

Environmental education

If New Zealand is to have a sustainable future, environmental education is essential. Historically schools have provided programmes for students to learn about the environment and provided learning experiences in the environment. Today environmental education includes another vital component—education for the environment.

Students are required to use the knowledge, skills and values they have acquired, to contribute to a sustainable future for New Zealand's natural, social and cultural environment. Teachers are encouraged to provide opportunities for students to access information that will enable them to debate issues and make informed decisions, and to take responsibility, through personal and/or group actions, for addressing environmental issues.

The Department of Conservation provides this resource for teachers using Rimutaka Forest Park as a focus for an environmental education programme. For further information about environmental education refer to your school's copy of the Guidelines for Environmental Education in New Zealand Schools, Ministry of Education 1999 or find it online at www.tki.org.nz > environmental education.

The key concepts underlying environmental education—interdependence, sustainability, biodiversity, personal and social responsibility for action—interweave through the suggested activities and are core to environmental education programmes.

Environmental education in Rimutaka Forest Park

Rimutaka Forest Park provides many opportunities for students to explore the environment, develop essential learning skills and address the key environmental concepts of interdependence, sustainability, biodiversity and personal and social responsibility for action.

Extensive native bush, wildlife habitats, river catchments, mountain ranges with notable geological features and areas significant in tribal history for tangata whenua, provide a wide range of contexts to meet the learning needs and interests of students of all ages and abilities.

This online resource has been developed for teachers who wish to involve their students in environmental education both inside and outside the classroom. It focuses on four different areas within Rimutaka Forest Park—Catchpool Valley, Orongorongo Valley, Turakirae coastal environment, and Rimutaka Incline. For each of these four areas curriculum links and suggested pre-visit, on-site and post visit activities have been developed.

Teachers can select from a range of activities suitable for students working at curriculum levels 3-6 or they can adapt activities to suit their students.

On-site Activity Cards are available for use at each site. One set of cards comprises 6 cards with photos on one side and activities on the reverse side. One set is suitable for a group of 5/6 students to share. There are 12 identical sets of cards for each site. Teachers can arrange to access these when booking a class trip. Copies of these Activity Cards are also available for printing from www.doc.govt.nz > Community > Schools > Field-Trips > Wellington

For students proficient in te reo Maori, Activity Cards for the Catchpool Valley and the Turakirae coastal environment are available in Maori.

When in the Catchpool Valley students can:

- Observe the structure of a native forest and investigate the range of plants and animals (biodiversity) that sustain it
- Investigate changing land use as pine forests are harvested and people work to restore the native forest
- Compare the process of natural regeneration of a forest with planned revegetation projects
- Consider how they might be able to plan similar projects in their local/school environment

Curriculum links and suggested pre-visit, on-site, and post-visit activities can be found on page 7.

When in the Orongorongo Valley students can:

- Tramp through bush modified by animal and plant invaders
- Investigate natural food chains that show the interdependence of plants and animals and see how introduced animals can affect these relationships
- See pest monitoring and control in action and learn skills that they could use to monitor and control pests in their local environment
- Learn how the Department of Conservation manages Rimutaka Forest Park for future generations to enjoy

Curriculum links and suggested pre-visit, on-site, and post-visit activities can be found on page 10.

When at the Turakirae coastal environment students can:

- Identify impressive geological landforms and learn about the earth movements that have caused them
- See evidence of how people used this area in the past
- Identify special features of plants (e.g. kaikomako) and animals (e.g. New Zealand fur seals) that help them survival in this environment
- Consider why people value this area and want to protect it

Curriculum links and suggested pre-visit, on-site, and post-visit activities can be found on page 13.

When walking the Rimutaka Incline (the old rail track between Wellington and the Wairarapa) students can:

- Explore evidence of how people have used, and impacted on, this area through time
- Identify remnants of the railway buildings, bridges and tunnels used by the fell engines that opened the way to the Wairarapa
- Gain further awareness of the area's range of recreational opportunities and appreciate that all users have a part to play in caring for this environment
- Use safe practices and basic risk-management strategies as required on the exposed top of the incline, in tunnels, and near steep drops

Curriculum links and suggested pre-visit, on-site, and post-visit activities can be found on page 16.

Planning a trip to Rimutaka Forest Park

1. Read the suggested pre-visit, on-site and post-visit activities and additional information related to the four sites described above.
2. Identify the preferred study area for your class. Plan your environmental education programme (using the activities provided) that will best meet the learning needs of you students.
3. Book your visit by contacting John Rush by e-mail JRush@xtra.co.nz or phone (04) 564 8551.
 - This will ensure that someone will be available to welcome you to Catchpool or Orongorongo Valley, and that a class set of Activity Cards is made available for you on arrival.
 - If you are visiting Turakirae Coast, you will need to arrange to pick up the Activity Cards from the Catchpool Visitor Centre.
 - For classes visiting the Rimutaka Incline, Activity Cards can be picked up from the Upper Hutt Information Centre, 6 Main Street, Upper Hutt (phone 527 2141 to arrange) unless alternative arrangements are made when you book your trip.
4. Contact any of the resource people that you wish to assist your class with their research, guide their visit or support them as they plan environmental projects in their local area. For assistance with history, geology, current developments and guiding, contact John Rush. For information about the project 'Bringing back the dawn chorus' (the Rimutaka Forest Park Kiwi Recovery Programme), contact Bill Milne.

