

Sydney Basin Trip

Teacher Learning Outcomes

Overview

This field trip provides teachers with an opportunity to explore the geology, landscapes and geological history of the Sydney Basin through direct observation of rocks, landforms and coastal features. The trip is designed to build teachers' confidence in teaching Earth and environmental science through real-world examples and field-based investigations.

By the end of the trip, teachers will be able to:

1. Understand the geological history of the Sydney Basin

- Describe the broad geological history of the Sydney Basin and explain how sedimentary rocks formed within the basin.
- Recognise some of the major rock types encountered during the field trip and describe their key characteristics.
- Explain how geological processes operating millions of years ago have influenced the modern landscape.

2. Interpret rocks and geological exposures

- Identify common sedimentary rocks in the field using observable characteristics such as colour, grain size, layering, texture and hardness.
- Use rock exposures to interpret past environments, including the conditions under which sediments were deposited.
- Recognise geological structures and features that provide evidence of past geological processes.

3. Investigate coastal geology and landforms

- Explain how geological structure, rock type, waves and weathering interact to produce coastal landforms.
- Use examples along the Illawarra and South Coast to investigate features such as cliffs, beaches, headlands and rock platforms.
- Explain why different rock types and structures produce different coastal landscapes.

4. Explore the relationship between geology and landscape

- Explain how the underlying geology influences topography, drainage patterns and coastal landscapes.
- Recognise that the landscape visible today is the result of the interaction between geological processes, weathering, erosion and more recent environmental change.
- Use field observations to develop explanations for differences between neighbouring landscapes.

5. Develop practical fieldwork skills

Teachers will develop confidence in:

- Making systematic field observations.
- Recording geological information using field notes, sketches, photographs and simple measurements.
- Identifying rocks and geological features in the field.
- Asking questions and developing explanations from direct evidence.
- Using field evidence to construct a geological interpretation.

6. Connect fieldwork to classroom teaching

Teachers will be able to identify ways of using the Sydney Basin as a local and accessible case study for teaching:

- Rock types and the rock cycle.
- Sedimentary rock formation.
- Geological time.
- Weathering and erosion.
- Coastal processes and landforms.
- Landscape evolution.
- The relationship between geology and the environment.
- Scientific observation and evidence-based explanations.

7. Apply field observations to student learning

Following the field trip, teachers will be better equipped to design field-based and classroom activities that encourage students to:

- Observe and classify rocks and landforms.

- Collect and interpret geological evidence.
- Develop explanations based on observations.
- Understand geological processes through local examples.
- Appreciate the importance of Earth's geological history in shaping the environment around them.

Professional Learning Outcome

At the conclusion of the field trip, teachers will have increased their **knowledge of Sydney Basin geology, confidence in geological fieldwork, and ability to use local geological environments as authentic learning resources for Earth and environmental science education.**

The field trip emphasises the principle that geology is best understood not only from textbooks and diagrams, but by **observing and interpreting the evidence preserved in the rocks and landscapes around us.**