



**The Guardians of the Sounds presents a
Sustainable Unit of Work for Schools.**

**Youth Guardians of the Sounds
'Totaras for Totaranui'
The Regeneration of our Native Forests**

"I hear and I forget, I see and I remember, I do and I understand" Confucius (551 B.C. – 479 B.C.)



This Guardians of the Sounds project has a long-term goal of re-planting native trees to the Marlborough Sounds. Our forefathers removed 1 million cubic feet of podocarps from the area now is the right time to replant the sounds for a sustainable future.

This is a practical project which will enable us to offer Environmental Education to our younger generations by involving them in the removal of pest species and restoration of the local native forest.

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‘Kiwi Youth Guardians of the Sounds ‘E-Ko Rangers’

We wish to ensure young children are familiar with the values of kaitiakitanga (guardianship), manaakitanga (kindness), and mauri (respect for all living things).

Who are the Guardians of the Sounds?

Guardians have become an officially recognised Charity, as well as a community and environmental group. Residents can unite and be heard by local and national government.

The Guardians Charter covers all the Sounds within the jurisdiction of the Marlborough District Council.

The first object of the Society is:

"To ensure that the natural environment, water quality, ecological bio-diversity, safety of people and wildlife of the Marlborough Sounds and surrounds are managed wisely both now and in the future."

The primary role of Guardians is that of an environmental 'watchdog' to ensure the Sounds are managed in a sustainable way for the benefit of the present and future generations of New Zealanders.

Our main aim is to educate our children to be future Guardians.

To achieve this, we are offering a range of FREE Educational Unit Plans to all schools in Marlborough and beyond.

Totara's for Totaranui - Unit Description:

Our forests and trees are under attack and we need our children to understand that we must act now to ensure their children's, children, get to experience a Native New Zealand. Without immediate action, there will be no native forests left, meaning the loss of our beautiful native birds and animals. This will be an irreversible change for New Zealand and an ecological disaster.

According to the Environmental Foundation, we have less than a century left to save our unique [biodiversity](#) as we see it today. We have already lost a lot to extinction and deforestation, we need to encourage our adults of tomorrow that they need to take responsibility for and make changes now. We need to encourage them to become 'Guardians' of their land.

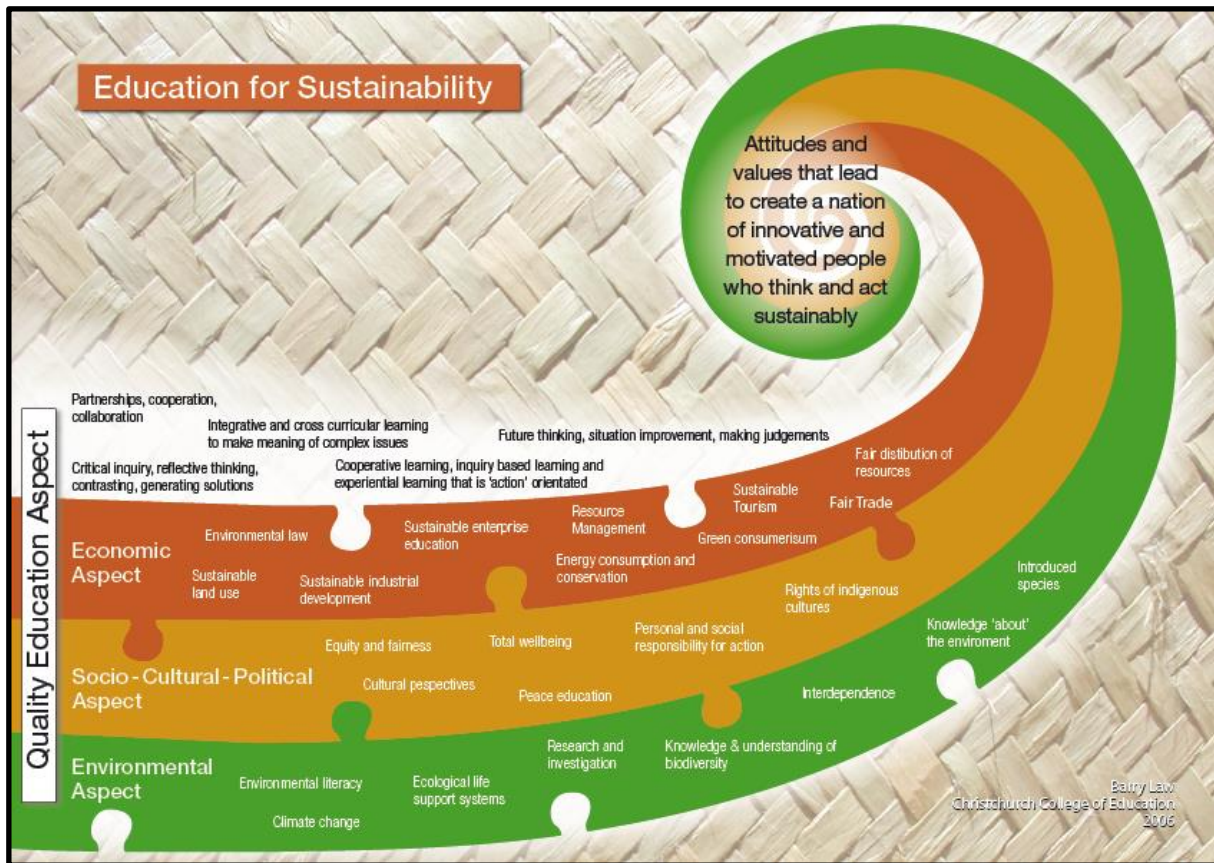
This unit will help them gather relevant scientific information in order to draw evidence-based conclusions. This will hopefully enable them to take informed action where appropriate.

This unit can be followed as it is or adapted to suit each teacher's preferred teaching style. Possible learning ideas have been included but are not meant to be an exhaustive list. Links to online resources have been added to enable teachers to quickly research the topic, some may be appropriate to use as classroom resources depending on year level of class.

Learning objectives have been left out on purpose so they can be added per year group/level as needed by individual teachers.

Learning Areas:	<ul style="list-style-type: none"> ● English ● Social Science ● Maori ● Math ● Design and technology ● Art ● History ● Geography ● Sustainability Interdependence
Education for Sustainability:	<p>Students are encouraged to value ecological sustainability.</p> <p>Key Competency:</p> <ul style="list-style-type: none"> ● Relating to Others - students participate and contribute as a group member and realise the results of their collective actions. ● Participating and Contributing - Students develop an awareness of their own actions on a global scale and a willingness to change behaviour. ● Thinking - Students critically think about why their action may be sustainable or environmentally damaging.
Learning Outcomes:	<ul style="list-style-type: none"> ● Appreciate that people are part of the natural world ● Build knowledge and understanding of ecosystems ● Investigate what is living in a green space ● Understand how birds, invertebrates and other native and endemic animals and plants are part of a healthy ecosystem ● Contribute to increasing biodiversity in a green space ● Reflect on the part they play in the world and what measure they can take to ensure they take sustainable paths in the future
Te Reo/Tikanga Maori:	<p>Seek to understand the customs and traditions of the first Maori settlers to New Zealand. Learn the names of native species or birds, plants and animals. Understand the Māori worldview considers everything living and non-living to be interconnected. - The Māori worldview - te ao Māori</p> <p>Consult with local Iwi in to discuss plans for regeneration</p> <p>Invite elders to explain what traditional knowledge and observations of plants and animals</p>

	<p>have they used to help them make sense of the natural world? Seek advice of best practices when planting native plants, to encourage native birds back.</p>
<p>Achievement Objectives: at the very basic level (to be adapted to appropriate level)</p>	<p>Science - Living world Students will:</p> <ul style="list-style-type: none"> • Life processes • Understand the processes of life and appreciate the diversity of living things. • Ecology • Understand how living things interact with each other and with the non-living environment. • Evolution • Explain how we know that some living things from the past are now extinct.
<p>Level:</p>	<p>Able to be adapted by the teacher to fit any level and year group.</p>



"Mō tātou te taiao ko te atawhai, mō tātou te taiao ko te oranga"

"It is for us to care for and look after the environment to ensure its wellbeing, in doing so we ensure our own wellbeing and that of our future generations"

[TKI - Education for Sustainability](#)

● 1 - Native Forest Destruction - What Happened?

