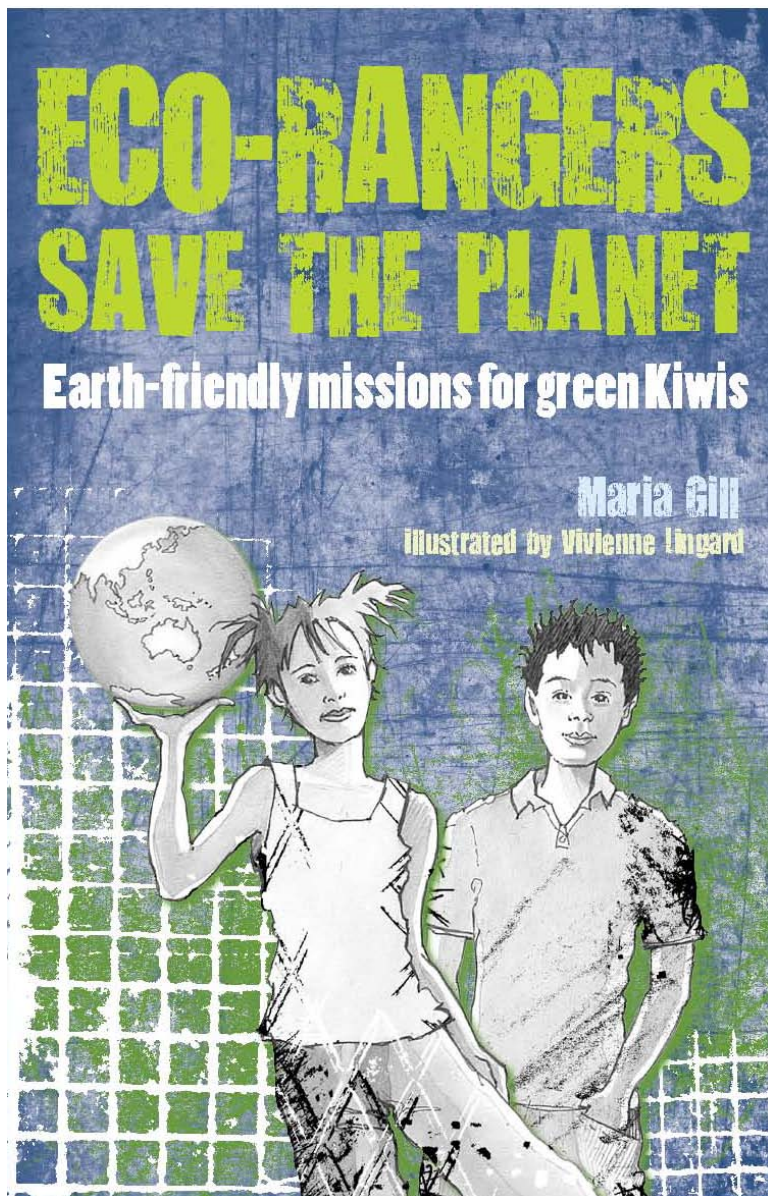


Educational Resource



www.mariagill.co.nz

Maria Gill

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Curriculum Notes

SOCIAL STUDIES

Students will gain knowledge, skills and experiences to:

- Understand how people make decisions about access to and use of resources

SCIENCE

Nature of Science: Investigations in Science

- Ask questions, find evidence, explore simple models and carry out appropriate investigations to develop simple explanations

Participating and contributing

- Use their growing science knowledge when considering issues of concern to them
- Explore various aspects of an issue and make decisions about possible actions

Living World: Ecology

- Explain how living things are suited to their particular habitat and how they respond to environmental changes, both natural and human-induced.

HEALTH

Healthy Communities & Environment:

Society Attitudes and Values:

- Investigate and describe lifestyle factors and media influences that contribute to the well being of people in New Zealand.

Rights, responsibilities and laws: People and the Environment:

- Specify individual responsibilities and take collective action for the care and safety of other people in their school and in the wider community.

