

Super Site for Education

Bluff Hill/Motupōhue Scenic Reserve

SOUTHLAND CONSERVANCY



Department of Conservation
Te Papa Atawhai

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Introduction

Using this resource

SUPER SITES © are designed to give you a hand to plan exciting and educational learning experiences outside the classroom. They are aimed at upper primary and lower secondary students and focus on a selection of parks and reserves administered by the Department of Conservation in your region. The sites chosen represent a range of possibilities and are reasonably accessible.

The suggested activities encourage learning **in** the environment, enabling the development of skills, attitudes and values that students gain from experiences in the environment.

Background notes and activities assist study **about** the environment, raising levels of knowledge, understanding, awareness and sensitivity to the environment and environmental issues.

Foster the opportunity to participate, take action and do something **for** the environment, either as an individual or a group.

For teachers

More activities are provided in this kit than you may have time for in one visit, so plan your choices before the trip.

For the Bluff Hill/Motupōhue resource, activities that focus on the **natural environment** include 9, 10, 11 and 12.

Activities with an **historical or cultural focus** include 2, 3, 4, 5 and 6.

Activities that require **creative effort** include 3, 4, 5, 11 and 12.

All the information that students need to complete the activities in this kit are included in the teacher notes, except where those activities require students to do research.

What to bring

Notebooks and pens/pencils will be needed. Copies of activities 9, 10, 11 and 12 will be needed, as well as activity 3 if students are visiting the summit lookout.

Cross-curricular or specialised

Getting out of the classroom gives students an opportunity to study the whole environment, unrestricted by subject barriers. Sites can be used to meet goals from specific curriculum areas, or different curriculum areas simultaneously. This is an approach that mirrors the interconnectedness of the environment. For instance, this resource meets the objectives from the Place and Environment strand of the Social Studies in the New Zealand Curriculum; Body Care and Physical Safety, and Outdoor Education strands of the Health and PE in the New Zealand Curriculum and the Planet Earth and Beyond and Living World strands of the Science in New Zealand Curriculum. This resource also provides excellent opportunities for students to develop essential skills and attitudes from across the range of curriculum documents.

Education for the environment

Take the opportunity to make students aware that the places they are about to visit are part of the heritage of all New Zealanders and therefore the responsibility of all. The **Environmental Care Code** in the margin is a good resource for reinforcing this point.

Safety

Schools are reminded of the need to do a risk analysis and management plan for their visit (your school Board of Trustees is ultimately responsible). Helpful documents include:

- *Education Outside the Classroom: Guidelines for Best Practice* (Ministry of Education 1995)
- *Managing Risks in Outdoor Activities* (Mountain Safety Manual 27, 1993)
- *Water Safety Across the Curriculum* (Water Safety New Zealand, 2000)



Protect plants and animals

Remove rubbish

Keep streams and lakes clean

Keep to the tracks

Take care with fires

Respect our cultural heritage

Enjoy your visit

Toitu te whenua (*leave the land undisturbed*)

Pre and post-visit activities

To get the best value from a field trip, teachers should plan good lead-in and follow-up activities. If students have some formative ideas about what they might be about to find they will observe in a more focused way and therefore develop their concepts.

Here are some suggestions:

Pre visit

- Find out what the students know about DOC. Is there a DOC office in their area? What sorts of things does a DOC ranger do? Check out the DOC web site, www.doc.govt.nz
- Dictionary exercise: native, indigenous, exotic, endemic. What do these words mean? Can you make a list of species under each heading? Think of a way to help yourself remember the meaning of these words – you could make up a poem or song, perform a skit or make a poster.
- Brainstorm what the term biodiversity means. Use the DOC website to find out about the NZ Biodiversity strategy. How do the goals and actions in this relate to the site you are visiting? What is DOC doing?
- Use maps and other resources to gather information about the geology and geography of the area.

Pre-visit Activity: Be Prepared

Acknowledgement: Department of Conservation West Coast Tai Poutini Conservancy

One of the most important risk minimisation strategies you can undertake is to involve the students in this aspect of planning.

Here is an activity for you to try.

- 1 Locate the Super Site you are visiting. Use maps and practise grid references and compass directions.
- 2 Plan the trip. Still working with the map, guess (or calculate) how long it would take to get there. How will you travel there?
- 3 What kind of place or environment is it? See if anyone has been there before. Brainstorm what students already know about the site. What do they think they will see there? Make a list or draw a picture.
- 4 Think about danger and safety. As a class, or in small groups, tell the students to look at their list or picture of the site and think of dangers to themselves and their classmates. For every danger, see if they can think of a way to make it safe. For example:

DANGER/RISK!	KEEPING ME SAFE
Getting lost in the bush	Stay with my group
Getting cold and wet	Take warm, waterproof clothing
Falling and tripping	Watch footing, appropriate footwear and behaviour
Dehydration/heat stroke	Carry plenty of water, wear hat

- 5 Now, think about the safety of the environment or place you are visiting, especially the impact students will have on that environment. Ask students to go back to their original list or picture of the site and think about how they can be a danger to the environment and what they can do about it. Make a list similar to the previous one. For example:

MY IMPACT ON THE ENVIRONMENT	HOW I CAN STOP IT
Disturbing the wildlife	Walk along quietly and carefully
Trampling plants	Keep to the track and watch my footing
Dropping litter	Put wrappers in my pocket, pick up litter
Breaking twigs off trees and plants as I walk past	Keep to the middle of the track and leave plants alone

You could compare your list with the Environmental Care Code on page 3.

Note: If the site is a Māori historical site, it will be of special significance and should also be included in your discussions.

You could use this list and the 'Health and Safety' list to create a class "Safety Code" for the students to follow during your visit. They could each make a copy. Test them regularly before the trip to see how many of the points they can remember. Take these with you on your trip and check that students use them.

Activity: Making the Rules

The “Be Prepared” activity could be a starter for this activity. Split the class into groups and get each group to put together 5 rules to follow when out on the trip. After 15 minutes bring the class together to discuss their chosen rules, and compile one list of 10 rules on the board for the whole class to follow when on the trip. The students can then make posters or pocket cards of these “10 Commandments of Safety”. The posters can be put up in the classroom and the cards taken with them on the trip.

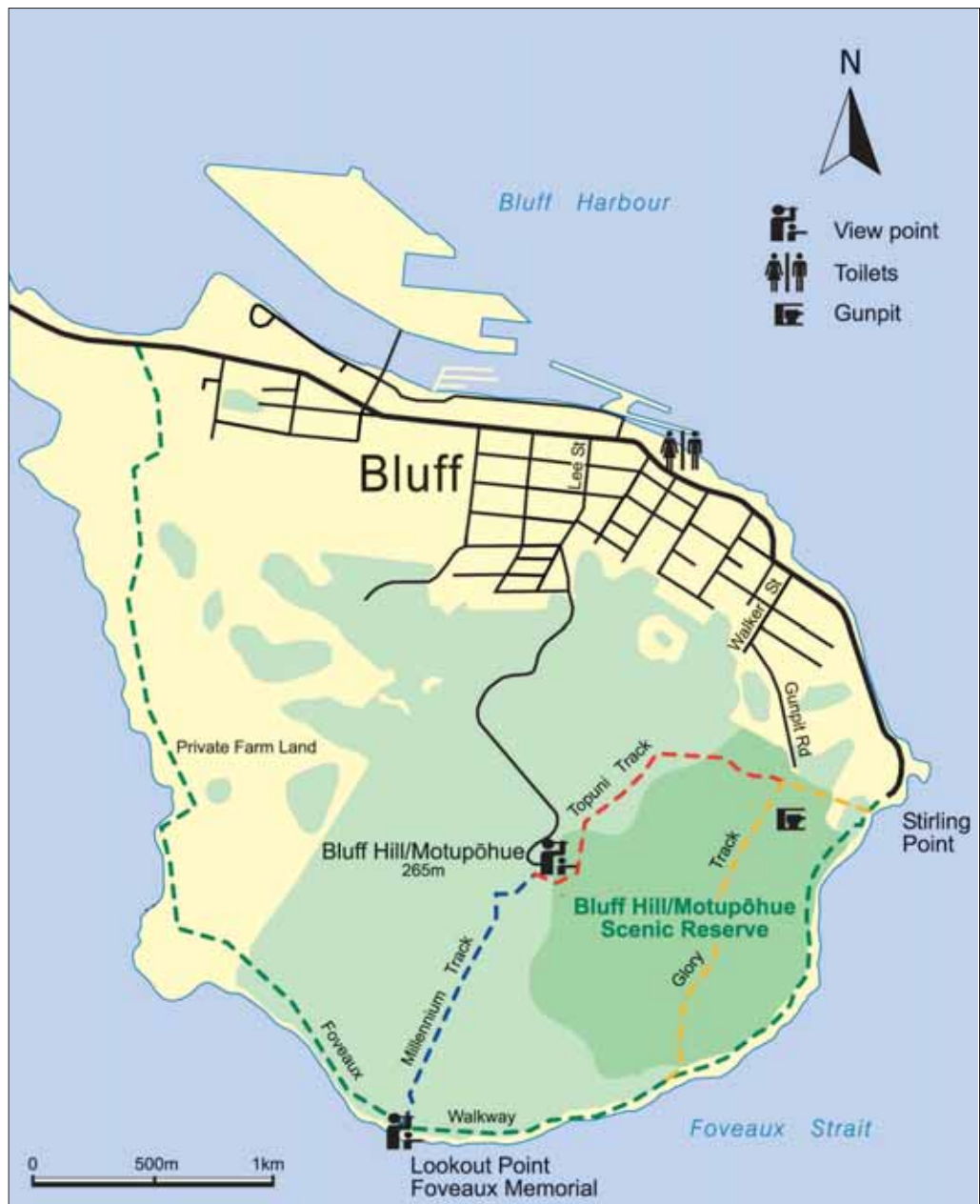
Bluff Hill/Motupōhue Scenic Reserve and Tōpuni Site

This reserve is ideal for groups wanting to explore the human and natural history of the area. Recommended tracks are maintained to walking track standard and the Foveaux Walkway is suitable for wheelchairs from Stirling Point to as far as the Glory Track turn-off. Toilets are situated in Bluff township.

This resource is designed for use on the Foveaux Walkway and the Glory Track, to create a loop to Stirling Point. This has a walk time of one hour return. Groups with time may consider walking to Lookout Point along the Foveaux Walkway. This has a walk time of around 50 minutes return (a little longer if the Glory Track is included).

The summit of Bluff Hill/Motupōhue can be driven to, or walked to via either the Tōpuni or the Millennium Tracks, and offers panoramic views across Foveaux Strait to Rakiura/Stewart Island and inland across the Southland Plains. There are excellent information panels on the summit.

The plant communities of Motupōhue range from original rātā and kāmahī forest to wind-shorn coastal shrubland and ground hugging coastal moor.



Teacher Notes

The following notes aim to provide the knowledge you will need to assist students with the activities.

Geology of Bluff Hill/Motupōhue

Bluff Hill - Older than Aotearoa

Much of the rock from which Southland is made was formed long before New Zealand began its drift away from the super continent Gondwana 80 million years ago. During the Permian period (280 - 235 million years ago), a chain of volcanoes was building land by erupting molten rock from below the surface into the shallow seas around. Motupōhue was formed when molten rock oozed up through the seabed but did not quite reach the surface. Insulated beneath layers of sediment, it cooled slowly, forming a mound of coarse-grained plutonic rock called norite. Norite (also known as Bluff granite) was quarried from the slopes of Motupōhue until the mid 20th century. It is a durable stone and was used to build the retaining walls of Bluff's Island Harbour. Cut and polished, it was used for headstones and decorative panels. The Bluff War Memorial and the map on the summit of Bluff Hill/Motupōhue are made from polished norite.

Cooked sediments

Because the sediment layers that formed during this period were kilometres deep in places, the weight of the upper layers compressed and hardened those underneath. This process, combined with changes to sediments caused by contact with molten rock, created fine-grained Tiwai argillite. This stone was used by Tāngata Whenua to make high quality adzes in pre-European (pre metal) times.