Overview for teachers:

Polynesian and European settlers, and their descendants, put considerable pressure on the indigenous forests. In the space of 650-750 years (roughly 20-30 generations), humans reduced the indigenous forest cover from approximately 85 percent of the land area (23 million hectares) to about 23 percent (6.2 million hectares). [MFE](#)

When the first Polynesians arrived, New Zealand would have been covered in dense forest. They burned off some of the forest so when the early Europeans arrived NZ was still covered in 66% of forest. Today we have approximately 23% left.

Around 1000 AD, before humans arrived in New Zealand, forest covered more than 80% of the land. The only areas without tall forests were the upper slopes of high mountains and the driest regions of Central Otago. When Māori arrived, about 1250–1300 AD, they burnt large tracts of forest, mainly on the coasts and eastern sides of the two main islands (approximately 66%).

By the time European settlement began, around 1840, some 6.7 million hectares of forest had been destroyed and was replaced by short grassland, shrubland and fern land. Between 1840 and 2000, another 8 million hectares were cleared, mostly lowland or easily accessible conifer–broadleaf forest. Today we have approximately 23% of native forest left, most of it was on mountainous land and was dominated by southern beech, which is harder to clear for agriculture. [Te Ara - Interactive map then till now.](#)

For us in the Marlborough Region, in the mid-19th century, the Northern zone was covered in mixed podocarp and beech forest, with subalpine vegetation on the highest peaks of the Richmond Range and on the summit of Mt Stokes in the Sounds. The southern zone was much dryer. It was mostly tussock and subalpine grassland, with some higher-rainfall areas of forest along the Kaikōura coast and in some inland valleys.

The forests in much of the northern zone were cleared for farming in the late 19th century. Original forest survived in the Richmond Range and in high-altitude parts of the Sounds. A rare hebe, is endemic to Hokianga Harbour in Northland, but is also found in a few locations in the Sounds, where it was introduced by Māori.

From the 1970s onwards, extensive tracts of scrubland in the Sounds and on the margins of the Richmond Range were planted in radiata pine, a commercial forestry crop.

Little native forest survives in the Southern zone – much of the original vegetation was burnt in an attempt to clear the matagouri and Spaniard, prickly plants which impeded access. The impact of humans and grazing animals has accelerated erosion, forming large gullies and fans, and filling the river flats and gorges with shingle. [Te Ara Encyclopedia of NZ](#)

Pigs were first introduced to New Zealand by Captain Cook in 1773 when he made three liberations in Queen Charlotte Sound. Early whalers and gold miners also took them to other areas where they escaped or were abandoned. By the time European settlers arrived, feral pigs had spread throughout the entire lowland and much of the hill country of the Nelson/Marlborough area. Subsequent releases by Europeans, of different domestic breeds, increased numbers.

Feral pigs are a major predator of the rare Powelliphanta land snail and are threatening their survival in Kahurangi National Park and the Marlborough Sounds. They not only eat the snails, but they also eat potential snail food and destroy snail habitat by rooting up the litter and low vegetation.

Pigs also threaten regenerating native vegetation by browsing the tops of plants and uprooting undergrowth. They open areas up to infestation from noxious weeds, make areas more prone to erosion and threaten soil and water values. Feral pigs damage crops and pastures and kill lambs. [DOC](#)

Rats, chickens and more pigs were also introduced to New Zealand by Cook's ships. Cook put a ewe and a ram ashore at Ship Cove and was disappointed with his failure to introduce sheep: "Last Night the Ewe and Ram I had with so much care and trouble brought to this place, died, we did suppose that they were poisoned by eating of some poisonous plant, thus all my fine hopes of stocking this Country with a breed of Sheep were blasted in a moment." [The Prow - Journals of Captain Cook, 23 May 1773](#)

New Zealand's biodiversity makes a significant contribution to overall global diversity with an estimated 80,000 endemic species. New Zealand is an internationally recognised world 'hotspot' for biodiversity.

This high endemism is largely the result of our long isolation from other land masses and diverse geography and climate, allowing unique flora and fauna to develop.

However, biodiversity decline is rampant as pests and habitat loss push increasing number of taxa toward extinction. Among our plants, 289 are threatened and 749 are at risk meaning they will be extinct in the next century. This is nearly 40 percent of the total number of New Zealand's indigenous plant species.

Indigenous freshwater fish have suffered even greater declines, with 74 percent currently at risk or threatened. Of the 417-bird species still present in New Zealand (56 are already extinct), over 40 percent are now threatened or at risk. Our indigenous lizards are also in serious risk of decline with approximately 85 percent threatened or at risk.

Our two endemic marine mammals (New Zealand Sea Lion and Maui's Dolphin) are both threatened. Combined with the substantial reduction in the extent and health of indigenous ecosystems, these threatened species statistics indicate the parlous state of our remaining indigenous biodiversity. [Environmental Guide](#)

[Click for a list of website resources](#)

● 2 - Maori Beliefs Towards Sustainability

Overview for teachers:

Education for Sustainability taken from the [TKI website](#).

Education for sustainability and Te Marautanga O Aotearoa

[Te Marautanga o Aotearoa](#) endorses a curriculum to support Māori students in their own world and to connect students purposefully towards contributing to a sustainable environment through holistic learning pathways.

"Toitū te Ao" "A sustainable world"

[Click to enlarge](#)



The carving explores the interdependence and interconnectedness of people and the environment which includes the social/cultural, political, economic, and environmental perspectives of sustainability. It has been created as a visual metaphor representing a Māori world view of education for sustainability.

A range of effective teaching and learning approaches are represented that promote a change in thinking and develop students' and teachers' action competence for sustainability. Images that can be interpreted as symbols for co-operation, inquiry, and experiential learning are part of the Toitū te Ao.

Teachers may choose to share these processes with students and invite them to consider what part of a particular process they are currently working at in their learning.

Cooperative learning

The raranga (woven) whāriki (mat) pattern symbolises cooperative learning. The raranga may reflect:

- the patiki (flounder) swimming collectively, representing learning together for the better of all
- the interconnectedness of all aspects of the environment as the individual strands of the mat weave together to create the whole
- the laying down of a wero (challenge) for people to collaborate to take action for the environment.

Experiential learning

The raparapa (double spiral) pattern symbolises experiential learning. The raparapa may reflect:

- the connections between prior knowledge and new knowledge gained when reflecting on experience
- double loop learning where underlying assumptions of how and why things are done are challenged through reflection on experiences
- the continuous cycle of experiential learning, reflecting, and questioning, leading to

students taking informed action.

Inquiry learning

The poutama pattern (stairway of knowledge) of the tukutuku symbolises inquiry learning. The poutama may reflect the learner:

- moving up and down the stairway and through the layers of the tukutuku as they inquire
- developing new ideas, conceptual understandings, making connections, and building competencies for lifelong learning through the upward step of the poutama
- taking time to practice and use new knowledge and skills as they "rest" on the flattened step of the poutama.

Toitū te Ao was designed by Raukura Gillies for the National Education for Sustainability team of advisors as part of the development of a series of resources to support teacher professional development. The carver was Gavin Britt, with input from Chisnallwood Intermediate students who created the carving. Contributions were also made by the education for sustainability advisors and Tuahiwi School.

The carving has been gifted to the Ministry of Education and UNESCO for the length of the Decade for Education for Sustainable Development 2005–2015.

Toitū te Ao was made using a variety of sustainable materials and taonga species (indigenous natural resources) to highlight the importance of Māori being able to access and use natural resources in order to continue traditional cultural practices.