Levels: 4 – 5

Years: 5-8

Duration: 4-6 weeks

EDUCATION FOR SUSTAINABILITY

- Students practice environmental project-based learning involving students in local projects that are meaningful and make real contributions to their communities
- Aim to improve the environment
- Change students behaviour, attitudes and values towards the environment

KEY COMPETENCIES

- Thinking
- Relating to others
- Participating and contributing
- Managing Self

ASSESSMENTS

- Observations
- Sample of work
- Completed projects
- Quizzes and crosswords
- Changed behaviour
- Motivation





About the Book

In *Eco-Rangers Save the Planet* we've prepared 12 missions for you, your mates and school friends. Each mission contains...

- A low-down packed with facts
- Eco-tasks for you to do
- Action Station – a checkpoint to test how well you're doing
- Eco-heroes – inspiring stories from other kiwi eco-warriors
- Websites leading you to more facts online
- Plus some cool quotes and truly terrible jokes.

That's not all – there are also practical projects you can do.

About the Resource

This educational resource helps you to incorporate 12 of the 11 missions into your classroom. Pick and choose from the selection of learning activities for each page. You'll also find ideas and web links for activities that you can use across the curricula.

Go to the back of the resource for information about books, video clips and field trips that would complement the Unit.

Please give feedback about the resource to Maria Gill at mariagill@ihug.co.nz

About the Author



Maria Gill is a parent, teacher and writer. She has written seven non-fiction books: - see www.mariagill.co.nz

Maria 'walks the talk' – she has a large organic garden, several orchards, and keeps a menagerie of animals: chickens, sheep, ducks, cats and dog. She also composts, has a worm bin and helps co-ordinate kiwi releases, and a nation-wide writing group for adults who write stories for children – www.kiwiwrite4kids.co.nz Her family has been sponsoring a World Vision child since 1996.

Maria got the idea for writing *Eco-Rangers Save the Planet* from a friend.

About the Illustrator

Vivienne Lingard works from her Albany studio as an illustrator and writer. She has illustrated five trade books for children and several titles for the education sector. Apart from her own illustration work Vivienne teaches others about illustration. She holds a teaching degree and Masters in Creative Writing. Her writing interests are: contemporary adult fiction, book reviews and articles.



For the *Eco-Ranger* book Vivienne used pen and pencil for all the drawings, and gouache for the painted scenes and cartoons.

SAVE ENERGY

LEARNING INTENTION

Students will:

- Become aware of Maria and Vivienne's books
- Learn about the different types of energy in NZ
- Find out about the types of energy used in the school and how they can make savings

INTRODUCTION

Teacher asks students if they have read any of Maria and Vivienne's books before: Bird's-eye View, Operation Nest, Rangitoto, Save Our Seas.

What do all the books have in common? They all have an environmental message. Maria's latest book takes it even further: Eco-ranger's Mission Save the Planet. Ask students what 'Save the Planet' could mean. Read the first mission in the book: Save Energy. Say to students – Let's brainstorm ways we can save energy in this classroom.

LEARNING ACTIVITIES

1. Find out who supplies electricity to the school. Do they use renewable energies? Invite a representative to the class and ask him/her questions.
2. Write a PMI on three different types of renewable energies in New Zealand.

PMI on three different types of renewable energies		
Plus	Minus	Interesting
Example: Solar It doesn't have any detrimental effects on the environment.	It can be costly to set up and you won't get much power on a cloudy day.	In the future, you will put solar paint on your house, which will absorb the sun's rays. They just have to work out how to make it last longer.

3. Do an energy audit at your school.

MATERIALS

Eco-ranger book
PMI worksheet
Energy audit master



EXTRA CURRICULA

Math: Find out what the price of petrol is now. Keep account of it for one month then draw a plot graph.

Reading: Find out more about the author and illustrator. Look at their websites:

www.mariagill.co.nz

www.viviennelingard.co.nz

Write some questions and interview them by email or invite them to your school.

Language: Write a scenario of what your life would be like if we did not have the use of fossil fuels. Write it up in the 'Day in the life (your name) Living without Fossil Fuels'.

Science: Science fair ideas.

Homework: Do an energy audit at home. Go to the EnergyWise site and investigate how much energy your family uses.

EVALUATE

Children's successful participate in energy quiz.

ACTION STATIONS!

