

WASTE AUDIT TOOLKIT FOR SCHOOLS



Reth!nk Waste
TASMANIA



Rethink Waste aims to improve our efforts at reducing, reusing and recycling in order to significantly decrease the amount of waste that ends up as landfill and to protect our environment.

The CCWMG and NTWMG wish to acknowledge Waste Wise Schools, a program of the Waste Authority, Department of Environment Regulation, Western Australia for providing the intellectual property contained in this publication.



Contents

Introduction.....	4
Chapter 1.....	5
Waste audits – setting the scene	
A waste audit overview	5
A discussion of waste and related issues	5
A typical breakdown of waste in schools.....	6
Chapter 2	7
How to conduct a waste audit	
Stage 1: Plan it.....	7
Stage 2: Set it up.....	8
Stage 3: Run it.....	9
Stage 4: Keep it going.....	10
Chapter 3	11
Waste audit scope and sequence plans, lesson plans and tools	
The 5 stage inquiry approach.....	11
Audit scope and sequence table.....	12 - 14
Aim:	12
Waste audit mathematics lesson plan	15
Aim:	15
Curriculum links:	15
Background.....	15
Information	15
Resources	15
Activity	15
To simplify.....	15
To extend.....	15
School waste audit report lesson plan	16
Aim:	16
Curriculum links:	16
Background.....	16
Information	16
Resources	16
Activity	16-17
To simplify.....	18
To extend.....	18
More curriculum links	18
Other resources.....	19
Example letter to inform parents/guardians of the waste audit:.....	20
Waste audit results table.....	21 - 22
More ideas to consider	22 - 23
Waste audit signs	24 - 37



Introduction

The Waste Audit Toolkit is an operating manual to guide the development and implementation of waste audits in schools.

The information gained from an audit is an invaluable step towards developing ways to reduce the amount and types of waste your school sends to landfill.

It is usually the first step schools take towards becoming a Rethink Waste School.

The Waste Audit Toolkit has been designed to promote best practice; however, the key is finding what works best for your school. This

toolkit has been designed so it can easily be tailored for the needs of individual schools, classrooms and students.

Good luck and we hope you enjoy your journey to becoming more waste wise!

The Rethink Waste Team

For more information go to www.rethinkwaste.com.au

Chapter 1

Waste Audits - setting the scene

A waste audit overview

A waste audit is an evaluation of the waste that your school produces. It allows you to find out two things: first, how much waste your school produces and second, what type of waste is produced. This information will help you decide where to begin your waste minimisation efforts, for example, what type of recycling to implement or what type of waste to reduce. The information gathered from a waste audit can also be a valuable way to measure improvement, particularly once you implement a waste action plan.

A discussion of waste and related issues

To help create a context for conducting your waste audit there are a few things that you may want to discuss with your class as an introduction to the audit. This may include 'what is waste?', 'where does our waste go?' and 'what problems can be created by our waste?'

There are many ways in which waste can be defined, one example being 'a resource with a yet-to-be-determined use'. For example, an apple core, a plastic food container and an old pair of shoes may all be considered as waste, but that does not mean they have to be put in the rubbish bin. An apple core can be composted, a plastic container can usually be recycled and an old pair of shoes could be given to a charity organisation or simply to a sibling or friend.

There are a number of places we put our waste, including the rubbish bin, recycling bin, compost bin and worm farm. If a school does not have a recycling service, the waste in the rubbish bin is sent to landfill. This traditionally involves burying our waste in the ground. There are a number of issues that our waste can create. Some may include:

- Land clearing to build landfills may cause loss of biodiversity and habitats.
- Windblown waste from a landfill may enter waterways or the bushland as litter and could affect native fauna.
- Leachates or toxic liquids from products such as batteries and old paint may contaminate the soil and groundwater (if the landfill isn't lined appropriately).
- Social impacts that may occur from the unpleasant nature of a landfill, including smell, noise, vermin and aesthetics.
- Burying resources that are valuable as recyclables and compostable material.
- Greenhouse gases, such as methane gas, are produced from decaying organic waste. Methane is around 25 times stronger than carbon dioxide. This means it is 25 times more able to hold heat in the atmosphere than carbon dioxide. While methane and carbon dioxide make up 99% of the gas produced from a landfill, they do not cause the 'rotten egg' smell often associated with landfills. That unpleasant smell comes from up to 500 trace components, such as hydrogen sulphide that make up 1% of landfill gas.¹

