



Manaaki Taiao

Nurture Nature

Ko tō ao, ko tōku ao
Your world is my world

There's no substitute for real world experience.



Manaaki Taiao - Nurture Nature

Does your school want to take long-lasting action for the environment?

Are you ready to go beyond a one-off field trip and make a real connection and ongoing commitment to a park near you?

Manaaki Taiao – Nurture Nature supports schools to connect to a local green space by committing to a three-year planting programme. It includes a partnership with a park ranger and/or a local community group. It involves taking part in planning, planting and maintaining your local planting project.

The programme takes a local curriculum approach, with place-based learning experiences, led by rangers or local experts in the community, in partnership with teachers. It operates within a kaupapa Māori framework, and considers school kaupapa and local community needs.

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Find out more about this programme

🌐 Visit our website www.ccc.govt.nz/parks-and-gardens/learning-projects-and-programmes/manaaki-taiao

✉ Email us at parks.volunteers@ccc.govt.nz

Basic framework for a minimum three-year commitment

This is a guideline and can be negotiated to better fit the needs of the school and the project.

Year 1
<p>Four sessions</p> <p>Introductory session</p> <p>Meet your ranger/coordinator. This session will involve visiting your park, talking about the importance of native flora, eco-sourcing and the right plant for the right place. We will discuss the best time to plant, how to plant, maintenance and start looking at a planting plan. You can then share information about what's important to your school.</p> <p>LEOTC programme or similar for primary/secondary</p> <p>Choose a LEOTC programme to supplement your planting project's outcomes.</p> <p>'Explore Your Park Day' for early learning centres</p> <p>Discover what's living in your park using nature and play-based activities.</p> <p>Planting day</p> <p>Get your hands dirty! Set up your photo point to monitor your plants, plant and water your trees.</p> <p>Maintenance day</p> <p>Weed, water and watch over your plants</p>
Year 2
<p>Two sessions</p> <p>Maintenance day</p> <p>Learning how to weed, water and watch over your plants.</p> <p>A day of choice</p> <p>The focus of this day will be decided by the school group and ranger/coordinator.</p>
Year 3
<p>One session</p> <p>Learning how to weed, water and watch over your plants.</p>

Te Whāriki Early Childhood Curriculum and Manaaki Taiao – Nurture Nature

Te Whāriki – Early Childhood Curriculum				
FOCUS: Community-led planting projects				
<p>Big ideas</p> <p>Everything is interconnected; which plants you choose and where you get them from –eco-sourcing – is very important (the right plant in the right place); planting is just the first step – the ongoing care of plants is vital for success.</p>				
<p>Vision</p> <p>Competent and confident learners and communicators, healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society.</p> <p>Principles</p> <ul style="list-style-type: none"> empowerment whakamana holistic development kotahitanga family and community whānau tangata, relationships ngā hononga. <p>These principles are the foundations of curriculum decision making and a guide for every aspect of pedagogy and practice.</p>	<table border="1"> <thead> <tr> <th style="background-color: #4db6ac; color: white;">Strand</th> </tr> </thead> <tbody> <tr> <th style="background-color: #e0f2f1;">Belonging - Mana Whenua</th> </tr> <tr> <td> <p>Over time and with guidance and encouragement, children become increasingly capable of:</p> <ul style="list-style-type: none"> Making connections between people, places and things in their world te waihanga hononga Taking part in caring for this place te manaaki i te taiao Understanding how things work here and adapting to change te mārāma ki te āhua o ngā whakahaere me te mōhio ki te panoni Showing respect for kaupapa, rules and the rights of others te mahi whakautu <p>New Zealand Curriculum learning links are:</p> <ul style="list-style-type: none"> Social sciences: students explore how societies work and how they can participate and take action as critical, informed and responsible citizens. Science: students explore how both the natural and physical world and science itself work so that they can participate as critical, informed and responsible citizens in a society in which science plays a significant role. </td> </tr> </tbody> </table>	Strand	Belonging - Mana Whenua	<p>Over time and with guidance and encouragement, children become increasingly capable of:</p> <ul style="list-style-type: none"> Making connections between people, places and things in their world te waihanga hononga Taking part in caring for this place te manaaki i te taiao Understanding how things work here and adapting to change te mārāma ki te āhua o ngā whakahaere me te mōhio ki te panoni Showing respect for kaupapa, rules and the rights of others te mahi whakautu <p>New Zealand Curriculum learning links are:</p> <ul style="list-style-type: none"> Social sciences: students explore how societies work and how they can participate and take action as critical, informed and responsible citizens. Science: students explore how both the natural and physical world and science itself work so that they can participate as critical, informed and responsible citizens in a society in which science plays a significant role.
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Education for Sustainability

Education for sustainability is about learning to think and act in ways that will safeguard the future wellbeing of people and our planet.

It goes beyond “caring for the environment”. It is about the global social, cultural, and economic wellbeing of all people – as well as our planet, and the biodiversity that relies upon it. It encompasses an overlapping matrix of global citizenship, democracy, and the environment.

In the context of the early years curriculum, Education for sustainability involves ideas and practices associated with sustainability, climate change, critical thinking, identity, community, and kaitiakitanga.

Kaitiakitanga, meaning stewardship, protection, and preservation, is a taonga of the Tiriti o Waitangi. It is a way of respecting and caring for the environment, based on a Māori worldview.

‘Kaiako support mokopuna to engage respectfully with, and to have aroha for, Papatūānuku. They encourage an understanding of kaitiakitanga and the responsibilities of being a kaitiaki by, for example, caring for rivers, native forest, and birds.’ (Te Whāriki 2017, page 33)

There are three dimensions to Education for sustainability, each suggesting a different role for learners and teachers. While the first two are important, it is working in the third dimension – education for the environment – where the impact of learning is most substantial and sustainable.

- Education in the environment – for example, visiting a place of environmental interest
- Education about the environment – for example, researching places, things, and events (including cultural narratives)
- Education for the environment – for example, tamariki as active citizens (civic actors) and agents of change with a degree of action competence to advocate for a healthy environment and society

The Manaaki Taiao programme’s aim is for the children to create and implement their own planting project as part of supporting the ‘Education for the environment’ dimension. In doing so, they feel empowered and not overwhelmed.

Contribution - Mana tangata

Over time and with guidance and encouragement, children become increasingly capable of:

- Treating others fairly and including them in play | te ngākau makuru
- Recognising and appreciating their own ability to learn | te rangatiratanga
- Using a range of strategies and skills to play and learn with others | te ngākau aroha

New Zealand Curriculum learning links are:

- Health and physical education: Students learn about their own wellbeing, and that of others and society, in health-related movement contexts.
- Learning area: Learning languages: Students learn to communicate in additional languages, develop their capacity to learn further languages, and explore different world views in relation to their own.