A whanau of mountains

From the summit of Motupōhue you can see the 'Permian family'; the Takitimu Mountains, the Livingstone Mountains, the Longwood Range and Mount Hananui/ Mount Anglem on Rakiura/ Stewart Island, all of which are built of rock formed during the same period.

Glossary

Sedimentary rock - made of sediments like mud, silt, sand and calcium carbonate (from shells and other sea life) e.g. limestone.

Metamorphic rock - rock that has been changed by heat and/or pressure e.g. marble.

Igneous rock - molten rock from deep in the Earth's crust e.g. basalt.

Plutonic rock - a type of igneous rock made from magma that has cooled and solidified below the surface of the Earth e.g. norite.

Activity 1: About the Environment (pre-trip) – Bluff Rocks

You'll never forget the difference between sedimentary, metamorphic and igneous rocks after making these edible models!

This activity is taken from The Soils of Southland/Te oneone o Murihiku which is a curriculum-linked resource available from Environment Southland.

For each group of 3 - 4 students you will need:

½ cup peanut butter	12 crackers
Bread knife	12 chewy lollies (like fruit chews or minties)
8 pieces of waxed paper	4 paper towels
½ cup melted chocolate	Chocolate moulds
Spoon	

Procedure:

- 1 Define sedimentary rocks to students. Have them make cracker/peanut butter stacks to show the layers in sedimentary rocks.
- 2 Introduce and define metamorphic rocks. Have students choose 3 chewy lollies and 2 pieces of waxed paper. Unwrap the lollies and stack them up on one piece of waxed paper. Cover with the other piece of waxed paper and press down. Discuss the 'metamorphic rocks'.
- 3 Introduce and define igneous rocks. Have students spoon melted (molten) chocolate into the moulds. As it cools and hardens, it takes on the shape of the mould.
- 4 Finish the lesson by calling out the type of rock and having the students hold up the correct rock model they made. They can then eat the rock creations.

Human Impacts

Over geological time, tectonic plates glide and collide, volcanoes build land, weather erodes it, glaciers carve it, earthquakes shatter it. Sea levels rise and fall, climates heat and cool and the rock of the seabed can become the mountain top, only to erode to the seabed again. Huge changes are wrought on the landscape by these forces of nature. Humans too change landscapes, destroying existing environments and creating new ones. Human impacts on Motupōhue and its surrounds have been considerable.

Vanishing birds

The arrival of the first humans marked the beginning of the end of the reign of birds on this hill, and everywhere else in Aotearoa New Zealand. Their arrival, along with kiore (Polynesian rat) and kuri (dog), started a wave of extinctions that continues to this day. At least forty-one species of bird have become extinct since humans first settled these islands. Examination of middens and fossil remains indicates that 51 species of bird (including 11 moa species) became extinct during the first few hundred years of human presence. A further 17 species disappeared rapidly after the arrival of Europeans and the animals that accompanied them. Today, 54 of the remaining 70 endemic bird species are classified as threatened.

An empty sea

Seals were harvested by Tāngata Whenua for their fur and meat, and for medicinal purposes. Large scale commercial sealing by European, Australian and American ships began in 1792, but the industry was short-lived. By 1826 fur seals no longer basked on the shores of Motupōhue and the species was on the brink of extinction. Whaling followed sealing, with the whales that arrived seasonally in Foveaux Strait being hunted as thoroughly as the seals had been, with identical results. By 1840 whaling station crews on Lookout Point looked in vain. Today fur seal populations are recovering, but whales remain in danger of extinction.

Shrinking forests

Whaling had an impact on the forests of Motupōhue. Large quantities of wood were needed to fuel the whaling station tripots, build shelter for the growing population and for domestic fires, so it is likely that at least some of this timber came from the slopes of Motupōhue. New crops and animals were introduced and land cleared on which to farm them. Wild rabbits ate the dune vegetation at Oreti and Sandy Point, causing the migration of sand into the New River Estuary, while farming of the wider area contributed to erosion. The silting up of the estuary prevented lighters (flat-bottomed barges) from ferrying cargo between Bluff and Invercargill Harbour. Once the estuary no longer provided access to Invercargill, a rail link was needed, so more trees were felled to build the line.

Draining and dredging

With a new railway, Bluff developed rapidly. Before long a road became necessary, so the great swamp that lay between Bluff and Invercargill was drained (travellers had previously taken a circuitous route along the coastline and across the Greenhills area, around Mokomoko Inlet and up the estuary). The entrance channel of the harbour needed deepening, so it was blasted and dredged. More land was needed on the waterfront and was reclaimed with fill gained by further dredging. A new deepwater harbour was required so norite was quarried from the slopes of Motupōhue to form the walls of the island harbour. The decision was made to build an aluminium smelter and the harbour was further transformed by its construction.

Surprising survivors

Motupōhue changed as roads, a reservoir and a coastal defence battery were built on it. Some areas of the hill were farmed, others converted to forestry, houses appeared on the lower slopes. Amazingly, a remnant of the original forest cover has survived. On the Glory Track you can touch trees that were growing before the first sealers set eyes on 'Old Man's Bluff'.

We no longer need to hunt the birds or fell the trees or quarry the rock of Motupōhue. Today, we recognize the value of the reserve as a refuge for New Zealand's special plants and animals, and as a place we can go to appreciate an environment that is unique to New Zealand.

Activity 2: About the Environment - The History of the Hill

Explore the changes that humans have wrought on this landscape.

Class exercise

Photocopy and cut out the puzzle pieces in the Appendix. Enlarge sheets to A3 if necessary. Make six copies of the hill shape template. Assemble the jigsaw-style pictures using the clues to help match the images to the dates.

When the pictures are assembled use the headings below to discuss the different values this site holds at each of the six dates.

Write down your conclusions and use them, along with the pictures, to make a series of six posters to illustrate what you know about Motupōhue at each date.

You could also create a picture of Motupōhue in the year 2050 or 3000. What will it look like if we continue to care for and value the reserve? What will it look like if we don't?

Ecological

Which of these pictures show plants and animals and the environment they live in? Which pictures illustrate a threat to the ecological values of Motupōhue?

Geographic

Motupōhue is part of a wider landscape. In 1844, Bishop Selwyn, saw 'Old Mans's Bluff' for the first time and described it as '... a bold, wooded headland standing out of an extensive plain.' Motupōhue stands higher than any other nearby hill. Which pictures show ways in which this has been valuable to humans?

Cultural

Three groups of people are pictured. Each group has a different set of beliefs, or culture. What do you think their lives are like? What do they wear? What do they eat? What are their most valuable possessions? What do they fear most? What do they want most?

Strategic

Which pictures show ways in which Motupōhue has been used for communication, planning or defence?

Aesthetic

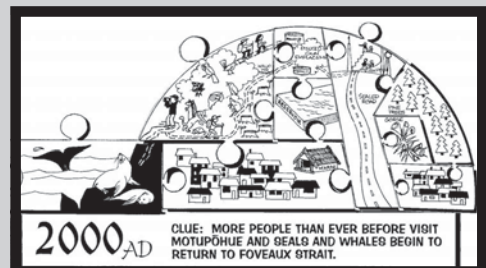
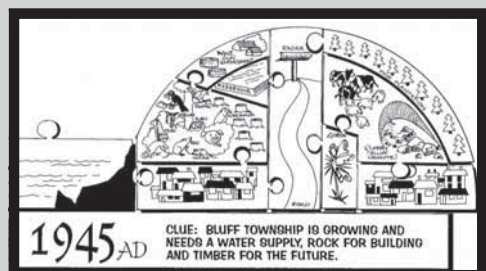
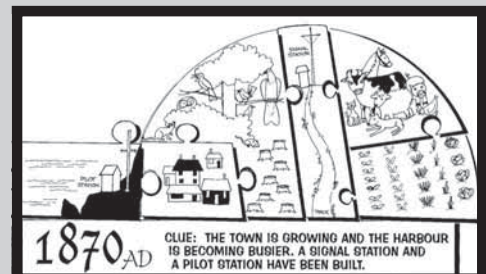
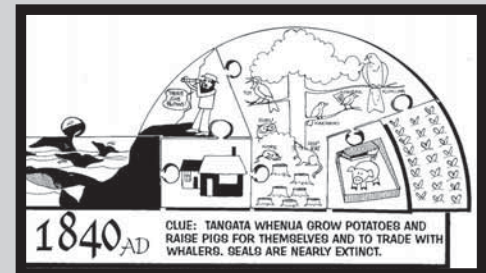
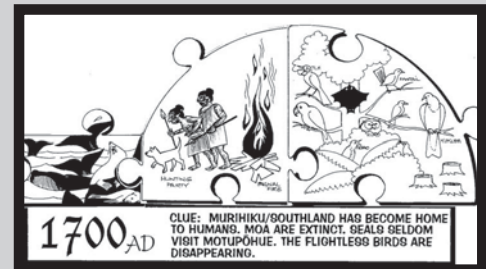
Which pictures do you think show something beautiful?

Economic

Which pictures show ways in which money or profit has been made from the natural environment?

Personal

Imagine a reason that Motupōhue might be special to someone living at each of the dates from 1700 onwards.



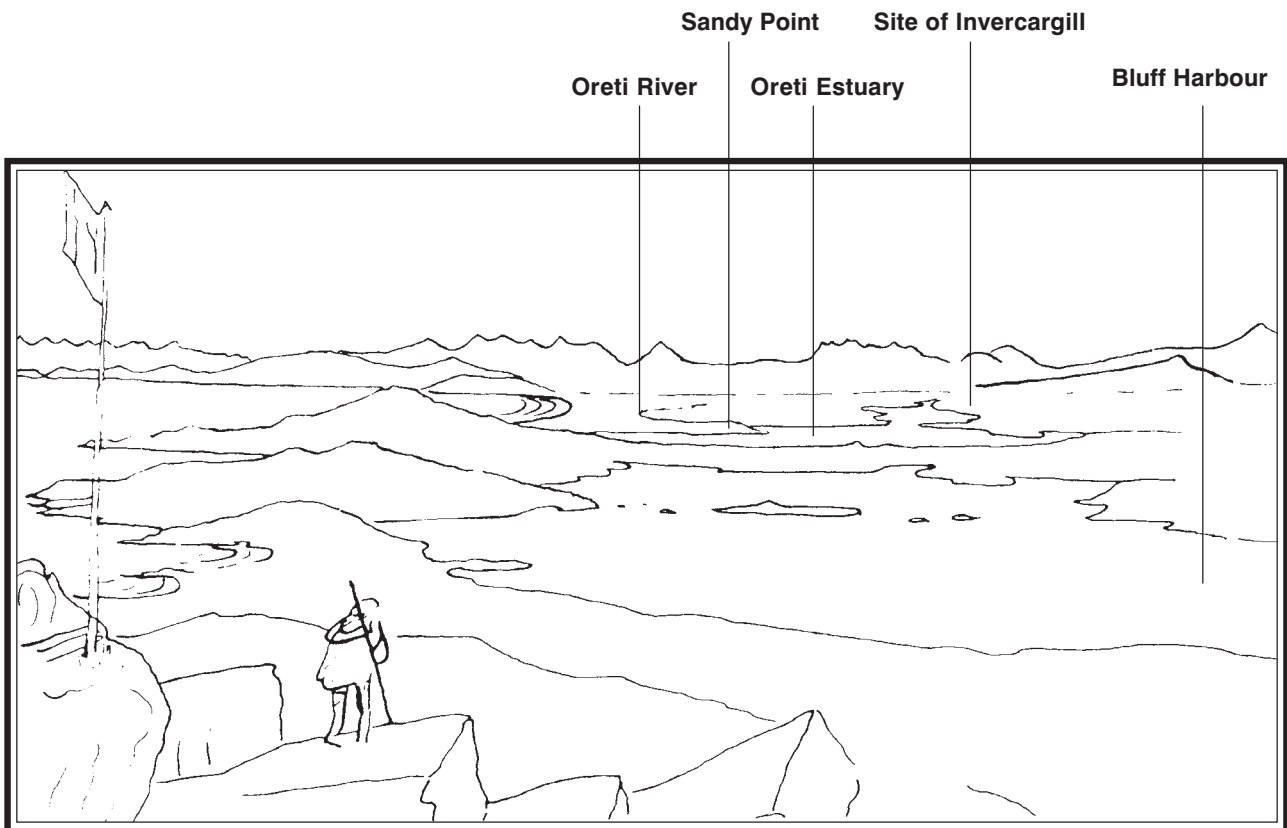
Activity 3: In the Environment – Then and Now

(For groups visiting the summit lookout. See Appendix – Activity 3 for A4 copy of field sketch).

