



Fieldwork Research Years 7–8

Dr. Susan Bliss, NSW Director Global Education

Students will learn to

- apply key geographical questions to a local environment;
- use geographical tools to measure and record elements of the local environment; and
- present geographical information about the local environment using a range of written, oral and graphic forms.

Students are to complete a mini research project on either their front yard or back yard. If they live in a flat they could use the schoolyard or a friend's yard. Students will discover a unique ecosystem in their yard and be able to describe and analyse the information they have observed, collected and collated.

The aim of this task is to introduce students to the methods of primary and secondary research and the integration of geographic skills and tools. This task involves students finding out about their local environment, both physical and human.



ADDRESS:
245 AUSTRALIA ROAD,
GEOVILLE,
SUSTAINABLE EARTH

Activity 1: Map of the Home

Draw a map of your front or back yard to scale. Walk around the perimeter of your land. Then measure your steps.

The scale of the map is to be 1:100. This means 1 centimetre on the map represents 100 centimetres on the ground. Remember the following map rules:

- print neatly on the map
- heading or title
- linear scale
- latitude and longitude
- legend or key.

Distinguish between physical and human features e.g. grass, flowers, trees, clothes line, swimming pool, barbeque, fence, steps, dog kennel, swings and tennis court

What direction does your yard face? Draw in the north direction.

Activity 2: Map of Local Area

Draw a map locating your home within the surrounding suburbs. Include: roads; transport links such as bus routes and railways lines; shopping centres; clubs; churches; mosques; temples; schools; parks and sporting facilities. Include title, scale, key, direction, latitude and longitude.

Use a map of Aboriginal Australia to locate your home and surrounding suburbs, to identify the Aboriginal nation in your area.

Activity 3: Sketch

Sketch your yard and label the physical and human features. Describe the location of the features on the sketch using terms such as: left, centre, right, foreground, middle distance and background.

Activity 4a: Lithosphere

a. Landform

What is the height of your yard? A topographic map will help answer this activity

Describe the landform of your backyard. For example: flat, gentle, steep or split levels

What is the gradient?

Do you have a creek running through your yard? Are the creeks permanent or intermittent? What direction does the water run when it rains?

Collect water after it has rained and flowed across your yard. Measure its pH. Does the water contain fertilisers, pesticides or sewerage sludge? You could try this activity at a creek near your home.

DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8

Can the drains cope with heavy rain?

What catchment is your home located in?
In other words where does the water from your home end up? Ocean? River?

Have humans changed the landform of your backyard? e.g. built retaining walls to stop soil erosion or flooding areas.

What would your yard have looked like before settlement?

b. Soils

What is the bedrock? eg. sandstone, shale or granite

Take three soil samples from different places in your yard: one exposed to sunlight, one protected by buildings and/or trees and one area that is used by most people e.g. pathway

Describe the colour of the soil (e.g. reddish-yellow, black, light brown) and texture (sandy, clay, moist, dry) at three different locations.

Include in the task, soil samples in plastic bags, labelled shady area, exposed area and busy area.

Compare the different soil samples and give reasons for the differences.

Extension activity: Soil structure describes the way soil particles are arranged and how they are held together in chunks. Good structure allows the movement of air and water through the soil and holds the soil together to resist erosion. Earthworms help maintain good soil structure when burrowing, ingesting and excreting soil particles.

Investigate the number of earthworms in a shovelful of soil in your backyard (20 x 20 x 10cm) to indicate soil health/structure. Compare and contrast findings with soil samples collected in a native bushland area. Give reasons for the differences. Results: Under 5 poor; 5-10 good; and over 10 excellent.

Activity 4b: Atmosphere

a. Temperature

Record the temperature in the coolest part of the house and in the hottest part of the house as well as in the shadiest and the most exposed area in the yard.

Record your findings on a chart for 2 weeks, then calculate the average.

Answer the following key geographical questions.

