# Rural and urban places case study – Wollongong (urban settlement)

The HSC geography fieldwork for the Wollongong case study aims to provide teachers and students with a in-depth understanding of the urban settlement and places through an immersive, hands-on learning experience. The fieldwork sites are designed to be visited over the course of 2 to 3 days and provide an in-depth overview of the urban settlement. It is not expected that students would visit all sites during their fieldwork. Teachers are best placed to determine the number and type of sites most appropriate for their students.

For each site, activities have been included that are designed to address specific geographical questions and objectives and collect data/resources. Activities include:

* field sketching
* oblique angle photographic analysis
* environmental testing and readings
* conducting surveys/interviews
* gathering information/data on the economic, cultural, social and political links to other places.

Throughout the fieldwork, a range of geographical materials and equipment, such as cameras, atmospheric, water and soil testing equipment, GPS devices and geographic information systems (GIS) software will be used. This will assist with collection and analysis of data and develop a thorough understanding of the urban area’s geographical processes and the interconnection between its urban settlement and the rural setting of Broken Hill.

### Syllabus content

**Investigation of a rural and an urban place.**

Students study ONE place in a rural setting and ONE place within a larger urban settlement, to investigate:

* The location and character of the place
* Geographical processes, both physical and human, that have shaped the identity of the place
* Links to other places
* The nature of changes affecting the place, including social, economic and environmental
* Responses and strategies, including for sustainability

### Outcomes and benefits

Fieldwork is an integral part of the educational experience for HSC geography students. Wollongong is an urban settlement experiencing rapid changes, it provides a unique opportunity to investigate diverse aspects of geography in a real-world urban setting. The following points outline the outcomes and benefits of this fieldwork experience including:

* developing a case study for a teaching and learning program for HSC geography teachers
* fulfilling the compulsory HSC geography fieldwork requirement by providing a real-world context to explore sustainability, development, social, economic and environmental changes affecting urban areas
* developing a stimulus booklet for classroom learning, assessments and exam preparation that offers understanding of the diverse urban settlement of Wollongong
* enhancing teacher and student understanding of geographical concepts and processes through hands-on experience
* improving analytical, critical thinking and geographical inquiry skills for both teachers and students.

### Stakeholder engagement

The Wollongong case study fieldwork for the Rural and urban places focus area will engage stakeholders. This might include interactions with local residents, businesses, government agencies, environmentalists, tourists, educational institutions and local land councils.

### Materials list for fieldwork sites

* Camera or sketchbook
* Oblique angle camera
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Anemometer (wind speed tester)
* GPS device
* Notepad and pen for interviews and surveys
* Historical photographs
* Vegetation identification charts
* Weather instruments
* Water and soil testing equipment
* Clinometer or other slope-measuring instruments
* Beach profile equipment
* Transect equipment
* GIS software for mapping and spatial analysis
* [Drones](https://education.nsw.gov.au/content/dam/main-education/inside-the-department/health-and-safety/media/documents/SA062_SAFEUSEOFDRONES_v1.pdf) (PDF 71.4 KB) for aerial images
* Survey equipment
* Streetscapes transect equipment

## Fieldwork

### Site 1 – Panorama House

**Objective:** Investigate the location, character and links to other places related to Panorama House.

**Geographical question:** Explain how Panorama House contributes to the local economy and tourism industry.

**Activities**

* Conduct a field sketch or take photographs of the surrounding landscape to analyse the physical environment and the location’s character.
* Conduct an oblique angle photographic analysis.
* Reading 1: measure environmental factors such as temperature, altitude, sunlight exposure, direction and humidity.
* Conduct a wind speed test.
* Use a GPS device to determine the exact coordinates of Panorama House.
* Interview visitors or employees to gather information on the economic, cultural and political links to other places.

**Materials and equipment**

* Sketchbook
* Camera for oblique angle photography
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Anemometer (wind speed tester)
* GPS device
* Notepad and pen for interviews

### Site 2 – Wollongong Head Lighthouse

**Objective:** Investigate the nature of changes affecting the place, including social, economic and environmental.

**Geographical question:** Identify and describe any conservation efforts or sustainable practices implemented to protect the lighthouse and its surroundings.