A Māori perspective of the environment

When the carving was designed and created the artist deliberately interwoven some 'symbols' for us to consider regarding a Māori perspective of the environment. Some of these 'symbols' include:

- Ranginui and Papatūānuku
- Tawhirimātea, Tānemāhuta, Rongomatane, Ruaumoko, and Tangaroa – some of the children of Ranginui and Papatūānuku
- Hineahuone – the first woman and Te Ira Tangata – the whakapapa line for people
- Te Raranga Pātiki – a woven mat in a flounder pattern representing co-operative learning
- Te Potama Tukutuku – step-like pattern representing inquiry learning
- Te Raparapa – double spiral pattern representing experiential learning

Environmental issues represented in Toitū te Ao

Some environmental issues highlighted include:

- Kapowai – the dragonfly and the ecosystem that it is part of
- Kauri Gum eyes – a harvest of kauri trees over 1000 years
- Whole paua shell – a rāhui, maitaitai, or reserves to protect and revitalise kaimoana
- Whale's fluke – New Zealand's growing industry of tourism
- All of the ocean Tangaroa's realm – resource management, quota, foreshore and seabed, land use, pollution
- Hoiho the yellow-eyed penguin – native species and the issues they face from introduced species, predation, habitat loss
- Tuatara as the guardian coming through time

Each of these "symbols" could be starting points for a unit of work or inquiry for students to explore.

[Click for a list of website resources](#)

● 3 - Tree Identification - Native and Invasive

Overview for teachers:

An invasive weed is considered to be anything growing in the wild in an unwanted place that causes damage to our native plants and their ecosystems. In some cases, these invasive weeds are/have destroyed whole plant & animal communities and are changing our landscapes forever.

Possible Learning Ideas:

- What do we already know about plants & weeds?
- What is a weed?
- Why are they a problem?
- Identify the difference between weeds and natives
 - Where did the invasive weeds come from?
 - What have been the consequences of their arrival?
 - What species of plants and wildlife have we lost by the introduction of the weeds?
 - How do they spread?
 - Draw comparisons between the two
- Using books, internet and own knowledge identify weeds and natives in your school
 - Collect leaves & grasses from the school
 - Take photos of bushes and plants for identifying back in the classroom
 - Learn the Maori names for the natives
 - Observe, do you see anything climbing or covering?
 - Do different parts of the school look different?
 - Why could that be? (light, dark, damp, barren)
- Interpret and present your data from what you find. Draw conclusions
 - What weeds do you have?
 - What Natives do you have?
 - Do you have more weeds than natives?
- Draw a map of your school and label your plants, flowers and bush. Note dark, wet, sunny places etc.
- Chose how to present your data to others. Slide show? Poster? Video? Charting? Information sheet?
- Create a 'Wanted' poster about the weeds you found, name and shame them, what are they wanted for? What are they doing wrong?
- What did the native bush look like 250 years ago compared to now?
- Can you find photos of your local area taken years ago to make comparisons?
- Can you ask any older people if they can remember?
- What do you think about what you found in your school?
- Invite local iwi in to talk to you about the plants you found and how Maori have used them over the centuries.
- What could you do next?
- Why does it all matter?

[Click for a list of website resources](#)

Art Ideas:

- Tree art - sketch your tree from above the ground and below it, and label (use YouTube to find a sketching activity suitable for your class)
- Tree/leaf art - what creative way can you bring life to your tree? How about 3D art?
- Leaf art - how creative can you get with what nature has thrown on the floor?
- Natures art - can you create an outdoor collage from what you find on the floor?



● 4 - Why does it all matter? Delicate ecosystems.

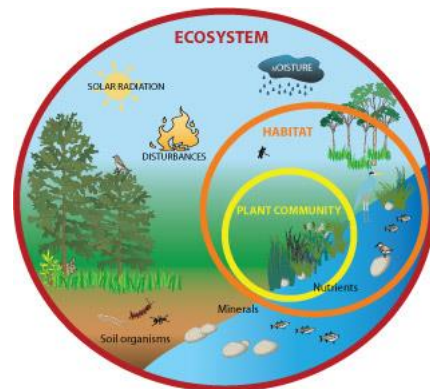
Overview for teachers:

An ecosystem includes all the living things (plants, animals and organisms) in a given area, interacting with each other, and also with their non-living environments (weather, earth, sun, soil, climate, atmosphere).

So, what is the problem with weeds anyway? Some of them look nice, some have flowers, some have fruit and birds and bees, and I like these! What makes our native trees so special? What's wrong with these 'non' natives?

Possible Learning Ideas:

- Why are our trees different to others?
 - Gondwana - what's that all about?
 - How was NZ formed?
 - What makes our trees different?
- What is an ecosystem?
- Practical activity - Take a hula hoop out into the playground and throw it on the floor. Carefully record everything you see inside the hoop from ants, snails, grass, weeds, bark, dead leaves etc. If you have them take some magnifying glasses.
 - Choose another place in the playground and repeat until you have recorded everything you find in 4 separate areas; bush, playground, grassland, shaded etc. ([Online lesson plan](#))
- What are the 3 major components of an ecosystem?
 - Lean them & display in creative poster format?
- What are food chains?
 - What's at the top of the chain in NZ?
 - What's at the top of the chain in the forest in NZ?
 - What's at the top of the chain in the world?
 - Create a mobile of a food chain
 - Create a collage
 - Create a food chain pyramid
 - Create a board game (you got eaten by a falcon go back 1)
 - Get children to create cards of animals, mammals, insects, birds, plants, seeds etc then sort them into appropriate food chains. Make a memory/snap game from the cards.
- What's the difference between a basic food chain and a food web?
- Create your own ecosystem with recycled plastic bottles, water, snails, plants etc. (see appendix for links) (be careful with live animals and always put them back where you found them).
 - Record weekly what happens using digital resources to make a time lapse video - watch examples on YouTube



[Click for a list of website resources](#)

● 5 - Marlborough - Native Tree Study

Prompt Questions:

What native trees do we have in our region? Why are trees important? Which ones are at threat? What other forms of life do the native trees support? What would happen if we lost all our native trees?

Possible Learning Ideas:

- Chose a native tree in the school grounds to study - 'Why my Tree is Great', Top Tree', Top of the Tree Chain'.
- Research about your chosen tree
 - Why do we need trees?
 - What relies on that tree, birds, invertebrates, other trees...?
 - Learn the Maori names for the trees and animal species.
 - What grows beneath it?
 - What does it need to be healthy and survive?
 - What is that under threat from?
 - Are there any traces of insects on your tree?
 - What are they, are they doing any damage?
 - Is there any damage to your tree from animals or humans?
 - Are there any weeds attaching to your tree or damaging its ecosystem?
 - Draw the trees life cycle
 - How does this tree reproduce?
 - Does your tree behave differently in summer and winter?
 - Do any birds appear to your use tree?
 - Spend time watching your tree from a distance
 - Record what birds use your tree at different times of the day
 - Find out what the birds are by downloading bird identification cards.
 - Contribute to the 5-minute survey from DOC
 - How tall is your tree? Estimate.
 - Find out how old your tree might be.
 - How much taller would your tree be in 100 years?
 - In correct ratios draw your tree in comparison to 3 different things, e.g. a car, a house, the Sky Tower
 - How do NZ trees compare to another country of your choice?
 - Create a 'Hug a Tree Week' at your school - what could that involve?
 - Why hug a tree?
 - Pretend to be a tree - excellent resource from DOC ([build a tree](#))
 - Sit below a tree, lie on your back, look up and sketch what you see.



[Click for a list of website resources](#)

● 6 - Let's have a chat about the Birds and the Bees

Overview for teachers:

What relies on our native trees? What happens if we lose our native trees? What has happened in the past? What have we lost? What have we gained? What do we need to do now?

Mammal free to Mammal Armageddon!!