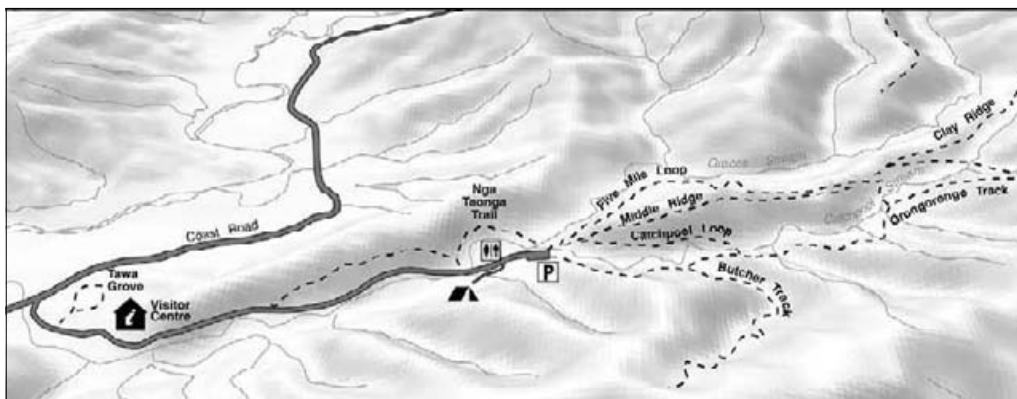
5. Arrange transport. If you plan to travel by bus ensure that you have a car available for emergency use. Local bus companies' contact details and costs (as at May 2004) are:

NAME AND CONTACT DETAILS	TRIP DETAILS	APPROX. COST
Stagecoach Wellington Phone: 387 8700 x 736 Fax: 802 0133 E-mail: info@stagecoach.co.nz	Pick up from anywhere in the greater Wellington area. Drop off at Catchpool Valley or Turakirae and return to Wellington. Travel must be completed between 9 a.m. and 3 p.m.	\$275 – \$300 per bus depending on your location in Wellington.
Cityline Hutt Valley Ltd (Lower Hutt) Phone: 569 2933 Fax: 569 2176 Email: info@cityline.co.nz	Pick up from Lower Hutt. Drop off at Catchpool Valley, Turakirae or Kaitoke and return. Travel must be completed between 9 a.m. and 3 p.m.	\$250 per bus.
Runciman Motors Ltd (Upper Hutt) Phone: 528 5279 Fax: 528 7651	Pick up from Lower Hutt. Drop off at Catchpool Valley or Turakirae and return.	\$209 per bus.
	Pick up from Upper Hutt. Drop off at Catchpool Valley or Turakirae and return.	\$272 per bus.
	Pick up from Lower Hutt. Drop off at Featherston (Cross Creek). Pick up from Kaitoke later that day. Return to Lower Hutt.	\$335.00 per bus.
	Pick up from Upper Hutt. Drop off at Featherston (Cross Creek). Pick up from Kaitoke later that day. Return to Upper Hutt.	\$280.00 per bus.
Classic Coaches (Wainuiomata) Phone: 564 5015 Fax: 564 5014	From Wainuiomata to Catchpool Valley or Turakirae and return.	Half day \$200 – \$220
	Wainuiomata to Featherston (Cross Creek entrance to Rimutaka Incline) and pick up from Kaitoke later in day.	Full day \$270.00 \$500.00
Wairarapa Coachlines (Featherston) Phone: 0800 666 355 Website: www.waicoach.co.nz	Buses operate from Featherston.	20-seater: \$60.
	For classes walking the Rimutaka Incline —leave your cars at Kaitoke and the bus will pick you up from Kaitoke and drop you off at Cross Creek in the morning. Alternatively, the bus can pick up you at Cross Creek in the afternoon and return you to your cars at Kaitoke (or vice versa). Additional cost for travel from Masterton to the Incline and return.	37-seater : \$260 + \$200.00

6. Locate and use Safety and EOTC: A good practice for New Zealand schools, Ministry of Education 2002 (www.tki.org.nz > Communities > EOTC). This document provides a rationale, safety management process, legal obligations and planning templates for a good EOTC programme. Use the templates it provides for **Risk Assessment Checklist** (form 12) and **Outdoor Safety Action Plan** (form 13) and **EOTC event planning checklist** (form 17) to ensure you are well prepared for your visit. Other helpful documents include: *Managing Risks in Outdoor Activities* (Mountain Safety Manual 27, 1993), and *Water Safety Across the Curriculum* (Water Safety New Zealand, 2000). **Children under 15 years must be under constant adult supervision.**
7. Compile a checklist of equipment required by each student, each class. The list should include:
- Food, drink, a waterproof parka, sound footwear and warm clothing, e.g. those made from thermal fibres such as wool, polypropylene or polarfleece. Remember that two light LAYERS of clothing are warmer than one heavy one.
- Students should carry any necessary medication and ensure that the adult supervisor accompanying them is aware of any special medical conditions. Teachers should carry a cellphone, first aid kit and a comprehensive list of students' medical histories, and be aware of what medication students are carrying and where it is located.
- It is recommended that students use a notebook or small exercise book to record trip information, rather than loose sheets of paper.
8. Arrange for the possibility of postponement.

Getting there!

...to the Catchpool Valley



The Catchpool Valley is a 45 minute drive from Wellington. From the roundabout at the southern end of Wainuiomata, follow the Coast Road for 12 kilometres. Turn left into the Rimutaka Forest Park main entrance. (This is 8 km from Camp Wainui and 15 km from Brookfields Camp). The gates at the entrance close at dusk and reopen at 8 a.m. The Catchpool Visitor Centre is 200 metres from the main gate. Camping areas are suitable for school groups and have basic facilities including water, toilets, showers and gas cookers.

Groups intending to camp should contact Catchpool Visitor Centre – phone (04) 564 8551, fax (04) 564 7475, e-mail JRush@xtra.co.nz. You can view the displays at the Visitor Centre and collect sets of activity cards for use on your bush walk.

Toilets are located at the Catchpool Visitor Centre, the upper car park and the camping area.

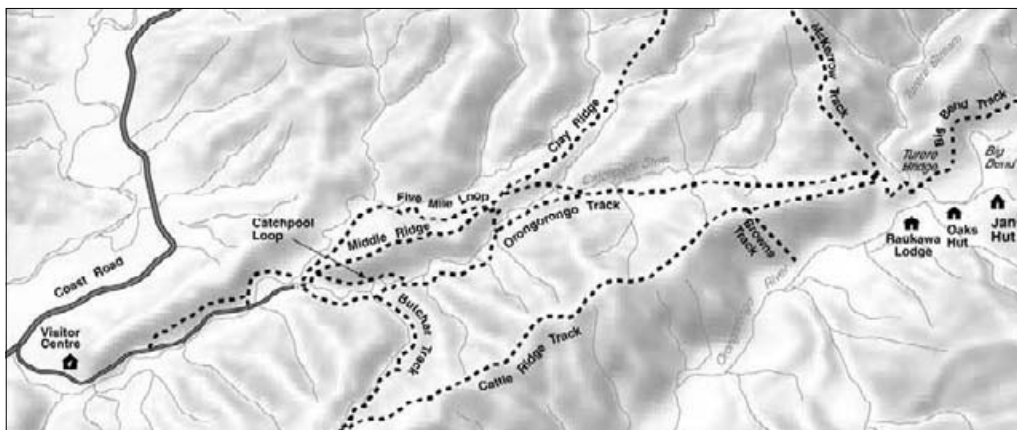
Walking times

Tawa Grove: an easy 30 minute round trip for disabled or less mobile people. This walk begins near the Catchpool Visitor Centre.

