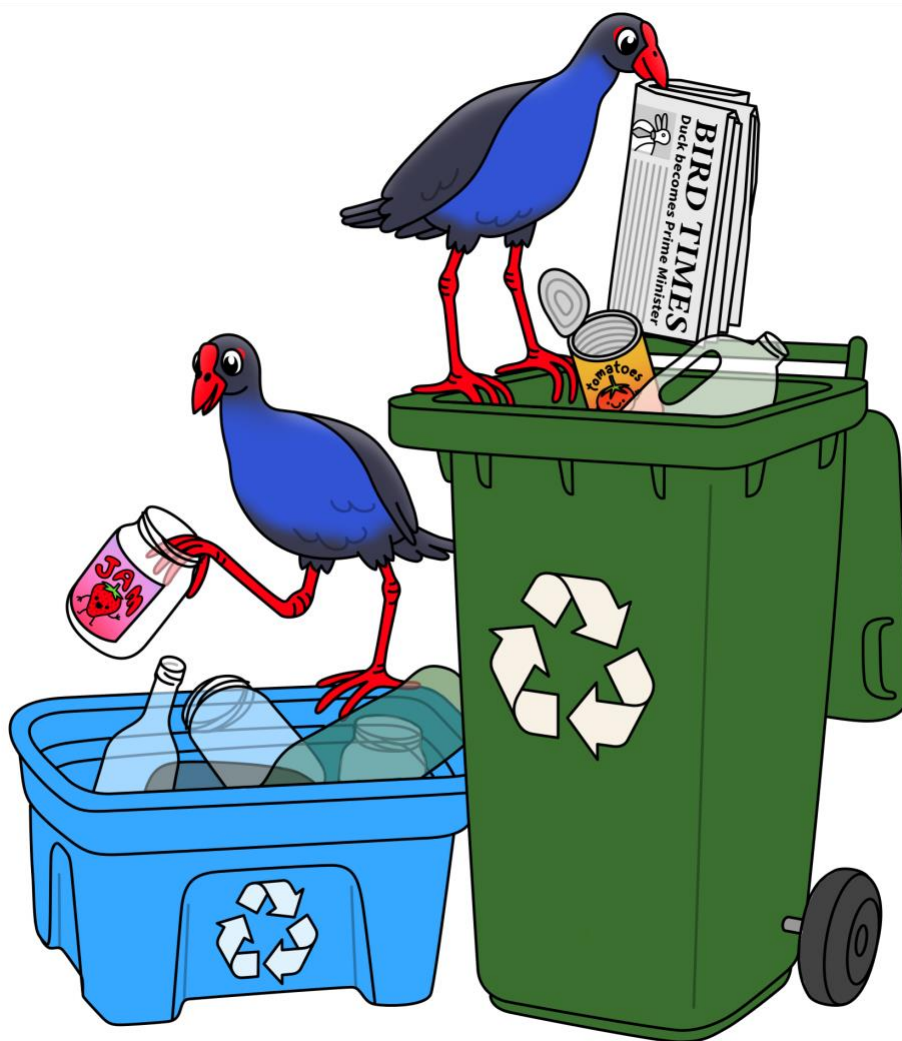


Recycling

Te hangarua

Teacher guide



Educating today for a sustainable tomorrow
Te whakaako ināianei kia tuitū ai a haere ake nei

ZERO WASTE
Mātauranga Parakore **Education**

www.zerowasteeducation.co.nz

Introduction:

Zero Waste Education (ZWE) is a waste minimisation education programme which teaches children about sustainable resource use through reducing, reusing, recycling and composting. Established in 1993 ZWE is taught in over 500 schools throughout New Zealand.

This Council funded programme enables children to investigate the link between Earth's natural resources, the products they use and see around them and the resulting waste that pollutes our environment. It empowers them to make decisions to reduce the waste pile by reducing, reusing, recycling and composting and by sharing their knowledge with others.

The programme consists of nine units each focusing on a specific solution to our waste problem. The units alternate each year so students receive new material while building on what they have previously learned. By the time students leave Year 8 they will have received eight units.

- Years 1 and 2: Is That Rubbish? and The Litterless Lunchbox
- Years 3 and 4: Reduce Unit and Reusing Unit
- Years 5 and 6: Recycling Unit and Composting Unit
- Years 7 and 8: Resource Sustainability Unit and Water Unit

Teacher Guide Overview

This guide is provided to assist teachers in undertaking curriculum planning for learning in class. Included in all ZWE teacher guides are suggested hands-on extension activities. The guide promotes the inquiry learning process using the ZWE *Four R's of Inquiry*. A more detailed version of the inquiry model follows.