Update a field sketch done in 1856 from the top of Bluff Hill.

Find a point on the spiral path or summit lookout from which to compare the copy of surveyor J.T. Thompson's 1856 fieldsketch from the top of Bluff Hill with the present-day view.

Encourage students to look for any changes in the landscape and add them to the fieldsketch. Extend the sketch to incorporate the Tiwai Aluminium Smelter.



Sketch from *Bluff Harbour* by John Hall-Jones

Significance to Tāngata Whenua

The summit of Motupōhue is a Tōpuni site. Tōpuni is the name given to a cloak made from strips of dog skin sewn onto a backing of fine woven harakeke/flax. Before the introduction of woollen fabric and other European clothing, a dog skin cloak was an especially valuable item and could only be worn by men and women of high rank.

It was custom that if the owner of a cloak cast it over a person, that person immediately gained their protection and mana (power/authority/prestige). Tōpuni could also be used to protect an area.

Toki-toki and Caddell

A local example of Tōpuni occurred on Big South Cape Island/Taukihepa, one of the Titi Islands near Rakiura/Stewart Island in 1810. At this time relationships between sealers and Tāngata Whenua were poor and a sealing crew were ambushed and all but one man killed by Honekai, chief of Ōui, and his men. One man, sixteen year old James Caddell, was spared because the chief's daughter, Toki-toki, threw her Tōpuni over him. The pair married and Caddell eventually became a chief within the tribe.

Tōpuni – a symbol of protection

No dog skin cloak has been laid on Motupōhue, but naming it as a Tōpuni site has given it protection as though it had been. The title Tōpuni is symbolic of the protection a real cloak would have given if laid by a Rangitira (chiefly person).

An ancient name

Motupōhue is an ancient name, translating as 'island of convolvulus'. But while pōhue, or native convolvulus does grow here, the name has deeper links to the tribe's past.

Just as a dog skin cloak can represent the mana and protection of a chief, so the hill, Motupōhue, represents the links and continuity between past and present. Generations have used it as a landmark, both from the sea and inland. The summit was a lookout from which smoke signals were sent and looked for, and it is respected as the probable burial place of two Ngāti Mamoe chiefs.

Today, the Tōpuni status of Motupōhue helps to make people aware of its importance to Tāngata Whenua and gives it protection from certain types of development.

Activity 4: About the Environment – History, Myth and Magic

Create your own special cloak.

Imagine a time long before clothing stores and mail order.

Imagine you have a cloak. It is your warmest, maybe even your only garment. Depending on where and when you live it might be made of leopard skin or the feathers of 400 kākā, it might be felted wool or woven cloth dyed the rarest blue. Maybe it is made of thatched harakeke/flax and lined with the downy leaves of the mountain daisy. Your cloak protects you, but it also tells others something about who you are. Only a chiefly person could have a kākā feather cloak, only a hunter wore the skin of a leopard.

When you think about it a little, it's not hard to understand why cloaks appear in myths and legends from all over the world. Cloaks of invisibility, cloaks that transform the wearer into the animal they are made of, cloaks that bring the night, cloaks that hide all kinds of magic within their folds.

Dream up a cloak. Imagine the person who wears it and the kind of community they live in. What kind of dangers and hardships do the people in this community face? Give the cloak special powers that could help the person who wears it. The power of your cloak could be real, like the respect given to the traditional Tōpuni, or magic like the cloak of invisibility in JK Rowling's Harry Potter books.

Draw, paint or collage the cloak and write down its special powers or write a story or legend involving the cloak and its special powers.

Early European Settlement

The distinctive shape of Motupōhue would have been a welcome landmark for the sealers and whalers who were visiting the area regularly in the late 1700s.

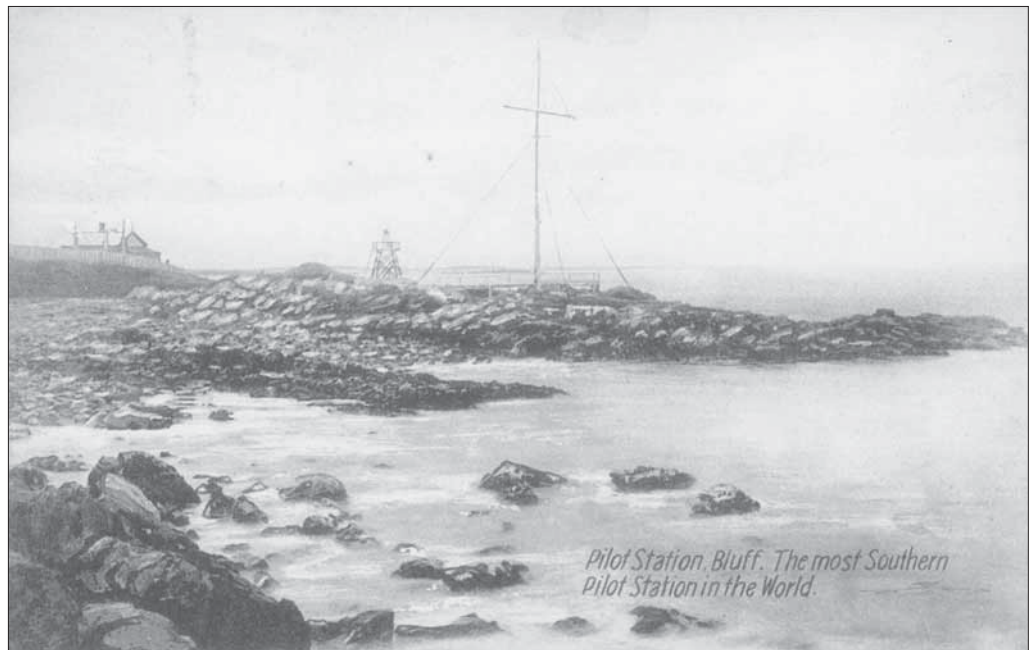
It was probably sealers who gave Motupōhue its English name as by 1822 it seems to have been well known as 'Old Man's Bluff'. The word bluff originally meant 'a broad, flattened front' and was used to describe faces as well as landscape features. As the ship's crew often referred to their captain as 'the old man' (though not to his face!) the hill may have been named after a captain.

Small beginnings

The settlement of Bluff was founded in 1824, giving it a longer history of continuous European habitation than any other New Zealand town. At first there were just three or four families living there, growing potatoes for the whalers who worked from boats anchored off shore. By the late 1830s the population had increased to forty and the whaling stations had moved ashore.

Early exports

Bluff continued to grow in size after the whaling stations closed, and as early as 1856 outgoing vessels were carrying timber and flax, while incoming ships brought stock and settlers to the region. At this time the harbour had neither a wharf, moorings, buoys to mark the entrance channel or a lighthouse. It did, however, have a pilot station. Large sailing ships needed an experienced pilot to guide them through the treacherous entrance channel. A watchman stationed at Stirling Point used a flagstaff to signal approaching ships. When the right flags were hoisted the ship drew close to land and the pilot was rowed out to board the vessel.



Bluff Pilot Station. Photo: Southland Museum and Art Gallery

Harakeke

The essential fibre

Harakeke, or flax, was as vital to Tāngata Whenua in the south as food and water. Its uses included clothing, bird snares and fishing nets, kite strings and cradles, footwear and cordage for lashing timber together when building whare. Different harakeke suited different uses, and particularly valued types were cultivated close to pa sites. Plants were harvested and maintained with care.

Traditionally weaving was the work of both women and men. Weavers held a vast wealth of knowledge and had great mana in their community. Weavers today continue to respect the customs and rituals that reflect the spirituality of their relationship with harakeke. Karakia/prayer, thanking Papatūānuku (Mother Earth) for providing the plant and Māori gods (Nga Atua) such as Tāne Mahuta are spoken when harakeke is gathered. Traditions observed by weavers include: not eating or drinking while working, not burning scrap material, not stepping over harakeke, not working during mate wāhine (menstrual period), completing what you begin and giving away the first thing that you make.

European flax trade

In 1813 an early European visitor to Bluff described, 'a low land as far as the eye could discern, covered with flax'. The long fibres inside the harakeke leaves could be made into rope, which was needed on sailing boats. The long fibres gave harakeke its English name, flax, as they are similar to the fibres of the unrelated linen flax (*Linum usitatissimum*).

By the mid 1820s, harakeke, some of which was milled at Greenhills, was being sold by the ship-load in exchange for nails, tools, cooking pots, pigs and later, muskets. The harakeke was dressed (the outer leaf stripped from the inner fibres) by hand until the 1860s when a flax dressing machine was developed. In the early 1900s there were 44 flax mills in Southland, making rope, wool bales and baling twine.

Synthetic fibres eventually replaced natural ones and all the mills had closed by 1975. Thirty years on, however, Aotearoa New Zealand has huge problems with non-biodegradable waste, so there is an increased interest in natural fibres because they are both biodegradable and renewable. Templeton Flax Mill at Otaitai Bush has recently been restored and is back in production. Visits to the mill can be arranged by contacting Des Templeton (see Contacts section).

Activity 5: About the Environment. Flax Works!

Use flax fibres to make funky bracelets and tassels

An experienced weaver is the best person to introduce your class to harakeke.

If you are unable to find someone to work with your class, try a simple activity with harakeke fibres. Harakeke is a taonga species (a treasure) to Māori and students can be encouraged to treat it with respect. It is not acceptable to whip your class mates with the leaves!

Stiff harakeke leaves (*Phormium tenax*) provide the strongest fibres. When harvesting, protect the plant's health by not taking the three inner leaves, and do not collect at night or in the rain or frost (harakeke is less flexible when wet). Wrap the blades in a damp towel and store in a cool place until needed. Return all flax to the ground, but do not place beneath the flax bush as the dead leaves will harbour insects that harm flax.



In class, let students try to dress lengths of flax by scraping the flesh from the fibres. A mussel shell was traditionally used for this task and remains the best tool for the job, but the back of a butter knife or a closed pair of scissors can also be useful.

Long fibres can be plaited into bracelets and necklaces, while short bunches can be tied into tassels. Thread shells or beads on for added interest.

The students pictured here completed this activity in less than an hour.

Whaling from Bluff

The rarest whale in the world?

Look out over the sea from this stretch of coast in the winter and you might just be fortunate enough to see a Southern right whale, or tohorā. If you do, the animal may be one of just 20 or so thought to live in New Zealand's coastal waters. Once, right whales were common. The females came here in winter, seeking sheltered bays in which to give birth to their calves. Today, right whales are one of the rarest whale species in the world because, from around 1820 until their numbers were exhausted, an entire industry was based on their slaughter.

Rough Bluff

The early successes of the whale ships led to shore based stations being set up. These were not very substantial settlements. They consisted of temporary rickety shacks, and were smelly places littered with whalebone and grime from the smoking trypot fires. Flocks of gulls and other seabirds prowled around scavenging scraps.

Whale oil – the super fuel of its day

Mineral oil (extracted from petroleum) and fossil fuels (like coal) were not yet in use, so whale oil lit cities and heated homes. The oil was exported in barrels to the market at Sydney, where it was sold to European and American buyers.

Right for the wrong reasons

The slow moving tohorā or Southern right whale appeared seasonally in good numbers, it yielded plenty of high quality oil and, unlike other whales, it floated when dead. For these reasons, whalers found the tohorā the 'right' whale to hunt. In the late 1830s and early 1840s there were three shore based whaling stations at Bluff, one of them at Stirling Point. Lookout Point was where whaling crews kept watch for whales through the winter. Forests were felled to heat the huge iron trypots in which whale flesh was rendered down to extract the oil. Shore whaling from Bluff ended in the 1840s because after 20 years of killing females and calves, there simply weren't enough whales left to kill. Over 160 years later the species has not recovered.