Nga Taonga Nature Trail: 30 minutes.

Five-Mile Loop: an easy 45 minutes.

...to Orongorongo Valley



Follow the instructions above to get to the Catchpool Valley. Drive through the valley to the top car park. Tracks into Orongorongo Valley are signposted. The easiest and most direct track is the Orongorongo Track. It follows Catchpool Stream and then crosses the ridge to descend to the Orongorongo River.

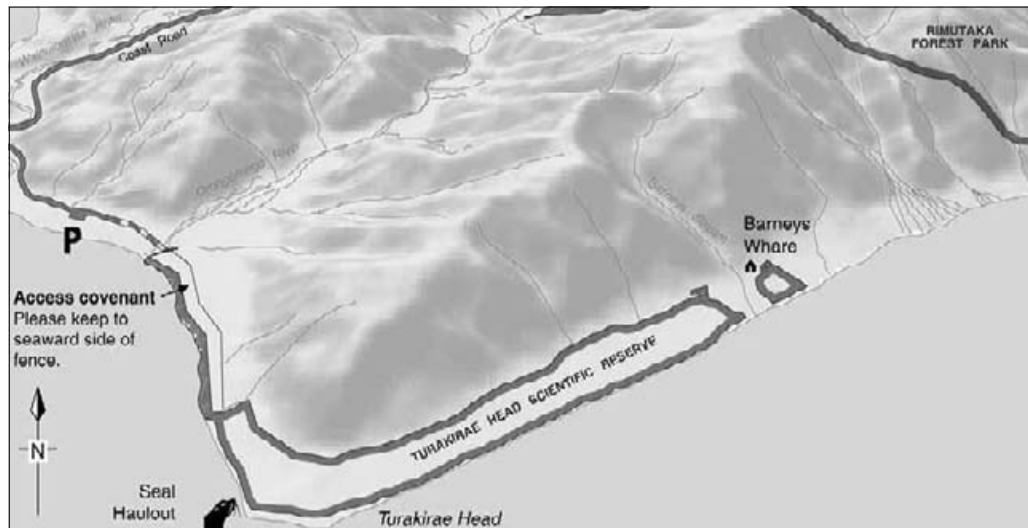
The Butcher Track (for the fit and energetic) is on the right, about 10 minutes along the Orongorongo Track from Catchpool car park. This track climbs steeply to the Cattle Ridge Track for a long descent to the Orongorongo River. Toilets are provided near the arched bridge at the end of the Orongorongo Track.

Walking times

Catchpool car park to Orongorongo Valley via Orongorongo Track: easy. Allow 4 hours return.

Catchpool car park to Orongorongo Valley via Butcher/Cattle Ridge Tracks: moderate/difficult. Allow 5 hours return.

...to Turakirae



From the roundabout at the southern end of Wainuiomata follow the Coast Road. After 12 kilometres you will pass the Rimutaka Forest Park main entrance on your left.

Stop at Catchpool Visitor Centre on your way to and from Turakirae to pick up/drop off the Activity Cards and to use the toilets.

There are no public toilets on the coast.

Continue along the Coast Road for another 10 kilometres. Watch out for the karaka trees along the way. These are signs of early occupation by Maori. Park vehicles in the public car park, 300 metres before the end of the public road. From the car park, walk along the road and over the Orongorongo River bridge. Access to Turakirae Head is via a covenant area on private property. Visitors must keep to the seaward side of the fence.

Walking times

From the car park to Turakirae Head seal colony: 1 hour. Allow at least 2 hours for a return journey.

From the seal colony to the eastern edge of the reserve: 1 hour.

...to Rimutaka Incline – Featherston side

From the Fell Museum on the main street in Featherston, drive west (towards the Rimutaka Ranges) and cross the railway line. Turn left into Western Lake Road. You will soon arrive at Speedy's Crossing. This marks the spot where the old and new rails parted when the Rimutaka Deviation (including the 8,798 metre tunnel through the ranges) opened in 1955.

Soon after driving over the bridge spanning Cross Creek you will see Cross Creek Road to your right. Drive about one kilometre down Cross Creek Road to the car park where you will begin your walk.

The old rail line into Cross Creek is on the opposite side of the valley from the walking track.

After about 20 minutes walking you will cross the stream and head up into Cross Creek yard, passing the remains of a tennis court on your right. There are toilets at the beginning of the track. Take some toilet paper.