Exploration - Mana aotūroa

Over time and with guidance and encouragement, children become increasingly capable of:

- Playing, imagining, inventing and experimenting | te whakaaro me te tūhurahura i te pūtaiao
- Moving confidently and challenging themselves physically | te wero ā-tinana
- Using a range of strategies for reasoning and problem solving | te hīraurau hopanga
- Making sense of their worlds by generating and refining working theories | te rangahau me te mātauranga

New Zealand Curriculum learning links are:

- Science: Students explore how both the natural and physical world and science itself work so that they can participate as critical, informed and responsible citizens in a society in which science plays a significant role.
- Technology: Students learn to be innovative developers of products and systems and discerning consumers who will make a difference in the world.
- Health and physical education: Students learn about their own wellbeing, and that of others and society, in health-related movement contexts.
- Mathematics and statistics: Students explore relationships in quantities, space and data and learn to express these relationships in ways that help them to make sense of the world around them.

Putting it all together

An example

Context or topic	Education for the environment as an understanding for students to develop	Sustainability issue	The vision for action – what students might do that targets the sustainability issue
<ul style="list-style-type: none"> • Native plants and eco-sourcing • Biodiversity • Insects • Birds 	Tamariki as active citizens and agents of change with a degree of action competence to advocate for a healthy environment and society	Loss of biodiversity and habitats for a range of species	<ul style="list-style-type: none"> • Native plantings • Bird forests • Pa harakeke



The New Zealand Curriculum and Manaaki Taiao – Nurture Nature

The New Zealand Curriculum	
FOCUS: Community-led planting projects	
<p>Big ideas</p> <p>Everything is interconnected; which plants you choose and where you get them from – ‘eco-sourcing’ – is very important in having the right plant in the right place; planting is just the first step – the ongoing care for plants is vital for success.</p>	
Key Competency Focus	Learning Area
	Levels 1-2
	Levels 3-4
	Science
<p>Participating and contributing:</p> <p>Learners have the opportunity to actively engage with their school and wider community about biodiversity enhancement, protections and restoration. Through their curiosity they generate their own knowledge and use this to develop suggestions, activities, pathways and resources which they share with relevant community groups or businesses.</p> <p>Using language, symbols and texts:</p> <p>Learners explore and have the opportunity to use a variety of methods to communicate information, experiences and ideas.</p>	<p>Living world</p> <p>Life processes</p> <ul style="list-style-type: none"> Recognise that all living things have certain requirements so they can stay alive. <p>Ecology</p> <ul style="list-style-type: none"> Recognise that living things are suited to their particular habitat. <p>Evolution</p> <ul style="list-style-type: none"> Recognise that there are lots of different living things in the world and that they can be grouped in different ways. Explain how we know that some living things from the past are now extinct.
	<p>Living world</p> <p>Ecology</p> <ul style="list-style-type: none"> Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced. <p>Evolution</p> <ul style="list-style-type: none"> Begin to group plants, and other living things into science-based classifications. Explore how the groups of living things we have in the world have changed over time and appreciate that some living things in New Zealand are quite different from other living things in other areas of the world.



Education for Sustainability	Social Studies	
<p>Education for Sustainability is about learning to think and act in ways that will safeguard the future wellbeing of people and our planet.</p> <p>Concepts</p> <p>Central concepts that students can develop understanding of include:</p> <ul style="list-style-type: none"> sustainability – the ability of individuals, groups, and communities to meet their needs and aspirations without compromising the ability of future generations to meet theirs equity – respect for all life, social justice, intergenerational equity, finite resources interdependence – biodiversity, community, cultural diversity, democracy, globalisation responsibility for action – taking action, informed decision-making, citizenship, consumerism, enterprise, resilience, and regeneration. <p>Community-led planting projects work most effectively as part of an Education for Sustainability inquiry learning programme. Teachers or facilitators using an inquiry learning approach seek to:</p> <ul style="list-style-type: none"> encourage students to formulate their own questions in a chosen area of study enable students to research their questions using a variety of methods and contexts provide opportunities for students to present their learning to their peers, and sometimes to the wider community, in a suitable way assist students to reflect upon and evaluate what they have learned generate ideas for further study and/or action based upon their learning. 	<p>Students will gain knowledge, skills, and experience to:</p> <p>Level 1:</p> <ul style="list-style-type: none"> Understand how belonging to groups is important for people. Understand that people have different roles and responsibilities as part of their participation in groups. Understand how places in New Zealand are significant for individuals and groups. Understand how the cultures of people in New Zealand are expressed in their daily lives. <p>Level 2:</p> <ul style="list-style-type: none"> Understand how cultural practices reflect and express people’s customs, traditions, and values. Understand how places influence people and people influence places. Understand how people make significant contributions to New Zealand’s society. Understand how the status of Māori as tangata whenua is significant for communities in New Zealand. 	<p>Students will gain knowledge, skills, and experience to:</p> <p>Level 3:</p> <ul style="list-style-type: none"> Understand how cultural practices vary but reflect similar purposes. Understand how people view and use places differently. <p>Level 4:</p> <ul style="list-style-type: none"> Understand how exploration and innovation create opportunities and challenges for people, places and environments. Understand events have causes and effects. Understand how formal and informal groups make decisions that impact on their communities. Understand how people participate individually and collectively in response to community challenges.
	English	
<p>Purposes and audiences</p> <p>Level 1: Recognise how to shape texts for a purpose and an audience.</p> <p>Level 2: Show some understanding of how to shape texts for different purposes and audiences.</p> <p>Ideas</p> <p>Level 1: Form and express ideas on a range of topics.</p> <p>Level 2: Select, form, and express ideas on a range of topics.</p>	<p>Speaking, writing, and presenting processes and strategies</p> <ul style="list-style-type: none"> Integrate sources of information, processes, and strategies with developing confidence to identify, form and express ideas. <p>Purposes and audiences</p> <p>Show an increasing understanding of how to shape texts for different purposes and audiences</p>	



The last point – action – is central to the inquiry learning approach. The action-inquiry method seeks to engage students in contemporary environmental issues and to meet the challenges of living sustainably.

The Nurturing Nature programme’s aim is for your students to create and implement their own planting plan as part of a wider inquiry. In doing so, they feel empowered and not overwhelmed by their chosen sustainability inquiry.