The ZWE visit takes place during the 'Research' stage of the inquiry process. During this time students will be immersed in the topic of 'Recycling' and will cover selected achievement objectives from the New Zealand Curriculum. The aim is for students to build up a knowledge bank and become experts in the topic.

Post ZWE, students are given an opportunity to 'Regroup' as a class and consider the current waste related issues in their school, home or wider community. Students are then able to 'Respond' to a specific issue they are passionate about as group or independently. To 'Reflect' is an important part of the inquiry process and students should be given a chance to review and share what they have learnt and the actions they have taken.

Timetabling

This unit consist of four 45-minute lessons. Teachers can opt for one 45-minute session over four days, or two 90-minute sessions (with a 10-minute break mid-session). All lessons are taught by specialist educator.

Teacher Obligations

We ask that teachers remain in their classroom for the duration of all lessons.

Workbooks

Each student receives their own workbook to complete during the ZWE lessons. At the end of the unit students are encouraged to take their books home to share their learning. The workbook also includes formative assessment tasks which are completed under the guidance of the educator. Each formative assessment task focuses on the key learning intentions for the lesson and can also be used by the classroom teacher.

Marking Template

A marking template is provided for the classroom teacher, this outlines answers to the formative assessment tasks in the student workbooks.

Recycling Unit

Students delve into the concept of recycling and key issues such as contamination and their responsibilities as a recycler at home. By investigating product lifecycles students will learn how they can have a positive impact on the use of natural resources by recycling. They will discover what happens to their recycling after it is taken away, from bin to new product.

After the ZWE visit teachers are encouraged to continue the learning through an inquiry learning process, detailed below.



Make cities and human settlements inclusive, safe, resilient and sustainable

11.6. By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management. Students to investigate the amount of waste produced in different countries.



Ensure sustainable consumption and production patterns

12.2. By 2030, achieve the sustainable management and efficient use of natural resources. In the Resource Sustainability unit, students investigate natural resources and products made out of natural resources.

12.5. By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. Zero Waste Education programme aims to educate students in waste minimisation by reduce, reuse and recycle.



Take urgent action to combat climate change and its impacts

13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. In the Resource Sustainability unit, students investigate environmental impacts from waste.

Homework

A small amount of homework is required of students. The homework tasks are designed to be a fun way for students to share their learning and explore waste minimisation at home.

Literacy Integration



A list of relevant journal and 'connected' articles is provided at the end of this document. Some suggested ways for integrating this unit into your literacy programme follow.

Persuasive Writing: Plastic bags should be banned in New Zealand. A take back system (with cents reward) for plastic, glass, steel and aluminum bottles and containers should be implemented in New Zealand again. All plastic packaging should be made for #1 or #2 plastics only. Students write a letter to the appropriate person in government arguing their point on one of these topics.

Explanation Writing: Explain what happens to plastic bottles when they are put in the recycling bin and taken through the process to be recycled, from home to new product.

Visual Language: Student publish the 'recycling' posters they have researched and designed as part of the recycle unit. Design a brochure promoting and explaining recycling in your community, include what can and can't be recycled, how, when, where etc.

Additional Resources

Title	Author	Series	Curriculum level	Reading year level	Publication date	Link
	Simon Cooke	Connected 2014 level 2 – How do you know?	2		January 2014	https://instructionalseries.tki.org.nz/Instructional-Series/Connected/Connected-2014-level-2-How-Do-You-Know/Garden-with-Science
	Johanna Knox	School Journal	3	6	August 2018	https://instructionalseries.tki.org.nz/content/search?SearchText=recycling&SearchButton=&CurrentTab=is_homepage&SubTreeArray%5B%5D=22574