...to Rimutaka Incline – Kaitoke side

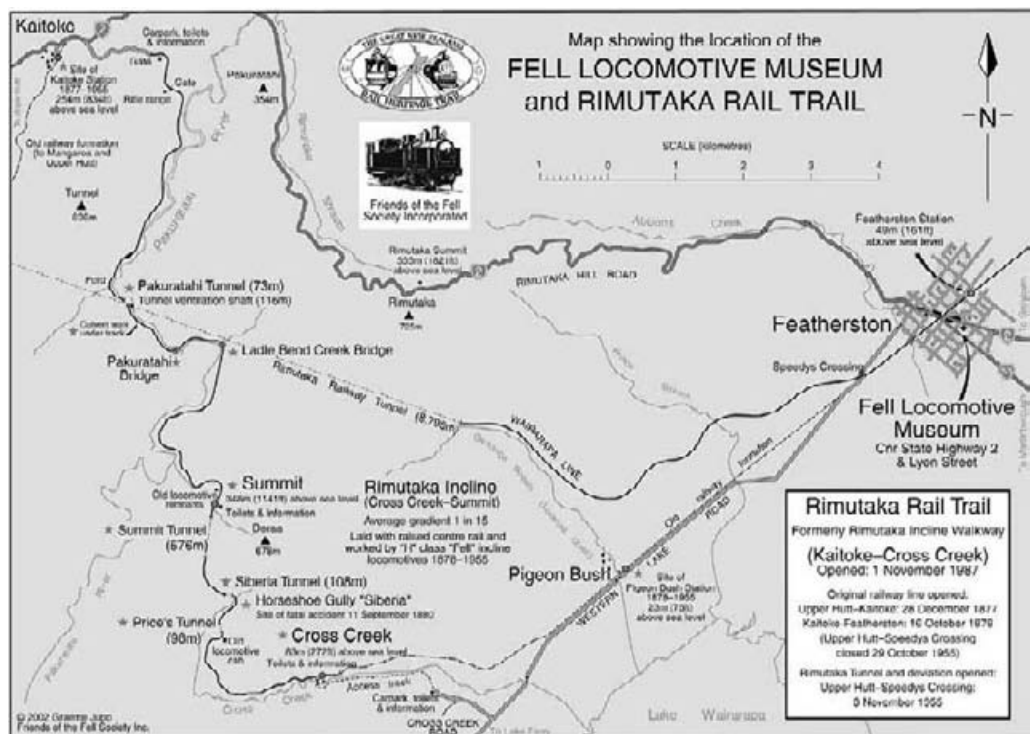
Nine kilometres north of Upper Hutt on State Highway 2, is the 'Rimutaka Incline' turn-off sign. The Kaitoke car park is 1 km along the gravel road.

Walking Times

Car park to Cross Creek – 0.5 hours (2km)

Cross Creek to Summit – 1.5 hours (5km) – a steeper section with a 1:15 gradient.

Summit to Kaitoke – 3 hours (10km)



Curriculum Links and Activities

Four areas of Rimutaka Forest Park have been highlighted in this resource. For each area some key focuses have been identified. For each focus there is a brief overview of environmental education outcomes followed by curriculum links and a range of suggested activities for you to select from:

- Pre-visit – so students can learn more about the environment that they will visit.
- On-site – these are on the Activity Cards that will be available for your students to use in (and thus learn more about) Rimutaka Forest Park.
- Post-visit – to follow-up on learning opportunities motivated by their visit and to use their knowledge and skills to take some positive action for their local environment.

Through the suggested activities students can develop communication and information skills by researching and presenting information in order to argue/debate/portray a case convincingly; numeracy skills when organising bush survey information; problem-solving skills when analysing problems such as introduced pests; social and cooperative skills when taking

responsibility as a group member for planning and carrying out an environmental project; and physical skills when exploring Rimutaka Forest Park.

Teachers should prepare a student task that could be completed at the beginning and end of this study and used for formative and summative assessment. It should provide an opportunity to compare students' development in knowledge, attitudes, values and skills when making lifestyle decisions.

Catchpool

Key focus: Forest structure

Students can:

- Learn about the structure of a native forest and the relationships that exist within it.
- Develop an appreciation of walking in the bush as a recreational activity.

Links can be made to:

Science – Making sense of the living world

Students can:

L3.2 – investigate special features of some native forest plants and how these help them to stay alive.

L4.1 – investigate and classify closely related plant species (tree ferns, beech trees or podocarps in the Catchpool stream area) on the basis of easily observable features.

L4.4 – use simple food chains to explain the feeding relationships in Catchpool Valley.

L7.1 – describe and explain the biogeographical reasons for the special characteristics of New Zealand's plants and animals.

English – Links can be made to a range of oral, written and visual language objectives.

Mathematics – Statistics – Students can gather information about bird numbers in the forest.

Technology – Students can design a nesting box to meet specified criteria.

The Arts – Students can use visual art to show forest structure.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Brainstorm ideas about 'native bush' – What is it?, Who lives in it?, How does it survive? • Find out about forest communities by visiting the Department of Conservation website (www.doc.govt.nz > Community > For-Schools > Themes > Forests). • Read about New Zealand Bush (page 21). • Investigate the origins of some of the trees (page 23) found in Rimutaka Forest Park, including introduced species. 	<p>Students can:</p> <ul style="list-style-type: none"> • Observe the forest structure—compare it to a house. • Identify feeding relationships in the forest. Who feeds whom? • Survey the number of birds in a small area of the forest. • Compare the special characteristics of podocarps, beech trees and tree ferns. 	<p>Students can:</p> <ul style="list-style-type: none"> • Identify an area of local bush in or near your school: <ul style="list-style-type: none"> – Observe the structure of the bush and the life that it supports – Use the template to collect data on Bird Presence and Frequency (page 27). – Write a report about the current state of the bush that you have studied. • Make a bird feeder or bird pudding (page 27) to supplement the food available for local birds. • Design and make a nesting box. Look at www.nzbirds.com <NestBoxes for ideas.

Key focus: Succession

Students can:

- Find out how a forest attempts to grow back again after it has been cleared.
- Identify and carry out actions to restore native bush in local areas.

Links can be made to:

Science – Making sense of the living world

Students can:

L2.4 – investigate the forest succession that follows environmental changes such as earthquake, fire, or logging.

L3.2/4.2 – investigate special features of plants that help survival into the next generation.

Social Studies – Place and Environment: Students can see how different groups interact with the environment.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Find out how your local environment has changed over the last 100 years. Was it once covered in bush? If so, why/how was it cleared? • Part of Rimutaka Forest Park was cleared for a pine plantation in the 1970's. Those pines are now being logged and the native forest is regenerating. Find meanings for the words regeneration, revegetation, coloniser. Think about how these words relate to Rimutaka Forest Park – refer to Revegetation and Regeneration at Catchpool (page 26). 	<p>Students can:</p> <ul style="list-style-type: none"> • View the historical displays in the Visitor Centre at Catchpool Valley – noting how the area has changed over time. • Observe how a new forest grows. • Identify the successional stages evident in the Catchpool Valley forest. • Investigate the special characteristics of plants in different successional groups. 	<p>Students can:</p> <ul style="list-style-type: none"> • Research the history of native bush in your local community – interview locals, access photo collections. • Read how schools are working to restore native ecosystems in their communities (page 29) and write an action plan for improving an area of native bush in your school or community. (Template on page 29).