New Zealand was one of the last places on earth to be settled by humans, but it has one of the worst records of native biodiversity loss. Fire, land clearance, over-exploitation of resources and introduced plants and animals have had cumulative and damaging impacts on native biodiversity. As a result, dozens of species have become extinct, and an increasing number are threatened with extinction. [Science Hub](#)

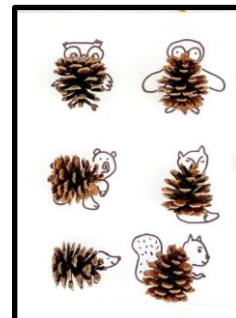
Possible Learning Ideas:

- What are mammals?
- What mammals are native to New Zealand?
- Where did the mammals come from?
- How did they get here?
- What mammals do we have in New Zealand?
- Of these, which ones are classed as pests and threaten our precious ecosystem?
 - Pick a pest mammal to do a case study on. Where did it come from, where does it live, what does it eat, what is it a danger to....
 - Present your findings to the class
 - Explaining why these pests had such an impact on our native trees, birds, insects and all who lives with our trees?
 - Create a poster to display around your school.
 - Consider presenting your facts to your family and neighbours.
 - Create a 'Wanted' poster to display in the school.
- It's not only mammal pests that are threatening our forests, it is also wasps, insects, introduced birds, ants, hedgehogs etc. Our forests are a unique, complex ecosystem with many factors threatening them.
- The [scale insect](#) has a important part to play in this ecosystem and without it our forests, and their inhabitants, would be under real threat.
 - Research this insect using internet resources and books.
 - Discuss its importance for the birds and the forests
 - What is it under threat from?
 - What would happen if we lose these insects completely?
- What about the [bees](#)? Imagine a world without strawberries, kiwifruit, apples, nuts, coffee, chocolate! What is happening to them and why are they important?
- Have you heard about the [Powelliphanta land snails](#)?



- What does extinction mean?
- What birds, insects, amphibians, invertebrates, reptiles are now extinct?
 - Pick an extinct species to do a study on.
 - Why are they extinct? What was their main threat? How different would it be if your bird or animal was still living?
 - If people knew then what we know now, do you think they would have behaved differently?
 - What would you say to Captain Cook or the first settlers in a letter?
 - Reflect on how you might behave differently to past generations?
- What birds, insects, amphibians, invertebrates, reptiles are classed as endangered?
 - Pick one species you would like to help save and learn about their unique ecosystem.
 - What trees/ecosystem does your species need to survive.
 - What would happen if your species lost its trees/ecosystem?
 - What does your species eat or get energy from?
 - What is its main predator/threat?
 - How does your species help with their particular ecosystem?
 - What is pollination and seed dispersal?
 - What impact does that have on your ecosystem?
 - If studying a bird, what does its song sound like?
Or, what noise does your species emit?
 - Revisit Food Webs.
 - After you have done your research, think about how you are going to present your findings. Assembly presentation, blog, news report, PowerPoint presentation, digital display, write to your local paper asking them to print your article?

What's the most ecofriendly/sustainable way you can think of to re-create one of your study species?



[Create a 'Whack a Rat Game: Rat](#)

[Click for a list of website resources](#)

- 7 - What are we already doing to help?
- 7a - Biosecurity measures in place

Overview for teachers:

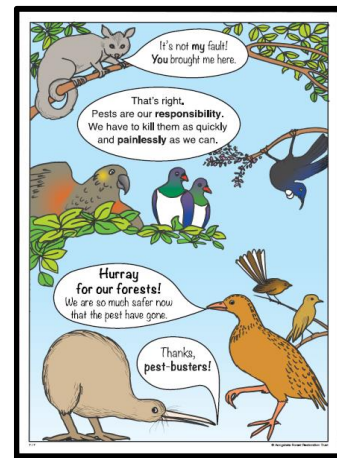
'Predator Free 2050 is an ambitious goal to rid New Zealand of the most damaging introduced predators that threaten our nation's natural taonga, our economy and primary sector.'



Possible Learning Ideas:

- What does predator free mean?
- What is Predator Free 2050 all about?
- What is Conservation?
- Who are the Department of Conservation?
- What is biosecurity?
- What is 1080 all about?
- What do you think about the ways we combat predators?
 - Think critically, Is it ethical or unethical?
 - Reflect, are there any other ways of eradicating these pests?
 - Brainstorm, what ideas could you come up with?
- What are predator free wildlife sanctuaries?
 - [Motuara](#) Island in the Sounds is a creche for Rowi Kiwi
 - Find out about [Operation Nest Egg](#)
 - What do you think about the work they are doing?
 - What else can you find on Motuara Island that is critically endangered?
- What can we do to help?
 - Enhance your school's environment? What could you do to enhance certain ecosystems within your school grounds? Think of the most sustainable ways to make...
 - Make bird feeding stations
 - Create a butterfly garden
 - Make water feedings stations for all birds, bees, insects.
 - Start a compost bin, collect children's food scraps
 - Make nesting boxes
 - Create a 5* Weka motel.
 - Make lizard and gecko hideaways and rock pools
 - Forage for at risk butterflies and bees
 - Create shaded wetland areas
 - Plant podocarps to provide food for kereru
 - When nectar isn't readily available put out a feeder containing sugar

- water to attract tui
- Research what to plant to bring back native birds & bees into your school, consult local Iwi
- Get in touch with the [Sustainability Trust](#) to see if you can partake in one of their free workshops.
- Ask in your school's newsletter, do you have 'Expert' parents that can bring skills to teach you?
- Write to local builder's merchants asking for off cuts of wood, wire, nails, old tools etc.
- Make predator footprint tunnels to record what pests use your school grounds.
- Make [predator catching boxes](#) for the school grounds - ask dads, granddads and uncles along to a working bee.
- Make charts to record what predators you catch, report to DOC
- Make posters to distribute.



[Click for a list of website resources](#)



● 8 - Marlborough - Wilding Pines and other pest weeds

What's the problem with them? I quite like the look of the Alpine forest!

Teacher Overview: *Wilding conifers threaten to permanently alter the unique landscapes that are only found in New Zealand. 20% of New Zealand will be invaded by wilding conifer forests within 20 years without rapid action.*

Wilding conifers currently cover more than 1.8 million ha of land and are spreading at an estimated rate of 5% a year. As wilding conifers overwhelm our native landscapes, they kill our native plants, and evict our native animals.

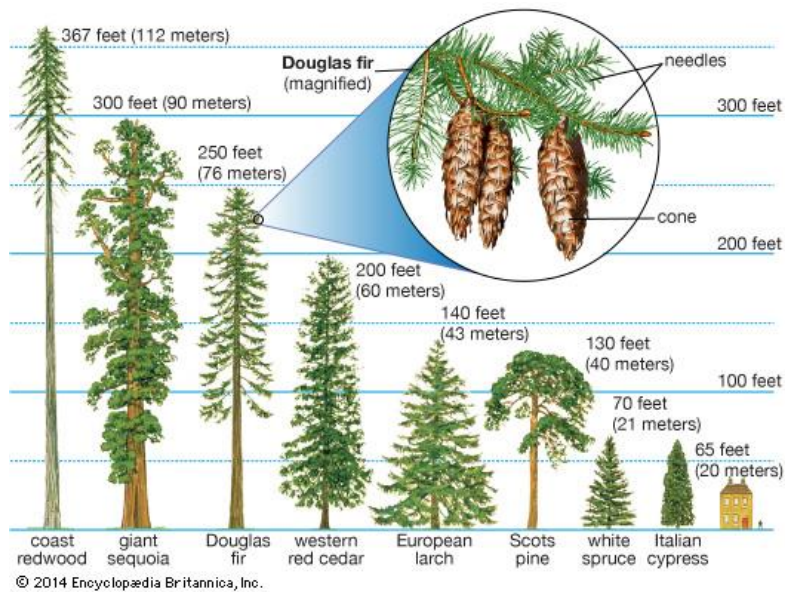
When conifer cones mature on the tree, they open to release masses of wind-blown seeds. These seeds travel kilometers downwind and need no special conditions to take root and grow.