- Nominate one person each week to be a Power Saviour
- See if it is possible for a walking bus to start at your school. If there is already one – add another route

SAVE WATER

LEARNING INTENTION

Students will:

- Investigate how the school, NZ and overseas countries can reduce their use of water.
- Find solutions and action them.



INTRODUCTION

Ask the students if we have problems with our water in NZ. Brainstorm ways we can combat those problems. Read the Water chapter to the class.

LEARNING ACTIVITIES

- Investigate the school to see if they've got any leaky taps. Prepare a report for the caretaker where there are any problems.
- Investigate the water situation for a country overseas such as Australia. Write a problem/solution chart for them.

Problem and Solution Chart	
Problem	Solution
Example: Australia – severe droughts causing water shortages.	Stop growing plants such as grapes in drought areas. More people use water tanks. Pipe water from areas that have high rainfall.

- Prepare a poster encouraging people to conserve water.
- Test the water quality of your local river/creek. If the water quality is decidedly murky; put together an action plan to improve the water quality.
- Paint 'only water down the drain' signs and art around the drains in your school (and leading up to your school).
- Conduct a water audit at school.

MATERIALS

Eco-rangers book
Problem/
Solution
Chart



EXTRA CURRICULA

Technology: Begin a classroom blog about how your class is saving the planet. Look at: <http://eco-rangersnz.blogspot.com>

Science: Conduct an experiment to see how long a plant will survive with chemicals in the water. Put a water plant in a goldfish bowl with just water in it. Another water plant in a bowl with normal house-cleaning products in it. Another with an eco-friendly product in it. Record how long plants survive.

Language: It is incredible that dinosaurs drank the same water as us. What would dinosaurs think of the taste nowadays? Write a cameo about a dinosaur drinking from your tap water and what their reaction is.

Homework: Do a water audit at home. Buy only Good water bottles (biodegrade).

EVALUATE

Students answer water quiz correctly

ACTION STATIONS!

- Start a green group in your school. See how to start one on page 98 in the Eco-ranger book.
- Pledge to do at least one thing to conserve water.

REDUCE WASTE

LEARNING INTENTION

Students will:

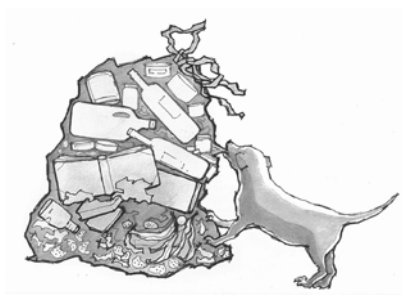
- Find different ways to reduce waste.
- Consider the environment with every action they do

INTRODUCTION

Read the beginning of the chapter to the class.

LEARNING ACTIVITIES

1. Investigate the rubbish you have in your class – do a waste audit.
2. Look at how you can reduce your class output to zero waste. Write up a plan and action.
3. Paper seems an obvious choice to use instead of plastic – find out [why it is not such a green option](#). Have a debate paper vs plastic.
4. Make a shopping bag out of old material and decorate.
5. Design car stickers that promote creating zero waste or remind shoppers to take their eco bag.
6. Write a pledge to reduce waste and how you will do it – stick the pledges online with the [Tree People](#)



EXTRA RESOURCES

- * [Powerpoint](#) presentation

MATERIALS

Eco-rangers book



EXTRA CURRICULA

Language: Interview an eco-hero about what they've done to reduce waste. Put the entry in the <http://eco-rangersnz.blogspot.com>

Science: Bury a plastic bag, a biodegradable bag and a paper bag and check on them at different intervals: one week, one month, two month, three month. Write a report on it.

Art: Have a wearable recycled art parade. Students make costumes from recyclable products.

Field trip: Visit a recycling plant.

Reading: Review Maria's books and put them on the blog: <http://kidsbooksnz.blogspot.com>

Homework: Do a waste audit at home.

EVALUATE

Students will consider their waste with every action.

Students can answer the [waste quiz](#) correctly.

ACTION STATIONS!

- Start having lunches with zero waste packaging.
- Nominate two people each week to be in charge of recycling.
- Start up a 'Green Teens' team of your own and try to reduce plastic usage in your area.