Key focus: Restoring the forest

Students can:

- Investigate how people are taking action to restore a native forest after the logging of a pine forest.
- Use this knowledge to guide a revegetation project of their own.

Links can be made to:

Science – Making sense of the living world

Students can:

L2.4 – investigate the response of the native plants to habitat changes caused by fire and logging.

L3.4 – justify their involvement in a revegetation project.

L8.1/2 – carry out an extended investigation of the implications of allowing natural regeneration or using revegetation techniques in the Catchpool area.

Social studies – Place and environment

Students will demonstrate knowledge and understanding of:

4.1 – how places reflect past interactions of people with the environment.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Investigate the process of natural regeneration and how it can be modified by a revegetation programme. • Identify any areas in your community where revegetation projects are in progress. Who is responsible for them and how can people become involved? • Find out about the native plants that are endemic to your area www.bush.org.nz 	<p>Students can:</p> <ul style="list-style-type: none"> • Apply students' understanding of natural succession in order to understand the regeneration process in action at Rimutaka Forest Park. • Identify signs of people's past interactions with the environment at Rimutaka Forest Park and consider the views of today's managers and users of the park. • Compare areas of natural regeneration with an area that is part of a revegetation project. 	<p>Students can:</p> <ul style="list-style-type: none"> • Read about projects by other schools/community groups (page 29). • Take action to improve your local bush. <ul style="list-style-type: none"> – Collect seeds and grow native seedlings. – Get support from your regional council. – Take photos to add to your records. Students can compare growth in 5 years/10 years time and be inspired to continue your project. OR... • Find out about other school/community restoration projects (page 29). Become involved in a local revegetation or restoration project.

Additional information to support the activities above

Department of Conservation www.doc.govt.nz	Action plan (template)	page 29
Forest Ecosystems / Forest Structure www.doc.govt.nz > Community	School/community restoration projects	page 29
The New Zealand bush		page 21
Trees		page 23
Revegetation and regeneration at Catchpool		page 26
Bird identification and frequency survey		page 27
	Books	
	Evans, B. <i>Revegetation manual</i> . QE II National Trust 1983.	
	Porteous, T. <i>Native Forest Restoration</i> . QE II National Trust 1993.	
	Metcalfe L. J. <i>Propagation of New Zealand Native Plants</i> . Godwit, Auckland, 1995.	

Orongorongo Valley

Key focus: The impact of introduced animals

Students can:

- Study the interdependence that exists in a forest community and the effect that an introduced species can have on feeding relationships.
- Learn how to monitor and protect birds in their local community.

Links can be made to:

Science – Making sense of the living world

Students can:

L3.4 – explain where and how a range of familiar plants and animals live.

L4.4 – use simple food chains to explain the feeding relationships in the bush and investigate the effects of introduced animals or plants on these relationships.

L8.1/2 – carry out an extended investigation into the impact of pests on the Orongorongo Valley bush communities.

Health and physical education – Personal health and physical development

Students can:

L1.7 – identify and use safe practices and basic risk-management strategies when visiting Orongorongo Valley.

English – Links can be made to a range of oral, written and visual language objectives.

Mathematics – Statistics – Students can gather information about animal pests.

Technology – Students can build a tracking tunnel.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Plan a trip to Orongorongo Valley to observe the natural food chains and how introduced animals affect them. • Find out about Animal Pests (page 30) that are found in the Orongorongo Valley and consider their impact on the native bush. Refer to article below. • Investigate how plants are affected by introduced pests (page 30). Play Possum Picnic (www.doc.govt.nz > Community > For-Schools > Activities > Possum-Picnic-Activity) • Visit the Weedbusters website www.weedbusters.org.nz to find out about weeds and the impact they have on native species. • Plan a trip (see page 2) to Orongorongo Valley including the preparation of a Risk Management Plan. 	<p>Students can:</p> <ul style="list-style-type: none"> • Observe the interdependence of plants and animals in Rimutaka Forest Park. • Look for signs of pest animals. • Identify animals by their faecal pellets and the plant damage they cause. • Identify weed species present in the Rimutaka Forest Park. • Investigate the impact of pests on rata and mistletoe. 	<p>Students can:</p> <ul style="list-style-type: none"> • Monitor animal pests present in a local bush remnant. Observe the natural food chains evident and investigate any signs of introduced weeds or animal pests that might disturb these food chains. • Monitor Bird Frequency using the template provided (page 27). • Borrow the video <i>Did my cat do that?</i> from DOC and consider ways to protect local birds from cats, e.g. promote the use of cat bells by writing an article for your school newsletter; sell some cat bells through your school; or make a poster to display in a local shop window. • Make a Tracking Tunnel (page 35) to identify small animals living in your school grounds or local bush.

Key focus: Control of pests and weeds

Students can:

- Learn about people who are taking action to protect a native forest environment from plant and animal pests.
- Carry out pest surveys in their local communities and initiate pest control action.

Links can be made to:

Social Studies – Social organisation

Students will demonstrate knowledge and understanding of:

L2.1 – how and why groups are organised within communities.

Science – Making sense of planet Earth and beyond

Students can:

L4.4 – investigate an environmental issue (introduced pests) and explain the reasons for the community's involvement, (e.g Kevin O'Donnell, John Rush, Rimutaka Forest Park Trust).

Science – Making sense of the nature of science and its relationship to technology

Students can:

L3.3 – investigate the impact of pest and weed control techniques on people and/or their local environment.

L6.3 – investigate how knowledge of science and technology is used when making decisions about environmental issues such as pest control.

