

FIELD TRIP – EXPLORING LOCAL LANDFORMS

Aim: To walk /climb a prominent hill and investigate some of the local landform features (including origins) and understand its impact on the surrounding area, including land use.



Photo: View from Mt Ngungun, looking west towards Mt Beerwah.

Arrange to visit a local hill that is both readily accessible and safe for students. These field experiences are not only great ways for students to learn and contextualise background information, but are filled with adventure and great social opportunities.

Important considerations –

1. Discuss your proposed visit with the relevant local authorities (council or national parks) to ensure you are able to access it in safety and they might provide a guest speaker or guide.
2. Complete a risk assessment
3. Always carry out a comprehensive reconnaissance of the study area well in advance (say 3-4 weeks) to evaluate the best learning opportunities, access points for numbers and possible safety considerations.
4. Have extra supervisors so that you may divide into small groups for each activity
5. Avoid hot weather; these excursions are best in cool months.

Equipment – Appropriate clothing (depending on weather) with a spare shirt, shoes with good grip, hat, sun screen, plastic bags for dirty / sweaty items, water, food, rubbish bags, camera and note pad.

Suggested activities to do on the day -

- Sketch a rough map of where key features are located such as trail, observation tower, etc.
- As you walk the trail, observe its many landform attributes, species of plants and wildlife, human alterations (eg signs) and any unusual items of interest. Photograph as many items as possible to discuss back at school.
- Draw a field sketch showing the main features of a selected area
- Analyse local land use by completing a topological map at the summit
- Complete a human impact survey
- Make notes on the inter-relationships between slopes, rock types and plant and animal species.

TASK ONE – Human Impact Survey

Human Impact Survey – Mt Ngungun, Glasshouse Mountains

In small groups / pairs, record your observations on a Tally Sheet for various sections of the walk trail. Photograph items as you record them for further discussion later. Use a + if you think the impact is beneficial to the area eg an information sign, and use a – if you think the impact is negative, eg graffiti on rocks.

Item	Tally	Total
Human Alteration eg pathway, drains		
Litter eg paper, cans		
Vandalism eg graffiti		
Removal of rocks, plants		
Signs		
Introduced Species		
Dead Animal		
Fire		
Pedestrian traffic		
Other		

Student Name:

Date: Time:

- Compare your results with others in the class.
- Graph your results to compare the different types

TASK TWO – Recording notes / photographs on landform features on the hill

(a) at the bottom



At the start of the walk, students need to be aware of things like slope, absence of rocks, dense vegetation (including tall trees) and leaf litter. Other items may be evident such as advisory or information signs, water drains, evidence of lightning strikes and fire, etc

Discuss why vegetation appears to be plentiful at the foot of the hill. Look for changes as you move upslope.

(b) Along the trail



Although the main volcanic rock is igneous rhyolite and trachyte, there are sections where cracks (joints) have occurred, creating lines of weakness. There are also small outcrops of less-resistant rock containing clay and sand which are exposed to water erosion, particularly fast run-off after rain. Over time, these weaker sections become washed out and collapse, forming small caves and holes.

Discuss the effects of erosion on exposed slopes.

(c) At the summit



The summit is largely rock slab with little vegetation apart from small hardy trees and shrub, along with tussock grass that survives in niches between rocks.

Discuss why there is little soil at top and only hardy vegetation.

Supervision needs to be firm and absolute when at the summit for safety

TASK THREE – Identifying features of the surrounding landscape



Design a checklist of features students might be expected to see from the summit.

This could be divided into –
Natural features

Other adjacent hills, ranges, rivers, bays, forests, lakes, etc

Human features

Farms – pineapples, macadamia, mango, avocado

Towns

Highways or roads

Transmission Lines

Dams

Housing estates

Quarry

Discuss what changes have occurred to the area in recent years.

What changes are expected in the future?

TASK FOUR – Investigate indigenous links to the area

Prominent landforms were important spiritual sites to indigenous people because of their importance in Dreamtime stories regarding the Earth. For example, this area was the traditional land of the Gubbi Gubbi people. Dreamtime stories explain how the father (Tibrogargan) and mother (Beewah) had a difficult relationship with one of the sons (Coonowrin). Find out more about this interesting story and how some of the names of hills were derived. Today, many such areas are managed by indigenous people who contribute towards the educational information and conservation of the local environment.