- What were the highest temperature and the lowest temperature?
- When did they occur?
- Calculate the range of temperature over 2 weeks.

b. Precipitation

Using two small jars place one jar under trees in a shady protected area and place another jar in an exposed area. Each day at about 6 pm measure with your ruler how many millimetres of rain has fallen in both jars.

Record your findings on a chart for 2 weeks, then calculate the average precipitation. Give reasons for the differences in the precipitation at different places in your yard.

c. Compare the temperature and precipitation with the daily newspaper statistics. Give reasons for the differences.

Activity 4b: Sample of Table

Temperature	Site 1 Exposed area in yard	Site 2 Protected area in yard	Site 3 Inside house A – cool area	Site 4 Inside House B – hot area
Total of 4 sites				
Average	Total/14	Total/14	Total/14	Total/14
Precipitation	Exposed area in yard	Protected area in yard		
Total of 2 jars				
Average	Total/14	Total/14		



Activity 5: Cloud cover

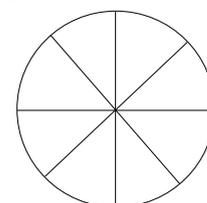
Over one week calculate the cloud cover in the sky. Remember use eights.

Describe the clouds at the time e.g. cumulus, cirrus, nimbus and stratus.

Activity 5: Wind direction and speed

Place some light material on a long stick and describe the wind direction over a week

Use the Beaufort scale and describe the wind speed.



DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8



Activity 7: Vegetation

Describe the type of plants found in your yard.

Collect vegetation samples. Place on cardboard. Press and label them.

Describe their leaves (e.g. thin, broad, waxy, hard) and flowers.

Determine whether they are native or exotic.

Extension activity 1: Hollows in trees are important shelter and nest sites for native birds, bats, lizards and possums. It takes 150 years for suitable hollows to form in river red gum trees. Compare the local park with a native bushland. Sample 25 trees in each area and record the trees with hollows. Account for the differences.

Extension activity 2: Herbivores are an important part of the food chain because they pass on energy from the leaves to the carnivores. If there are too many herbivores and fewer carnivores, the herbivores can damage plants. For example introduced plants, such as bitou bush, have population explosions when there are few native animals to control them. Students are to pick leaves from 10 native and 10 exotic plant species. Give reasons why they are different. Discuss why some plant species need more water than other species. What type of plants should you grow in your backyard with water shortages?

Extension 3: In country areas, roadside vegetation is often the last remnant of the original vegetation and has become a valuable resource as habitat for native animals. Do a plant biodiversity survey along a road that changes from urban to rural. Record the number of native and exotic species. Account for the differences.



Activity 8: Fauna

Describe the animals and their habitats that you find in your yard.

Draw and label two species that are natives e.g. spider.

Do a bird count for 10 minutes, 3 times a day. Compare native versus introduced species.

Activity 9: Analysis

Which part of the yard has the highest density of plants and animals? eg. wettest or most protected area.

Why do you think most of the animals are located in this area? eg. soil, water, food, sunlight, slope or human interaction.

Activity 10: What's in the gutter?

Stormwater is an efficient method of cleaning rubbish from gutters. This rubbish flows into a lake, river or the sea. Do a litter survey of 100 metres along the roadside gutters outside your house. Compare this with gutters near your school, parks and industrial areas. Collate material, draw graphs, discuss spatial distribution and draw a mind map on future management scenarios.



Activity 11: Disasters

Is your house subject to potential disasters such as fires, floods, droughts, cyclones, storms and landslides?

Describe the precautions required to minimise the effects of the disaster on your life and your home.

Activity 12: Civics and Citizenship at the local scale

What is the name of your local council? Visit its website and the department of local government for that state or territory. For example if located in NSW visit the Department of Local Government http://www.dlg.nsw.gov.au/dlg/dlghome/dlg_home.asp and print in your suburb e.g. Bilgola Beach. It will give you a map and details of your local council such as area of 91 sq km and population 56642.