Science – Making sense of the living world

Students can:

L8.1/2 – carry out an extended investigation of possum control in the Orongorongo Valley.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Research the origin, life cycle and damage caused to local ecosystems by some introduced plants and animals. • Investigate how the problem of pest animals at Rimutaka Forest Park is being addressed. Read the story of a possum hunter (page 31). • Investigate the range of control options for weeds (page 32) and the effectiveness and acceptability of these options. 	<p>Students can:</p> <ul style="list-style-type: none"> • Check out the display in Catchpool Visitor Centre to see different types of pest control. • Carry out a pest presence survey—identify the presence of animals by track and faecal pellet monitoring, and damage to plants. • Arrange to assist a member of the pest control team in checking a possum trap line and observe the monitoring and refilling of bait stations with the park ranger. You will need to make this arrangement well in advance of your visit, when you make your booking (see page 2). 	<p>Students can:</p> <ul style="list-style-type: none"> • Plan action to control these pests, using the information gathered about pest plants and weeds in your school or community. Use the Action Plan template provided (page 29). • Design an information sheet that could be distributed to make people aware of plant and animal pests and provide some ideas for controlling them. • Contact the local Regional Council pest control officers for assistance with monitoring and controlling pests and weeds in a local bush remnant. • Find out about the use of 1080 for possum control. Debate its use. Invite a speaker from the Department of Conservation or the Rimutaka Forest Park Trust to explain its benefits.

Key focus: Land use and management

Students can:

- Investigate how people use Rimutaka Forest Park and how it is managed in order to protect its diversity for future generations to enjoy.
- Find ways to act positively for Rimutaka Forest Park and for their local bush areas.

Links can be made to:

Science – Making sense of planet Earth and beyond

Students can:

L1.1/4 – share their ideas about physical features and patterns that occur in the Orongorongo Valley and how some of these features may be protected.

Social Studies – Place and environment

Students can demonstrate knowledge and understanding of:

L2.1 – how people's activities influence the Orongorongo Valley environment.

L3.1 – how different groups view and use places and the environment.

L7.1 – why and how people regulate the use of places and the environment.

Social Studies – Time, continuity and change

Students can:

L3.2 – Demonstrate knowledge and understandings of how the past use of the Orongorongo Valley is recorded and remembered in different ways.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
Learning about the environment	Learning in/about the environment	Taking action for the environment
<p>Students can:</p> <ul style="list-style-type: none"> • Investigate the stories of land use (page 33) and the huts (e.g. Stag Hut) that were built in the Orongorongo Valley. • Find out why this area is classified as a 'Forest Park'. • Find out about the way the Department of Conservation classifies the land it manages. 	<p>Students can:</p> <ul style="list-style-type: none"> • Investigate evidence of past land use. • Read the interpretation panel, 'A Rimutaka History,' in the Catchpool carpark. • Observe ways this native forest is used today. • Identify signs of park management that will help to protect this forest park for future generations to enjoy. 	<p>Students can:</p> <ul style="list-style-type: none"> • Investigate past land use in your local area. How has the environment changed over time? <ul style="list-style-type: none"> – Can you identify areas where the environment could be better used or be in a healthier condition for future generations? – If so, consider action you could take to improve it. (Letter to the editor, request for placement of rubbish bins, community clean-up, painted signs).

Additional information to support the activities above

Animal pests in Rimutaka Forest Park	page 30
Possum Picnic	www.doc.govt.nz > Community
Possum hunter – Kevin O'Donnell	page 31
Control options for weeds	page 32
Land use in Rimutaka Forest Park	page 33
Bird presence and frequency survey	page 27
Tracking pests – tracking tunnel plan	page 35

Books

New Zealand Geographic #13 Possums – an ecological nightmare

New Zealand Geographic # 4 Wasps

Turakirae coastal environment

Key focus: Landforms

Students can:

- Use research skills to identify how a landscape can change over time because of natural causes and how people can impact on a fragile environment.
- Consider how different groups of people value this environment and work to protect it.
- Consider how they value their local landforms and how they can take action to protect them.

Links can be made to:

Science – Making sense of planet Earth and beyond

Students can:

L2.1/4 – investigate the physical features of the landscape at Turakirae.

L3.2 – gather information about the features of the Turakirae landscape.

L5.1/2 – investigate the earth movements that have changed this landscape.

L5.4 – research and debate the need to protect this area of international geological significance.

Social Studies – Place and environment

Students will demonstrate knowledge and understandings of:

L5 – why particular places are significant for people.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Study the photo of the raised beaches at Turakirae (page 36; Activity card 2). Four earthquake uplifts (the last in 1855) are preserved as stranded gravel beaches, separated by strips of rocky ground. • Research the Turakirae Landforms (page 36) and make a timeline showing the geological history of the area. • Research the meanings of the words: seismologist, geologist, conservationist. • Check out “Quake Trackers” at www.geonet.org.nz to find out about the latest earthquakes. • Find out about the value/ importance of the area for different groups of people: Maori, conservationists, seismologists, geologists. Consider how they can help us to live/work with our environment in the future. – Read about the Characters of the Coast (page 37). 	<p>Students can:</p> <ul style="list-style-type: none"> • See the combined impact of earth movements and the harsh climate in this coastal area, including raised beaches and higher terraces (west of the Orongorongo River) that were formed by earthquakes during the last 600,000 years. • Investigate the fragile Orongorongo River Valley and see what is happening to the ranges as they move. • Look for signs of the impact people have had on this fragile environment. • Take on the role of a local Maori, geologist, seismologist, conservationist or fisherman and explain how you value the area. 	<p>Students can:</p> <ul style="list-style-type: none"> • Research large earthquakes in NZ and find out how they affected the landscape. (See www.gns.cri.nz > outreach > quaketrackers). Present their findings to others. • Research the past and predict what is likely to happen when another large earthquake occurs. Plan personal, class, school and community precautions that would lessen the effect of the next major earthquake. • Research the history of landforms in your local area. Consider their value to you and to the local community. Consider some actions to protect them.

Key focus: Early settlements

Students can:

- Explore sites that were once occupied by Maori and view evidence of how they used this coastal environment.
- Consider how and why different people value historic sites and how they can help to protect them.

Links can be made to:

Science – Making sense of the nature of science and its relationship to technology

Students will:

L5 – explain how Maori developed/demonstrated an understanding of the living, physical, material and technological components of the environment.