In native forests, wilding conifers compete for space with native trees and plants and don't provide the advantages that native trees do, such as food for native birds or insects. Their needles form an acidic carpet which discourages regeneration of native forest floor species. [DOC](#)

Possible Learning Ideas:

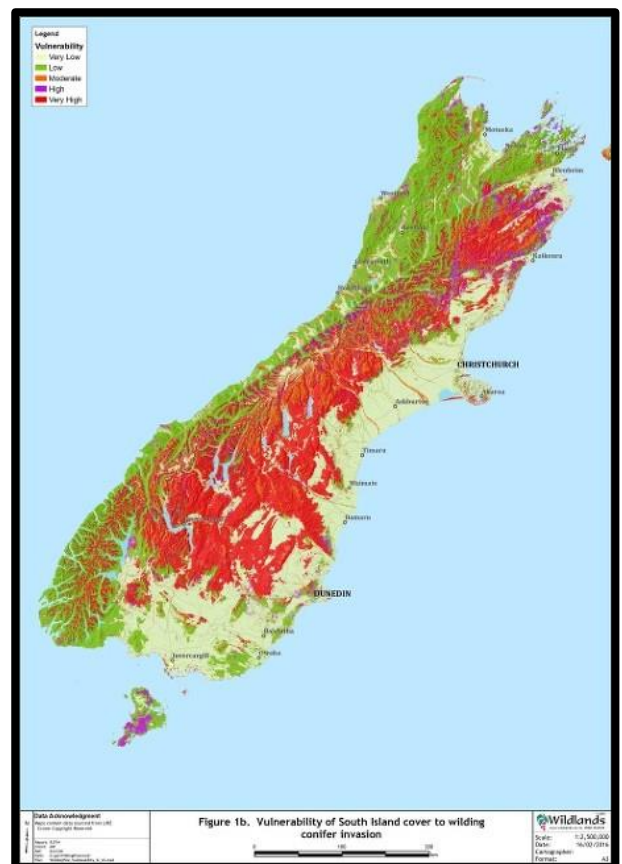
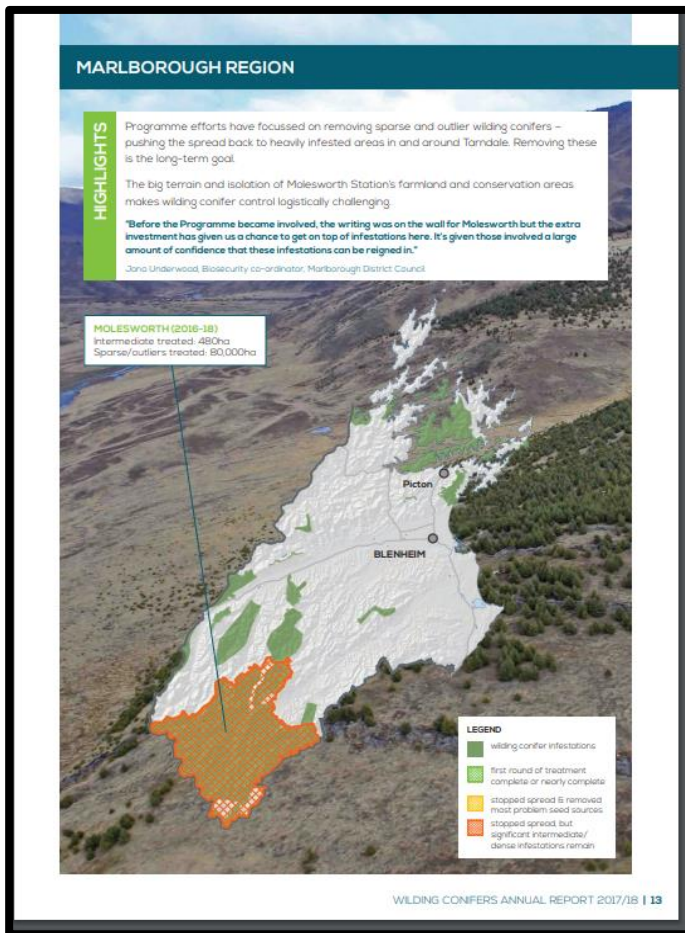
- Wilding pines are not native, so where have they come from?
- How did they get here?
- How long does it take a pine to grow compared to a native tree?
- How high do the pines get?
- What can grow underneath them?
- Why do the pines grow so quickly?
- How do their seeds disperse?
 - Collect a load of tree seeds and paint them in batches of different colours. Each day, count how many seeds you have, record then, go outside to the highest point in your school and throw batches of one of the coloured seeds into the wind then go and measure how far they fly. Repeat each day with a different coloured seed. Each day search for the other colours you have thrown on previous days and record where they are in the school. Have they gone far? Have they disappeared? What has happened to your seeds? How many can you find? How many have disappeared? What does this tell you?
- How old are the trees when the seeds start to disperse?
 - What's wrong with these wilding pines, why don't we like them?
- Are they good for the local biodiversity?
- Are these trees used for anything in New Zealand like furniture making or making paper?
- Do they support any NZ native species?
- Are they supporting our birds native or not?
- What will happen if they keep growing?
 - If they already cover 5% of NZ now and are spreading at 5% per year, using a map of NZ predict by shading in, how much would be covered with wilding pines in 20, 40, 60, 80, 100 years etc.
- How do we get rid of them?

- What are we doing to get rid of them?
- Are they easy to get rid of?
- How much money is the government spending each year on clearing them? What could we be spending that money on instead?
- What other trees and bushes are pests?
 - The diagram below shows a Douglas Fir tree growing to 76 meters. Lay down tip to toe with your classmates until you get to 76 meters. How many lines of children can you make from your whole class? Take photos. Discuss what could live under the shadow of your lines.
 - What else measures to 76 meters? How tall is a house, the Sky Tower, your school, the highest landmark in your area?



[Click for a list of website resources](#)

National Wilding Conifer Control Program




- **9 - Leave a Legacy - Planting Totara's (podocarps) in Tootaranui**

Teacher Overview:

Podocarp trees boast a lineage that stretches back to the time when New Zealand was part of the supercontinent of Gondwana. New Zealand has 15 podocarp tree species, the best known are rimu, kahikatea, miro, mataī and tōtara.

In its natural state, a podocarp forest can be lush with a dense undergrowth of shrubs, ferns and tree-ferns. Over 100 years, Totaras grow up to 30 meters tall, with massive trunks. They were used by the Māori for canoes and carving. Because of the abundant range of fruits, podocarp forests also support larger communities of insects and birds such as bellbird, tūī, kākā and kea. [DOC](#)

Possible learning ideas:

- Plant trees, lots of them :) Join the Guardians of the Sounds in Picton to plant some Totara's in Tootaranui. We locally source our seedlings and plant where the need is the greatest in Tootaranui, using GPS we track each tree individually. Mainly funded by the Rata foundation and Marlborough District Council, individual donations and membership. So far, we have planted over 500 podocarps at the Domain in Picton.

- Come and plant your own tree and leave a legacy to your children's, children. Imagine them visiting the tree you planted in 100 years' time being able to say...." My Great Grandfather planted that tree way back in 2019!" Come and be a Youth Guardian of the Sounds.
 - Draw a picture of you and your seedling now. Then estimate how tall it will be in 60 years' time and draw another picture. This time with your Grandchildren in the picture, with lots of trees and birds all around.

Make A Difference



- Join a conservation organisation of your choice.

- After this terms teaching, what has inspired you, something you have learnt about or something else you are thinking about?
- What organisation could you join to help with the conservation efforts?
 - Research local conservation groups that are working in your area.
 - What are they doing to help?
 - Could you offer them any support?
 - Could you ask them to come in and do a talk at your school? Write a letter to ask them.
 - What questions could you ask them?
- Could you do some fundraising?
 - Organise a 'Bring and Buy' sale at your school (Reduce, reuse, recycle - bring in your unwanted stuff and buys someone else's).
 - Have a bake sale.
 - Car wash day.
 - Mufti days.
 - Wheels at school day.
 - Movie night.
 - Ask your PTA to Organise an adults only evening, have a raffle?
 - What ideas could you come up with?
 - Once you have decided, ask your Principal and/or PTA for a meeting to propose your ideas.

