

Summary	Duration
<p>This unit is written for Stage 3 "Factors that shape places". It is a geographical inquiry, enabling students to work through the 3 stages of inquiry; acquiring, processing and communicating geographical information. Students use many geographical tools, with a particular focus on fieldwork.</p> <p>The unit is well scaffolded to enable teachers to deliver engaging, quality content with support from Brewongle Environmental Education Centre.</p>	<p>Sample term 7 weeks Detail: 7 lessons, 1 fieldwork day</p>

Key inquiry questions
<ul style="list-style-type: none"> <li>▪ How does the natural environment influence people and places at Sackville North?</li> <li>▪ How have people changed the natural environment at Sackville North and the local Hawkesbury River Catchment?</li> <li>▪ What are the environmental factors that increase bush fire risk at Sackville North?</li> </ul>






Outcomes
<p><b>Geography K-10</b></p> <ul style="list-style-type: none"> <li>› GE3-1 describes the diverse features and characteristics of places and environments</li> <li>› GE3-2 explains interactions and connections between people, places and environments</li> <li>› GE3-3 compares and contrasts influences on the management of places and environments</li> <li>› GE3-4 acquires, processes and communicates geographical information using geographical tools for inquiry</li> </ul>







Geographical concepts	Geographical inquiry skills	Geographical tools
<p><b>Place:</b> the significance of places and what they are like e.g. characteristics of places.</p> <p><b>Space:</b> the significance of location and spatial distribution, and ways people organise and manage spaces that we live in e.g. how people organise and manage spaces in their local environment.</p> <p><b>Environment:</b> the significance of the environment on human life, and the important interrelationships between humans and the environment e.g. how the environment influences people and places; how people influence the environment; the effect of</p>	<p><b>Acquiring geographical information</b></p> <ul style="list-style-type: none"> <li>▪ identify an issue or problem</li> <li>▪ develop geographical questions to investigate the issue or problem</li> <li>▪ collect primary geographical data</li> <li>▪ gather geographical information from secondary sources</li> <li>▪ record information</li> </ul> <p><b>Processing geographical information</b></p> <ul style="list-style-type: none"> <li>▪ evaluate data and information for reliability and</li> </ul>	<p><b>Maps -</b></p> <ul style="list-style-type: none"> <li>▪ large-scale maps, small-scale maps, topographic maps, flowline maps</li> <li>▪ maps to identify location, latitude, direction, distance, map references, spatial distributions and patterns</li> </ul> <p><b>Fieldwork -</b></p> <ul style="list-style-type: none"> <li>▪ observing, measuring, collecting and recording data, conducting surveys and interviews</li> <li>▪ fieldwork instruments such as measuring devices,</li> </ul>




<p>natural disasters on the environment.</p> <p><b>Interconnection:</b> no object of geographical study can be viewed in isolation e.g. how environments influence where people live; ways people influence the characteristics of their environments.</p> <p><b>Scale:</b> the way that geographical phenomena and problems can be examined at different spatial levels e.g. environmental and human characteristics of places on local and regional scales; the effect of events on people and places locally and regionally.</p> <p><b>Sustainability:</b> the capacity of the environment to continue to support our lives and the lives of other living creatures into the future e.g. extent of environmental change; environmental management practices; sustainability initiatives.</p> <p><b>Change:</b> explaining geographical phenomena by investigating how they have developed over time e.g. changes to environmental and human characteristics of places.</p>	<p>bias</p> <ul style="list-style-type: none"> <li>▪ represent data and information in appropriate forms</li> <li>▪ interpret data and information gathered</li> <li>▪ analyse findings and results</li> <li>▪ draw conclusions</li> </ul> <p><b>Communicating geographical information</b></p> <ul style="list-style-type: none"> <li>▪ reflect on the findings of the investigation; what has been learned; the process and effectiveness of the inquiry</li> </ul>	<p>maps, photographs, compasses, GPS</p> <p><b>Graphs and statistics -</b></p> <ul style="list-style-type: none"> <li>▪ pictographs, data tables, column graphs, line graphs, climate graphs</li> <li>▪ multiple graphs on a geographical theme</li> <li>▪ statistics to find patterns</li> </ul> <p><b>Spatial technologies -</b></p> <ul style="list-style-type: none"> <li>▪ virtual maps, satellite images, global positioning systems (GPS)</li> </ul> <p><b>Visual representations -</b></p> <p>photographs, aerial photographs, illustrations, flow diagrams, annotated diagrams, multimedia, web tools.</p>
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**Unit overview**