Social Studies – Place and environment

Students will demonstrate knowledge and understandings of:

L5 – why particular places are significant for people.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Look at a map of Turakirae (page 46) and discuss why the Turakirae coast would have been chosen as a place for Maori settlements (page 39). • List some positive/negative aspects of settling at Turakirae. • Think about the possible difficulties of using the coastal area as an access route to the Wairarapa. 	<p>Students can:</p> <ul style="list-style-type: none"> • Look for signs of Maori occupation. • View karaka groves on the Coast Road between the Catchpool Valley entrance and the coast. Karaka were an important food source so are often found where settlements once existed. • Explore remnants of stone walls made during times of Maori settlement. • Experience the harsh environment and look for ways the environment supported people living here. 	<p>Students can:</p> <ul style="list-style-type: none"> • Read about tools and middens found at Turakirae in the late 1960s when the road was bulldozed. Find out what they were made from. Refer to Maori Settlements (page 39). Discuss/write some stories that can be learnt from these artefacts. • Invite a local kaumatua to come and talk about the Maori history of your local community. • Prepare and present a short speech titled "Our knowledge of the past helps us to make decisions for the future."

Key focus: Seal colony

Students can:

- Discover the biodiversity and interdependence that exists in a coastal ecosystem.
- Compare this with, and plan actions to protect, a local ecosystem.

Links can be made to:

Science – Making sense of the living world

Students will:

L1-8 – investigate the seal colony at Turakirae and their relationship with the environment and other living organisms,

L1-8 – investigate the features (and their functions) and adaptations of NZ fur seals.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Find information about the seals that make their home at Turakirae during winter. Consider why this environment is suitable for them. Discuss the food and conditions they need to survive. Predict what might be predators for the seals in this environment. Refer to Wildlife (page 40). • Discuss the word 'biodiversity'. What other animals do you expect to see when you visit Turakirae? Think about how these relate to the seals. • Discuss special features that the plants of Turakirae (page 44) might have to help them survive the salty winds and the sandy ground. 	<p>If visiting during winter you will see the male seals that spend the winter at this colony.</p> <p>Students can:</p> <ul style="list-style-type: none"> • Observe the special features of the seals that assist them to survive in this environment. • Use ID cards to identify other fauna that may be sharing the coast with the seals – banded dotterel, Caspian tern, copper skink, variable oyster catcher, black-backed gulls – and explain why this biodiversity is important. What would happen if one species was removed from this environment? • Observe special features of coastal plants. 	<p>Students can:</p> <ul style="list-style-type: none"> • List the plants and animals seen at Turakirae and use the list to construct a food chain or food web. Write about the interdependence of the animals at Turakirae. Present this information to others. • Use the 'Preservation versus use' (page 45) discussion cards to consider opinions about Turakirae. Share your ideas about its value. • Observe an area at school or locally. Report on the living things that exist there. Could it be improved to provide a healthier environment for local native species of plants and animals? Plan some actions to improve it. Use the Action Plan template provided (page 29).

Additional information to support the information above

Turakirae landforms	page 36	www.eqc.govt.nz (The Earthquake Commission – check out tips on preparing for an earthquake)
Characters of the coast	page 37	
Maori settlements	page 39	
Wildlife (includes seals)	page 40	Books/Information sheets
Plants of Turakirae Head	page 44	<i>Helen is a seismologist</i> Royal Society of NZ, Alpha 111
Preservation versus use – discussion cards	page 45	<i>Reading the Rocks</i> – Lloyd Homer and Phil Moore
		<i>Turakirae Head Scientific Reserve</i> information sheet (pdf on www.doc.govt.nz > Regional information > Wellington > Publications)
		<i>Precious Land</i> , Hayward, NZ Geological Society
		<i>Magnitude Eight Plus – New Zealand's Biggest Earthquakes</i> , Rodney Grapes
Useful websites		
www.gns.cri.nz (The Institute of Nuclear Sciences)		
www.geonet.org.nz (Quake Trackers – find out when and where the latest earthquake occurred.)		

Rimutaka Incline

Key focus: The history of the Rimutaka Incline – the railway and the people

Students can:

- Develop an awareness of people's interaction with, and impact on, this environment through time.
- Debate the importance of keeping records of the past.

Links can be made to:

Social studies – Place and environment

Students will understand:

L2 – how different groups used the Rimutaka Incline in the past,

L3 – how ruins along the old railway track reflect past interactions of people with this area,

L6 – the implications of the closure of the railway track for people who had operated the railway and the environment.

Social studies – Time, continuity and change

Students will understand:

L3 – how the people who built the railroad to the Wairarapa changed the lives of others,

L3 – how the past is recorded and remembered,

L6 – how people find out about the past.

English – Links can be made to a range of oral, written and visual language objectives.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Study a contour map—Wellington to the Wairarapa (page 46)—and consider how people would have travelled between these areas in the past. (People, cattle and sheep had to walk around the coast, until a track was made over the Rimutaka Ranges. On 10 June 1856 the first dray load of goods was taken over the roughly finished Rimutaka Hill Road.) • Discuss why people would have been interested in making access to the Wairarapa easier? (e.g. sheltered, fertile plains) • Research the History of the Rimutaka Incline Railway and the Fell engines (page 47) that operated on it. • Discuss life at Cross Creek during the days of the railway—advantages and disadvantages. Read Memories of a Cross Creek Child (page 50) and compare this with the life of a 10–12 year old today. 	<p>Students can:</p> <ul style="list-style-type: none"> • Visit the site of the Cross Creek community and explore the remnants of the railyards – the ashpit, turntable, water tower, the centre rail that was unique to the Fell engines that operated on the track. Historic photo cards will bring the community alive for students. • Compare photos of the environment 50-100 years ago with what it is like today. • Observe the forest regeneration that has occurred since those photos. • Observe the improvement in the bush since the possum control operations have taken place. 	<p>Students can:</p> <ul style="list-style-type: none"> • Write two diary entries about their trip over the Incline— one with the class and an imaginary one on a Fell engine prior to 1955. Present this information to others. • Write a newspaper report about the accident at Siberia when wind gusts blew carriages down the bank. Include the actions that would be needed to ensure this event was never repeated. • Consider the following: <ul style="list-style-type: none"> – The impact of opening the railway over the mountains in 1878 – The impact of opening the new tunnel through the mountains in 1955. – The closure of the Cross Creek and Summit communities when the Fell engines ceased operation. – List/discuss possible advantages and disadvantages to people, stock and the environment. <p style="text-align: right;">(cont. next page)</p>

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<ul style="list-style-type: none"> • Visit the Fell Engine Museum and look at how the past has been remembered/recorded. • Discuss why recording of the past is important to particular groups of people. Share personal experiences of recording of the past. Find out how different families record the past for future generations. • Find out about the Wairarapa today—what part has the railroad played in the development of this area? 		<ul style="list-style-type: none"> – Think about how you would feel if your community was “closed down.” Share these ideas with others. • Share artefacts from their family’s history and write a story to accompany them. • Ask local elderly people about what the area was like in the past. Collate their memories on video, audio tape, or in writing. • Debate the importance of keeping records of the past. ‘It is/is not important to keep the last Fell engine.’ • Visit www.rimutaka-incline-railway.org.nz to find out about people who want to reconstruct the old railway on the Rimutaka Incline.