What are the local council laws that apply to your backyard e.g. fence, pool, buildings and noise.

What are the local laws that protect you as a citizen?

DISCOVERING MY BACKYARD

Fieldwork Research Years 7–8

Find out about the special local council programs for example Septic Safe and Companion Animals.

Compare the rates paid in 5 different councils in your state or territory. Give reasons for the differences.

Visit the local council – compare fieldwork findings with secondary sources.

What is the role of the NSW Ombudsman? <http://www.nswombudsman.nsw.gov.au/>

Activity 13: 'Not in my backyard'

What does the phrase mean?

Would you protest against a nuclear power station, garbage dump and high rise apartments beside your house?

How would you protest?



Activity 14: Environmental audit

- **Prepare an environmental audit of your home or school.**

Use primary and secondary research data: Refer to:

Lithosphere: use of mulch and fertilisers

Atmosphere: use of air conditioners (CFCs), special light globes and solar energy

Hydrosphere: recycle wastewater, drip watering system, time spent in the shower, special taps and half flush toilet system

Biosphere: native or exotic vegetation, native or feral animals

Recycle waste, compost bins, asbestos and lead paint in home, phosphorous free detergents, pesticides, weed killer, how many cars in the family, unleaded petrol and use of public transport

Eco home network <http://ecohome.org/>

- **Renewable energy sources in your house**

List your activities using fossil fuels over one day (oil, natural gas, coal). How can each of these activities use renewable energy sources (e.g. hydroelectric power, solar power, wind.)? What prevents or discourages your use of renewable energy sources?

- **Fieldwork**

Visit a sustainable house in your state or territory. Compare and contrast the sustainable home with your own home.

For example Chippendale Terrace House <http://www.sustainablehouse.com.au/> and <http://www.abc.net.au/rn/science/earth/handouts/chippendale.htm>

- Design your own sustainable house for the future (multiple intelligence exercise).

Activity 15: Using Information and Communications Technology

What is your ecological footprint?

Years ago people grew their own food, made their own clothes and built their own homes. Each family or community was almost self-sufficient and used only what they needed to live on. Today our materialistic 'throw away' society is leaving a large ecological footprint (EF) as there are more people consuming limited resources and producing more waste. Humans are currently overusing the earth's resources by 20 per cent. If the current trend continues we will need two planets in order to live sustainably by 2050.

The Neighbourhood Ecological Footprint is a tool that enables each person to see their effect on our planet. Environmental awareness must be from the local (backyard) to the global scale for a sustainable future <http://www.allspecies.org/neigh/nbrfootp.htm> Compare your footprint with the traditional Aboriginal people who lived in your local area. How could you organise an earth day in your neighbourhood or school? <http://www.allspecies.org/neigh/blocka.htm> Have a look at the Ecolkids program. <http://www.allspecies.org/ecokids/index.htm>

Many Australians place huge demands on nature by misusing resources in their home, such as water, soil and energy, to support their lifestyles. By using the ecological footprint (EF), students can measure the demand that they are placing on nature, compared to the supply of natural resources available. Refer to the Internet sites on the EF. How would you change your backyard?

EXTENSION:

Ecological footprints of nations <http://www.ecouncil.ac.cr/rio/focus/report/english/footprint/>. Resources for the future <http://www.rff.org>

Energy Efficiency and Renewable Energy Network <http://www.eren.doe.gov> from the U.S. Department of Energy aims to strengthen America's energy security, environmental quality, and economic vitality in public-private partnerships.

Energy Quest <http://www.energy.ca.gov/education/index.html> is an energy education site especially for kids from the California Energy Commission, with projects, experiments, and descriptions of many types of energy.



Acknowledgements

Bliss, S. (2009). Discovering my backyard: fieldwork research Years 7–8. *Geography Bulletin*, 41.1.14–17. © Geography Association, 2009. Further material and International Associate Memberships are available from the Geographical Association website <http://www.geography.org.uk/>