Whales welcome?

All whale species are now fully protected within New Zealand territorial waters, but there remain obstacles to the recovery of the species. The quiet, sheltered bays tohorā need to calve in are also good environments for marine farms. As more marine farms are built, fewer maternity bays are left for whales.

Tohorā also fall victim to 'ship strike', because they are slow moving (they swim at just 2 knots; for comparison, a recreational power boat is likely to be travelling at over 20 knots) and lie low in the water.

If whales are going to return to this coast, we humans may have to compromise our needs to meet some of theirs.

Southern right whales are easy to identify. They are about 15 metres long, have no dorsal fin and are black with white calluses (callosities) on their heads. Right whales have a distinctive V shaped spout. All whale sightings are important. If you see a whale, please contact the Department of Conservation as soon as possible.

Keeping fish and chips on the menu

Whales and seals are not the only species to have suffered from 'over-fishing'. Around the world, many fish species have been harvested until so few fish remain that the populations seem unable to recover. Today, regulation of the fishing industry helps to control the amount of fish taken. A limit placed on the amount of fish that can be taken in a season ensures that enough fish are left to breed stock for the next season. Both commercial and recreational fishers are bound by these limits which are called quotas. Size restrictions are another means of protecting breeding stock. Undersized animals are returned to the sea so that they can grow old enough to breed. Marine reserves provide safe breeding grounds for everything within their boundaries.

**Mo tātou, ā, mo kā uri a muri ake nei
For us and our children after us**

The fish that breed in marine reserves soon spill out of the protected area, increasing the number of fish available to catch. The nearest marine reserve is in Patterson Inlet, Rakiura/Stewart Island. The Ulva Island Marine Reserve/Te Wharawhara protects about ten percent of the 1075ha inlet.

Most of Patterson Inlet is a mātaítai reserve in which no commercial fishing is allowed. Te Whaka a Te Wera Mātaítai Reserve is managed by a Tāngata tiaki together with a caretaking committee, and aims to protect the marine resources of the area for customary food gathering and recreational fishers. Other methods of traditional resource management include rāhui, or temporary closure, which may be used if there has been a drowning or if a species has become depleted, and taiāpure which recognizes areas of special significance to iwi or hapū.

Activity 6: For the Environment – A Waste of Whales

How do we protect marine resources today?

Would a farmer want to send a good breeding ewe to the meatworks? Would a deer hunter take a pregnant doe if they could have a stag? No. Do you think the sealers and whalers realized that the seals and whales were going to get 'used up' if they kept taking both young and old animals, females and males? If they did, why do you think they kept hunting? Would we make the same mistake today? What measures have we put in place to ensure that the harvest we take from the sea remains a renewable resource?

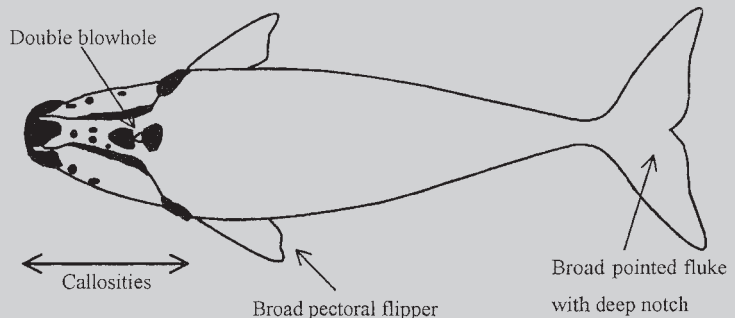
Discuss.

Activity 7: In the Environment/For the Environment – Boat versus Whale

What's it like to be a slow whale sharing the water with a fast boat? Split the class into two groups.

Whale group

You are a 13 metre long female tohorā, or Southern right whale. You will live at least forty years and will give birth to a calf every three years. This season you will have your first calf and right now you are slowly moving into a bay that your instinct tells you will be good for calving. You move at around 2 knots/3.7 kilometres per hour, floating very near the surface with your mouth open slightly, sieving plankton and small fish through your baleen plates. **Whale group**



form a 13m long whale shape and move forward at a slow shuffle.

Occasionally you stop to play, lifting your flukes (tail) out of the water and sailing down wind. **Head and body students crouch while tale students raise their arms, shuffle down wind.** Sometimes you dive, holding your breath for 20 minutes until you surface. **Crouching students can do this for about 20 seconds!**

Boat group

You are a seven metre power boat with a 150 horsepower engine. Your top speed is 40 knots/74.2 kilometres an hour and today you are travelling at around 10 knots/19 kilometre per hour as your driver crosses and re-crosses the bay, looking a good fishing spot.

Students form a boat shape and run, as fast as they can without breaking formation, back and forth across the bay.

Whale, how did it feel? Is this a safe bay to calve in?

Boat, if this had been a real whale floating just beneath the surface of the water, would you have been in danger of colliding with it?

Bluff Coastal Defence Camp

As a headland, and the highest point in the surrounding landscape, Motupōhue has long been a lookout. The Bluff Coastal Battery Defence Camp was established here as part of New Zealand's WW2 coastal defence system. Built in 1942, it was active for just two years and never needed to respond to enemy invasion. The regenerating bush to the left of the track as you approach the emplacement hides the remains of the camp that housed 29 men and two officers. The visible foundations to the right of the track will give students an idea of how nature can reclaim a site once humans have abandoned it (the buildings were transported into Bluff and converted into houses). On leaving the bush, the gun emplacement is immediately visible.

The original camp layout plan is illustrated on the Heritage Trail board beside the gun emplacement.

The gun emplacement or gunpit had a battery (the structure on which the gun was mounted) that could swivel east to south. When fired it was capable of reaching as far as Ruapuke Island and the estuary. The concrete foundation of the battery remains. To the back of the building are the reinforced ammunition stores.



The Bluff Gun Emplacement was one of very few in New Zealand to be disguised as a house.

The squat concrete structure to the left of the track as you walk down the hill from the gun emplacement is an observation post.

Its roof was originally camouflaged by a layer of turf and the window slots armoured with metal blast shutters.

If enemy shipping was detected by the Coastal Warning System (radar) on the top of Bluff Hill, the army camp would be contacted and the observation post manned. From here the fall of shots from the gun emplacement further up the hill could be monitored with a rangefinder.

CAWQ CH540/3.15 Fort
Record Books Heavy Battery
New Zealand Army, Bluff

If shots were going wide or falling short of their target the watchers in the observation post would telephone the gun emplacement and tell them what adjustments needed to be made to the angle of fire.

The Bluff Gunpit Coastal Defence Camp is one of Southland Conservancies' 73 actively managed historic sites. The facilities were demolished by the Royal New Zealand Army Engineers in the 1970s. Anti-graffiti paint has been used to make the stripped buildings easier to clean, while anti-rust treatment prevents further deterioration of metal structures like the Coastal Warning System near the summit. A turntable and felled mast can still be seen on site. Vegetation is kept clear of the gun emplacement and observation post.

Activity 8: In the Environment/For the Environment – Concrete Evidence

Can you bring history to life?

Before your group leaves the gun emplacement, brainstorm ideas with which to answer the following questions.

It is over 60 years since this camp was in use. At the time it was built, New Zealanders were under threat of war. Can you imagine how that would feel? What do you think would have happened to the gunpit and observation post over this time if it had been 'left to nature'.

How interesting do you find the site? The original camp was only in use for two years. Do you feel the remaining structures are worth keeping?

Do you think the site could be made more interesting? How would you bring the past to life for visitors? Come up with as many creative ideas as you can!

Back at school, arrange for someone who lived in New Zealand during the war to talk to your class about what life was like for them during that time. Encourage students to prepare questions that will help them gain insight into the social impacts of war on the local community. If your interviewee is willing, students may be able to use a tape deck or a video camera to record the interview.

This activity could be extended to include a visit to your local war memorial and cemetery, a look at local historical records and contact with your branch of the RSA.

The Walk

The Lookout Point – Glory Track loop walk starts from the Stirling Point car park.

Follow the Lookout Point Track.

The community of plants that has colonized this site differs from the community of plants you will see as the track turns inland, away from the wind and salt spray.

Students can self-mark their **'What do you know?'** test sheets using the interpretation panels on the track.

They should also have with them **'Leaf Bingo, You're the Expert'** and **'Poet-tree'** cards and any cue cards they have prepared for the **'You're the Expert'** activity.

The activities **'You're the Expert'** and **'Poet-tree'** draw students' attention to how different plants are suited to different environments and are part of a wider community of plants and animals. The **'Leaf Bingo'** activity highlights the link between plants and the human history of the area.

Coastal vegetation – each plant in its place

The first interpretation panel on the left side of the coastal track draws your attention to the three zones of vegetation that can be seen from this point.

The small, salt-tolerant plants that grow closest to the sea (3) prevent the scant soil of this exposed site from eroding. Erosion at this point would spread uphill so these small plants protect the shrubs (2), which in turn protect the forest trees (1).

Plants that grow close to the sea often have leaves that are hard to the touch. Small, tough leaves are not so easily damaged by the wind. Many plants in this zone have glossy leaves with thick skin which is resistant to salt spray.

A little further back from the sea, larger shrubs that have flexible branches and a compact growth habit can survive.

Behind the shrubs, the trees are able to grow. Although shrubs are small, the shelter they provide is essential because even cold winds cause plants and soils to lose moisture. The shrubs prevent the forest floor from drying out too quickly. They also shelter young trees, protecting them until they grow large enough to have anchored their roots well into the soil.

At this site the three zones have been artificially created. The forest would have originally grown down to the sea because this area is relatively sheltered. The broad band of shrubs and smaller trees that you can see from this point have grown up to replace forest that was burnt, or felled, possibly to provide fuel for the whaler's tryspots and timber for building during the early settlement of Bluff. Fire has probably burnt through the regenerating bush more than once since the forest was first cleared. There are different ages and types of secondary forest on Motupōhue including kāmahi forest, mixed forest (wineberry, fuchsia, black mapou, coprosma etc) and manuka.

Although this site is much less exposed than areas further towards Lookout Point, you will still see signs of salt burn on leaves, die back and wind- shaping in the shrubs around you.

Use 'Leaf Bingo – Card One' along this section of track. There are good examples of the first 'You're the Expert – Plant One' and 'Poet-tree' plants, horomiko/hebe about 15 minutes walk from the car park at the islands of Foveaux Strait interpretation sign.

Take the Glory Track turnoff. As the track leaves the coast the increased shelter from burning salt winds means a wider variety of plants will grow. You may notice more ferns and shrubs. As the track climbs, the tree around you become taller because you are entering old forest (cut-over but regrown). You may notice that as well as ferns and shrubs there is now an under-story of young trees.

Use 'Leaf Bingo – Card Two' along this section of track. Look out for 'You're the Expert – Plant Two' and 'Poet-tree' plant Kareaoipirita/supplejack' here.

Stop when you reach the 'Forest Community' interpretation sign. Look at the tall straight trunks of the trees around you. Why didn't early settlers harvest them for timber? Because they have grown since the original forest was cleared and are less than 200 years old.

Use 'Leaf Bingo – Card Three' along this section of track. You will find 'You're the Expert – Plant Three' and 'Poet-tree' plant, a young miro, on the left hand side of the track, past the sign.

After the 'Traditional Uses' interpretation sign you enter the oldest surviving part of Motupōhue forest. Many of these are over 200 years old and were growing before the first whaling station was established here. They were part of the forest Murihiku Maori relied on for their survival. Rimu can live over 800 years, they are a living link to our past and if we continue to care for the forest they may still be standing in 2600.

You will find good examples of the 'You're the Expert – Plant Four' and 'Poet-tree', rata, on the left side of the track, just after the 'Traditional Uses' interpretation sign.

Around half an hour's walk along the Glory Track a side track, the Tōpuni Track, leads up the hill. Pass this turnoff and continue along the Glory Track. Shortly the track leaves the forest. Just before it does look out for the foundations of a small building (probably a toilet) on the right side of the track. This is a remnant of the Bluff Coastal Defence Camp.