**Activities**

* Observe and document the current state of the lighthouse, including any signs of environmental changes or degradation.
* Use historical photographs to compare past and present conditions.
* Reading 2: temperature, altitude, sunlight exposure, direction and humidity.
* Conduct a wind speed test.
* Use a GPS device to determine the exact coordinates of lighthouse.
* Use vegetation identification charts and weather instruments to better understand the environmental factors influencing the location.
* Interview or conduct a survey to collect data from local residents and lighthouse staff, to understand the social and economic changes affecting the lighthouse.

**Materials and equipment**

* Camera or sketchbook
* Historical photographs
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Anemometer
* Vegetation identification charts
* Weather instruments
* Notepad and pen for interviews/surveys

### Site 3 – Nan Tien Temple

**Objective:** Investigate the geographical processes, both physical and human, that have shaped the identity of the place.

**Geographical question:** Assess the temple’s impact on the local community and its role in promoting cultural exchange.

**Activities**

* Reading 3: temperature, altitude, sunlight exposure, direction, humidity and wind speed test.
* Complete a cultural analysis activity of the temple’s architecture and layout to understand its cultural and religious significance.
* Environmental Quality Assessments (EQA): conduct an EQA which will involve evaluating environmental conditions, such as air quality, noise pollution or landscape aesthetics.
* Interview temple staff or visitors to gain insight into the human processes that have contributed to the temple’s identity.
* Conduct survey data collection about the temple’s connection to other Buddhist temples and the broader Buddhist community.

**Materials and equipment**

* Thermometer
* Hygrometer
* Altimeter
* Compass
* Anemometer
* Camera or sketchbook for cultural analysis
* Notepad and pen for interviews

### Site 4 – Grand Pacific Drive

**Objective:** Investigate the nature of changes affecting the place, including social, economic and environmental changes.

**Geographical question:** Evaluate the road improvement projects or environmental initiatives along the drive, such as habitat restoration or wildlife corridors.

**Activities**

* Travel along the Grand Pacific Drive, documenting the landscape and environment through photographs or sketches.
* Use photographic devices to capture images of the temple and its surroundings.
* Use water and soil testing equipment to gather data. Water and soil test 1
* water salinity test
* turbidity
* organic matter in soil, soil salinity.
* Use a GPS device and GIS software to map the route and identify key features.
* Use land use surveys to collect data on the function and purpose of land.
* Interview locals or tourists to gather opinions on the drive's social, economic and environmental impacts.

**Materials and equipment**

* Camera or sketchbook
* Photographic devices
* Water and soil testing equipment
* GPS device
* GIS software
* Notepad and pen for interviews

### Site 5 – Port Kembla

**Objective:** Investigate the responses and strategies, including for sustainability, at Port Kembla.

**Geographical questions:**

* Explain the impact of the port on the local economy and environment.
* Analyse partnerships or collaborations between Port Kembla and other organisations working towards sustainable development.

**Activities**

* Visit the port and observe the various industrial activities taking place, documenting any visible sustainable practices.
* Reading 4: temperature, altitude, sunlight exposure, direction and humidity.
* Interview port employees or representatives to gather information on sustainability initiatives and goals.
* Use GIS to analyse spatial data on land use and infrastructure development.

**Materials and equipment**

* Camera or sketchbook
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Notepad and pen for interviews
* GIS software

### Site 6 – WIN Stadium

**Objective:** Investigate the location, character and links to places of WIN Stadium.

**Geographical question:** Assess how the stadium contributes to the local economy and sports community.

**Activities**

* Take photographs or sketch the stadium and its surroundings to document its character and location.
* Use a GPS device to determine the exact coordinates of the stadium.
* Use drones to collect aerial images and analyse the physical layout of the stadium.
* Conduct pedestrian and traffic counts to gather data on the movement of people and vehicles.
* Use a GPS device to determine the exact coordinates of WIN stadium.
* Interview stadium staff, visitors or local sports fans to understand the cultural, economic and political connections to other places.

**Materials and equipment**

* Camera or sketchbook
* GPS device
* Drones for aerial images
* Notepad and pen for interviews

### Site 7 – beaches

**Objective:** Investigate the geographical processes, both physical and human, that have shaped the identity of Wollongong’s beaches.

**Geographical question:** Evaluate the beach restoration or coastal management projects implemented in the area, such as dune stabilisation or beach nourishment.

**Activities**

* Visit various beaches in the area and document their physical features, such as sand composition, wave patterns and erosion.
* Create a beach profile.
* Complete a transect.
* Reading 5: temperature, altitude, sunlight exposure, direction and humidity.
* Conduct water and soil test 2
* water salinity test
* turbidity
* organic matter in soil, soil salinity.
* Use a clinometer or other instruments to measure beach slope and elevation.
* Interview beachgoers or lifeguards to gain insight into the human processes that have contributed to the beaches’ identity.