Key focus: Technology used in building a railway over mountains

Students can:

- Investigate the strategies used to build a railway track over mountains and the impact this had on the environment.
- Compare this with technologies used in their local environment and their environmental impact.

Links can be made to:

Technology – Technological knowledge and understanding

Students will:

L4 – develop an understanding of the use and operation of technologies associated with the railway.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Identify types of technology (i.e. bridges, tunnels, culverts, etc.) that were needed to make the railway. 	<p>Students can:</p> <ul style="list-style-type: none"> • Observe the range of technology used in the building of the railway—bridges, tunnels, culverts, embankments, windbreaks. 	<p>Students can:</p> <ul style="list-style-type: none"> • In groups, using a range of materials, construct a tunnel, low or high bridge. Compare models for strength. What methods are most successful? • Observe the technology used to support banks or give protection from wind, in your school or neighbourhood. Consider the impact they have on the environment.

Key focus: How the Rimutaka Incline is used today

Students can:

- Investigate how people interact with the Rimutaka Incline environment.
- Consider how they value it personally and whether they feel a sense of responsibility to maintain and improve the quality of this environment.
- Learn how people have taken action to protect and enhance the environment at Rimutaka Incline.
- Plan a project to protect or enhance an area in their local community.

Links can be made to:

Social Studies – Place and environment

L3 – how different groups use Rimutaka incline.

English – Links can be made to a range of oral, written and visual language objectives.

Mathematics – Statistics – Students can gather information about numbers using the park.

The Arts – Links can be made to drama and visual arts.

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Conduct a survey to find out who (in the class, school and/or neighbourhood) has visited Rimutaka Forest Park / Rimutaka Incline and what they did there. • Find out how the following park user groups (page 51) use the Rimutaka Incline for work or recreation: <ul style="list-style-type: none"> – Department of Conservation – Rimutaka Forest Park Trust – Friends of the Fell Society – Rimutaka Incline Railway Heritage Trust – Conservation Corps – Walkers, mountain bikers, hunters 	<p>Students can:</p> <ul style="list-style-type: none"> • Look for signs of impact from people using the track today. • Check whether signage encourages users of the tracks to respect the environment. • Think about possible conflict that may exist between people using the area for different purposes, e.g. walkers and hunters, bikers and walkers. How could any conflict be resolved? • Sketch an area of the park that has personal value or... • Show an example of people's interaction with the environment through a sketch (or a series of sketches). 	<p>Students can:</p> <ul style="list-style-type: none"> • Role play the different users of the Rimutaka Incline. Explain how you value the area as a forest ranger, Rimutaka Forest Park Trust volunteer guide, mountain biker, walker, hunter. • Help to organise a group (family, scout, guide) trip to Rimutaka Forest Park and share their knowledge of the area with this group. • Look for opportunities to be involved in outdoor activities in the local area. Write a report for the school newsletter about outdoor recreational opportunities available in the local area. • Write to the Department of Conservation or the Rimutaka Forest Park Trust to tell them about their visit to Rimutaka Forest Park—note highlights and suggestions for improvements that would enhance school trips.

Key focus: Planning a trip

Students can:

- Take part in preparing for a trip to Rimutaka Forest Park and consider risk minimisation strategies.
- Prepare a risk assessment.

Links can be made to:

Health and physical education – personal health and physical development

Students will:

L1-7 – identify and use safe practices and basic risk-management strategies on a trip to Rimutaka Forest Park,

PRE-VISIT	ON-SITE	POST-VISIT
<i>Learning about the environment</i>	<i>Learning in/about the environment</i>	<i>Taking action for the environment</i>
<p>Students can:</p> <ul style="list-style-type: none"> • Study the Environmental Care Code and Water Care Code. • Locate and discuss their school policy on outdoor education trips. • Consider precautions they will have to take when planning a trip to the Rimutaka Incline, e.g. be aware of exposed top of incline, tunnels, etc. • List the gear they will need (torch, parka, mobile phone). • Make up some scenarios to use as a focus for discussion, e.g. A student in your group slips down a bank, twists his/her ankle and is unable to walk out of the area. What will you do? 	<p>Students can:</p> <ul style="list-style-type: none"> • Observe the safety procedures the class has discussed prior to the trip. • Note any other suggestions for safety procedures that were not previously considered. • In the event of anyone getting injured or a 'near miss', fill out an accident or incident report. 	<p>Students can:</p> <ul style="list-style-type: none"> • Revise the checklists they developed prior to their visit. Add any further safety precautions that they feel are important. Note any extra gear that they would include next time. • Write an Environmental Care Code specific to their school or a local area. • Find a variety of ways to promote their Environmental Care Code to users of the area. • Make one change to their personal actions that will contribute to a healthy environment, e.g. buy less packaging, compost food scraps rather than put them in the rubbish bin. Check out other ideas on www.eeca.govt.nz

Additional information to support the activities above

Map – Wellington to the Wairarapa	page 46	Park user groups	page 51
History of the Rimutaka Incline	page 47	Environmental Care Code	page 52
The Fell engines	page 47	Water Care Code	page 53
Memories of a Cross Creek Child	page 50		

Useful websites

www.gw.govt.nz The Wellington Regional Council is responsible for the area from the Summit tunnel to Kaitoke.

www.mountainsafety.org.nz The Mountain Safety Council provides survival information.

<http://mikes.railhistory.railfan.net> > railways in New Zealand. **For information about the railway and the fell engines.**

www.dalefield.com Meccano models of the engines with explanation about how they worked.

www.memoryline.co.nz To order a Steam Railway video. Sounds of the engines can also be heard on this website.