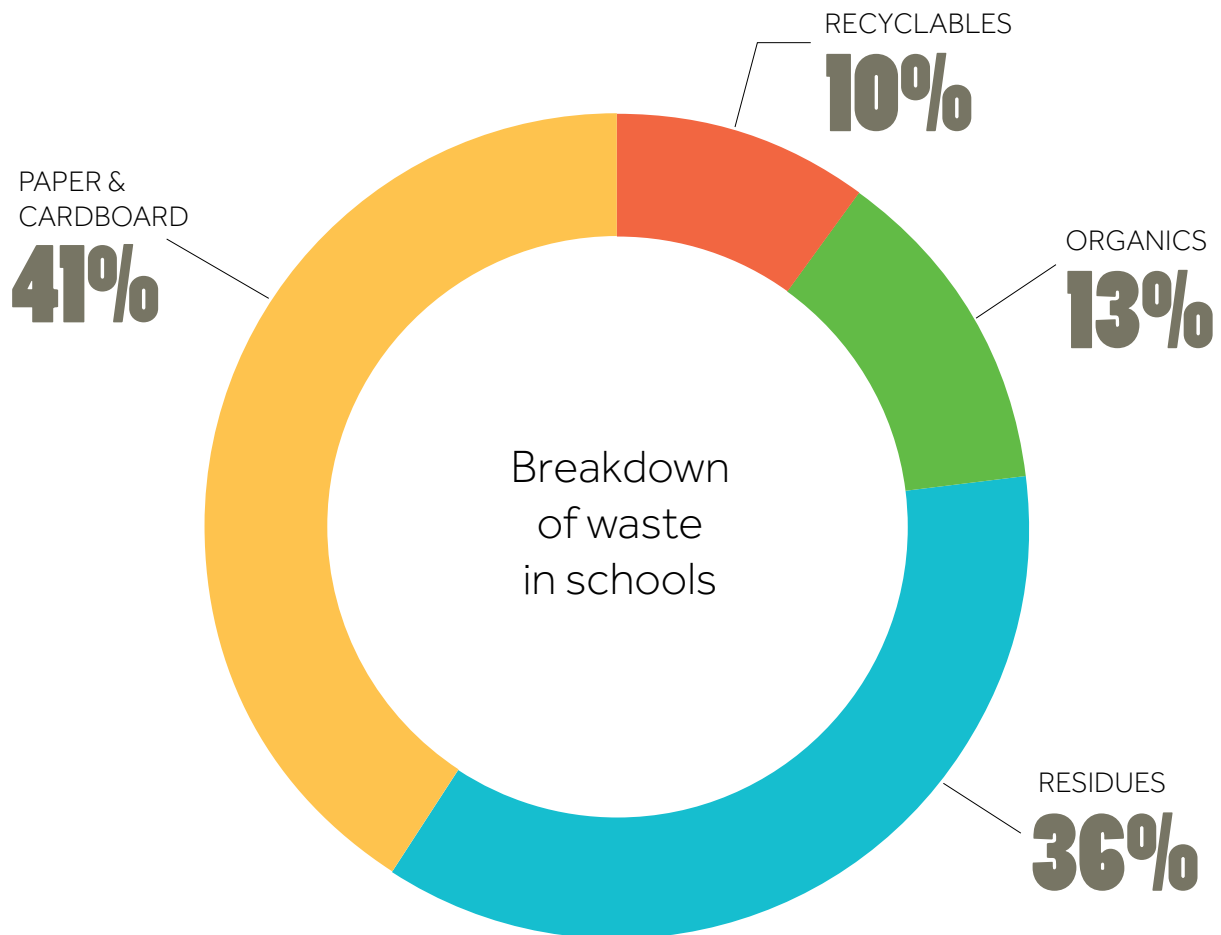
Leachate is the liquid that drains from landfill and contains high concentrations of decomposed waste material.