Technology	
<p>Technological Practice - Planning for practice</p> <p>Level 1:</p> <ul style="list-style-type: none"> Outline a general plan to support the development of an outcome, identifying appropriate steps and resources. Brief development - Describe the outcome they are developing and identify the attributes it should have, taking account of the need or opportunity and the resources available; Outcome development and evaluation - Investigate a context to communicate potential outcomes. Evaluate these against attributes; select and develop an outcome in keeping with the identified attributes. <p>Level 2:</p> <ul style="list-style-type: none"> Planning for practice - Develop a plan that identifies the key stages and the resources required to complete an outcome. Brief development - Explain the outcome they are developing and describe the attributes it should have, taking account of the need or opportunity and the resources available. Outcome development and evaluation - Investigate a context to develop ideas for potential outcomes. Evaluate these against the identified attributes; select and develop an outcome. Evaluate the outcome in terms of the need or opportunity. 	<p>Technological Practice - Planning for practice</p> <p>Level 3:</p> <ul style="list-style-type: none"> Undertake planning to identify the key stages and resources required to develop an outcome. Revisit planning to include reviews of progress and identify implications for subsequent decision making. <p>Level 4:</p> <ul style="list-style-type: none"> Undertake a plan that includes reviewing the effectiveness of past actions and resourcing, exploring implications for future actions and accessing of resources, and consideration of stakeholder feedback to enable development of an outcome.

Putting it all together			
An example			
Context or topic	Concept of Education for Sustainability as an understanding for students to develop	Sustainability issue	The vision for action – what students might do that targets the sustainability issue
<ul style="list-style-type: none"> Native plants and eco-sourcing Biodiversity Insects Birds 	<p>Interdependence</p> <p>We are learning about how living things work together to meet their needs.</p>	<p>Loss of biodiversity and habitats for a range of species</p>	<ul style="list-style-type: none"> Native plantings Bird forests Pā Harakeke

Recommended LEOTC programmes

Learning through Action

Council provides free environmental and city infrastructure programmes that provide authentic learning experiences through hands-on activities.

Themes include: conservation of water, ecosystems, sustainability of resources, organic waste cycle, biodiversity, impacts of pests, geology, outdoor survival, waste management and native trees and plants.

Community planting as a 'take action' component is a great fit with these programmes:

Biodiversity

- Junior Park Explorers - Ngā Kairangahau Paaka
- Park Detectives - He whatu kāhū, he tōu tīrairaka
- Freshwater Frolicking - Te whawhewhawhe ki rō waimāori

Governance

- Have your say - Nāu te kii
- Future Proof: Climate Change - Kaitiakitanga

For more information or to book please email LTA@ccc.govt.nz

www.ccc.govt.nz/the-council/learning-resources



Early Childhood - Nature Play

For early childhood centres looking for help and support with nature play there are a few options in Christchurch offering programmes, experiences and professional development.

- Little Kiwis Nature Play www.littlekiwisnatureplay.com
- Elements www.elementsnature.co.nz/programmes



The Department of Conservation website has lots of inspiration and resources for nature play. www.doc.govt.nz/get-involved/conservation-activities/let-nature-in

Other LTA providers

Environment Canterbury provides free facilitated education programmes, resources, youth engagement events and hosts the Enviroschools programme in Canterbury.

- Waitaha wai: An education programme for Canterbury teachers.
- Kaitiakitanga

www.ecan.govt.nz/get-involved/youth-engagement-and-education

The Department of Conservation has a wide range of excellent environmental education resources for self-directed learning. To support your planting action, we highly recommend: Exploring your local environment.

www.doc.govt.nz/get-involved/conservation-education/resources/exploring-your-local-environment

Waterway-focused programmes that can sit alongside riparian planting projects include:

- Working Waters Trust Te Tuna Tāone – Urban eel programme www.workingwaters.org
- EOS Ecology - Nature Agents www.natureagents.co.nz



Working within a kaupapa Māori framework

A kaupapa Māori framework is based on the fundamental values of Māori creation stories and are used to ground us in time and place. To create a framework, we have chosen the kaupapa (Māori fundamental values) which best align with the goals of our programme and then developed tikanga (practices and procedures) through which those kaupapa may be realised.

Kaupapa of Manaaki Taiao – Nurture Nature Programme

Whakapapa

This is how we understand everything – how we interact and relate to everything around us. Our creation story is told as whakapapa-genealogy and humans are the last to arrive; so plants hold seniority to us.

Each of the trees have their own whakapapa and they don't necessarily all get along. Visit wild places, look at the natural groups of plants to see who gets along the best and plant what you see.

“You are not just planting trees, you are planting yourselves”

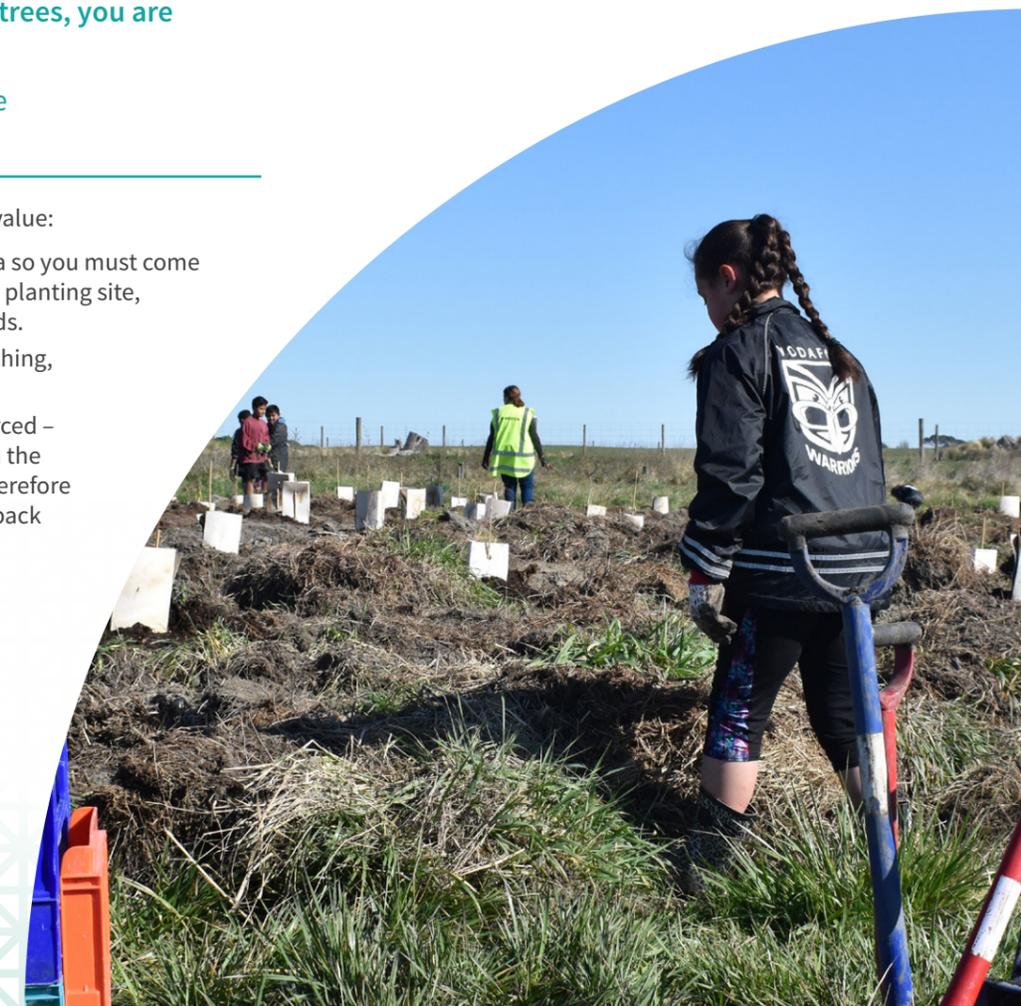
– Peter Ramsden Rangitāne
Ngāi Tahu – Koukourarata