*As urban Sydney sprawls in all directions, the Northwest is changing dramatically. This geographical inquiry will focus on the connections between people and the environment at Brewongle Environmental Education Centre and its surrounds at Sackville North on the Hawkesbury River.*

<p><b>Content</b></p> <p>Stage 3 - Factors that Shape Places</p> <p><b>Environments shape places</b></p> <p>Students:</p> <ul style="list-style-type: none"> <li>▪ investigate how the natural environment influences people and places, for example: (ACHGK028) <ul style="list-style-type: none"> <li>- discussion of how climate influences the distribution of where people live   </li> <li>- comparison of how landforms influence where and how people live in Australia and another country  </li> </ul> </li> </ul>	<p><b>Teaching, learning and assessment</b></p> <p><b>Student-centred inquiry into the contemporary land use and local planning issues</b></p> <p>Students investigate the natural environment around Brewongle Environmental Education Centre, including the local catchment of the Hawkesbury River.</p> <p>Note: This learning and teaching sequence will evolve into a geographical inquiry project which demonstrates different examples of how the natural environment has influenced people and places.</p> <p><b>ACQUIRING Geographical Information</b></p> <p><b>Pre-Visit Lessons: (See worksheet for pre-visit activities.)</b></p> <p><b>Lesson 1:</b></p>
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<p><b>Factors that change environments</b> Students:</p> <ul style="list-style-type: none"> <li>investigate the ways people change the natural environment in Australia and another country, for example: (ACHGK026, ACHGK027)</li> </ul> <p>examination of how people, including Aboriginal and Torres Strait Islander Peoples, have influenced each country's environmental characteristics eg land clearing </p> <p><b>Humans shape places</b> Students:</p> <ul style="list-style-type: none"> <li>investigate how people influence places, for example: (ACHGK029) <ul style="list-style-type: none"> <li>description of who organises and manages places eg local and state governments </li> <li>identification of ways people influence places and contribute to sustainability eg roads and services, building development applications, local sustainability initiatives </li> <li>examination of a local planning issue; the different views about it and a possible action in response to it </li> </ul> </li> </ul> <p><b>Bushfire hazard</b> Students:</p> <ul style="list-style-type: none"> <li>investigate the impact of ONE contemporary bushfire hazard in Australia, for example: (ACHGK030) <ul style="list-style-type: none"> <li>identification of the location and extent of the disaster </li> <li>description of the impact of the disaster on natural vegetation and the damage caused to communities </li> <li>examination of how people can prevent and</li> </ul> </li> </ul>	<p>Students use Google Maps to find Brewongle Environmental Education Centre and answer the relevant questions in the Fieldwork booklet to familiarise themselves with the site.</p> <p><b>Questioning:</b></p> <ul style="list-style-type: none"> <li>Clearly <b>articulate the aim or purpose of the geographical investigation</b>. The aim of the investigation is to research the factors that shape places. A particular focus is placed on the connections between people and nature at Sackville North in Northwest Sydney, using Brewongle Environmental Education Centre as a case study site.</li> <li>Conduct a class brainstorming session to <b>generate geographical questions</b> to investigate and plan the inquiry in order to answer the inquiry question. This should be a student-centered brainstorming session, however teachers may need to assist students with creating the geographical questions. <i>Geographical questions will help students identify the information they need in order to understand possible ways in which the natural environment influence people and places.</i> For example; <ul style="list-style-type: none"> <li>How has the natural environment influenced where people live at Sackville North?</li> <li>What human activities occur on and around the Hawkesbury River at Sackville North?</li> <li>What type of vegetation is there in Sackville North?</li> </ul> </li> </ul> <p><b>Lesson 2:</b> As a class or in small groups (for example, allocate groups 1-5 with one of the geographical questions created last lesson), students:</p> <ul style="list-style-type: none"> <li>Decide <b>what sort of information is needed</b> to support the geographical inquiry and where additional information can be sourced, e.g. local council and NSW Planning and Environment.</li> <li><b>Identify the geographical tools required</b> to access information such referencing a variety of maps, undertaking fieldwork, accessing data, and using spatial technologies and visual representations.</li> <li>Develop a <b>system for recording information</b> collected during the research process. In addition to the raw data to be collected in the Fieldwork booklet, students may create an excel spreadsheet and a Google Drive folder to share data and information easily.</li> </ul> <p><b>Examples of data and information sources pre-visit:</b> The Stage 3 Geography page of Brewongle EEC's website will provide you with links to support student learning. These include an aerial photo, topographic map, vegetation maps, and information on local Darug and European history.</p> <ul style="list-style-type: none"> <li>Source a range of <b>maps</b> to describe the location.</li> <li>Research <b>information</b> on the traditional Aboriginal people of the area: how they managed the land, the fresh water sources, what they planted, harvested and hunted to meet their needs.</li> <li>Review <b>photographs</b> of Brewongle in the online support material and label the main geographical</li> </ul>