When we identify and discuss some of the issues that are associated with our waste we begin to understand why it is so important to be waste wise. This may help to clarify why the waste audit is such an important activity.

1. Source: Landfill gas, EPA Victoria, Publication 1479, June 2012
<http://www.epa.vic.gov.au/~media/Publications/1479.pdf>

A typical breakdown of waste in schools

In the past, a series of waste audits were conducted in schools. Results showed there were significant opportunities for schools to reduce the amount of waste they send to landfill.



41% **Paper and cardboard:** This waste stream comprises the largest proportion of waste, totalling approximately 41 per cent of total school waste.

36% **Residues:** This category makes up 36 per cent of school waste and includes non-recyclable plastics, bricks, office equipment, soiled paper and cardboard, books and clothing. In this category, a considerable proportion could be diverted from landfill by reusing or donating the products (clothes, office equipment, bricks, books) or composting certain materials (soiled paper).

13% **Organics:** Grass and food and garden waste are included in this category and make up approximately 13 per cent of total waste.

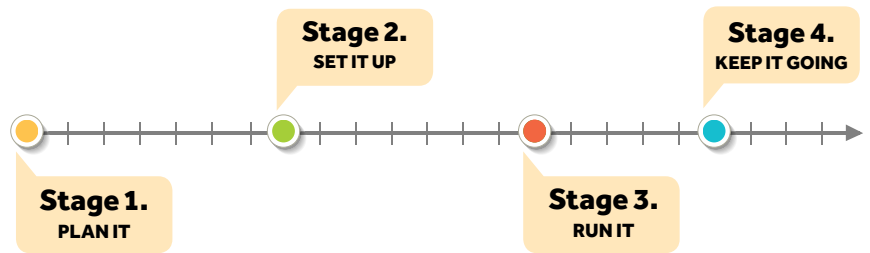
10% **Recyclables:** Approximately 10 per cent of total waste is comprised of common recyclables such as PET (polyethylene) and HDPE (high density polyethylene) plastics, aluminium, steel and glass.

The results show that an average school can reduce its waste output by over half, just by composting organics and recycling paper and cardboard. Extending recycling to other materials and implementing waste management hierarchy principles - avoid, reduce, reuse, recycle - to all the resources used in a school will further reduce school waste.

Schools have the ability to contribute towards a more sustainable, low waste future

Chapter 2

How to conduct a waste audit



1

Stage 1: Plan it

Waste audits are a useful means of gauging progress when you're aiming to implement a waste management plan. They are also an excellent way of convincing your school community that they may have a waste management problem. Below are a few tips and suggestions to help your students gain maximum benefit from your school's waste audit.

1. Choose who will do the audit.

Rather than conducting the audit with one whole class, consider establishing a signup sheet so that the students who attend are the ones with a keen interest. You could also have the student councillors or environmental club members conduct the audit. This will also help ensure the benefits of the audit span across several year groups.

2. Work out how many bins will be audited.

Before commencing the audit, find out how many bins you have at your school. Don't forget to include classroom, staffroom, library and canteen bins. If you have more than 200 students in your school it is a good idea to audit only a percentage of all bins and adjust the results accordingly. If your bins are not emptied daily make sure you account for this in your final results.

It is important that you conduct the audit after lunch or a time of the day that will allow for a good representation of school waste. You may also need to consider waste generated from any special events, meetings or parties on that day.

3. Choose a suitable location for your audit.

Ensure that a suitable area is booked for

the audit. The best area is one that is under cover, well ventilated, easy to clean and protected from the wind. Undercover assembly areas are usually ideal.

4. Try to involve the whole school.

Inviting the rest of the school to come and see the rubbish once it has been sorted is a great way to show them the need for waste minimisation in your school. Students not participating in the activity are always surprised by the amount of rubbish generated in just one day, particularly when they can see how much is preventable or recyclable.