The regenerating bush to the left of the track as you approach the emplacement hides the remains of the camp that housed 29 men and two officers. The visible foundations to the right of the track will give students an idea of how nature can reclaim a site once humans have abandoned it.

Warning: pits and open water tanks make the bush here unsafe for school groups to explore.

On leaving the bush the gun emplacement is immediately visible.

Part of 'Activity 8 – Concrete Evidence', can be done at this site.

Once you have left the bush you can use 'Plant Bingo – Sheet Four'. Look out for the fifth 'You're the Expert – Plant Five' and 'Poet-tree' plant, harakeke, in this area.

After the gun emplacement the track descends to the Stirling Point car park.

Activity 9: About the Environment – What Do You Know?

See Appendix.

This test is done in class or as homework before the trip. Students self-mark their tests from the interpretation panels along the track.

Activity 10: Leaf Bingo

See Appendix.

Students use Leaf Bingo cards found in the Appendix to identify plants and discover links between plants and the human history of the area.

Activity 11: In the Environment: You're the Expert (some preparation recommended)

See Appendix.

The students become the teachers.

There are five 'You're the Expert' sheets. Divide the class into five groups and allocate a sheet to each. Groups can divide up the information so that everyone in the group has a role to play. Make cue cards if you feel they will help. Can you think of ways to make the information memorable (for example; try presenting the information like game show hosts or news readers, or use rhyme and rhythm)?

On site: When you have found your plant, gather the rest of the class so that they can hear and see you. Ask them to stay on the track so that they don't crush plants growing on the forest floor. Share your knowledge about the plant with the rest of the class. Afterwards, call out questions from the test sheet. If your class can answer every question, then you have done a good job at teaching!

Activity 12: In the Environment – Poet-tree

Write a collective, on-the-spot poem about a plant and its environment.

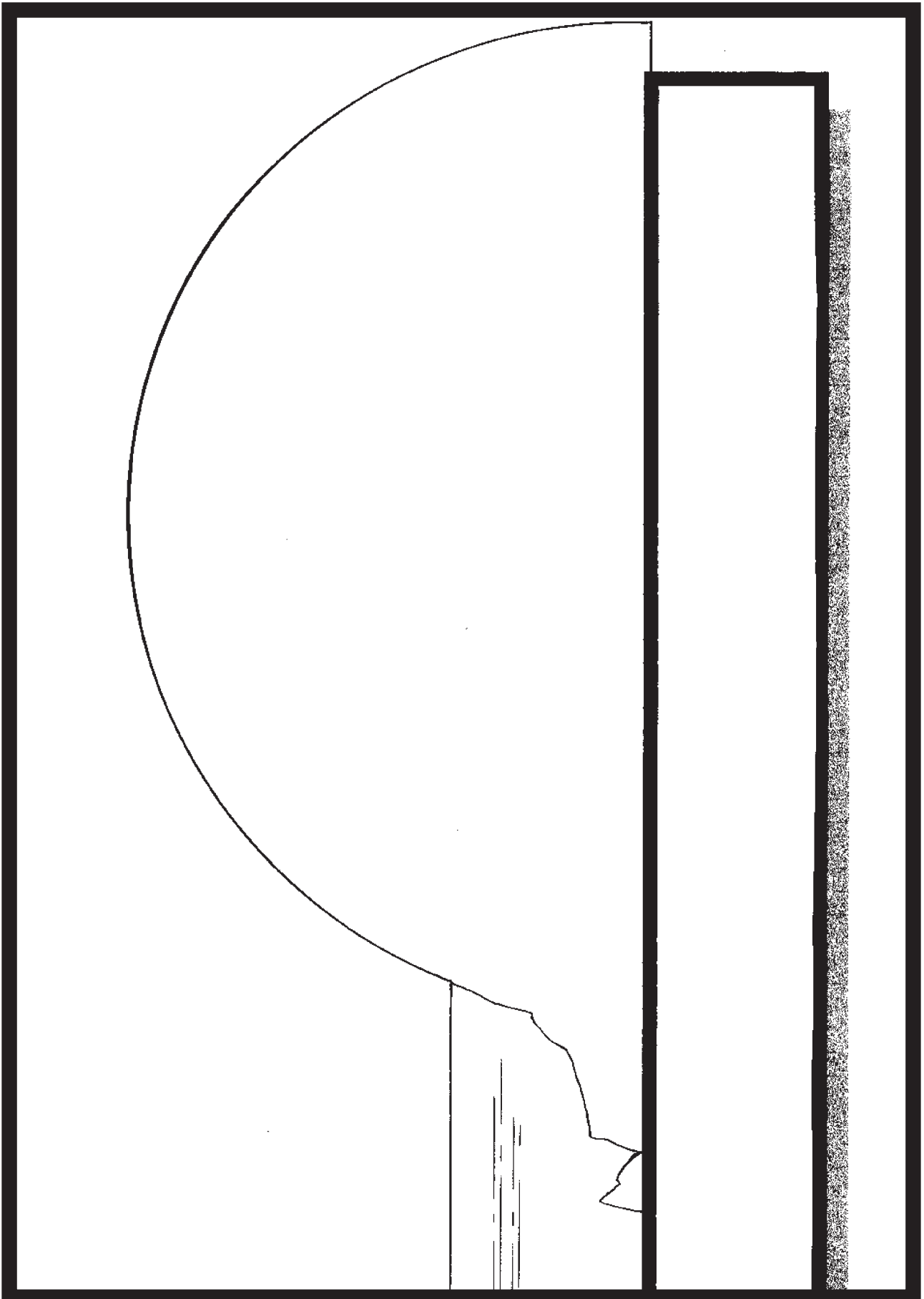
After each of the botany lessons, have the students pause for a minute with eyes closed, and then open them and take in their impressions of the sights, sounds and smells of the vegetation around them.

Students should focus on the plant that is the 'You're the Expert' topic at the site, but they should also be encouraged to notice things like temperature, light levels and wind.

Write a collective poem on the spot by calling for a single line from several students and building them into a poem about the plant and its environment. Students can also write down a word bank to take back to class for further writing.

Appendix: Activities

Activity 2: About the Environment - The History of the Hill



1840^{AD}

CLUE: TANGATA WHENUA GROW POTATOES AND RAISE PIGS FOR THEMSELVES AND TO TRADE WITH WHALERS. SEALS ARE NEARLY EXTINCT.

1870^{AD}

CLUE: THE TOWN IS GROWING AND THE HARBOUR IS BECOMING BUSIER. A SIGNAL STATION AND A PILOT STATION HAVE BEEN BUILT.

1945^{AD}

CLUE: BLUFF TOWNSHIP IS GROWING AND NEEDS A WATER SUPPLY, ROCK FOR BUILDING AND TIMBER FOR THE FUTURE.

2000^{AD}

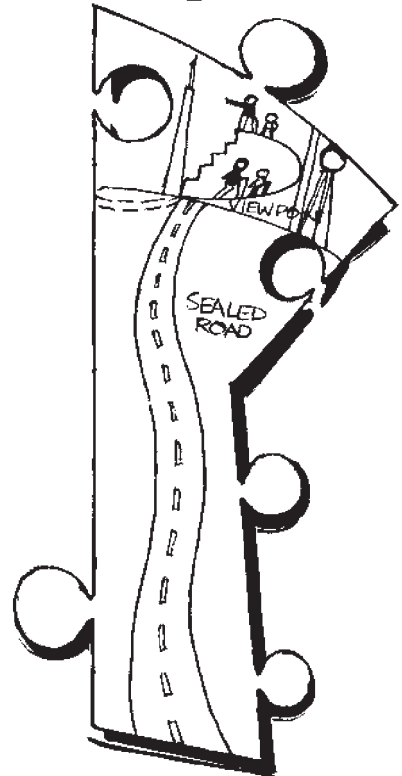
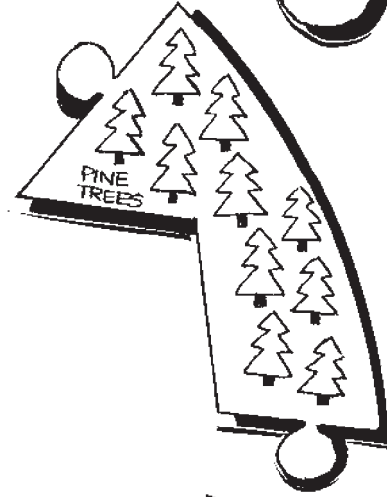
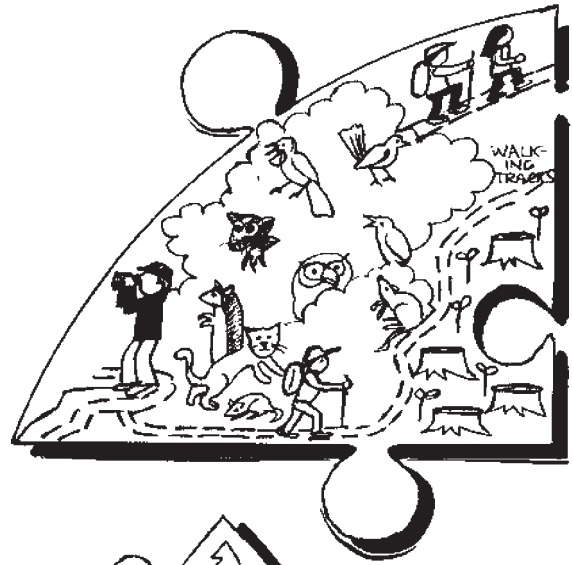
CLUE: MORE PEOPLE THAN EVER BEFORE VISIT MOTUPOHUE AND SEALS AND WHALES BEGIN TO RETURN TO FOVEAUX STRAIT.

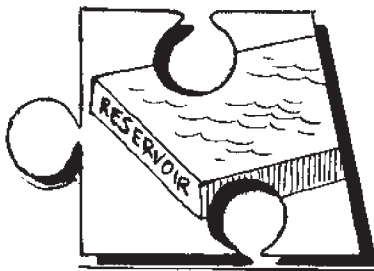
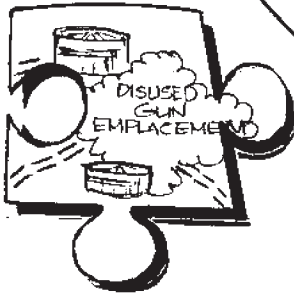
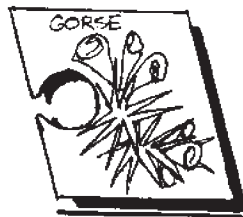
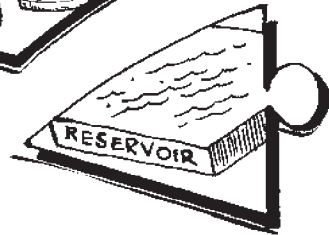
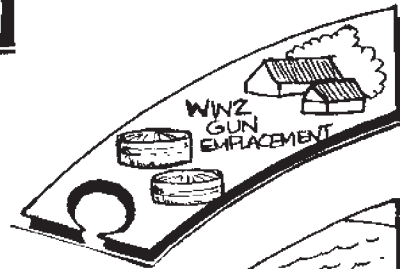
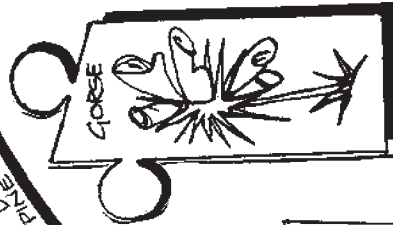
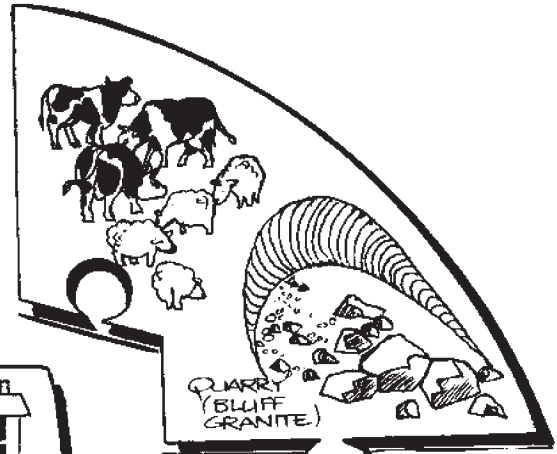
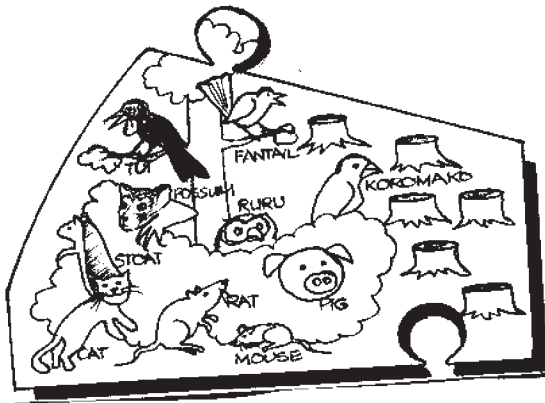
1700^{AD}