CARE FOR OUR WILDLIFE

LEARNING INTENTION

Students will:

- Find out which pests and predators are causing harm to our wildlife
- Investigate our endangered animals



INTRODUCTION

Read the beginning of the Caring for our Wildlife chapter and discuss.

LEARNING ACTIVITIES

- Brainstorm all the types of pests and predators we have in New Zealand. Find out what they are and draw a timeline of when they were introduced into New Zealand.
- Investigate an endangered animal in New Zealand. Write it up in a KWL chart. Writing what you **Know**, **What** you would like to find out about it (three questions) and What you've **Learnt** about that animal.

KWL Chart		
KNOW	WHAT	LEARNT

- In groups, investigate an animal that is endangered such as a kakapo, takahe, kiwi, kokako; find out why it is endangered and possible solutions to help it. Present the information with images as a PowerPoint presentation to the class (or whole school).

MATERIALS

Eco-rangers book
Predators book
Save Our Seas book
Operation Nest Egg book
KWL Chart



EXTRA CURRICULA

Art: Design a poster to encourage people to de-sex their pets, keep a bell on their cat and tie up their dog.

Technology: Design and make a trap to catch mice and rats.

Fieldtrip: Visit a sanctuary or marine park. Interview the ranger to find out what animals they are protecting and which animals they are trying to eliminate.

Homework: Do a nature watch audit at home. Put a bell on your cat and ensure your dog is always tied up.

EVALUATE

Will be able to differentiate between a pest and a predator. Will know what is causing harm to our endangered animals.

ACTION STATIONS!

- Organise your class or school to clean-up a local beach. See www.sirpeterblaketrust.org for instructions
- Sponsor an endangered animal at your local zoo, bird sanctuary or a marine animal online. Fundraise by having a lunchtime disco, sausage sizzle, carwash, and pledge to do some jobs or sell some artwork.

CARE FOR OURSELVES

LEARNING INTENTION

Students will:

- Look closely at what they eat and consider a healthy diet
- Investigate what they put on their skin



INTRODUCTION

Read the beginning of the Caring for Ourselves chapter and discuss.

LEARNING ACTIVITIES

1. Students keep a diary (tick boxes for every serving) of what they eat. Teacher asks questions: Did they have five servings of fruit and vegetables a day? Did they eat too much protein? Were the cereals, whole foods such as wholemeal bread? Did they eat the recommended daily amount (RDI)?

Week Day	Cereal (porridge, Bread)	Protein (meat, fish, eggs)	Fruit	Veges (colours of rainbow)	Nuts	Oil
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						

2. Using the chart above create a class graph to show how many servings of each vegetable were consumed. What was the most popular vegetable?
3. Students bring samples of products they use on their skin to school and investigate the chemicals within. Invite someone from an eco company to talk to your class. Prepare interview questions.

MATERIALS

Eco-rangers book



EXTRA CURRICULA

Science: Make some of the personal and house cleaning products and see how effective they are.

Drama: Students act in a play about food hygiene

Health: Using the USDA food pyramid to paste food pictures (cut out of magazines and newspaper) to make a healthy food pyramid .

Language: Read folk tales that explain "how the kiwi lost its wings," "how the tui got its beautiful voice," and other folktales. Ask students to write a story to explain how the raisin got its wrinkles, how the tomato got its colour, or another fact about the nature of fruits or vegetables.

Homework: Track your food down Action Station.

EVALUATE

Students will have healthier lunches. Students are more careful about what they put on their skin.

Students can answer quizzes correctly.

- Students design posters that encourage people to eat free-range eggs or meat and to refuse battery/caged foods.

HEALTHY SCHOOLS & COMMUNITY

LEARNING INTENTION

- Students take some action to green their classroom
- Students educate the school and wider community about how to care for the environment

INTRODUCTION

Read the beginning of chapter for Healthy Schools and Community and discuss.