Our tikanga – how to express this value:

- Your plants are your whakapapa so you must come back to care for them. Visit your planting site, show it to your family and friends.
- Return over summer to do mulching, watering and weeding.
- Ensure your plants are eco-sourced – grown from seed collected from the immediate environment and therefore natural to the area – and plant back what belongs here.

“Whakapapa (genealogy) is used by Māori to explain the creation of the universe and everything in it. It explains our position as humans in the grand scheme of things. For Māori, the first human being was a woman, Hineahuone, who was fashioned from the earth at Kurawaka. Our world view is that humanity arose organically from the environment and this means that our tikanga reflect and govern how we are meant to interact with the natural world.”

– Peter Sciascia
Ōnuku, Wairewa, Koukourārata





Whanaungatanga

Whanaungatanga is how people are related to everything; kinship, sense of family connection – a relationship through shared experiences and working together, that provides people with a sense of belonging.

The principle of working together to support each other across all generations; there is place of value for everyone. A place for everyone and for all skills.

Genuine collaboration and establishing enduring, sustainable relationships is of the utmost importance. Recognising and valuing our connections to one another is an important part of whanaungatanga, as we are all part of a multitude of different collectives.

Our tikanga – how to express this value:

- Encourage participation from students across the school years and classes – each young person has value and something to contribute – and work in a way that enables their participation.
- Think about the work and empower each student to add something of value to the project; younger ones can gather empty pots; older students pre-dig the ground so it's soft enough for younger students to dig a hole.
- Students work in pairs – encourage schools to bring senior students to work alongside juniors, to allow them to be mentors and leaders in a tuakana-teina relationship.
- In a learning environment that recognises the value of ako (learning together), the tuakana-teina roles may be reversed at any time. Students are given opportunities to lead when they are the subject-matter experts.
- Invite family and wider community to planting events, and celebrate these connections.
- Encourage whānau participation in the learning opportunities in school and outside of class as well.

Kaitiakitanga

This value encompasses the concepts of stewardship and guardianship. It also goes beyond these concepts and includes respect, responsibility, sustainability and reciprocity.

Kaitiakitanga is about our connection with the land, and means working sustainably to protect and nurture the environment in its entirety (land, air, water), along with tikanga and te reo Māori for the use, enjoyment and prosperity of present and future generations.

Kia tū kahikatea i te uru
Let the kahikatea stand tall
in the grove of trees.

This whakatauki-proverb represents whanaungatanga - respect, fostering and maintaining important relationship within iwi and the community.

Kahikatea are always planted in uru (groves). They may be the tallest tree but they are shallow-rooted. Their root systems interweave and lock together, giving the strength of unity, of the whānau.

Planting several kahikatea close to each other in a grove gives them the best chance of survival in their new environment.

Paparoa School in Rutland Reserve

“Look at your environment, see what was there before and plant that. The mauri is still there – just diminished.”

– Peter Ramsden Rangitāne
Ngāi Tahu – Koukourarata

Our tikanga –how to express this value:

- Pick a park near your school, preferably within walking distance so students can visit often to explore, regularly spend time in their space and establish a connection to it.
- Learn and explore your park to get an understanding of what a planting project here means to the wider environment, plants, animals, biodiversity, recreation and other values.
- Explore how the park and the activity fits within the school's cultural narrative and values.
- Look through the list of the plants for each project so you can get to know the Māori names and values of each plant before you do your planting.
- Explore relevant whakataukī and how they might inform and enrich the planting project.
- Use te reo Māori terms, plant names and tikanga Māori (appropriate actions and protocols).

Manaakitanga

This value is about uplifting and acknowledging the mana of others, via the expression of reciprocity, hospitality and care for each other and the world around you. Genuine collaboration and establishing enduring sustainable relationships with your park is of the utmost importance.

Each group that comes to a park to plant or do maintenance adds to the mana of a place.

Our tikanga –how to express this value:

- Give mana to the names of our places, parks and plants – use te reo Māori names for places and for plants and take care to pronounce them correctly – this shows respect.
- Start with a karakia and thank the young people for their contribution to this place. If your school does not have its own karakia, ask the ranger for one.
- Acknowledge the student's contribution at the end of the event. When appropriate and practical; finish with kai.
- Share your school's values and motivations for participating and acknowledge these in your korero.
- Celebrate Matariki and invite your wider community to join you in reflection and remembering those who have passed, as well as looking ahead to the New Year.

Korihi te manu
Tākiri mai i te ata
Ka ao, ka ao, ka
awatea
Tihe mauri ora

The bird sings
The morning has
dawned
The day has broken
Behold there is life.



Waiata

Source: Te Wao Nui a TāneTāne, Hirini Melbourne (1999)

Mai i te Kākano

*Mai i te kākano
ka tipu te purapura
I ruia mai i Rangiatea
Mai i nga pūtake
Ka u mai te waiora
I u mai i a Papatūānuku
Mai i ngā raureka
ka ū mai te hau ora
I ū mai i a Ranginui
Ka puawai, ka pu ngā hae
Ka pua nga hua, ka kākano anō
Ko tātau rā i tēnei wā
tihei mauri ora
tihei mauri ora*

From a seed

From a seed
a sapling grew
That was sown from Rangiatea
Through the roots
flowed the waters of life
that came from Papatūānuku
Through the sweet leaves
came the breath of life
Of Ranginui
It blossoms and is pollinated
it fruits and sees again
hence as today
to continue the cycle

Rangiatea is the house of Io the Supreme Creator from where the kits of knowledge were given to Tāne the god of the forest.

Ranginui is the sky parent and Papatūānuku is mother earth. The song is about the important role that young ones play in ensuring the survival of culture.

What is your school karakia?