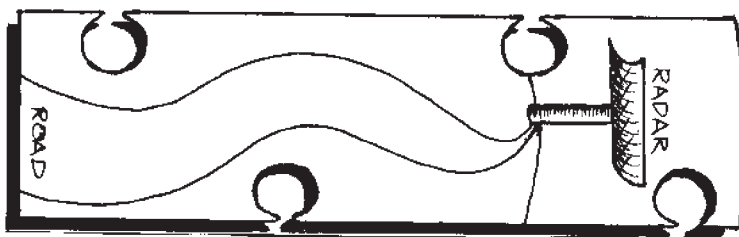
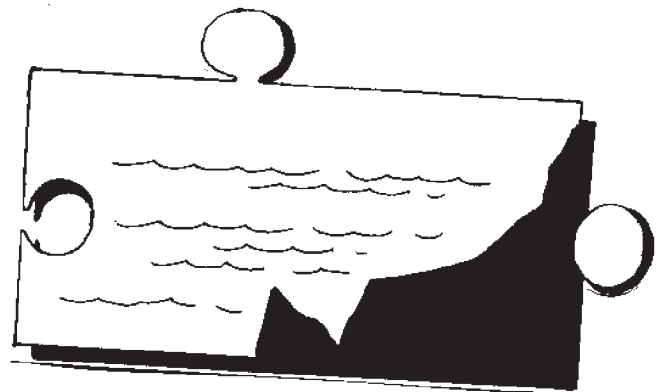
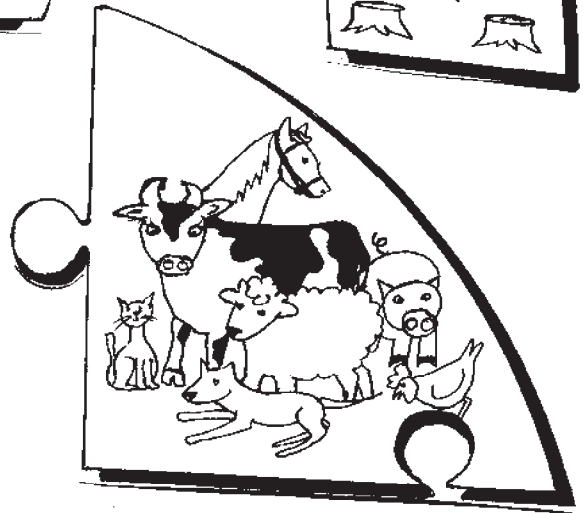
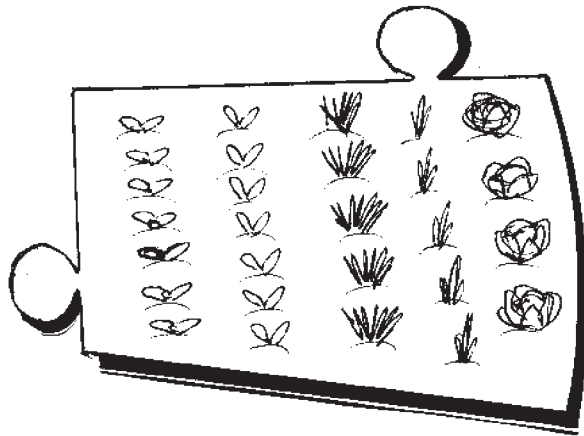
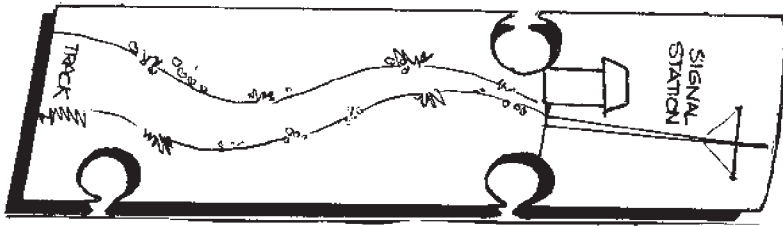
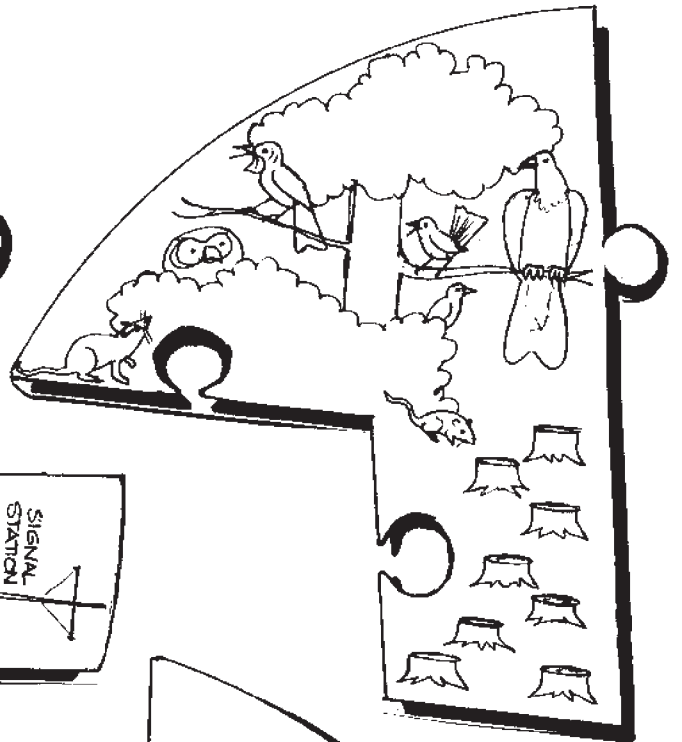
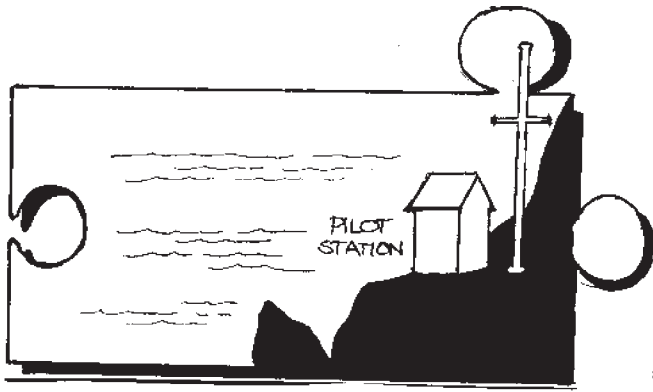
CLUE: MURIHIKU/SOUTHLAND HAS BECOME HOME TO HUMANS. MOA ARE EXTINCT. SEALS SELDOM VISIT MOTUPOHUE. THE FLIGHTLESS BIRDS ARE DISAPPEARING.

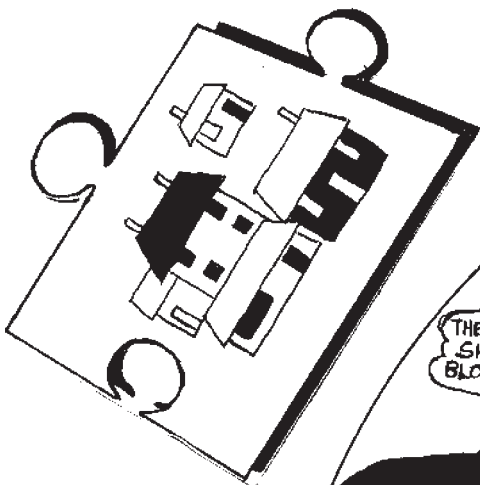
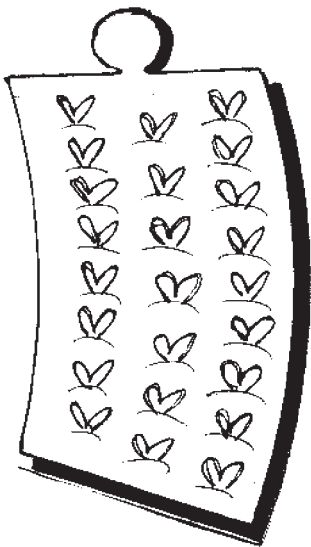
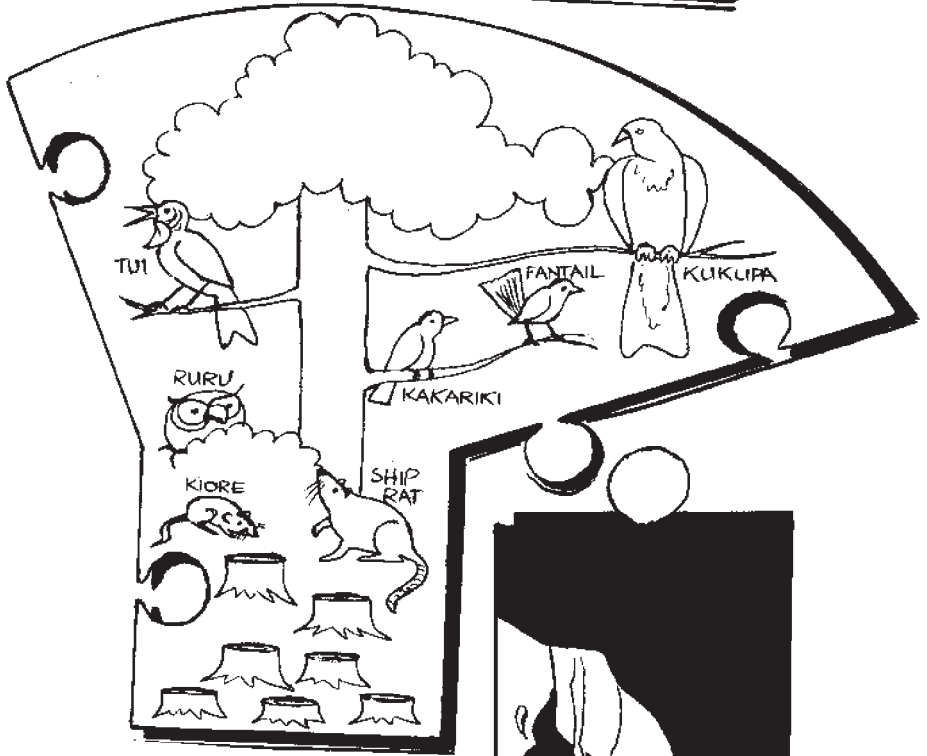
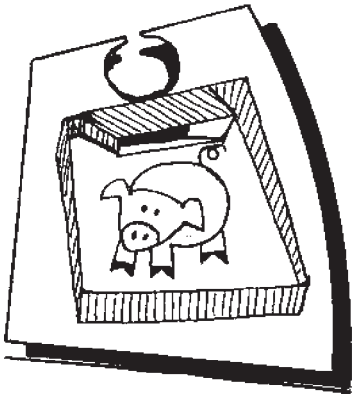
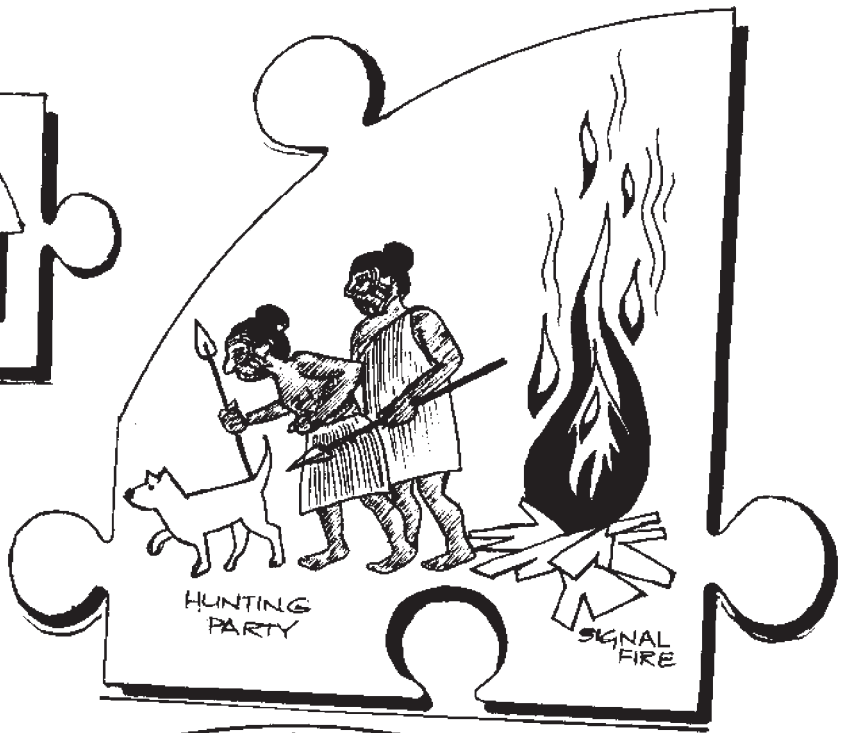
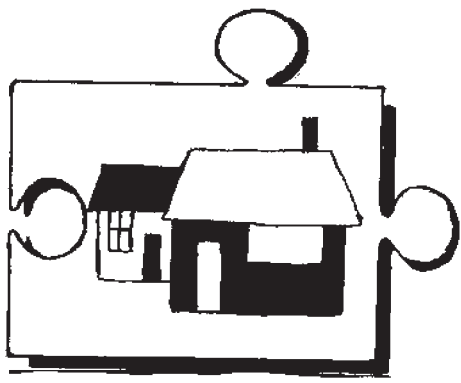
1000^{AD}