LEARNING ACTIVITIES

1. Walk around the school to find out what the *environmental hot spots are*. Could you encourage more people to ride bikes if there was somewhere secure in the school for them to park their bikes? Are there signs around drains to encourage people to only put water down drains? Are there signs to encourage people to recycle in appropriate bins? Is there a sign showing where your gardens are? Write up a report and send it to the BOT.
2. Divide your class into sub-committees: energy, water, waste, buying power, and garden team. Each of those groups investigates how they can improve their class (and later the school) in those areas. For example, the Waste Team (have a cool name for your group too) can do an audit check to see how much waste their class is generating and how they can create zero waste. Each group comes up with a plan, checks with the teacher or caretaker or principal that it is okay, then action it.
3. Once your school has taken some action, write to Maria Gill to tell her what you've done so she can put it in the blog: <http://eco-rangersnz.blogspot.com>

MATERIALS

Eco-ranger book



EXTRA CURRICULA

Art: Design some signs with logos to show people where your eco-friendly projects are. Also paint around drains.

Language: Start up a classroom (or school) newspaper that promotes green issues and encourages people to make wise environmental choices.

Technology: Design an eco-friendly school that uses green energy resources.

Field trip: Visit a school that uses alternative energy sources.

Fast Finishers: Activity Pages

Homework: Check out the *environmental hot spots* in your home

Extra Teaching Resources

EVALUATE

Students are motivated to complete their projects.

ACTION STATIONS!

- Start up a Green group – go to page 98 for instructions.

GREEN BUYING POWER

LEARNING INTENTION

Students will:

- Look closely at how far products they use have travelled.
- Trial using locally made products.

INTRODUCTION

Read the beginning of the Green Buying Chapter and discuss.



LEARNING ACTIVITIES

1. Work out how far your lunch has travelled. Challenge yourself to eat food that has been grown locally.
2. Ask each student to bring in food packaging from home. Using a world map create a display to identify where certain foods are sourced from and the distance they've travelled to reach your town.
3. Now find out how far your clothes have travelled. Draw a picture of those clothes with labels pointing to them saying where they have come from. Put them up along class wall.
4. Organise a class party and only bring locally made food and drink to share.
5. Watch the 'day in the life' of goods on www.ibuydifferent.org then make up a video of the 'day in the life' of another product.
6. Watch the video on www.storyofstuff.com and then draw a flow chart of the process.



MATERIALS

Eco-ranger book
Internet on computer

EXTRA CURRICULA

Math: Calculate the whole class's food miles by collating the results from Learning Activity One.

Music: Make up a rap about how far your clothes have travelled and the importance of buying local.

Technology: Turn an old pair of jeans into a book cover or a bag – see how on page 85.

Language: Write the script for the 'day in the life' of the product you are going to video.

Homework: Go through your wardrobe and see what you have grown out of. Send clothes you don't want to a second-hand clothes shop or a recycling bin.

EVALUATE

Will demonstrate knowledge of where products come from. Students can do the [biodiversity quiz](#).

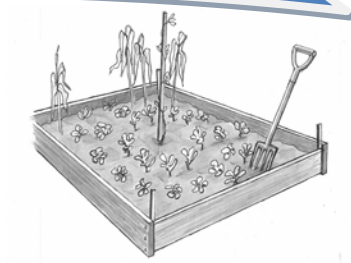
ACTION STATIONS!

- Organise a class swap of clothes, toys or books.
- Give a gift to someone in the class that is an activity, experience or a service you are going to do for them.

SUSTAINABLE LIVING

LEARNING INTENTION

- Students will put into practice some of the information they have learnt in prior chapters.



INTRODUCTION

Read the beginning of the Sustainable Living chapter and discuss.

LEARNING ACTIVITIES

- For several periods, set aside time to do the Learning Centre. Students need to set goals then evaluate at the end of each activity. They can work alone, in pairs or groups but need to show what their contribution is. Bring in people from community to work with groups.

Make your own butterfly feeder .	Plant an indoor herb garden .	Learn to cook with organic ingredients. (Earth day cookies, flower salads etc.)
Make a hydroponic planter from a lemonade bottle.	Grow plants from food	Make seedballs .

MATERIALS

Eco-rangers book



EXTRA CURRICULA

Reading: Read the quotes in the book. Students pick out their favourite one and comment on what it means. Then illustrate it and display.

Art: Have a school-wide poster competition asking students to design a colourful A3 poster with tips on living sustainably. Display the results.