Te Reo Māori kupu (words)

<i>He aha te rākau hei whakatō mā tāua?</i>	What tree shall we plant?
<i>Tukua te tipu</i>	Let's plant!
<i>Kōkō</i>	To dig up, to plant
<i>Kōkihi</i>	To shoot, begin to grow
<i>Karapu</i>	Gloves
<i>Hō</i>	Spade
<i>ngāi tipu</i>	Flora
<i>Rākau</i>	Tree
<i>Paiaka</i>	Root (of a tree)
<i>Weri</i>	Rootlet
<i>Rau</i>	Leaf
<i>Puihi</i>	Bush

<i>Puihi</i>	Bush
<i>Ngahere</i>	Forest
<i>Whenua</i>	Land
<i>Manu</i>	Bird
<i>Toke / noke</i>	Earthworm
<i>Ka ua</i>	It rains
<i>Hau</i>	Wind
<i>Ka makariki</i>	It's cold
<i>kōanga</i>	Spring
<i>Raumati</i>	Summer
<i>Ngahuru</i>	Autumn
<i>Hōtoke</i>	Winter

Taonga trees of Ōtautahi-Christchurch

Hīnau	Kōtukutuku
Mātai	Kōwhai
tōtara	Mānuka
Kāpuka	Māpou
Kānuka	Tī kōuka





Manaaki Taiao – Nurture Nature Toolkit

Planting and restoration – why, what and how?

Why plant?

All restoration projects should begin with a vision. There are many reasons to start a restoration project. You need to decide why this project is important to you. This will help you decide what and where to plant and how to measure your success.

For example, if your project is to enhance habitat for tuna-longfin eel in your local stream, then you know you will be planting along the very edge of the water with plants that will overhang into the water, creating shade, cover and food.

Ecological reasons:

- To repair and restore damaged ecosystems e.g. sand dunes
- To provide habitat for animals e.g. fruiting trees for kererū
- To take action for the environment and combat climate change

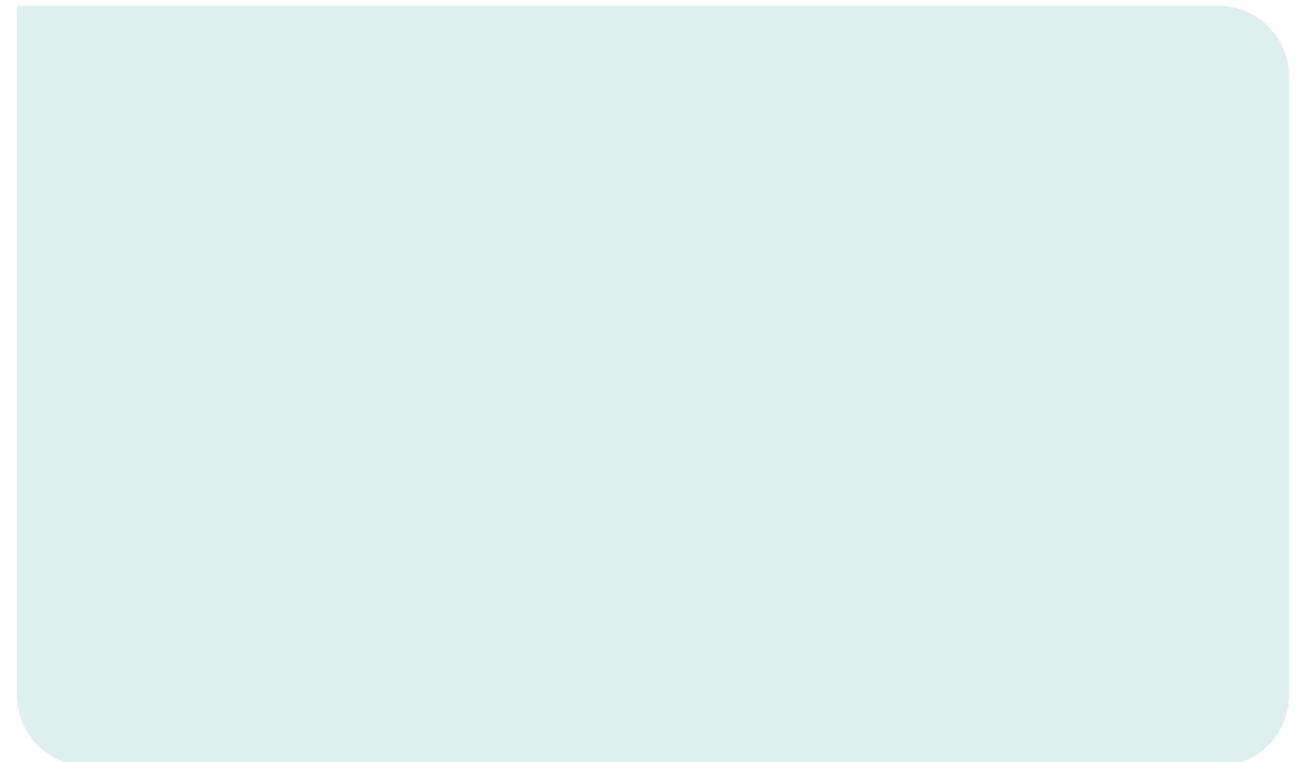
Social and cultural reasons:

- To connect with local community and create a sense of place - turangawaewae
- To give back to the community and take pride in their contribution

Educational reasons:

- To connect to a specific inquiry learning project
- To support your school's wider learning outcomes or focus
- To connect and demonstrate your school's values and culture

What is your vision?



Planning the next stages of your project

DOC's 'restoration through the seasons' poster www.doc.govt.nz/get-involved/conservation-education/resources/restoration-through-the-seasons outlines the activities for a successful restoration project throughout the year. Or you could try planning your project around maramataka, the traditional Māori lunar calendar.

Simple planning template

Step number	Details of step	Timing
1		
2		
3		
4		
5		

Resources

What we need	Where could we get it?	Cost
Plants		
Plant guards and stakes		
Camera/photo point marker		
Tools; e.g spade, gloves, buckets		
Weed mats and/or mulch		
Total cost:		\$

People

Who could help?	What could they help with?

Planting Guide

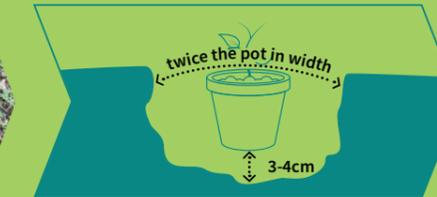
Follow these steps to give your plant the best chance of survival

Prepare

Skim off surface vegetation



Dig the hole



Check the size of the hole



Plant

Weed it



Remove plant from the pot



Plant it



Squeeze pot at base or tap sides with a spade handle.

or

Tear the milk carton at the corner.

Put the plant in the hole, hold it upright and fill the hole with loose, crumbly soil to ground level.

Use your fist or foot to compact the soil and create a shallow basin to collect rainwater.

Protect



Keep grass and roots well away from your plant so they don't resprout. If available use a weed mat and cage.