5. Take photographs.

Taking photographs of the audit is a fantastic way to show the rest of the school what you're doing. Photos are also a great way to send the message home. Why not include them in newsletters or school displays? Alternatively, hold an assembly to present the results and the students' waste audit experiences and impressions.

6. Plan the cleanup.

Make sure you have a hose available for washing down relevant materials following the audit. You may want to ask the students, or the gardener or cleaner, to wash down the area following the audit.

Plastic sheeting can be used to reduce the mess. However, a certain degree of mess is unavoidable.

2 Stage 2: Set it up

Organisation is key to this next step.

1. Inform parents and the school community of your planned waste audit.

You may even invite them to participate! An example letter for parents and guardians is available in the tools section in chapter 3 of this document.

2. Incorporate the waste audit into your term program.

Waste audits can be very easily incorporated into your curriculum. The waste audit scope and sequence (see chapter 3) provides example lesson plans of how you can do this. By following these lesson plans, you may spark the interest of the students to change their waste disposal behaviour. You will also provide them with the skills and knowledge to enable them to make better decisions when disposing of waste, keeping the school environment and local community cleaner and healthier.

3. Prepare the students for the waste audit.

It is very important to discuss the waste audit with your students before it is actually conducted. This saves a lot of time and confusion on the day and gives them a chance to absorb all the information. Let them know what they're going to be doing and include some of the reasons why. For example, you may like to discuss the environmental and cost saving reasons. It

is also recommended that you talk about what type of results you might expect to find during the audit and what you plan on doing with the audit data.

Consider enabling the students to plan and set up the audit themselves or break the audit group into teams as a competition to add an element of fun!

4. Prepare the equipment.

Ensure that you have the appropriate equipment needed to run your waste audit. This includes:

- a large sturdy plastic sheet on which the waste can be sorted.
- sorting containers or squares of newspaper for each of the 15 waste categories listed on page 21.
- waste audit signs for each of the waste categories - you may want to laminate these for future use, see the 'signs' section in chapter 3.
- gloves for each student participating and a box to keep these in.
- a copy of the 'Waste Audit Results table' (See chapter 3), pens and clipboards for each group.
- a portable scale that can measure large amounts and hold the containers.



3 Stage 3: Run it

Safety note to avoid injury: Please check the bins for any dangerous goods such as glass or other unexpected items where possible before conducting the audit.

1. Collect the bins.

- Determine how much waste to sort out. With a school of approximately 200 students, sort all of the waste, with 400 students sort about 50 per cent and with 800 students sort about 25 per cent of the waste.
- Collect the rubbish bins from around your school including the classrooms, library, staff room and canteen bins (exclude all recycling bins). If you are auditing a percentage of the waste bins then ensure you have collected bins that represent the correct percentage of waste to be sorted. For example in a school of 400 students, you should collect 50% of all the bins in large common areas, such as the playground, all the bins in the classrooms and all of the bins in the library.

2. Arrange the audit equipment.

- Lay out a sheet of sturdy plastic big enough to accommodate the waste from the bins.
- Place the sorting containers or squares of newspaper on the edge of the plastic sheet for each of the 15 waste categories. Hang the waste audit signs on the containers or prop them up behind the newspaper to indicate where each waste item is to go.

3. Gather the students together to talk about the audit.

Discuss why the audit is important, what you plan to gain from the exercise and what you expect to find. You may also want to discuss what waste is, where it goes and what problems our waste can cause. You can refer back to the information in 'A waste audit' (Chapter 2). At this point, it is also necessary to discuss safety rules as well.

4. Sort the waste.

- Have students put on their gloves and empty the bins onto the plastic sheeting.
- Begin sorting the waste into the correct containers or newspaper squares using tongs (i.e. plastics, paper, food waste, etc.).
- Continue until all the waste has been removed and sorted (if you have found there is too much waste then continue until you have sorted a percentage that you are happy with, for example, 50%).

5. Weigh and count the different waste categories/containers.

An example waste audit results table is available in the tools section in chapter 3 of this document.