Science: At the beginning of every chapter is a Fact. Find another environmental fact and display it on the wall.

Language: Students write two stories: one positive, set in a future where everyone is living sustainably and one negative, set in a future in which humans have done nothing to help the environment and are suffering the consequences.

Homework: Plant a fruit tree.

EVALUATE

Students understand the relationship between plants and food. Students can do [quiz](#).

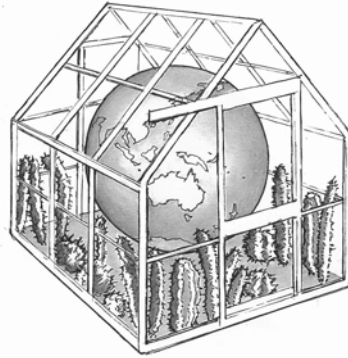
ACTION STATIONS!

- Students pledge to trial out what it means to live sustainably for a week. Start a garden or orchard and eat healthy local food. Walk/bike/bus to school and reduce energy usage. Create zero waste.

CLIMATE CHANGE

LEARNING INTENTION

- Students will find out about the two issues surrounding climate change theories.
- Students will become critical of what they read.



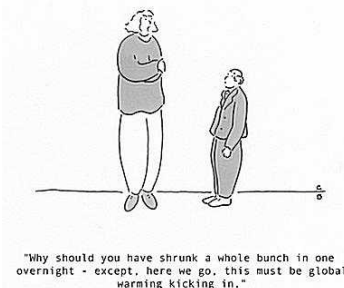
INTRODUCTION

Read the beginning of the Climate Change chapter and discuss.

LEARNING ACTIVITIES

1. Display this cartoon on an OHP or smart screen. What is this

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www.CartoonStock.com



cartoonist saying? Investigate environmental articles in newspapers, magazines and the internet and decide whether the journalist has blamed a local incident on a global issue, their reporting is biased, whether it is factual or opinion, or whether they have reported both sides of

an argument. Display in a visual presentation.

2. Put students into groups to debate the following:
 - a) [Human induced global warming](#) vs. [non-human induced](#) climate change theories – which is correct?
 - b) Using food crops for biofuels or not?
 - c) The Arctic is melting or not?
 - d) The climate change issue is our biggest problem or not (running out of fuel and other natural resources is)?
 - e) New Zealand should be part of the [Kyoto agreement](#) (or not).

MATERIALS

Eco-ranger book



EXTRA CURRICULA

Reading: Look at headlines to make up your own environmental articles.

Language: What if we slept for 100 years? What would the world look like and what would we do? Draw, act or write possibilities.

Homework: For the next school holidays camp in your backyard. (If you don't have a backyard, try the balcony, roof or a friend's or neighbour's place). Sleep in your backyard for one week. Cook on a fire (or a stove if fires aren't permitted), eat home-grown vegetables, don't watch TV or use power or the telephone. Stay on your property, but don't use the house. Really *live* in your backyard and get to know and care for it.

EVALUATE

Students show their understanding of climate change terminology by successfully filling in a climate change crossword puzzle.

ACTION STATIONS!

- Get your school involved with planting trees with [Trees for Survival](#).

GLOBAL PROBLEMS

LEARNING INTENTION

- Students will grasp how unfairly the world's resources are shared out.
- Students will learn conflict resolution skills.

INTRODUCTION

Read the beginning of the Global Problems chapter and discuss.

LEARNING ACTIVITIES

1. Class discusses how they feel about this cartoon. How can they deal with feelings of being overwhelmed with all the problems of the world? Do they want to have a say in the solutions? Where can they go, if they do? Investigate Youth Forums in New Zealand. How can they join one or start up one of their own?
2. Read the '[If the World were a village of 100 people](#)' aloud to students or watch [You Tube](#). Discuss the imbalance of our resources. Students write a 'what if' statement if everyone shared resources – what the world would be like then.
3. Students learn about [conflict resolution](#), think about a conflict situation they have recently faced then role play that situation using conflict resolution techniques.



MATERIALS

Eco-rangers book



EXTRA CURRICULA

Visual: [Cartoon interpretation.](#)

Reading: Read poems and rhymes from around the world. See 'My Village'.