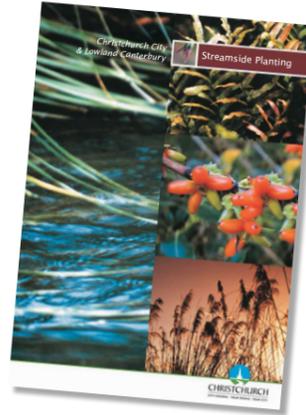
Join in on one of our maintenance days... or come back any time to free your plant from weeds.

What to plant

1. Look at what's already there, what belongs and what doesn't.
2. Research what should be there.

These online resources will help you decide what species to plant:

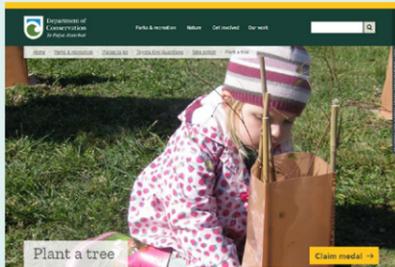
- Council Streamside Planting Guide 
- Christchurch ecosystems and plant guides (Di Lucas)
www.lucas-associates.co.nz/christchurch-banks-peninsula/christchurch-ecosystems
- Canterbury Native Plant lists by area (DOC)
www.doc.govt.nz/our-work/motukarara-conservation-nursery/canterbury-native-plants-by-area



Resources



You Tube: **Plant like a ninja**
www.youtube.com/watch?v=jYSA4EFS0Xg&ab_channel=WellingtonCityCouncil



Toa Tiaki Rākau: **Plant a tree activity**
Toyota Kiwi Guardian
www.doc.govt.nz/parks-and-recreation/places-to-go/toyota-kiwi-guardians/take-action/toa-tiaki-rakau--tree-planter/

Our Planting Guide (see previous page) provides general instructions on how to put your tree in the ground correctly to make sure it survives. But different environments and sites will have different conditions, so these may have slightly different ways of doing things. Always follow the guidance of your ranger or local expert on the day.

If you have planting experts among your students, why not give them a chance to show leadership and share their knowledge with their peers?

So you've planted a tree - What next?

Planting is only the first step in the restoration process. It is really important that you return to care for your plants for at least two to three years. Your plants will need help to compete with weeds and grass to get the sunlight, water and nutrients they need to thrive.

Three simple steps:

- 1. Weed:** Let them breathe - stop weeds from strangling the plants when they're young and stealing their food, water or sunlight. Regularly return to your project site to remove the grass and weeds from around each plant. You can add mulch to hold moisture and help stop weeds.
- 2. Water:** Water to help the roots grow deep and strong. When you go for a walk, bring your drink bottle and share a drink with your plant.
- 3. Watch them grow:** Keep coming back! Visit your plants with your friends and family, tell them about it. You are part of this plant's story, and it is part of yours. When you visit, you can weed, water, and remove rubbish from your plant's surroundings, and watch it grow.

www.treesthatcount.co.nz/resources

Survival Guide

Putting a plant in the ground is only the first step

Maintenance is key

Maintenance is essential for the survival of restoration plantings, especially in grasslands. It's essential we open the plot to light, suppress weed competition, maintain moisture around the root ball, and to re-cage the plant if needed.

Follow this process twice a year, for three to five years, until the crown of the tree is above grass level.

Hand weed around the stem of the plant.

Cut surrounding grass low to the ground in a 30cm radius around the plant.

Gather cut grass and mulch a thick layer around the plant to cover the entire weed mat area.

Check the cage or plant guard is firmly replaced around the plant.



Before release



After release

Measuring success by outcomes – next level monitoring

What was your main reason for starting this project? Was it to increase biodiversity? Provide habitat and shelter for birds? To provide shade for in-water wildlife or prevent bank erosion? These questions will help determine what other monitoring you might decide to put in place. Outcomes measuring will be entirely dependent on what your vision for the project was in the first place.

Monitoring lizards

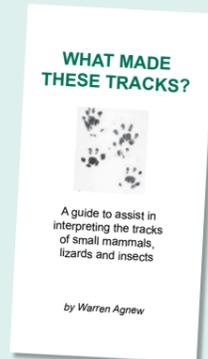
Tracking tunnels with ink cards are usually used to monitor small predators like mice and rats, but can be used to see if lizards are present as well. Use banana as bait. Note that only trained scientists are permitted to handle lizards.



DOC's Toyota Kiwi Guardian programme has some resources to help you:

www.doc.govt.nz/parks-and-recreation/places-to-go/toyota-kiwi-guardians/take-action/attract-lizards-to-your-garden

"What made these tracks" by Warren Agnew



Be a Pest Detective – DOC's Toyota Kiwi Guardian www.doc.govt.nz/parks-and-recreation/places-to-go/toyota-kiwi-guardians

Example outcome: increased biodiversity

The presence or increase of birds, invertebrates and lizards can be indicators of increasing diversity. Baseline data is the data you do before your project. You use this to compare your ongoing data against, to show changes over time due to your actions. There are lots of different tools and resources online to help you monitor native animals, as well as several citizen science projects you can sign up to and contribute to.

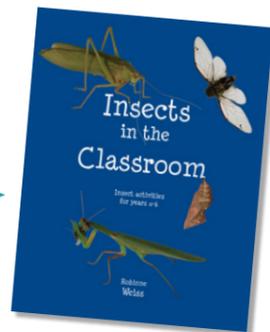
What is citizen science?

If you collect data (specific information) and share it then you are a citizen scientist. Citizen science projects allow members of the public to work on important scientific research. You can learn and contribute to the library of scientific knowledge at the same time! Programmes listed below like Nature Agents and the Great Kereru Count are citizen science projects.

Monitoring land invertebrates

There are lots of ways to monitor invertebrates: soil dig, leaf litter sampling, quadrants, sweep netting, pitfall traps, potato traps – moth trap. See the Department of Conservation website for lots of resources.

- www.doc.govt.nz/get-involved/conservation-activities/take-a-garden-insect-census
- www.doc.govt.nz/get-involved/conservation-education/resources/experiencing-invertebrates-in-your-green-space
- Insects in the classroom
Robinne Weiss 2017
- www.kakariki.org.nz/resources/monitoring-your-restoration-site



Monitoring freshwater invertebrates

- www.natureagents.co.nz is a science education programme run by EOS Ecology.