After reflecting on what you have learnt so far. Why not write a letter to the Government with your comments?

The current Minister for Conservation is: Hon Eugenie Sage, e.sage@ministers.govt.nz
 Find out who your local M.P. is and invite them into the class for a Question and Answer session. What would you ask them?

[Click for a list of website resources](#)

[Love Song to the Earth](#) - Learn this song and present at assembly (make your own version with your own video captions).

- **10 - Presentation Time & EOTC**

Children now choose how they want to present all their new-found knowledge.

Posters, story books, computer presentation, play scripts, Blog, assembly etc.

Quality Learning Experiences Ideas:

School:

Planting at school day

Create a veggie garden at school day

Start a compost heap

Making pest catcher boxes

Enhancing the school environment

Fundraising afternoons

Pick up rubbish in the school/community afternoon

Weeding in the school/community afternoons

Invite in 'Experts' for question and answer sessions

EOTC Ideas:

- Go out and about in your local area exploring the local Ecosystems (hula hoop activity)
- Come and be a Youth Guardian of the Sounds and plant a Totara with the Guardians of the Sounds in Picton and log it into the GPS for prosperity.
- Visit Essons Valley in Picton with a Guide from the Guardians of the Sounds, learn about the regenerating bush and native species that live there.
- Go to Motuara Island with Guardians of the Sounds, to visit this premier predator free wildlife island and imagine what life was like many years ago.
- Join DOC delivering baby Kiwis onto Motuara Creche Island, see the Kiwis in real life and learn all about Operation Nest Egg and what it is all about.
- Visit Kaipupu Wildlife Sanctuary with the Guardians of the Sounds to learn about the ecosystem and regenerating bush.

- **11 - Possible Next Steps - Inquiry:**

What now?
What did I learn?
What do I want to learn now?
I have cats, are they a problem? What can I do about that?
What difference can I make?
What about the ocean's ecosystems, are they under threat?
Is plastic damaging our environment and oceans?
What about other countries ecosystems, is it just NZ or elsewhere?
Are the forestry pines causing a problem?
Why do we keep getting so many landslides?
Where does all the rubbish go?
Is that smoke that comes out of the steam train good for us?
Should we still be using petrol cars?
Lime scooters don't use petrol.
Why is all the ice melting?
???????????



- 12 - Some games with an environmental theme

1: **Create a Whack a Rat Game** - let the rat/rodent down the tube and whack it at the bottom :)

[Create a 'Whack a Rat Game: Rat](#)



2: [Make your own stuffed animal](#) for the Whack a Rat/Rodent game. Once you have made your game, use it as a fundraiser at school, charge \$1 for 3 hits?

3: **Scavenger Hunt** & make insects and animals from the forest; can you make a butterfly, a weta, an ant, a stick insect???

Make it into a relay game, with 6 in a team first person runs off and picks up 4 items from nature's floor (don't pick or kill anything) and goes to a different place so the team members can't see what they have picked, next does the same until everyone in the team has 4 items each. Once all back together, and only once they are all together, can their share their treasure. With 5 minutes on the clock, what insects or animals can they make?



4: Recycling Relay:

You Will Need:

- 3 labeled boxes:
- 1 labelled stick,
- 1 labelled leaves,
- 1 labelled other.

This game would work well for age groups. Basically, you have to gather a pile of nature's floor material from the school playground.

Now place the three boxes at the end of the playing area. The Reuse box should be placed the closest; the Recycling Box should be placed midway, and the Landfill Box must be furthest away.

The playing teams have to figure out what they have to do with each item and then run to the bucket and place in the appropriate bin. The more items they reuse, the more items they can recycle. It also increases their chances of winning. Besides, it will reinforce the idea that reusing is cheaper and requires less resources than recycling. Recycling, on the other hand, uses fewer resources than land filling.

At the end of the game, you have to review each item in the bin. The team members have to explain how they would reuse an item in the reuse bin to confirm that the items put in the recycling bin are actually recyclable in the community. You are even free to deduct the points if you feel the item put in any bin is incorrect.

5: Pick up Sticks, with real sticks!

6: Creep and Steal - One child sits blindfolded with lots of sticks around him. The rest of the children, one or two at a time, attempt to creep up and steal a stick from him and return safely. If the blindfolded child hears a noise, he points in that direction.

7: Silly Symphony - The purpose of this game is to discover the beautiful sounds that can be created by the natural objects in our environment. Each player is given 10- 15 minutes to find objects in nature that make a noise when banged together, or blown on, or rubbed together.

Players bring back their 'instruments' and a conductor is chosen, who organizes the group into a semi -circular orchestra. Each musician is allowed to 'tune' his instrument, so the rest of the group can hear the different sounds. If a player can play more than one instrument at the same time, he is welcome to do so.

The conductor can then choose a familiar tune with an easy rhythm and lead his orchestra in song. Let the players make requests for songs they would like to play; give musicians the opportunity to work on 'solos' that they can perform for everyone.

8: [Environmental Games](#) - Pages and pages of fun environmental games to play.

- **13 - Conservation Awareness Dates for your Calendar**

World Wetlands Day

2 February each year

[World Wetlands Day](#) marks the date of the adoption of the Convention on Wetlands on 2 February 1971. This is an international date with a different theme set each year by the Ramsar Secretariat.

World Wildlife Day

3 March each year

[World Wildlife Day](#) is a global celebration of wildlife and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Seaweek

3 – 11 March 2018

[Seaweek](#) is a national celebration of our marine environment.

March - Whio Awareness Month

[Whio Awareness Month](#) is always a busy month promoting awareness of this iconic duck.

International Day for Biological Diversity

22 May

[United Nations International Day for Biological Diversity](#) increases understanding and awareness of biodiversity issues.

Arbor Day

5 June each year

[Arbor Day](#) inspires people to plant, nurture and celebrate trees. To celebrate Arbor Day you could:

- plant a native tree in your backyard
- [volunteer for a project](#)
- [simply head outdoors and enjoy New Zealand's wild places.](#)

World Environment Day

5 June each year

[World Environment Day](#) is an international United Nations event that creates awareness of the environment and encourages political attention and action.

National Volunteer Week

17–23 June 2018

[National Volunteer Week](#) is New Zealand's largest celebration of volunteering and civic participation.

Annual garden bird survey

30 June - 8 July 2018

[The annual garden bird survey](#) is a citizen science project established to monitor the population trends of common garden birds in New Zealand.

World Ranger Day

31 July each year

[World Ranger Day](#) is a chance to celebrate our hard-working rangers, and remember former rangers.

Te Wiki o Te Reo Māori (Māori Language Week)

10 to 16 Mahuru 2018

[Te Wiki o Te Reo Māori](#) 2018 theme is 'Kia Kaha te Reo Māori - Let's make the Māori language strong'.

Conservation Week

15-23 September 2018

[Conservation Week](#) is run by DOC each year to raise awareness of the benefits of conservation and encourage people to get involved.

Mental Health Awareness Week

8–14 October 2018

[Mental Health Awareness Week](#) is about connecting with nature is good for mental health and wellbeing. This ties in with World Mental Health Day on Tuesday 10 October.

Save Kiwi Month

October

[Save Kiwi Month](#) urges all New Zealanders to join the fight to save our national icon.

International Decade of Biodiversity

2011–2020

[The United Nations decade on biodiversity](#) is from 2011–2020.

● **14 - Tony Ryan Thinkers Keys**

Tony Ryan - "THE NEED FOR CREATIVE THINKING - The majority of the Keys place emphasis upon the development of innovative and creative thinking. I have done this for three important reasons:

1. Creative thinking can be exciting and enjoyable. This active participation can then create a positive attitude towards the learning process.
2. The stimulation of creativity in learning heightens the emotional link with that learning. This emotional involvement boosts the effectiveness of our memory systems.
3. Developing our creative potential will strengthen our ability to cope with change. If there is one thing that we can guarantee into the 21st century, it will be the exponential rate of change that will affect the world. When our thinking is open ended and accepting of new ideas, we become much more capable of adapting to these changing circumstances".

