

Student name: \_\_\_\_\_

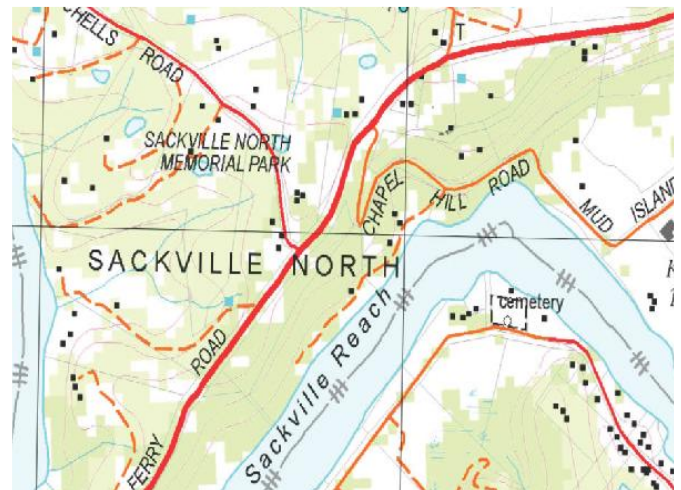
# Factors that shape places

## Sackville North

*As urban Sydney sprawls in all directions, Northwest Sydney 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.*

### Inquiry questions:

- How does the natural environment influence people and places at Sackville North?
- How have people changed the natural environment at Sackville North?
- How can we reduce the impact of bushfires at Sackville North?



### Health and safety issues

As you are working out in the field you need to be aware that:

- Ground material is often covered in moss and can be very slippery
- Vines and dense undergrowth can trip
- Fallen trees can be rotten and weak
- Some animals can deliver painful or venomous bites
- On slopes, rocks can be easily dislodged.

### Outcomes

**GE3-1:** Describes the diverse features and characteristics of places and environments

**GE3-2:** Explains interactions and connections between people, places and environments

**GE3-3:** Compares and contrasts influences on the management of places and environments

**GE3-4:** Acquires, processes and communicates geographical information using geographical tools for inquiry

# Pre-visit activities

Complete the following activities using Google Maps. <https://www.google.com/maps>

1. Type Sackville North into the search bar of Google Maps.
2. Click on the satellite feature in the bottom left corner of the map to change the view to satellite.
3. Use the Pegman icon to explore Sackville North.
  - i. In the bottom right, click Pegman.
  - ii. Drag Pegman to the area you want to explore.
  - iii. Unclick to drop Pegman on a blue line, blue dot, or orange dot on the map.
  - iv. When you're done, go to the top left and click Back.
4. List the human features that you can see in Sackville North. (Human features are things that have been made or built by people.)

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5. List the physical features that you can see in Sackville North. (Physical features are things that are naturally there. These things would be there even if humans were not around. E.g. rivers, mountains, bushland, etc.)

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6. Geographical questions are questions which help you identify the information you need to answer the inquiry questions. Your inquiry questions are written on Page 1.

What are some geographical questions you might ask for this inquiry?

**Example:** How has the natural environment influenced where people live at Sackville North?

Geographical question 1: \_\_\_\_\_

\_\_\_\_\_

Geographical question 2: \_\_\_\_\_

\_\_\_\_\_

Geographical question 3: \_\_\_\_\_

\_\_\_\_\_

Geographical question 4: \_\_\_\_\_

\_\_\_\_\_

Geographical question 5: \_\_\_\_\_

\_\_\_\_\_

# Fieldwork activity one: Water quality

*How does the natural environment influence people and places at Sackville North?*

1. List the different ways people use the Hawkesbury River.

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## Hawkesbury River (Dyarubbin)

	Result	Poor	Adequate	Healthy
<b>pH level</b>		0 – 3	4 – 5 or 9 - 10	6 - 8
<b>Salinity</b>		>1000 ppm	501 - 1000 ppm	0-500 ppm
<b>Dissolved Oxygen</b>		< 2mg/L or > 12mg/L	2 - 4mg/L	5 – 11 mg/L
<b>Turbidity</b>		>50 NTUs	20 - 50 NTUs	< 20 NTUs

### Activity one summary

1. Explain how people have impacted the Hawkesbury River.

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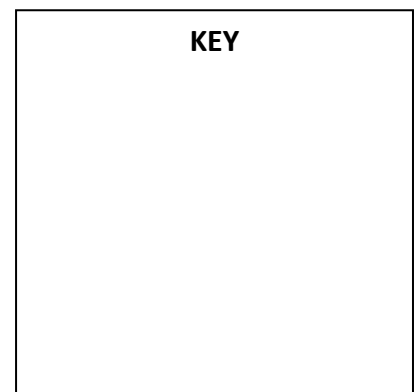


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# Fieldwork activity two: Habitat assessment and human impacts

*How have people changed the natural environment at Sackville North?*

**Sound map:**



## Habitat

<b>Trees</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Shrubs</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Ground cover</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Leaf litter/mulch</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Rocks</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots
<b>Logs/fallen branches</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Tree hollows/nest boxes</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Loose bark</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Flowering plants</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Water</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots

**Score:**











None = 0    Some = 1    Lots = 2

Add up the score you gave the habitat and use the rating chart to rate the habitat: \_\_\_\_\_

**Rating Chart**

0 - 4 = Poor  
 5 - 8 = Fair  
 9 - 12 = Satisfactory  
 13 - 16 = Good  
 17 - 20 = Excellent

## Human impacts

<b>Rubbish/waste</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Erosion</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Roads</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Paths and tracks</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Past clearing</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots
<b>Buildings</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Introduced animals</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Farms</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Weeds</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots	<b>Recreation</b>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> None Some Lots

**Score:**

None = 0    Some = 1    Lots = 2

Add up your score for human impacts and use the rating chart to rate the human impacts: \_\_\_\_\_

**Rating Chart**

0 - 3 = Large impact  
 4 - 6 = Substantial impact  
 7 - 9 = Moderate impact  
 10 - 14 = Small impact  
 15 - 18 = Minimal impact

## Activity two summary

How have people impacted the natural environment around Brewongle EEC?