**Materials and equipment**

* Camera or sketchbook
* Clinometer or other slope measuring instruments
* Beach profile equipment
* Transect equipment
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Water and soil testing equipment
* Notepad and pen for interview

### Site 8 – Performing Arts Centre

**Objective:** Investigate the nature of changes affecting the Performing Arts Centre, including social, economic and environmental.

**Geographical question:** Explain the sustainable practices and cultural initiatives implemented within the centre or its operations.

**Activities**

* Observe and document the architecture and design of the Performing Arts Centre.
* Use historical photographs to compare past and present conditions.
* Interview staff members, performers or audience members to gather information on the social and economic changes affecting the centre.

**Materials and equipment**

* Camera or sketchbook
* Photographs (past and present)
* Notepad and pen for interviews
* GIS software for mapping electoral boundaries

### Site 9 – Council Chambers

**Objective:** Investigate the location, character and links to other places of Local Council chambers.

**Geographical question:** Analyse the role of the Council Chambers in local governance and decision-making processes.

**Activities**

* Conduct a field sketch or take photographs of the Council Chambers building and its surroundings to analyse the physical environment and location’s character.
* Use a GPS device to determine the exact coordinates of the Council Chambers.
* Interview council members or employees to gather information on the political, cultural and economic links to other places.
* Use GIS to map electoral boundaries and study the distribution of services and resources within the city.

**Materials and equipment**

* Camera or sketchbook
* GPS device
* Notepad and pen for interviews
* GIS software for mapping electoral boundaries

### Site 10 – Illawarra Aboriginal Corporation

**Objective:** Investigate the geographical processes, both physical and human, that have shaped the identity of the Illawarra Aboriginal Corporation.

**Geographical questions:**

* Identify and describe the corporation’s impact on the local Indigenous community and its role in promoting cultural preservation and understanding.
* Explain the corporation’s connections to other Indigenous organisations and communities.

**Activities**

* Visit the corporation’s office and document any visual displays or artefacts that reflect Indigenous culture and history.
* Interview staff members or Indigenous community members to gain insight into the human processes that have contributed to the corporation’s identity.

**Materials and equipment**

* Survey data
* Camera or sketchbook
* Notepad and pen for interviews
* Survey equipment

### Site 11 – University of Wollongong

**Objective:** Investigate the responses and strategies, including for sustainability, at the University of Wollongong.

**Geographical questions:**

* Analyse the partnerships or collaborations between the University of Wollongong and other organisations working towards sustainable development.
* Evaluate the impact of the university on the local economy and environment.

**Activities**

* Tour the university campus, documenting any sustainable infrastructure or practices, such as solar panels or recycling facilities.
* Interview university staff or students to gather information on sustainability initiatives and goals.

**Materials and equipment**

* Camera or sketchbook
* Notepad and pen for interviews

### Site 12 – Wollongong’s natural environment

**Objective:** Investigate the nature of changes affecting Wollongong’s natural environment, including social, economic and environmental factors.

**Geographical question:** Evaluate the conservation efforts, restoration projects or sustainable practices implemented in the area to protect and preserve the natural environment.

**Activities**

* Visit various natural sites in the Wollongong area, such as parks, reserves and waterways, and document their current state.
* Use water and soil testing equipment to assess the quality of the local environment.
* Interview local residents, environmentalists or government officials to gather information on the social, economic and environmental changes affecting Wollongong’s natural environment.

**Materials and equipment**

* Camera or sketchbook
* Water and soil testing equipment
* Notepad and pen for interviews

### Site 13 – Wollongong’s public transportation system

**Objective:** Investigate the responses and strategies, including for sustainability, related to Wollongong’s public transportation system.

**Geographical questions:**

* Explain the role of public transportation in shaping the social, economic and environmental aspects of Wollongong.
* Evaluate the impact of the transportation system on the local economy, environment and community wellbeing.

**Activities**

* Use Wollongong’s public transportation system to gain firsthand experience and document the modes of transport available, such as buses, trains or cycling infrastructure.
* Reading 6: temperature, altitude, sunlight exposure, direction and humidity.
* Interview and survey public transport users, employees or city planners to gather information on sustainability initiatives and goals related to transportation.