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<p>minimise the effects of a bushfire   </p>	<p>features (bush, houses, river, grass/farmland).</p> <ul style="list-style-type: none"> <li>▪ Determine the <b>role of government</b> in planning, developing or managing the place provided in support material.</li> </ul> <p><b>Fieldwork Activities</b></p> <p>Students travel to Brewongle EEC to conduct fieldwork. Fieldwork activities relate directly to the 3 Key Inquiry Questions of the unit and are facilitated by Brewongle teachers. Students will answer questions and insert data into their Fieldwork Booklets throughout the activities.</p> <p><b>Fieldwork Activity One: Topographic Mapping &amp; Water Quality</b></p> <p>Students will walk from Brewongle EEC to the Hawkesbury River (time permitting), discussing runoff and erosion at various locations along the way. While at the River, students will test the water quality and discuss the human impacts on water quality in the River, and the importance of the good water quality to people and places.</p> <p><b>Fieldwork Activity Two: Habitat Assessment at BEEC</b></p> <p>Students will create a sound map to show the different natural and human features of Brewongle EEC. They will then conduct a habitat assessment of the Brewongle EEC site and discuss the different ways humans have changed the natural environment in Sackville North.</p> <p><b>Fieldwork Activity Three: Vegetation and Bushfires</b></p> <p>Students will compare and contrast two sites at Brewongle, analysing the layering and density of the vegetation and assessing both sites for bushfire risk. They will create a nature map using leaves and material from the bush to illustrate layers and density of each site. Students will collect a leaf from each site to conduct a burn test.</p> <p><b>Post Visit Activities: (See worksheet for specific details.)</b></p> <p><b>Lesson 1:</b></p> <ul style="list-style-type: none"> <li>▪ Source appropriate <b>data</b> and other <b>statistical information</b> relating to population growth and the natural environment in Northwest Sydney. Students may also research other local issues in the Hawkesbury area, for example, the Northwest Rail Link and other transport issues, as well as river use.</li> <li>▪ Develop and <b>conduct a survey</b> of community members to ascertain their perceptions of the impact of population increase on our nature reserves (positive and negative). Include impacts on people, flora and fauna and water quality of the Hawkesbury River.</li> </ul>

