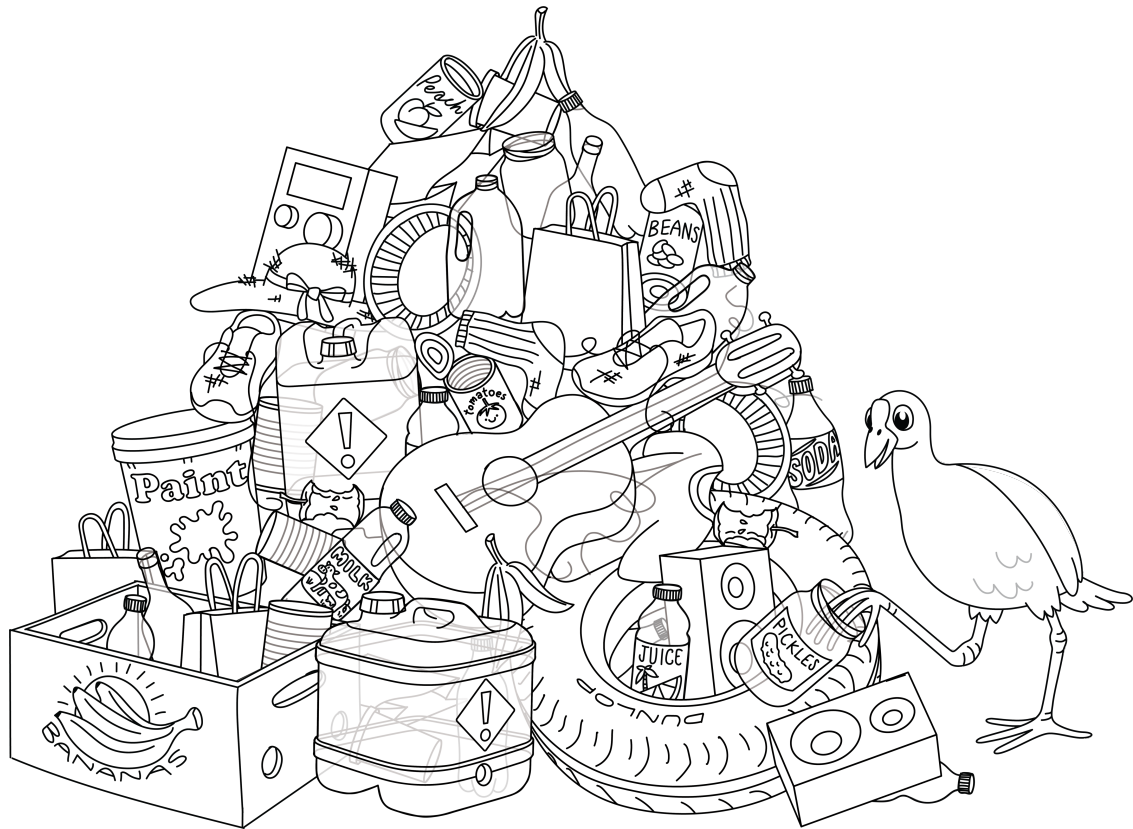




“Educating Today for a Sustainable Tomorrow”



Reducing the Waste Pile

Teacher Guide

Introduction:

Zero Waste Education (ZWE) is an award winning 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 all nine units.

- Years 1 and 2: Is That Really 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
- Year 5 to 8: Rural Waste 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 student's will be immersed in the topic of 'Reducing the Waste Pile' 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 with answers to the formative assessment tasks in the student workbooks.

Reducing the Waste Pile Unit

Reducing the waste pile through sensible shopping, reusing, recycling and composting is the focus of this unit. Students are introduced to the concept of waste, landfills and the five main natural resources that are used to make all the 'stuff' they use. After the ZWE visit teachers are encouraged to continue the learning through an inquiry learning process, detailed below.

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.

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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.

Curriculum Planner

Zero Waste – Reducing the Waste Pile			
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: - Understand that people have social, cultural and economic roles, rights and responsibilities. - Understand how places influence people and people influence places. Social Science (Level 3) Students will gain knowledge, skills and experience to: - Understand how people make decisions about access to and use of resources.			
Health & Physical Education (level 2) Healthy Communities and Environments: Students will: Societal attitudes and values - Explore how people's attitudes, values and actions contribute to healthy physical and social environments. Rights, responsibilities and laws; People and environment - Contribute to and use simple guidelines and practices that promote physically and socially healthy classrooms, schools and local environments.			
Health & Physical Education (level 3) Healthy Communities and Environments: Students will: People and the environment Plan and implement a programme to enhance an identified social or physical aspect of their classroom or school environment.			
Technology (Level 2) Technological Practice: Planning for practice: Develop a plan that identifies the key stages and the resources required to complete an outcome.			

Suggested Inquiry Process

Inquiry stage: Research	
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?	
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 of the assessment tasks below relate to a workbook activity (see ZWE marking template for more information).	
Learning Intentions: Students will learn what happens to natural resources after we no longer want them. Students explore how sensible shopping can reduce our waste pile. Students understand certain plastic can be put into recycling bins. Students understand certain paper can be put into recycle bins. Students make the link between natural resources and everyday products. Students will show certain types of waste can be composted.	Workbook Assessment Activities: Students describe the process from natural resource to landfill using text and diagrams. Assessment 1: Sensible Shopping (page 2) Students analyse, judge and identify items of rubbish that can be 'reduced' through sensible shopping. Assessment 2: Circle the types of plastic can be recycled (page 3) Students identify plastic, paper and cardboard that can and cannot be recycled. Assessment 3: Circle the types of paper and cardboard can be recycled (page 4) Students identify plastic, paper and cardboard that can and cannot be recycled. Assessment 4: How well do you know your natural resources? (page 7) Students match the natural resource to the product. Assessment 5: Draw the compost bin (page 8) Students analyse, judge and identify organic and inorganic waste.

Inquiry stage: Regroup	
Learning Intention: Examine the current situation concerning waste in the school or wider community.	Focusing Ideas, Questions: - 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?
Possible Activities: - 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.	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? <i>Who decides?</i>
Record findings / Improvements	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? <i>Who decides</i>
Possible Activities: Conduct a waste audit at school to see how much could be reduced, reused or recycled. 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.

Additional Resources

Title	Author	Series	Curriculum level	Reading year level	Publication date	Link
	Simon Cooke	School Journal	2	4	October 2015	https://instructionalseries.tki.org.nz/Instructional-Series/School-Journal/School-Journal-Level-2-October-2015/A-Work-of-Art
	Jame Brown	School Journal	2	4	November 2018	https://instructionalseries.tki.org.nz/Instructional-Series/School-Journal/School-Journal-Level-2-November-2018/Plastic-Planet
	Deanna Ferguson	School Journal	2	4	November 2018	https://instructionalseries.tki.org.nz/Instructional-Series/School-Journal/School-Journal-Level-2-November-2018/The-Plastic-free-Challenge
	Kate Potter	Connected		4	January 2013	https://instructionalseries.tki.org.nz/Instructional-Series/Connected/Connected-2013-level-4-Are-You-Sure/Accidental-Plastics
	Trish Puharich	Junior Journal	2	Colour wheel level: Gold	2012	https://instructionalseries.tki.org.nz/Instructional-Series/Junior-Journal/Junior-Journal-44-Level-2-2012/Making-Paper

EERST – Paper4Trees:
www.paper4trees.co.nz

Whole House Reuse – NZ:
<http://www.wholehousereuse.co.nz/>

Recycling in New Zealand:
<http://recycle.co.nz/>

Rethink, Reusable Bags:
<http://rethinknz.com>