**Materials and equipment**

* Bus and train timetables
* Thermometer
* Hygrometer
* Altimeter
* Compass
* Notepad and pen for interviews/surveys

### Site 14 – Wollongong’s waste management system

**Objective:** Investigate the location, character and links to other places of Wollongong’s waste management system.

**Geographical question:** Explain the role of the waste management system in promoting sustainability and reducing the city’s environmental impact.

**Activities**

* Visit a local waste management facility and document its location, layout and operations.
* Conduct water and soil test 3
* water salinity test
* turbidity
* organic matter in soil, soil salinity.
* Use a GPS device to determine the exact coordinates of the facility.
* Interview waste management staff or local residents to gather information on the economic, environmental and social links to other places and the waste management strategies employed.

**Materials and equipment**

* Camera or sketchbook
* Water and soil testing equipment
* GPS device
* Notepad and pen for interviews

### Site 15 – Wollongong Botanic Garden

**Objective:** Investigate the garden’s sustainability initiatives, such as water conservation, recycling and habitat preservation.

**Geographical questions:**

* Describe the sustainability initiatives and measures that are in place at the Wollongong Botanic Garden.
* What role does the garden play in the local ecosystem? Why is this important?

**Activities**

* Use vegetation identification charts and quadrats to study the biodiversity and distribution of plant species in the garden.
* Conduct an historical photography analysis.

**Materials and equipment**

* Vegetation identification charts
* Quadrats
* Historical photographs

### Site 16 – Wollongong Harbour

**Objective:** Investigate the impact of pollution and development on the ecosystem.

**Geographical question:** Describe the evidence of human interactions in the local environment and identify any mitigation or management strategies that are evident.

**Activities**

* Reading 8: temperature, altitude, sunlight exposure, direction and humidity.
* Study the geographical processes and human activities that have shaped the harbour’s identity.
* Complete a field sketch of the harbour including human and natural features of the environment.
* Conduct water and soil test 4
* water salinity test
* turbidity
* organic matter in soil, soil salinity.
* Use water and soil testing equipment to analyse the environmental quality of the area and discuss potential impacts of pollution and development on the ecosystem.

**Materials and equipment**

* Thermometer
* Hygrometer
* Altimeter
* Compass
* Water and soil testing equipment (water salinity test, turbidity, organic matter in soil and soil salinity
* Paper and pens for field sketch

### Site 17 – Mount Keira Summit Park

**Objective:** Investigate the geographical processes, both physical and human, that have shaped the identity of Mount Keira and Wollongong.

**Geographical question:** Analyse the impact of human activities, such as tourism and recreation, on the environment, and discuss potential sustainability strategies.

**Activities**

* Use compasses, clinometers and GPS devices to investigate the physical geography of Mount Keira and its relationship to the surrounding landscape.
* Use drones to collect aerial images and analyse the physical layout of the area.
* Conduct surveys and interviews with commuters and use GIS to map the spatial distribution of transportation services in the city.
* Take photographs or sketch the park and its surroundings to document the character and location.

**Materials and equipment**

* Compass, clinometer, GPS device
* Survey and interview equipment
* GIS software
* Camera or sketchbook
* Drones for aerial images

### Site 18 – suburban residential areas

**Objective:** Investigate the social and environmental changes affecting residential areas in Wollongong.

**Geographical questions:**

* Analyse the distribution of housing types, population density and green spaces.
* Explain potential strategies for sustainable urban development.

**Activities**

* Use drones to collect aerial images and analyse the physical layout of the residential area.
* Record pedestrian and traffic counts.
* Identify modes of transportation used and available to local residents.
* Take photographs or sketch the homes, buildings, streetscape and surrounding landscape.

**Materials and equipment**

* Drones for aerial images
* Camera or sketching equipment
* Survey equipment
* Streetscape transect equipment

### Site 19 – CBD

**Objective:** Investigate the social, environmental and economic changes affecting the CBD areas in Wollongong.

**Geographical questions:**

* Analyse the distribution of services and retail spaces in the CBD.
* Explain potential strategies for sustainable urban economic growth.

**Activities**

* Gather survey data.
* Complete a streetscape transect.
* Use drones to collect aerial images.
* Conduct pedestrian and traffic counts to gather data on the movement of people and vehicles, which can be useful for transportation planning and understanding the dynamics of urban areas.

**Materials and equipment**

* Survey equipment
* Streetscape transect equipment
* Drones for aerial images

## References

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