Monitoring water quality

- www.streamed-eos-ecology.hub.arcgis.com – an online water quality data collection tool
- www.natureagents.co.nz



Monitoring freshwater animals

- www.workingwaters.org – Urban Eel programme aims to train community groups and schools to use fyke nets to monitor instream wildlife. Lodge findings on the NIWA database.
- Whitebait Connection – EOS ecology

Monitoring pests

- You can contribute to Predator-Free 2050 by finding out what pests might be within your project space.
- Be a Pest Detective – DOC's Toyota Kiwi Guardian www.doc.govt.nz/get-involved/conservation-activities/become-a-pest-detective
- Predator-Free 2050 www.predatorfreenz.org/resources/recording-monitoring-options
Lots of resources and useful articles and 'how to' guides.



Climate

NIWA's Citizen Science app offers several projects to contribute to:

- New Zealand rainfall monitoring network
- Detecting air pollution from wood smoke
- How deep is the snow at your place

Monitoring birds

- Sound maps
- 5 minute bird counts

www.doc.govt.nz/our-work/five-minute-bird-counts



- Garden Bird Survey – Landcare Research's annual citizen science project (June-July) gardenbirdsurvey.landcareresearch.co.nz

- Great Kererū Count – an annual citizen science project (September) www.greatkererucount.nz





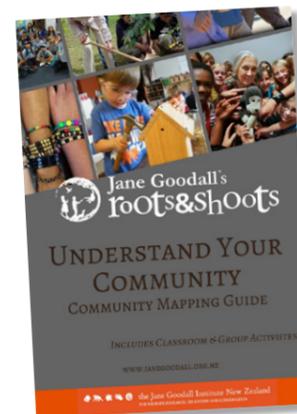
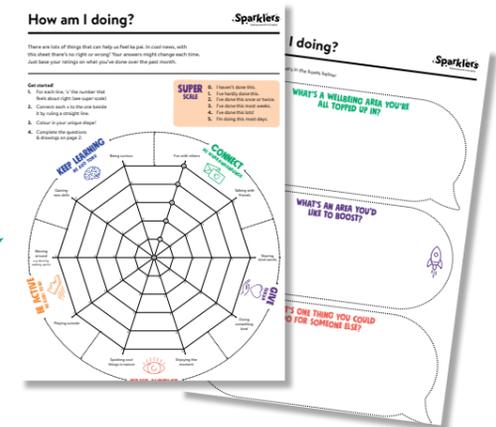
Monitoring connections, understanding and wellbeing

Outcomes such as feeling connected to the place, increasing learning and overall wellbeing are harder things to explain as they can't be measured with numbers.

Building on our mātauranga Māori (Māori knowledge) can deepen our collective understanding of connections, and how people and the environment are linked.

Some ideas to measure these outcomes:

- Do a before and after survey of the students to test their knowledge and understanding of key themes (plant names, understanding of key concepts, mātauranga Māori).
- Take an inventory of taonga species that used to be here, are found here now and explore how you can help bring them back in the future. www.sciencelearn.org.nz/resources/438-model-for-identifying-cultural-indicators
- Do regular wellbeing checks and then chart any changes in overall wellbeing. What about a quick score on a 'how are you feeling' continuum at the start and end of each park visit?



- Learn and understand your community using community mapping (Jane Goodall) or cultural mapping www.sciencelearn.org.nz/resources/459-mapping-the-future – using the Ake Ake model.
- Include mindfulness or hikitia-te-ha in your park visit and take note of any changes in behaviours. www.allright.org.nz/tools/hikitia-te-ha
- Capture first-hand accounts, stories and quotes from students throughout the nurture nature journey. Write poems or songs / waiata.

- Keep a nature journal; drawing and writing diary entries can be a great way to record your own personal journey of growth and learning throughout a project.
- Create a personal maramataka – Māori lunar calendar. You can use this handy online calendar on the All Right website. Visit your site at least seasonally, sit quietly and observe, recording what you see happening in the natural world around you. www.allright.org.nz/tools/maramataka



Health and Safety Analysis worksheet

- Identify all the risks and hazards that the volunteer may be exposed to, guided by the checklist below.
- Transfer identified risks to Risk Management Plan and determine corrective actions/controls to ensure safety of the volunteer(s).
- Review the risks and associated controls with volunteer and sign plan.
- Revise plan if any new risks are identified by any parties.

1. Identification of risks and hazards

List of common hazards likely to be encountered during a planting activity within Council greenspace.

Hazards are not limited to the list below. All other hazards must be identified and considered during the assessment.

Hazard	Present Yes/No	Hazard	Present Yes/No	Hazard	Present Yes/No
1. Environment		2. People/Park users		3. Tools/Facilities	
Uneven / sloped ground		Dogs off leash		Missing guardrails / edges protection	
Rockfall / mud / sand		Road crossing – cars		Misuse of tools / PPE	
Wet, frost, cold weather		Busy pathways – walkers / cyclists		Potting mix	
Open waterways		Personal: fatigue, allergies		Mulch dust	
Vegetation - nettle, thorns		Inappropriate behaviour		Damaged/unsuitable tools	
Obstructed / difficult access		Supervision - ratios		Physical work e.g. lifting, carrying	
Stinging insects – bees, mosquito		Children: vulnerable		Sharp tools	
Contaminated soil		Poor access/egress		Toilet facilities close-by	
Hazardous materials (e.g. rubbish)				Fire risk	
Exposure to sharps (e.g. syringes)		Covid-19 / infectious diseases		Vehicles on site	
Falling objects (e.g. tree branches)		Missing PPE / inadequate clothing			
Other _____		Other _____		Other _____	

2. Assessment of identified risks and hazards

Risk Management Plan	Hazard	Severity			Risks	Potential (refer to chart below)		
		1. Insignificant	2. Minor	3. Moderate		4. Major	5. Extreme	Severity
1.1 General ground conditions					Slips, trips, falls, wet grass, frost	1	3	3
1.2 Waterways					Falls, drowning, pollution contact illness	4	1	4
1.3 Weather					Hypo / hyperthermia, sunburn, heat stroke, medical situation			
2.1 Other park users					Cyclists / walkers – knocks, collisions, injury			
2.2 Supervision					Inadequate ratios, missing child, injured child, child at risk, disruptive behaviour			
3.1 Use of heavy hand-tools					Back injury, impact injury, foot impact injury, cuts, bruises			
3.2 Plants and materials					Stakes eye injury, cuts, allergies			

Likelihood	Severity				
	1. Insignificant	2. Minor	3. Moderate	4. Major	5. Extreme
5. Almost Certain	5	10	15	20	25
4. Likely	4	8	12	16	20
3. Possible	3	6	9	12	15
2. Unlikely	2	4	6	8	10
1. Very unlikely	1	2	3	4	5

Risk Level	Low	Medium	High	Extreme
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Action Criteria	
Risk Rating	Escalation Required
Extreme 12–25	Stop work and escalate up to ELT Representative
High 8–10	Escalate to Manager and Head of Unit
Medium 5–6	Escalate to Supervisor/ Team Leader
Low 1–4	Proceed with agreed controls in place