Rubbish, fruit and vegetable and food scraps can be weighed. However, some of the waste categories also need to be counted. Counting often means more to the students, as 0.3 grams of lolly wrappers may contain 80 or more wrappers. Have students do this in small groups with one student (or the teacher) allocated to scribe for everyone. Items that need to be counted and weighed are identified on the signs.

6. Discuss and record the results and possible future actions.

- Gather in a circle around the containers/newspaper squares to discuss what you have found. For example, was there more paper than you expected or less food than you thought?
- Calculate the number of items or mass over the school year and the average amount produced per student, as per the table 'Waste Audit Results' in chapter 3.
- Record your results in the document 'Waste Audit Results', including the four most prevalent items and student suggestions on how to reduce waste. Discuss and agree on potential future actions. For example, if there was a lot of fruit and vegetable waste you might like to establish a worm farm.

4 Stage 4: Keep it going

Maintain the momentum and instill a culture of waste reduction at your school.

1. Use peer teaching to conduct the waste audits.

Try to have different classes or groups conduct the waste audits to ensure a whole school approach. Have the initial class show the waste audit method to another class. For example, the year five students could show the year four students what to do and the materials needed. This would then allow the year four students to conduct the audit the following time, with a different class then watching. This process could then be continued throughout the school.

2. Compare waste audits and monitor the results.

To maintain enthusiasm for waste reduction, try to conduct a waste audit each term, or at the start and end of the year. For more thorough results, have a different class conduct each audit and use the average of these to compare your results over a number of years.

This will allow you to compare your results across a time frame and can assist you in identifying areas that are of continued concern.

3. Provide feedback, recognition and incentives.

Use school assemblies, newsletters and the local media to announce and celebrate your school's results. Perhaps your school could also have spot prizes for students who have correctly disposed of their waste throughout the year or who have come up with creative ways to minimise their waste.



Chapter 3

Waste audit scope and sequence plans, lesson plans and tools

Although a waste audit can be reasonably effective as a stand-alone activity for raising awareness about waste and recycling, developing students' understanding of the importance of the audit results is achieved by teaching them about what waste is, the problems associated with sending waste to landfill and alternatives available.

The program on the following pages is a suggested guideline for how the waste audit can be embedded into the curriculum across a range of learning areas under the inquiry approach.

The inquiry approach

The following program is based on the inquiry approach and as such is broken into sections which involve students as active learners, involved in real life skills.

This program can easily be adapted to your classes' specific needs and time constraints.

All lesson plans have been provided to help schools meet the requirements of the sustainability cross curriculum priority of the Australian Curriculum.

The five phases of the inquiry approach

- 1 **ENGAGE:** In the first phase the students become engaged. The lessons in this section aim to capture their interest, allow them the opportunity to display their prior knowledge about waste and recycling, and provide a meaning and context for their learning.
- 2 **EXPLORE:** Within the second phase students are provided with the opportunity to explore the problems of waste and how we dispose of it. The students are provided with hands-on activities which develop a greater understanding of the waste they produce.
- 3 **EXPLAIN:** In the third stage the teacher provides opportunities where the problems and amount of waste produced by the school and society as a whole are explored and explained.
- 4 **ELABORATE:** The fourth stage provides opportunities for students to elaborate on the concepts and skills they have learnt. They begin to apply the knowledge they have learnt, start to encourage and make behavioural changes, and develop a deeper understanding of the complexity of waste disposal.
- 5 **EVALUATE:** The fifth stage involves evaluating what the students have learnt and how the students' behaviours and attitudes towards waste and recycling have changed.

It is recommended that at least one of the suggested lessons on the following pages is conducted within each of the above inquiry approach phases.

Audit scope and sequence table

Aim:

To encourage and educate students and the school community about the need to reduce the amount of school waste going to landfill, while developing the behaviours and knowledge that enable them to do this.