Social Studies: Participate in a [passport game](#); read stories from children around the world and then write down one issue they face.

Technology: Students plan and create a meal on a budget.

Homework: Play the [eliminate child labour simulation game](#) on the computer

Language: Watch the video '[Pay it forward](#)' and ask afterwards: How did this person make a difference? Why did it work? What is the big picture?

EVALUATE

Children show that they understand the type of conflicts some children face by successfully filling in a [crossword puzzle](#).

ACTION STATIONS!

- Collect shoe boxes then fill with Christmas gifts that will go to a child in need or a [Gift of Hope](#).

CHILDREN MAKING A DIFFERENCE

LEARNING INTENTION

- Students will understand what it means to make a difference.
- Students will use their talents in a group to complete a project.

INTRODUCTION

Read the beginning of Children Making a Difference chapter and discuss.

LEARNING ACTIVITIES

1. Watch Severn Suzuki's speech on [You Tube](#). Afterwards discuss the following questions (as a class or in groups):
 - * What does it mean to make a difference to others?
 - * Why would someone do something if they aren't helped by it?
 - * Who has made a difference in their lives?
 - * Who have they made a difference to?
 - * What keeps people from helping others?
2. Divide students into groups of six. Students brainstorm a project they would like to do to make a difference in their school or community. Decide how they will make their decision as a group (which project they will do) – by vote or a consensus? Investigate whether anyone else is trying to address this problem. What are they doing? What actions do your group need to take? Is your project big enough to make a change but small enough to complete in given time? Who will be involved? Who can you get to help? Does your project need money or resources – and where will you get them from? What tasks will everyone have? How can you make the most of everyone's talents? How will you know if your project is successful?



MATERIALS

Eco-ranger book,
Computer



EXTRA CURRICULA

Social Studies: Practice leadership skills – follow the Leadership programme on www.sirpeterblaketrust.org

Language: Interview a teenager who has been selected to represent New Zealand overseas at an Environmental Forum (find out through Sir Peter Blake Trust or local council).

Health: Give a group a stack of paper plates and marker. They need to write down one of their strengths/talents on a plate. Students then have to arrange plates so they form a bridge across the room (make sure the plates have a large amount of space between plates so students have to help each other). Students can only walk on plates – feet not touching ground. Ask students: how did it feel to be responsible for others or trusting others? How did it feel to be part of a team?

EVALUATE

The successful completion of a project.

ACTION STATIONS!

- In a given time, complete a project that will make a difference to your school or community.

RESOURCES

Books

Air Con: The Inconvenient Truth about Global Warming by Ian Wishart, (Howling at the Moon Publishing)

Eco-Rangers Save the Planet by Maria Gill, illustrated by Vivienne Lingard (New Holland Publishing)

Feed Me Right by Dee Pigneguy, (Papawai Press)

Gardening for Planet Earth by Dee Pigneguy (Papawai Press)

It's True: This book is a load of rubbish by Deborah Burnside, (Allen & Unwin)

My Village: Rhymes from around the world, collected by Danielle Wright, illustrated by Mique Moriurchi (Gecko Publishing)

Nics New Zealand Nature: Invaders by Nicola Vallance, photography by Rod Morris (New Holland Publishing)

Rescue Mission Planet Earth: A Children's Edition of Agenda 21 by children of the world, [Bourtros Boutros Ghali](#) (Kingfisher Books)

FIELD TRIPS

[Marine Reserves](#)

[Virtual field trips](#) with LEARNZ

[Field trips by region](#) includes sanctuaries

Maria Gill's Books:

Bird's-eye View, photography Darryl Torkler and Geoof Moon (Penguin)

Operation Nest Egg, (Penguin)

Dogs On the Job, (Penguin)

Rangitoto, illustrated by Heather Arnold (Penguin)

Save Our Seas: Continuing the mission of the adventurer Sir Peter Blake, illustrated by Vivienne Lingard (New Holland Publishing)

Video/DVD

[You Tube](#) – search

'Pay It Forward' DVD

COURSES

[Organic Gardening Courses](#)

[Cooking Classes](#)

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