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# Fieldwork activity three: Vegetation & bushfires

*How can we reduce the impact of bushfires at Sackville North?*

Create a nature map with leaves and other plant material to show the **layers** and **density** of two different sites. Take a **photo** of both nature maps and insert them later into your worksheet.



## Site A – The Gully

Nature Map: (Take a photo of your nature map and insert the photo back at school.)



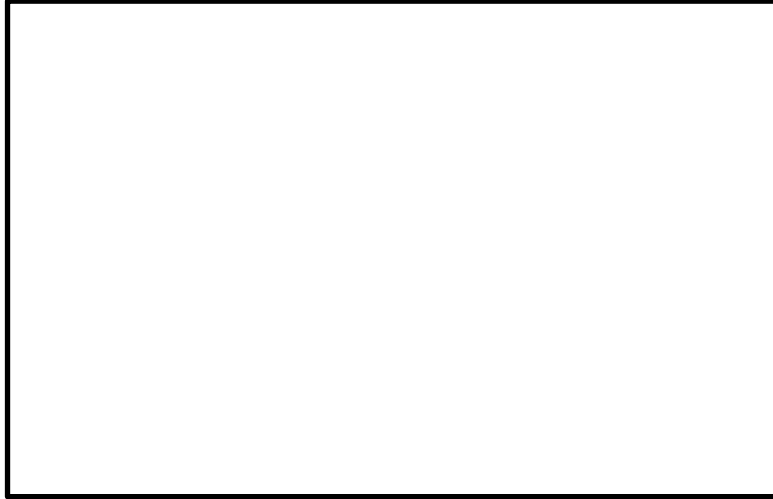
Use your nature map and the results of the burn test to evaluate the moisture content and the density of the shrub layer at Site A. *Circle the box below that corresponds with your results.*

Fire Risk				
		Shrub Layer Density		
		<30%	30-70%	>70%
Moisture Content	Wet	<b>MODERATE</b>	<b>MODERATE</b>	<b>HIGH</b>
	Moist	<b>MODERATE</b>	<b>HIGH</b>	<b>EXTREME</b>
	Dry	<b>HIGH</b>	<b>EXTREME</b>	<b>CATASTROPHIC</b>



## Site B – The Ridge

Nature Map: (Take a photo of your nature map and insert the photo back at school.)



Use your nature map and the results of the burn test to evaluate the moisture content and the density of the shrub layer at Site B. *Circle the box below that corresponds with your results.*

<b>Fire Risk</b>				
		Shrub Layer Density		
		<30%	30-70%	>70%
Moisture Content	Wet	<b>MODERATE</b>	<b>MODERATE</b>	<b>HIGH</b>
	Moist	<b>MODERATE</b>	<b>HIGH</b>	<b>EXTREME</b>
	Dry	<b>HIGH</b>	<b>EXTREME</b>	<b>CATASTROPHIC</b>

### Activity three summary

1. List the environmental factors that increase bush fire risk at Sackville North?

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2. Describe TWO ways we can reduce the impact of bushfires on Sackville North?

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# Post-visit lesson one:

## Population growth

Use reliable websites to source secondary data and other statistical information about population growth in Northwest Sydney and the Greater Sydney Region. Evaluate and summarise the data and information into 5 key points.

*Secondary data is data collected by someone other than you or for a purpose other than your research.*

*Reliable websites include the Australian Bureau of Statistics and State and Local Government.*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

Develop and conduct a survey of community members about their thoughts on the impact of population increase on our nature reserves (positive and negative).

- Include impacts on people, plants, animals and the Hawkesbury River.
- Write 5-10 questions and practice doing the survey yourself.
- Your survey might use email or online networks, or in person (with an adult).
- You may survey people you know who live in the area or a local businesses.
- Survey at least 5 people.

# Post-visit lessons two and three:

## Processing the data

Below is a list of geographical tools used to collate, review and evaluate data and information. Choose at least 5 of these tools to analyse and present your data in a Word document.

*Note: The information you create here will be used in your documentary assessment task on the next page.*

- Using a **topographic map** or **satellite image** as a base map, locate Brewongle and identify and label surrounding human and natural features.
- Collate data from your in-depth study into a **table** to summarise your findings.
- Create **flowcharts** to demonstrate your understanding of the ways the environment influences people and places.
- Assemble and annotate **photographs** to provide a visual representation of the site. Analyse and label interconnections.
- Develop **consequences charts** to explain human impacts (positive and negative).
- Use a **T-chart** to represent data on advantages and disadvantages of population increases in Northwest Sydney.
- Construct a **flow chart** or **concept map** to explain the role of government, and other major stakeholders in sustainably developing Northwest Sydney and protecting our nature reserves.

## Assessment task:

# Communicating geographical information

Work in small groups to develop a 5-6 minute documentary on the possible effects of population increase on our nature reserves using Sackville North as a case study. Your documentary should include:

- Information on the traditional use of the place by Dharug people.
- Information on the types of land use by early European settlers.
- A clear description of the various land uses around Brewongle EEC today and an explanation of some of the consequences for the environment.
- Tools to support your information, such as maps, satellite images, graphs, statistics, flowcharts, labelled photographs, diagrams, illustrations/sketches and other labelled visual representations.
- 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.
- An evaluation of the potential impact of bushfire on the local area.
- A description and justification of a course of action to decrease the impact of changes to the natural environment around Brewongle EEC.