Time frame: 10 weeks (one term)

Phase	Lesson	Brief lesson overview	Resources available	
Explore	Engage	Shock presentation	1. Ask the students how much fresh food they would throw away each fortnight and where they think Australia is positioned relative to other western countries in our waste disposal. 2. Research and discuss food waste in Australia.	Discover statistics on this website: https://www.science.org.au/curious/earth-environment/food-waste-preventing-multi-billion-dollar-problem And by searching for Love Food Hate Waste websites in Australia
	Timeline of waste	1. Create an overview of how waste has been disposed of throughout time	Refer to curriculum resources at: https://www.wasteauthority.wa.gov.au/wss/curriculum-materials	
	Hypothesis on school's waste	1. Students create an estimate of the results that they would expect from their waste audit. 2. Present as a pie chart displaying the different types or mass of waste each student or the school as a whole currently sends to landfill over a year. 3. In conjunction with the actual waste audit this lesson could be conducted as a scientific investigation.	See a typical breakdown of waste in our schools in chapter 2.	
	What is waste?	Explore different types of waste, the concept of re-using resources, and decomposition in nature.		

Phase	Lesson	Brief lesson overview	Resources available
Explore	Conduct waste audit	1. Students conduct a waste audit	Steps to consider are explained in chapter 2.
	What is 'biodegradable' - experiment	1. Students develop strategies to manage the school's organic waste (fruit and vegetable scraps and garden waste) through composting.	For great composting, think like a microbe with help from Gardening Australia: https://youtu.be/prcAFVmfa78
	Excursions	1. Visit a landfill, materials recovery facility or waste transfer station. Contact your local council or regional waste management group for information.	www.rethinkwaste.com.au
	<p>Materials Recovery Facility or MRF is where the recycling goes to be sorted for processing.</p> <p>Waste Transfer Station or WTS is a site where waste is delivered and sorted before being transferred to another location for processing.</p>		
Explain	Story of stuff	1. View the online movie and consider how the actions and choices we make have an environmental impact.	http://storyofstuff.org
	Waste audit mathematics	1. Create a pie chart to display the results of your audit. 2. Calculate how much waste is produced by each student or the school across the year.	Waste audit mathematics lesson plan See chapter 3.
	School waste audit report	1. Students create a report on how the school is currently disposing of their waste and how to minimise the amount sent to landfill.	School waste audit report. See chapter 3.
	School assembly	1. This could be on the history of waste, about the waste audit results or explaining the concepts of reduce, reuse and recycle.	

Phase	Lesson	Brief lesson overview	Resources available
Elaborate	Action plan	1. Use the waste audit results to prioritise waste wise actions for the school. Use the Action Plan Toolkit as a guide.	Action Plan Toolkit
	Waste Warriors	1. Establish a student team to drive waste minimisation practices such as mobile phone recycling, and battery recycling.	www.rethinkwaste.com.au
	Help us!	1. Students write letters and newsletter articles to inform the school community about the need for waste reduction and recycling and request support for particular projects.	
	Zero waste lunch	1. Hold a zero waste lunch day.	
Evaluate	Conduct another waste audit	1. Compare new results with previous results. Focus on areas of continued concern. 2. Undertake the audit as a science investigation, making a hypothesis on any areas that may have changed.	
	Conduct a behaviour and attitudes survey of the students, parents and teachers	1. You may like to explore the difference between a person's attitude and actual behaviours.	Use Waste Wise WA's sample surveys. https://www.wasteauthority.wa.gov.au/wss/teaching-resources/list/behaviour-change-tools

Waste audit mathematics lesson plan

Aim:

Students use the information from the school waste audit to calculate figures about the school's yearly waste stream.

Curriculum links:

- Number and place value
- Fractions and decimals
- Using units of measurement
- Data representation and interpretation

Background

This activity can be used to summarise the findings from the waste audit.

Information

- Suitable for year 6/7 students although ideas to simplify or extend this are shown below
- Knowledge of waste categories is helpful
- 1 hour is required

Resources

- Copy of the school's waste audit results
- Information on the number of students at the school
- Paper and pencils

Activity

1. Use the completed waste audit results table (see chapter 3) to record the type of waste categories and the mass of the waste on the board for the students.
2. Explain to students that they need to find out how much waste is produced by the school each year for each category. They'll also need to calculate how much waste (on average) each student will produce in a year at the school. Ask students for ideas on how to do this by asking some of the following questions:
 - a. How many days will students be at school in a year?
 - b. How many students are at the school?
 - c. What maths operation would we need to use to work this out?
 - d. What number sentence would we write?
 - e. Which measurement is used to measure mass?