To find out more on the indigenous cultural history of your field site, contact the national parks office and ask for a local indigenous elder or representative to assist you with your visit.

TASK FIVE – Complete a COMPARISON MATRIX

..... to develop student’s observational skills by comparing features of high elevated terrain with low elevated terrain



Characteristics	High Terrain	Low Terrain
Location and general physical appearance	Prominent volcanic plugs (rhyolite and trachyte)	Undulating lowlands Sandy soils (coastal side) Volcanic soils near mountains
Main landform features	Volcanic plugs Caves Large rocks, rock slabs, cliffs	Creeks Flood plains Lowlands
Dominant physical process eg erosion, deposition, etc	Erosion from rainfall	Some erosion but mostly deposition
Vegetation and wildlife	Shrubs and grasses at top Native eucalypt forest on slopes Some birds evident	Plantation pine forests Some macropods
Human impact and effects	National Park conservation Tourism	Residential Silviculture (plantation forests) Agriculture (pineapples, macadamia & small crops)

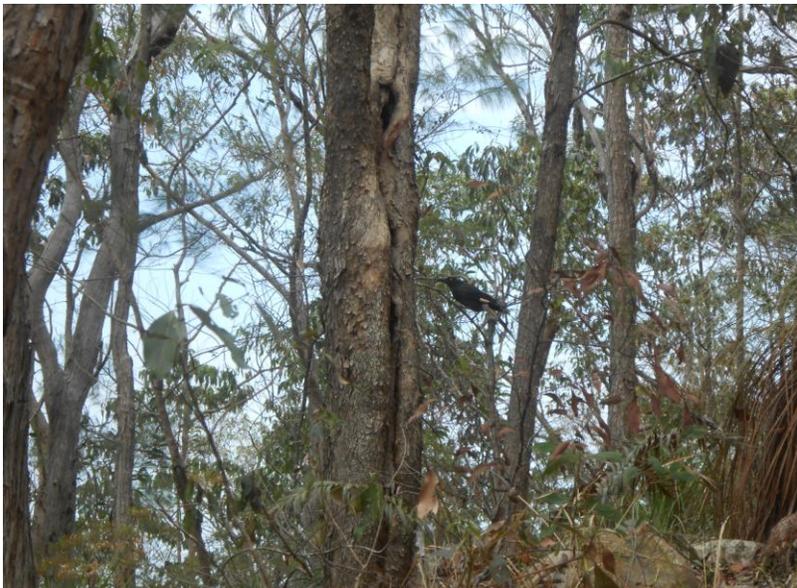
SAMPLE ANSWERS DEPENDING UPON SITE

TASK SIX – Complete a fauna & vegetation study using a checklist

Before going on the trip, find out the names of any wildlife (fauna) that occupy the area and vegetation (plants) that are either endemic to an area or dominate parts of the landscape. You may be able to get some assistance from the local national parks office or forestry.



Left: Grass Trees (Xanthorrhoea species) Right: Scribbly Gum (E. Signata) are both found on the lower and mid slopes of Mt Ngungun. Below: Pied currawongs living in family groups



Make a list of special wildlife and vegetation species observed along the trail.

Take photographs or make quick sketches of sample species for further research or discussion at school.

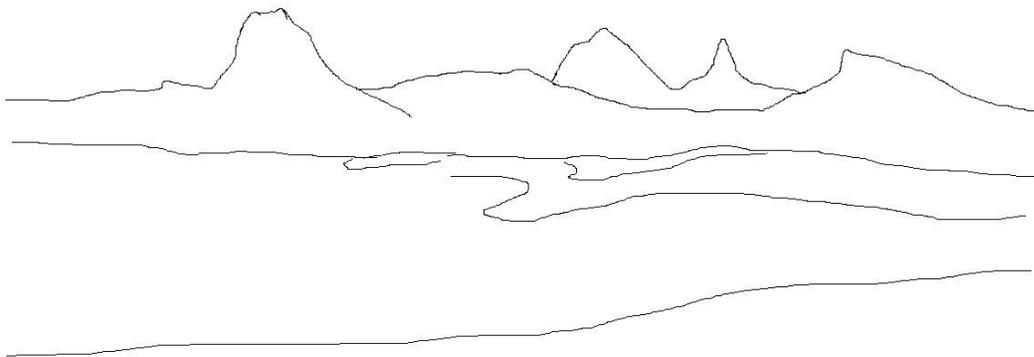
Identify areas of the base, slope or summit where certain vegetation species dominate. Look for reasons why (soil, shade, aspect).

