering the physical characteristics of the area follows. Students then undertake a ‘hands-on’ assessment of environmental impacts of human alterations to the area. Biodiversity loss and water pollution are assessed by students. This incorporates water testing, invertebrate sampling and birdlife survey. Basic soil testing evaluations are also experienced.</p> <p>Finally there is a real life look at successful sustainability strategies that minimise environmental impacts now and in the future.</p> <p>Students are guaranteed to be involved in a number of engaging and ‘hands on’ experiences during the course of the day through which students will further develop their geography inquiry, 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>

About Penrith Lakes	Learning across the curriculum
<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>

Key Inquiry questions

- How have humans altered the original biome of The Penrith Lakes Area?
- What impact have these alterations had on the physical and human activities of this area?
- What sustainable rehabilitation strategies, that minimize environmental impacts, are taking place?

Outcomes for students

A student:

- Explains processes and influences that form and transform places and environments **GE5-2**
- Analyses the effect of interactions and connections between people, places and environments **GE5-3**
- Assesses management strategies for places and environments for their sustainability **GE5-5**
- Acquires and processes geographical information by selecting and using appropriate and relevant geographical tools for inquiry **GE5-7**

Teaching and learning activities

- Activity 1: Overview of Penrith Lakes Scheme. General 'Lakes' Presentation at PLEEC followed by tour. Tour emphasises changing vegetation and landuse patterns over time.
- Activity 2: Assessment of environmental impacts - Water testing
- Activity 3: Assessment of environmental impacts – Basic soil testing
- Activity 4: Assessment of environmental impacts - Invertebrate survey (dipnetting)
- Activity 5: Assessment of environmental impacts – Bird survey
- Activity 6: Assessment of environmental impacts – Water management practices (walk)
- Activity 7: Assessment of environmental impacts – Wrap up and conclusions from first hand investigations. Looking at key inquiry questions.

Resources

- Provided by PLEEC:
- Freshwater ecosystem with invertebrates
 - Soil & Water testing equipment
 - Dip nets
 - Magnifiers
 - Binoculars
- Provided by visiting school:
- Clipboards
 - Student hats
 - Sunscreen
 - First aid kit and student medications