Curriculum Planner

Zero Waste – Recycling			
Values: Community & participation. Ecological sustainability.	Key Competencies: Using language, symbols, texts. Participating & contributing.	Principles: Future Focus – sustainability.	Learning Areas: Social Sciences Health and PE Technology
Possible Achievement Objectives: Social Science (Level 2) Students will gain knowledge, skills and experience to: <ul style="list-style-type: none"> • <i>Understand that people have social, cultural and economic roles, rights and responsibilities.</i> • <i>Understand how places influence people and people influence places.</i> Social Science (Level 3) Students will gain knowledge, skills and experience to: <ul style="list-style-type: none"> • <i>Understand how people make decisions about access to and use of resources.</i> Social Science (Level 3) Students will gain knowledge, skills and experience to: <ul style="list-style-type: none"> • <i>Understand how producers and consumers exercise their rights and meet their responsibilities.</i> • <i>Understand how people participate individually and collectively in response to community challenges.</i> 			
Health & Physical Education (level 2) Healthy Communities and Environments: Students will: Societal attitudes and values <ul style="list-style-type: none"> • <i>Explore how people’s attitudes, values and actions contribute to healthy physical and social environments.</i> Health & Physical Education (level 3) Healthy Communities and Environments: People and the environment <ul style="list-style-type: none"> • <i>Plan and implement a programme to enhance an identified social or physical aspect of their classroom or school environment.</i> 			
Technology (Level 2) Nature of technology: <i>Characteristics of Technology</i> <ul style="list-style-type: none"> • <i>Understand how technological development expands human possibilities and draws on knowledge from a wide range of disciplines.</i> 			

Suggested Inquiry Process

Inquiry stage: Research	
<p>Pre-visit: Check in: what do we already know about Zero Waste? <i>Think, Pair, Share (class brainstorm)</i>. Explore concepts: <i>natural resources, products, waste</i>. What are these and where can we find them?</p>	
<p>During visit: Most of the <i>research</i> stage takes place during the ZWE visit with the educator. The learning intentions and assessment tasks in this stage are based around the ZWE lessons, activities, workbook and marking template. Each assessment task below relates to a workbook activity (see ZWE marking template for more information).</p>	
<p>Learning Intentions:</p> <p>Students will understand the term ‘contamination’ and its negative impact on the recycling process.</p> <p>Students will learn how recycling can extend the life on a steel can.</p> <p>Students will have a clear understanding of how we can use renewable and non-renewable resources.</p> <p>Students can show and discuss the recycling options available in their community.</p>	<p>Workbook Assessment Activities:</p> <p>A1: Students analyse, judge and remove products that might contaminate the recycling process.</p> <p>A2: Students describe the lifecycle of a steel can and he affect recycling will have on the life cycle.</p> <p>A3: Students match manufactured items to the appropriate natural resource.</p> <p>A4: Students complete a poster to inform others about recycling in their community.</p>
Inquiry stage: Regroup	
<p>Learning Intention:</p> <p>Examine the current situation concerning waste in the school or wider community.</p>	<p>Focusing Ideas, Questions:</p> <ul style="list-style-type: none"> - What are the issues? - How might they affect us now or in the future? - Why are they happening? - How do we feel about these issues? - Has our new knowledge changed the way we feel?
<p>Possible Activities:</p> <ul style="list-style-type: none"> - Create a class knowledge bank based on previous and new knowledge. - Think, Pair, Share / Brainstorm using visual mind-mapping - Discuss the issues using De Bono’s Six Thinking Hats. 	

Inquiry stage: Respond

Learning Intention:

Respond to an issue concerning waste in the school or wider community.

Record findings / Improvements

Focusing Ideas, Questions:

- Which issue do we want to respond to?
- Can something be done?
- What could/would happen if...?
- How might we make others aware?
- How can our knowledge and ideas help others?
- How can we influence decisions made by others?
- Who is going to do what? *Who decides?*

Record findings / improvements:

- What sort of information should we show?
- How will we collect it?
- How will we sort and present the information?
- Who is going to do what? *Who decides*

Possible Activities:

- Conduct a waste audit at school to see how much could be recycled. Even if your school already recycles check how well the recycle system is working. Audit the class and staff room bins, you could even audit the skip bin? You will need a tarpaulin, some reusable thick gloves (dishwashing gloves are good), choose categories and separate waste from bins into categories. For example, organic, paper, cardboard, recyclable containers (aluminum cans, steel cans, glass bottles and jars and plastics that are recyclable in your area). Once completed record findings and determine improvements that could be made.

Inquiry stage: Reflect

Learning Intention:

Share the learning journey with others, using a variety of ways to convey information.

Focusing Ideas, Questions:

- How has the issue changed?
- What is different? *Is anything different?*
- What evidence do we have to show this?
- Have your feelings changed about the issue?
- What could we do better next time?
- What is left to do?

Possible Activities:

- Revisit the class knowledge bank, add to it with new knowledge.
- Explore ways of presenting information and share findings with as many people as possible.