<http://www.tonyryan.com.au/blog/wp-content/uploads/Thinkers Keys Version1.pdf>

See above for more Keys and ideas for making your own.

Example of Thinkers Keys Created for - Totaras for Totaranui. - easily adapted for each year level

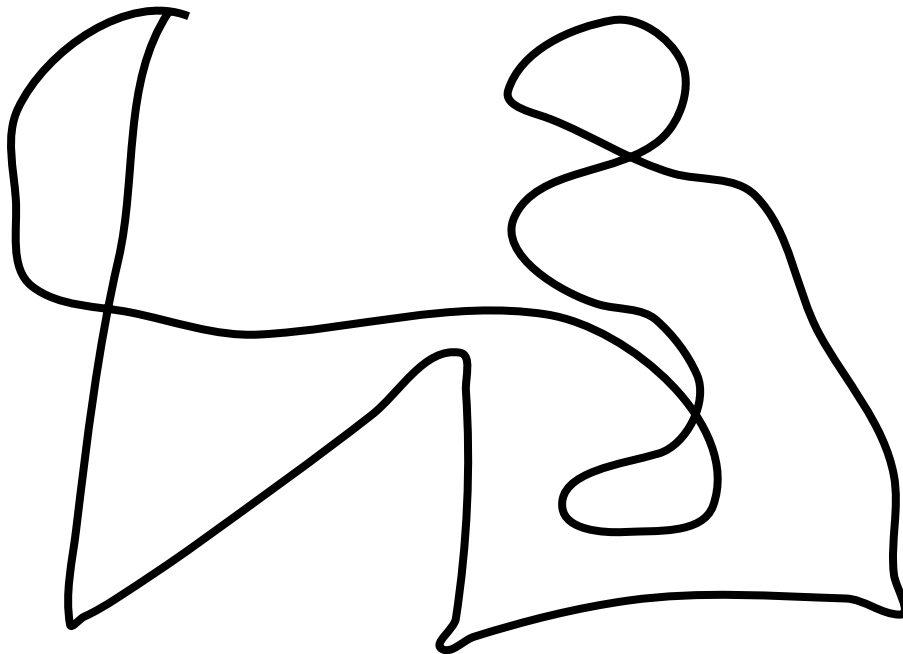
Animals That Live Under Ground L16 Thinkers Keys

<p style="text-align: center;">The Reverse Key</p> <p>Name 10 things you couldn't do without trees.</p>	<p style="text-align: center;">The Combination Key</p> <p>Combine the features of a chainsaw and bucket to create a new greenhouse for growing plants. Do a drawing and list its important features</p>
<p style="text-align: center;">The Question Key</p> <p>Write Questions that can only be answered with these words; rodent, trees, skinks, conservation, regenerate, ecosystems and podocarp.</p>	<p style="text-align: center;">The Inventions Key</p> <p>Invent a machine that could take out all the wilding pines in one go.</p>
<p style="text-align: center;">The What If Key</p> <p>What if we never had pest mammals?</p>	<p style="text-align: center;">The Ridiculous Key</p> <p>Write 3 reasons why this would be a good idea. We should chop down all the trees.</p>

<p align="center">The Alphabet Key</p> <p>Make a list of things about environmental issues from A - Z</p>	<p align="center">The Commonality Key</p> <p>What do totara trees and possums have in common?</p>
<p align="center">BAR (Make it Bigger, Add something to it, Replace something on it) Key</p> <p>BAR a 'pest catcher box'. Label and explain the changes and why.</p>	<p align="center">The Different Uses Key</p> <p>Find 10 different uses for stoat.</p>
<p align="center">The Disadvantages Key</p> <p>List all the disadvantages of trees and how could you improve them?</p>	<p align="center">The Prediction Key</p> <p>Write a paragraph about what our world would look like if we had nobody that cared about regenerating our forests.</p>

The Picture Key

Compile a list of 10 things that the diagram could represent to do with vo.



- **15 - EOTC Authentic Learning Experience**

After completing the school unit, 'Totaras for Totaranui', why not come and experience our beautiful native bush with qualified guides.

Let **E-Ko Tours** (our education provider) take you where the bush is in the Majestic Marlborough Sounds and surrounding area. Experience the best educational experience with the award winning local wildlife and conservation experts.

E-Ko Tours Education Program is part of who they are. Learn from their qualified staff who are immersed and passionate about Conservation and Wildlife of New Zealand. Their boats are staffed with an experienced and knowledgeable skipper and an educational guide. Their land transport has a driver who is also an experienced guide.

Take the stress out of teaching :)

Tours run every day from April to November. Transport can be arranged at cost price.

Enquiries can be made for tours outside of these days.

Full details of all tours and a list of what to bring, can be obtained from Carolyn Edwards at education@theguardiansofthesounds.co.nz

- 16 - Who are we - [E-Ko Tours](#)?

E-Ko Tours Picton – simply the best and only Eco-friendly Picton tour operator that shows and teaches you about the majestic Queen Charlotte Sounds and the surrounding area, the history, the stories, the bush and birds, all who live here.

Our ethos is to connect Humans with Nature. To give you an 'Adventure for your Soul!' Sustainability and Conservation Ethics Guide Us Forward.

Good Tourism/Education business is about respecting nature and conserving for our future and our children's future. Staff are trained as Marine Mammal Medics through [Project Jonah](#). Along with the Guardians of the Sounds, we also work with the [Department of Conservation](#) to locate baby Kiwi chicks onto Motuara Island as part of the [Kiwis for Kiwi](#) program.

Ethical Conservation Organisation = E-Ko

Our Passion and enthusiasm for our local environment comes across in our onboard wildlife commentary, educational activities and up-close encounters, while we explore the majestic Marlborough Sounds. We believe in having FUN while showing off our amazing backyard and getting you involved in the experience to create special memories.

We are owned and operated by local mariner Paul Keating and we are lucky enough to have several passionate wildlife specialist guides with multiple degrees and language skills. We have Carolyn Edwards, a fully trained and registered primary school teacher, who has been writing the education units.

Paul and Carolyn are also members of the [Guardians of the Sounds](#) (GOS), Paul is the Chairman and Carolyn the Secretary. Together E-Ko Tours are working very closely with GOS and its members on these educational experiences.

The first object of the Society is "to ensure that the natural environment, water quality, ecological bio-diversity, safety of people and wildlife of the Marlborough Sounds and surrounds are managed wisely both now and in the future."

The primary role of Guardians is that of environmental 'watchdog' to ensure the Sounds are managed in a sustainable way for the benefit of the present and future generations of New Zealanders.

● **17 - What other units are available from The Guardians of the Sounds?**

- HMS Endeavour and Captain Cook - 250 Celebration
- Ocean of the Sounds

Keep an eye on our website for new Units arriving soon.

Appendix:

Appendix 1:

Website links to resources and further reading - [1: Native Forest Destruction](#)

Appendix 2:

Website links to resources and further reading - [2: Maori Beliefs towards Sustainability](#)

Appendix 3:

Website links to resources and further reading - [3: Tree Identification - Native and Invasive](#)

Appendix 4:

Website links to resources and further reading - [4: Why does it all matter? Delicate Ecosystems](#)

Appendix 5:

Website links to resources and further reading - [5: Marlborough Native Tree Study](#)

Appendix 6:

Website links to resources and further reading - [6: Let's have a chat about the Birds and the Bees](#)

Appendix 7:

Website links to resources and further reading - [7: What are we already doing to help?](#)

Appendix 8:

Website links to resources and further reading - [8: Marlborough - Wilding Pines and Other Pests.](#)

Appendix 9:

Website links to resources and further reading - [9: Leave a Legacy](#)

Appendix 1:

- [Native Forest Destruction - what happened?](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[MFE](#)

[Te Ara - Interactive map then till now.](#)

[Te Ara Encyclopedia of NZ](#)

[DOC](#)

[The Prow - Journals of Captain Cook, 23 May 1773](#)

[Environmental Guide](#)

Appendix 2:

- [Maori Beliefs towards Sustainability](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[TKI website.](#)

Appendix 3:

- [Tree Identification - Native and Invasive](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Te Ara - Invasive weeds and pests](#) - all our introduced species

[Science Hub Our Native Plants](#)

[Weedbusters](#) - great website with lots of resources, information, leaflets etc.