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	<p data-bbox="775 124 1339 156"><b>PROCESSING Geographical Information</b></p> <p data-bbox="775 162 958 194"><b>Lessons 2/3:</b></p> <p data-bbox="775 201 2110 300">Below are some examples of geographical tools which students can use to collate and review the data and information collected and evaluate for its usefulness. Teachers or students may choose to use any number of these tools, which will then be included within the Documentary assessment task.</p> <ul data-bbox="775 306 2154 858" style="list-style-type: none"> <li data-bbox="775 306 2042 379">▪ Using a <b>topographic map</b> or <b>satellite image</b> as a base map, locate the Brewongle and identify surrounding natural environmental features.</li> <li data-bbox="775 386 1921 418">▪ Students collate data from their in-depth study into a <b>table</b> to summarise their findings.</li> <li data-bbox="775 424 2123 491">▪ Create <b>flowcharts</b> to demonstrate understandings of the ways the environment influences people and places.</li> <li data-bbox="775 497 2123 564">▪ Assemble and annotate <b>photographs</b> to provide a visual representation of the site. Analyse and label interconnections.</li> <li data-bbox="775 571 2154 635">▪ Develop <b>consequences charts</b> to explain human impacts (positive and negative). Show the impacts on <a href="#">Google Tour Builder</a>. Use photos taken on the day to match parts of the tracks we walked.</li> <li data-bbox="775 641 2154 708">▪ Use a <b>T-chart</b> to represent data on advantages and disadvantages of population increases in Northwest Sydney.</li> <li data-bbox="775 715 2154 782">▪ Construct a <b>flow chart</b> or <b>concept map</b> to explain the role of government, and other major stakeholders in sustainably developing Northwest Sydney and protecting our nature reserves.</li> <li data-bbox="775 788 2154 858">▪ Conduct a search for Brewongle EEC on the <a href="#">Rural Fire Service Bushfire Prone Land Tool</a>. Hypothesise about how the results will change with Seasons throughout the year.</li> </ul> <p data-bbox="775 896 1662 928"><b>Assessment Task: COMMUNICATING Geographical Information</b></p> <p data-bbox="775 935 2123 1005">Students work in small groups to develop a 5-6 minute <b>documentary</b> to convey their understandings of the possible effects of population increase on our nature reserves. Put forward arguments and opinions.</p> <p data-bbox="775 1011 1214 1043">The documentary should include:</p> <ul data-bbox="775 1050 2154 1420" style="list-style-type: none"> <li data-bbox="775 1050 2110 1117">▪ A clear description of the various land uses around Brewongle EEC and an evaluation of some of the consequences for the environment;</li> <li data-bbox="775 1123 2154 1190">▪ Tools to support your information, such as maps, satellite images, graphs, statistics, flowcharts, labelled photographs, diagrams, illustrations/sketches and other labelled visual representations;</li> <li data-bbox="775 1197 1617 1228">▪ Information on the traditional use of the place by Darug people;</li> <li data-bbox="775 1235 1617 1267">▪ Information on the types of land use by early European settlers;</li> <li data-bbox="775 1273 2132 1340">▪ A description of the role of government in organising or managing the place as well as the perspectives of other stakeholders, for example developers, conservationists, recreationists and local residents;</li> <li data-bbox="775 1347 1653 1378">▪ An evaluation of the potential impact of bushfire on the local area;</li> <li data-bbox="775 1385 2087 1420">▪ A description and justification of a course of action to decrease the impact of changes to the natural</li> </ul>

<b>Content</b>	<b>Teaching, learning and assessment</b>
	environment around Brewongle EEC.

### **Assessment overview**

Many of the activities require students to demonstrate their learning. These activities, in addition with the students' Fieldwork Booklets, can be used to assess student progress at various stages throughout the inquiry process.

The final task of the unit, the documentary, is designed as an assessment task. Through this, students will demonstrate their understanding of the unit including the key inquiry questions and the fieldwork.