3. Implementation of controls

Risk Management Plan						
Identified Risk	Risk Control What is in place to prevent it going wrong?	Corrective Actions/ Controls Eliminate, Isolate, Minimise	Who is responsible	Post control risk		Action required
				Severity	Likelihood	
1.1	<ul style="list-style-type: none"> Disclosure of risks of environment before event Briefing to include list of hazards and expected behaviour Set boundaries to stay within or areas to avoid 	minimise	Ranger		4	Ranger to notify school of hazards on site
1.2	<ul style="list-style-type: none"> Disclosure of risks of river and stream environment before event Briefing to include boundaries to stay within 	isolate	ranger		4	Ranger to notify school of hazards on site
1.3	<ul style="list-style-type: none"> Ensure group is prepared for all weather conditions e.g. warm clothing, and sun protection. Event to be cancelled in extreme weather conditions that are unsafe for visitors – snow, ice or high winds 	minimise	Lead teacher Teacher/ranger		4	Regular communication Book postponement date
2.1	<ul style="list-style-type: none"> Use signage to alert other park users of volunteer presence 	minimise	ranger		2	Bring sign kits
2.2	<ul style="list-style-type: none"> Ensure a suitable adult/parent help to student ratio is met Advise adults/students of potential hazards Checklist of who is carrying medicine for special conditions, (coordinator/ student or parent) Adults clear on their supervision roles Student Health profiles checked by coordinator for each student. Advise students of behaviour requirements (let an adult know if you are going to a toilet in a public place. 	minimise	School/Lead teacher		4	Pre-visit communications around expectations
3.1	<ul style="list-style-type: none"> Briefing to include demonstration of appropriate use of tools. Students to carry tools below waist Students removed from activity if dangerous behaviour 	minimise	ranger		4	
3.2	<ul style="list-style-type: none"> Planting demonstrations given on site 	minimise	ranger		2	

<p style="text-align: center;">Emergency Response</p> <ul style="list-style-type: none"> Adult helper from school assigned to take responsibility of other children in the event of an accident or injury Emergency services notified immediately School and parent notified as soon as practicable First Aid kit to be carried by lead ranger / teacher and administered by qualified first aid person In the event of an emergency follow DRS ABC protocol and dial 111

Additional Information

Personal Protective Equipment Required Gloves and closed toed shoes essential.
Clothes appropriate for weather.

Training Required

Planting instructions to be given on site

Acknowledgement

Location of activity:			
Volunteer name:		Volunteer signature:	Date:
Manager or Supervisor name:		Manager or Supervisor signature:	Date:

How to prepare for your day of action

Please ensure that classes arrive on time and are ready to take action for the environment.

What to bring

- Students
- Close-toed shoes (sneakers or gumboots)
 - Sunhats and sunscreen
 - Water bottles
 - Morning / afternoon tea as appropriate

Teachers

- First aid kit
- Cell phone
- Hand sanitiser
- Any student's medical requirements
- Parent help for appropriate ratios
- School karakia if you wish

Roles and responsibilities for the day

Ranger / community expert

- Site safety set-up and health and safety briefing
- Task and tool demonstration
- Task supervision and delivery

Teacher

- Management of students and their needs
- Behavioural issues
- Health and safety
- What to bring

We expect accompanying adults / caregivers to take an active role in the activities alongside their children.

Resources and links

Matauranga Māori

- Ngāi Tahu mahinga kai

www.ngaitahu.iwi.nz/culture/mahinga-kai

This series of 12 x ten minute videos captures the stories and essence of traditional food gathering practices passed down through the generations.

- **Matapopore Urban Design Guide (2015)**

matapopore.co.nz/resources

This guide articulates Ngāi Tūāhūriri identity, culture and narratives in Christchurch. Ngāhere planting guide (pages 51-63) lists native trees, their characteristics, urban uses, ecological values and customary values.

- **Kia Kaha Te Reo Taiao**

www.doc.govt.nz/get-involved/conservation-education/resources/kia-kaha-te-reo-taiao-posters-and-booklet

Posters and booklet of Te Reo Māori words and phrases about the environment: Te Ao o Tangaroa – Marine, Wai Māori – Fresh Water, Te Wao Nui a Tāne – flora, Te Tini a Tāne – fauna.

- **Tihei Taiao**

www.teamokura.com/online-series/tihei-taiao

A series of videos that focuses on different tipu (plants) in our taiao (environment).

- **NIWA Matauranga Māori**

niwa.co.nz

Māori Environmental Knowledge of weather and climate.

- **Inspiring communities**

www.inspiringcommunities.org.nz/ic_resource/te-reo-resources

Whakatauki, karakia, waiata related to working together.

- **Maramataka poster**

www.tepapa.govt.nz/learn/for-educators/teaching-resources/maramataka-maori-calendar-learning-resource

www.allright.org.nz/tools/maramataka

Te Papa: Maramataka is the traditional Māori lunar calendar. It was used to guide planting, harvesting, fishing, and hunting. Use the handy online calendar thanks to All Right.

- **Matariki**

www.tepapa.govt.nz/learn/matariki-maori-new-year/matariki-for-teachers

Te Papa website has lots more resources around Matariki and Maramataka.

my.christchurchcitylibraries.com/matariki

Christchurch City Libraries Matariki resources 2020

Ōtautahi environmental education providers

www.ccc.govt.nz/parks-and-gardens/learning-projects-and-programmes

www.ecan.govt.nz/education

www.enviroschools.org.nz

www.natureagents.co.nz

www.workingwaters.org

www.doc.govt.nz/education

www.janegoodall.org.nz/roots-shoots/resources-1

Citizen Science and monitoring

citizenscience.niwa.co.nz/about

www.streamed-eos-ecology.hub.arcgis.com

gardenbirdsurvey.landcareresearch.co.nz

www.greatkererucount.nz

www.kakariki.org.nz/resources/monitoring-your-restoration-site

www.predatorfreenz.org/resources/recording-monitoring-options

www.doc.govt.nz/get-involved/conservation-activities/take-a-garden-insect-census

www.doc.govt.nz/our-work/five-minute-bird-counts

www.nzpcn.org.nz/conservation/monitoring/photo-points

Activities and resources

www.lucas-associates.co.nz/christchurch-banks-peninsula/christchurch-ecosystem

www.treesthatcount.co.nz/resources

www.doc.govt.nz/get-involved/conservation-activities

www.sciencelearn.org.nz/topics

www.ccc.govt.nz/environment/land/ecosystem-map

www.ccc.govt.nz/environment/water/waterways/waterway-restoration

Find out more about this programme

📍 Visit our website www.ccc.govt.nz/parks-and-gardens/learning-projects-and-programmes/manaaki-taiao

✉ Email us at parks.volunteers@ccc.govt.nz