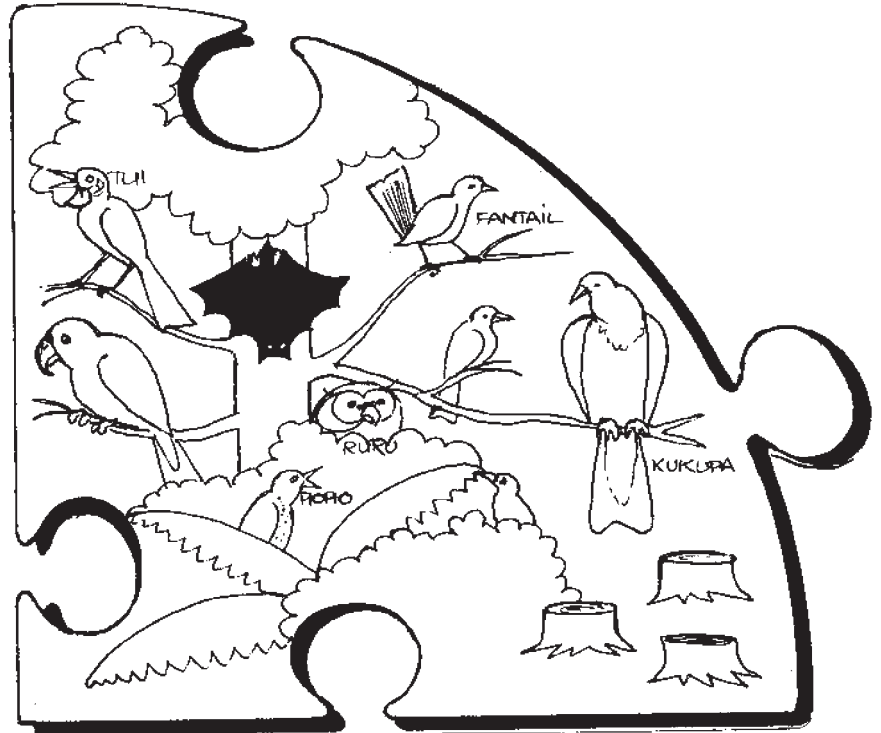
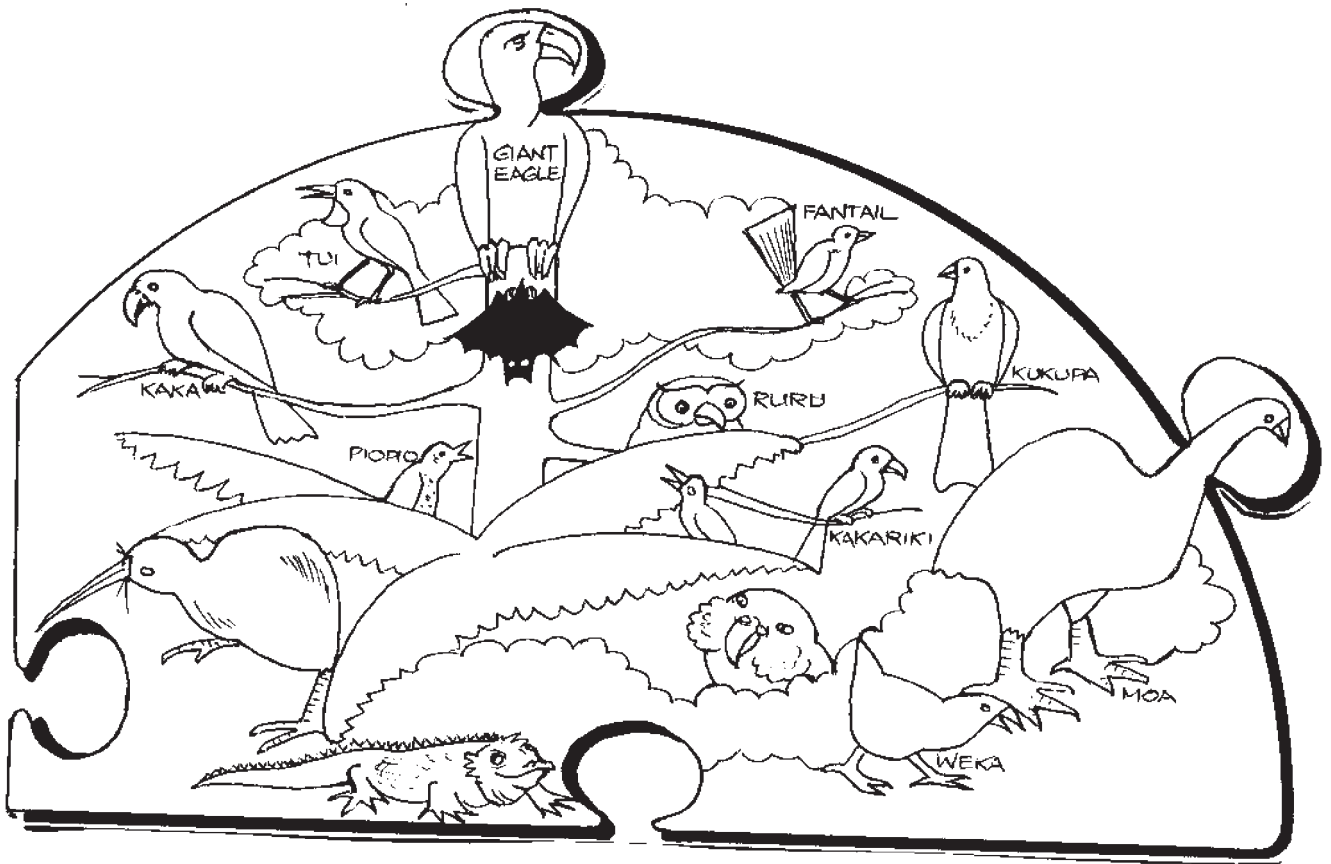
CLUE: THE ONLY LAND MAMMAL IN AOTEAROA NEW ZEALAND IS THE BAT.



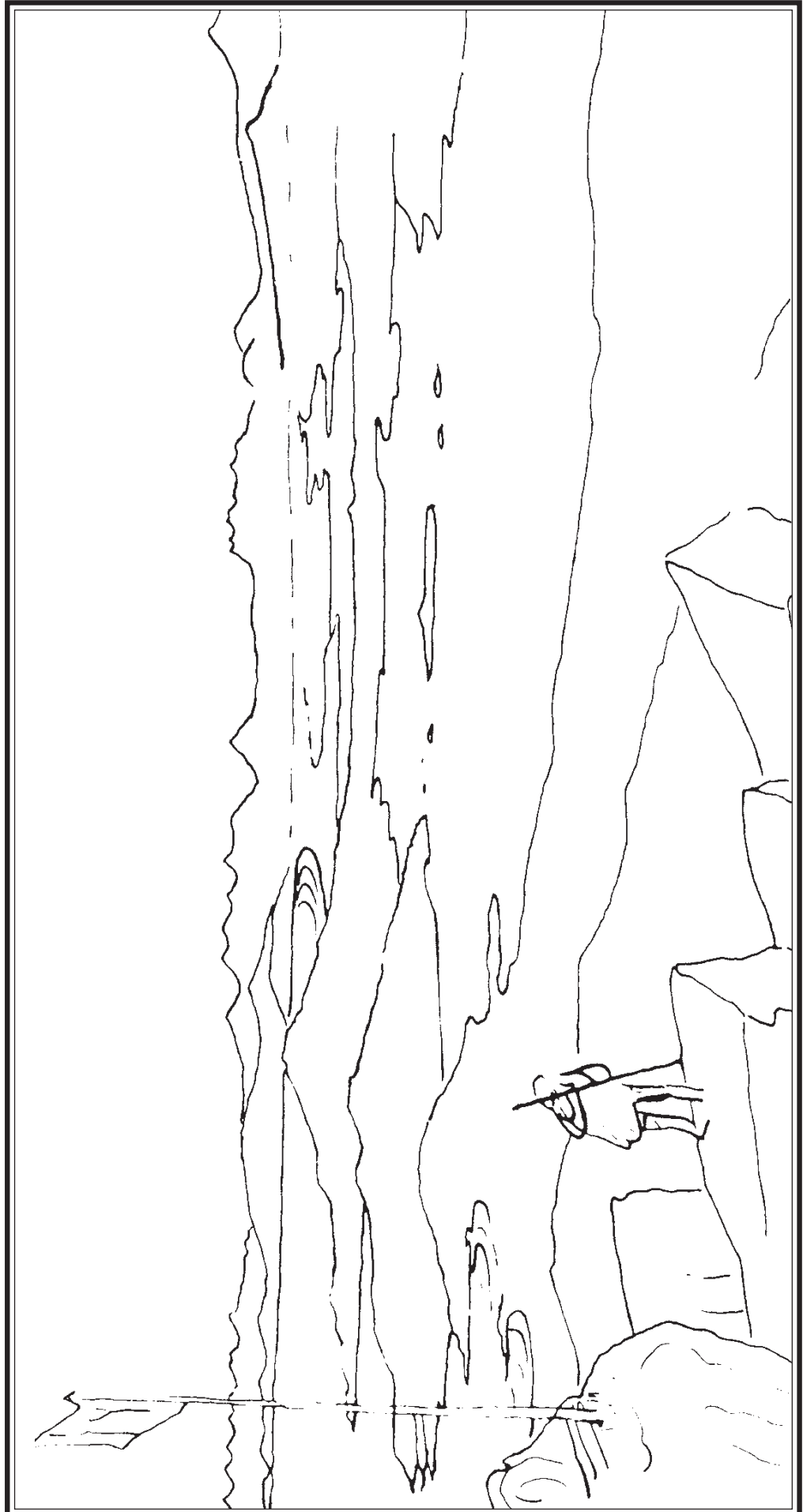








Activity 3: In the Environment – Then and Now



Activity 9: About the Environment – What do you know?