Find out more about unusual species eg how the larvae of the Ogmograptis moth leaves its scribbly marks in the bark.

TASK SEVEN – Draw a field sketch of the study area (sample)



Field sketch outline of Glasshouse Mtns area looking west from Wild Horse Mtn



1. Insert detail and notes on your sketch
- *** If students do not have time to complete field sketch on-site, the next best thing is to take panoramic photographs and sketch the detail back at school.**

TASK EIGHT – Landscape Observations



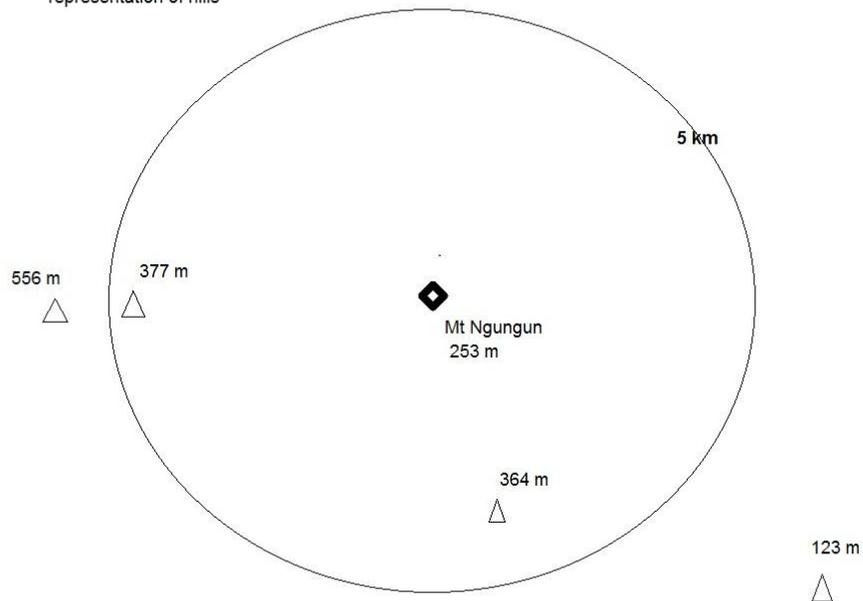
1. Use a map to help identify the places shown with letters –
 - Mountains at A,B,C,D,E,F,G,H
 - Town at I
 - Highway at J
 - Range at K
 - Site at L
2. Find out their heights and rock formations.
3. Make a list of features you have identified; place them in the table below –

Natural features	Human / constructed features

4. Are there places where land use functions may be incompatible eg residential areas close to macadamia farms where herbicide spraying occurs?

TASK NINE – Direction and estimations (for those who like maths)

Topological map
representation of hills



1. From the summit of Mt Ngungun, name each of the neighbouring peaks.
2. Estimate the distance to each one and record your answers.
3. Using a compass, shoot a direction bearing to the other peaks and record your results.
4. Put a north direction arrow on your map.
5. Look at photo below and estimate where the photographer was standing. Give reasons.



BACK AT SCHOOL

1. Review your field work and research those areas where more information is needed, eg what volcanic eruptions occurred approx 27 million years ago?
2. Why have the Glasshouse Mountains volcanic plugs remained when much of the original landscape has been eroded ?
3. In groups, present your field trip findings to the class. Be able to answer questions on items of interest.
4. Design a **short seminar or power point** presentation about the main features of the field work. Your power point presentation must consist of 10 – 12 slides that contain information as follows –
 - Introductory slide with a title and photo that shows the splendor of the site.
 - What are volcanoes / volcanic plugs? (with different photo) ... brief explanation
 - Show the location (MAP)
 - Record information and a photo / data on each of the following topics - landforms observed , geomorphic processes (erosion and deposition), vegetation, wildlife, indigenous connections, human impact, land use in nearby areas and management of the area