[DOC - Invasive weeds](#) - identify, managing and naming weeds

[Identifying weeds](#) - record what you see and look at what others have found, search your specific area

[2 minute weed challenge](#) - Competition video making

[Kids Conservation Club](#) - Short play about weeds

[Fun graphical flow charts with activities for kids to identify trees](#)

Appendix 4:

- [Why does it all matter? Delicate ecosystems.](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Gondwana explained and is the uniqueness of NZ](#)

[Wiki Kids Gondwana explained](#)

[Movie Primeval NZ](#) - what NZ was like before humans came

[Explanation on how Gondwana evolved with graphics](#)

[Pangea explanation worksheet with images](#) - worksheet

[An ecosystem explained](#) - video

[Ecosystem explained](#) - Weebly.com

[A video explaining what is an ecosystem](#)

[A video explains ecosystems](#)

[Major components of an Ecosystem](#)

[Food chain video](#) - for younger children

[Science Hub](#) - our unique ecosystem introduction

[Science Hub](#) - our changing ecosystem timeline

[Science Hub](#) - lesson plan on bush ecosystems

[Study Jams](#) - a video explaining the components of an ecosystem

[Mensa for Kids Lesson Plan](#) - USA 5th grade.

[Create your own bottle ecosystem](#) - recycle some plastic bottles to make an ecosystem

[Kids Conservation, Forest and Bird](#) - create a leaf ecosystem

[Video - create your own ecosystem](#)

[PDF What's the difference between a food chain and a food web?](#) - Download PDF

[Food chain collage](#) - art

[Te Papa](#) - Excellent resource for teachers giving you the knowledge and confidence to teach science to kids.

Appendix 5:

- [Marlborough - Native Tree Study](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Native Tree app to download](#)

[Exploring Native Trees](#) - Excellent presentation from DOC about trees

[Trees for Survival](#) - get your school involved in planting trees

[NZ Arts Online](#) - Moving Landscapes - art and dance activities

[Renew and Restore Trees](#) - Environmental Education about Trees to children

[How to protect our forests](#) - What the tourists are told about our native trees and forests

[Forest time lapse video](#) - not NZ but still interesting

[DOC conservation week](#) - September, put it in your diary

[The Tree Council](#) - Record trees and tree loss in your area

[How to estimate the age of a tree](#) - Wiki How, age of trees
[How to measure the height of a tree](#) - Measuring tree height
[Kids Conservation, Forest and Bird](#) - Connecting Kiwi kids to wildlife
[Kids Conservation, Forest and Bird](#) - Trees matter
[Kids Conservation, Forest and Bird](#) - Bug Corner, identifying bugs
[Kids Conservation, Forest and Bird](#) - Animals/Bugs all around us
[Kids Conservation, Forest and Bird](#) - Investigate the trees
[How to determine the age of a tree using math](#)
[Marlborough.com](#) - Wildlife and Wilderness of the Region
[5 Minute bird check](#) - DOC survey

Appendix 6:

- [Let's have a chat about the Birds and the Bees](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Trees and Ecosystems](#) - Science Learning Hub
[Native Plants that attract birds](#) - Forest and Bird, also includes a table of what birds eat
[What are mammals](#) - Kids Britannica, mammal explanation
[Introduced Birds and Mammals](#) - research paper with tables and charts
[Introduced Species](#) - Te Papa Museum
[New Zealand Native Species](#) - DOC New Zealand Native Animals
[What is extinction](#) - National Geographic for Kids
[Extinct New Zealand Birds](#) - NZ Birds Online
[Table of birds extinct and endangered](#) - DOC
[Endangered and threatened birds](#) - NZ Birds Online
[Video David Attenborough](#) - Up close with Native Birds
[Endangered and threatened species](#) - National Heritage NZ
[Bird Songs](#) - Search for birds and listen to their songs
[Wikipedia](#) - List of extinct species in NZ
[Local Honey Producer Marlborough Sounds](#)
[Poo power game to download](#)

[Video NZ Odyssey Part 1, Part 2, Part 3, Part 4, Part 5, Part 6, Part 7 Part 8, Part 9, Part 10, Part 11](#), An English family build a home close by some New Zealand bush and attempt to bring back native birds - see how they get on.
[Film on NZ forest birds](#)
[NZ on Screen](#) - various wildlife movies

Appendix 7:

- [What are we already doing to help?](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Predators and Pests](#) - DOC list of Pests

[Predators and Threats](#) - DOC Predators and Threats

[MPI](#) - Ministry of Primary Industries, Biosecurity New Zealand

[Predator Free 2050](#) - Excellent Lesson Plans on all areas

[Pet Buster Posters](#) - downloadable posters

[Conserving Native Birds](#) - Excellent lesson plan from Science Hub

[Education in Conservation](#) - Excellent resources/lesson plans DOC

[Kiwi Guardians](#) - DOC Children's Guardian Schemes, Marlborough and beyond

[Teaching conservation](#) - List of useful websites

[Video about pest eradication](#) by a school in Auckland

[Video documentary](#) - NZ and its unique species and what threatens them

[Scale insects and Honey Dew decline](#) - Maori Science - Restoring Native Forests, excellent video resource

[Operation Nest Egg](#) - Kiwis for Kiwi - great resources about saving our Kiwi Birds

[Wildlife sanctuaries](#) - Te Ara, map of sanctuaries

[Wildlife Sanctuaries](#) - in the Marlborough Sounds

[The Morgan Foundation](#) - Charitable Trust, good articles and possible funding options

[Rata Foundation](#) - Possible funding opportunity

[Trees for Survival](#) - Environmental Education program to encourage young people to plant trees

[Minister For Conservation](#) - What's happening at the Top?

[Our Local Doc Ranger](#) - Wendy Sullivan our predator free ranger will be able to advise you on all aspects

[Become a DOC Pest Detective](#) - learn how to set pest tunnels to monitor pest activity

[Become part of Enviroschools](#)

[What to plant for birds](#) - DOC list and what's flowering when

[Attracting Lizards into your green space](#) - How to attract lizards

[Kids Conservation Club](#) - lots of activities

[WWF](#) - Funding opportunities for conservation projects

Appendix 8:

- [Marlborough - Wilding Pines and other pest weeds](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Wilding Pines are pests](#) - DOC and the problems with these pests.

[Study Jams](#) - Pine cone seeds

[DOC Video about chopping down wilding pines](#)

[Video from Marlborough Sounds Restoration Trust](#) - The work taking place in the Sounds Video, the dangers of the wilding pine - Us or them?

[Marlborough Sounds Restoration Trust](#) - what are they doing to help?

[Wilding Conifers by Region](#) - Wikipedia

Appendix 9:

- [Leave a Legacy - Planting Totara's \(podocarps\) in Totaranui](#)

Online Resources for Teacher Inquiry and possible classroom resources:

[Picton Dawn Chorus](#)

[Sounds Restoration Trust](#)

[Guardians of the Sounds](#)

[Forest and Bird](#)

[Grovetown Lagoon](#)

[Kaipupu Wildlife Sanctuary](#)

[Tui Nature Reserve](#)

[Zero Invasive Predators](#)

[Department of Conservation](#)

[Operation Nest Egg](#)

[Tree Fact Shifts](#) - download tree factsheets from DOC

[Podocarp Information](#) - DOC information about podocarp trees

[Trees for Survival](#) - Environmental Education which involves planting trees