This test can be done in class or as homework before the trip. Students can self mark their test papers by reading the interpretation signs on the track. They can take the test again after the trip to reinforce what they have learnt.

- 1 What is the Māori name for Foveaux Strait? What is the English translation of this name?
- 2 Podocarp trees are related to
a) broadleaf trees b) pine trees
- 3 In the 1830s Ruapuke was the stronghold of the great Ngāi Tahu chief Tūawaiki. What does the name Ruapuke mean?
- 4 What is the role of a harbour pilot?
- 5 A mollymawk/toroa is a small
a) albatross b) duck c) shellfish
- 6 What does the oystercatcher/toreapangō use its strong bill for?
a) fighting b) probing for grubs c) prising open shellfish
- 7 Which type of penguin are you most likely to see around Motupōhue?
- 8 Which animal eats which food?
Kūkupa/kererū/native pigeon insects
Riroriro/grey warbler nectar
Tūi dead wood
Huhu grub forest fruits
- 9 Which of the following are podocarps?
Tree fuchsia/kōtukutuku Miro Lemonwood/tarata
Tōtara Rimu

1) Te ara ā Kiwa, the pathway of Kiwa*

2) b) pine trees

3) Two hills

4) A pilot guides ships through the harbour mouth.

5) a) albatross

6) c) prising open shellfish

7) the little blue penguin/korora

8) Kūkupa/kererū/native pigeon – forest fruits

Riroriro/grey warbler – insects

Tūi – nectar

Huhu grub – dead wood

9) miro, totara, rimu

*The interpretation panel gives the spelling, incorrectly, as Kewa. Kiwa was the spiritual guardian who called on kewa (the whale) to chew away the isthmus that originally joined Rakura and Bluff.

Activity 9: Answers

Leaf Bingo - Card One



Kōtukutuku/Tree fuchsia

- ❁ This plant is a small tree with reddish papery bark. It often loses its leaves in winter.
- ❁ Back in the days before sweets, the berries were real treats. Birds love them too!
- ❁ The original forest was cleared from this area long ago. How do you think the kōtukutuku trees got here?

Kāponga/Tree fern

- ❁ This plant is a large fern with a single trunk-like stem.
- ❁ Look for little brown bumps on the underside of the fern fronds (leaves); these are spores. When the spores are ripe they blow away on the wind, helping to spread fern plants to new areas.
- ❁ Māori used kāponga trunks to make fences and walls. Early settlers laid them on muddy ground to make walkways and cart tracks.
- ❁ Can you see any salt burn on the kāponga fronds?



Kāpuka/Broadleaf

- ❁ This plant is a small tree with large smooth-edged leaves.
- ❁ The inner bark was an important ingredient in traditional medicine.
- ❁ Kāpuka can help us tell whether there are lots of possums in a forest, or just a few. Possums love to eat it, so if the Kāpuka plants are undamaged, then there can't be many possums around.

Leaf Bingo - Card Two



Piupiu/Crown Fern

- ✿ This plant is a fern with fronds that are pale on the underside.
- ✿ Travellers off-track in the forest have always used bent over piupiu fronds as route markers because the pale undersides show up even in the near dark.

Kāmahi

- ✿ This plant is a tree with wavy edged leaves.
- ✿ Kāmahi bark was used by Māori to make a black dye for colouring flax and cabbage leaves. The bark has a high tannin content and was used by the tanning industry in the 19th century.



Kareaoipirita/Supplejack

- ✿ This plant is a climber with bright red berries.
- ✿ Māori traditionally used the supple stems to lash fences and platforms together and to weave fish traps. They also used slit stems to frame large kites.
- ✿ Settlers used it instead of willow to weave baskets and crayfish pots.

Leaf Bingo - Card Three



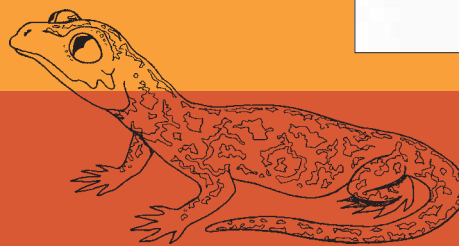
Horoeka/Lancewood

- ✿ This plant is a small tree which has long slender leaves when it is young.
- ✿ The midribs of the horoeka are very strong and were used by both Māori and settlers. Modern day trampers and hunters still find them handy if a bootlace breaks.

Tōtara

- ✿ This plant is a tree with stiff pointy leaves.
- ✿ Māori carved waka from the tall straight trunks and used the bark to make food containers.
- ✿ European settlers used the wood for house piles, railway sleepers and telegraph poles.

"The oldest totara in Aotearoa New Zealand is thought to be over 1800 years old!"



Rimu

- ✿ This plant is a tall tree with weeping foliage and swirling patterns on its bark.
- ✿ Rimu is used in traditional medicine. The berries were eaten.
- ✿ For the settlers, its tall straight trunk made it one of the most valuable timber trees.

Leaf Bingo - Card Four



Kohūhū

- ✿ This plant is a small tree with leaves that have a lemony scent when crushed.
- ✿ Māori blended leaves and flowers with fat to make a perfume.
- ✿ Kohūhū is easy to germinate and quick to grow so it is often used when areas are being replanted.

"Trees at this site were planted in the 1970s and 1980s"



Mānuka

- ✿ This plant is a shrub with small, prickly leaves.
- ✿ Mānuka is a traditional medicinal plant.
- ✿ Today, oil from the mānuka plant is used as an antiseptic and antifungal.



Aruhe/Bracken

- ✿ This plant is a tough and wiry fern that dies back in winter.
- ✿ When people first arrived in this area they found it was too cold to grow the kūmara they brought with them. Instead of kūmara they ate the starchy rhizomes (root-like underground stems) of the aruhe.
- ✿ Early settlers used the tough springy fronds to make mattresses.

You're the Expert – Plant One: Koromiko/Hebe

There are lots of different types of koromiko or hebe. This type has leaves with a glossy coating that protects them from salt spray.

The rounded bush shape of the plant means that wind blows over and around it rather than pushing through the branches, which could cause them to snap.

Koromiko flowers are pollinated by flies and moths, which visit the plants in search of pollen and nectar. As well as pollinating the flowers, the moths and flies are valuable food for insect-eating birds like the miromiro or tomtit.

The flowers of this type of koromiko are small and white, but some koromiko have bright purple or pink flowers and have become popular garden plants in New Zealand and overseas.



Test

How does the shape of the koromiko plant help it to avoid wind damage?

What protects the leaves from salt spray?

In what way is the koromiko plant useful to birds like the miromiro?

Which insects pollinate the flowers of the koromiko.

Koromiko is a New Zealand native plant, so why is it found elsewhere in the world?

You're the Expert – Plant Two: Kareaoipirita/Supplejack

Kareaoipirita is a climbing plant or liane. It has its roots in the forest floor and its leaves in the canopy, like a tree. Unlike a tree it does not put energy into growing a trunk, but instead coils its slender stems upwards around any shrub or tree it can reach.

It grows very fast, sometimes as much as up to five centimetres a day!

Up in the canopy its flowers and bright red berries are easily seen by pollinating insects and seed-spreading birds. Kareaoipirita vines sometimes form huge tangles on the forest floor.



Test

How does kareaoipirita get its leaves up into the sunshine?

What is the word used to describe a climbing plant?

How many centimetres a day can it grow?

Why does it have berries that birds like to eat?

What colour are the berries?

You're the Expert – Plant Three: Miro

Miro is a podocarp, an ancient member of the conifer family.

It is a slow growing tree and its fruit take over a year to ripen. The fruit are eaten by the kūkūpa/kererū/native pigeon which is attracted to their bright colour and strong, turpentine smell. Kūkūpa/kererū swallow the fruit whole and spread the seeds. It is the only bird left (the only bird that as not become extinct) that can open its beak wide enough to swallow such big fruit.

This tree arrived by pigeon post. If we want our forests to be here for future generations, we need to protect the kūkūpa/kererū.



Test

What type of tree is the miro?

How long do its fruit take to ripen?

What attracts kūkūpa/kererū to the fruit?

How does the kūkūpa/kererū help the miro?

How can we help the miro?

You're the Expert – Plant Four: Southern Rātā

Southern rātā has spectacular red flowers in December and January.

Nectar feeding birds like tūi, korimako/bellbird and kākā love the sweet nectar from rātā flowers, it gives them an energy boost!

The nectar also attracts insects and geckos. The birds, insects and geckos pollinate the flowers. Possums love rātā too. They eat the leaves and the flowers. Possums can kill a rātā tree in just three years by eating all its young leaves.

The rātā's small, pointy tipped leaves are tough and have a waxy surface that protects them from strong, salt laden winds.



Test

What is the name of the tree?

When does it flower?

Which birds like to drink the nectar?

What other creatures drink the nectar?

Which animal eats the leaves and can kill the tree?

You're the Expert - Plant Five: Harakeke/Flax

Strong flexible fibres inside harakeke leaves help them to bend and twist in the wind. A glossy coating on the leaves helps to protect them from drying winds, while the strong, spreading roots help to anchor the plant when gale force winds blast the coast.

In early summer the tall flower stalks or korari produce lots of nectar for birds like korimako/bellbird and tūi. As the birds collect the nectar, pollen from the flowers sticks to their heads so they pollinate the flowers as they feed.

Many invertebrates including native snails and slugs live in amongst the leaves at the base of the plant.



Test

What helps harakeke leaves bend and twist in the wind?

What is another thing that helps harakeke survive on windy sites?

What food do korimako and tūi get from harakeke?

How do the birds help the harakeke?

What often lives amongst the leaves at the base of the harakeke?

Contacts

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Templeton Flax Mill
Otaitai.
Des Templeton
Ph 03 234 9922
Open by appointment.

Bluff Maritime Museum
241 Foreshore Road
Bluff.
Ph 03 212 7534
Open 10 am – 4.30 pm
weekdays. Schools, please
phone prior to visiting.

Resources

Geological Map of New Zealand, sheet 26

Topographical map Bluff 260 E47

History

Bluff Promotions www.bluff.co.nz

Bluff Heritage Trail Brochure

Bluff Maritime Museum - historical photographs, whaling artifacts, pilots' logs.

Bluff Harbour by John Hall-Jones

Bluff in Retrospect, available through the Bluff History Group

"There She Blows" - Sealing and whaling days in old New Zealand, Bush Press, Heritage NZ ISBN 0-908608-24-1

Sealers and Whalers in New Zealand Waters by Don Grady ISBN 0-474-00050-8

Southland Museum and Art Gallery have an adze made from Tiwai argillite.

See *Ngāi Tahu Claims Settlement Act 1998* for more information on Motupōhue and Te Ara a Kiwa

Links

The following websites may be of interest:

www.doc.govt.nz Tells you what the Department of Conservation does and has general information about conservation and more about DOC sites, along with resources for events like Sea Week, Conservation Week and Arbor Day.

www.nzaee.org.nz New Zealand Association for Environmental Education has a comprehensive directory of sources of information available on-line.

www.projectcrimson.org.nz This is an organisation that works to protect and promote our native rātā and pohutukawa trees.

www.eco.org.nz ECO is an umbrella for environmental groups and has links to these organisations at its website.

www.kiwirecovery.org.nz Find out what is happening in the efforts to save our national symbol.

www.kakapo.org.nz Gives the latest on kakapo conservation.

www.forest-bird.org.nz New Zealand's largest non- governmental conservation group. Includes a club for primary school aged students.

www.learnz.org.nz An interactive site for tracking the progress of adventures in some of our most interesting natural areas.

www.conservationvolunteers.org.nz New Zealand Trust for Conservation Volunteers gives details of opportunities for voluntary work in the environmental area.

www.gns.cri.nz Takes you into the geological and nuclear science institute for excellent earth science information.

www.tuitime.org.nz The NZ Ecological Society's interactive programme about native tui for school pupils.