3. Students then need to complete the table in their work books, filling in the mass of waste per year produced and mass of waste produced per student per year by working out the correct calculations.
4. Ask the students to use their results to determine other waste calculations:
 - a. What is the total amount of organic recyclable waste produced in one day?
 - b. What is the total amount of non-organic recyclable waste produced in one year?
 - c. What is the total amount of non-recyclable waste produced by one student in one year?
 - d. What is the total amount of waste produced by the school in one year?
 - e. How do these calculations compare to the weight of an elephant, size of a classroom etc. Students to write some of their own statistics to be used to raise awareness of waste problems in their school.

To simplify

Use clip art or drawings to create a tally chart or graph to record the waste. The waste could be counted instead of weighed, and just your class's waste could be used.

To extend

- Start the lesson with the students identifying what waste would be produced at lunch, then categorise the waste into recyclable and non-recyclable or waste that could be reduced, reused or recycled.
- Students could use Excel, or a similar graphing program, to create their own table.
- Use the Excel table to create a pie chart of the percentage of weight in each waste category.

School waste audit report lesson plan

Aim:

Students identify the main materials in the school's waste, collate, and present data for the school's use and identify which items in the waste stream can be reduced, reused or recycled. The students will create a report using their knowledge of waste disposal and waste minimisation practices. Within this they should identify what actions are needed in the school to reduce waste, why these are needed and how the whole school can help.

Curriculum links:

- Real numbers
- Number and place value
- Using units of measurement
- Data representation and interpretation
- Creating texts
- Text structure and organisation
- Expressing and developing ideas

Background

This activity can be used as a way to communicate to the rest of the school the findings from the waste audit results either through written displays for around the school or as an assembly presentation. Students should be familiar with how to write an informational report.

Information

- Suitable for year 5 to 7 students although ideas to simplify or extend this are offered
- A series of one hour lessons is required. Time for researching using the internet, at home or at the library, would also be needed.

Resources

- Copy of the school's waste audit results
- Poster boards
- Paints or coloured pens
- Computer with Excel or similar graphing program
- Copies of relevant Rethink Waste fact sheets - available at www.rethinkwaste.com.au
- Clean waste items, photos, drawings or magazine clippings of waste
- Photos from your waste audit

Activity

1. As a class discuss the findings of the waste audit results.
2. Discuss the importance of the results and how these could be communicated to the school.



3. Lead the students towards presenting their information as a report.
4. Explain that students will be working either individually or in groups to create a report about your school's waste.
5. Provide the students with an overview of the headings and information that would be included in their report.
6. Provide an overview of the purpose of and language used in an introduction. For the introduction section of their report, you could use information found on relevant Rethink Waste fact sheets. These are available at www.rethinkwaste.com.au. The students need to take notes on the key points about the problems of landfill and why it's important to divert waste from here.
7. Provide students with a copy of their school's waste audit results or get them to produce these.
8. As a class, discuss which types of waste were in the greatest weight or quantity and should be a whole school focus.
9. Put the students into different groups to research specific waste types.
10. Organise the students with the relevant information and get the students to begin to research and take notes for their report.
11. If you'd like the students to research the details or costs of alternatives to sending the waste to landfill you may like to direct the students to www.recyclingnearyou.com.au
12. Students use their notes to create a written report about their school's waste audit results. You may like to include photos taken on the day or images from the internet.
13. This report can also be presented as a display that can be exhibited in the library or foyer for other students and parents to see.

Report format and information – summary

Introduction

- What is the problem? (Disposing waste to landfill).
- Why it is important? (Diverting waste from landfill, reducing greenhouse gas emissions, reducing the clearing of land, saving resources, minimising pollution).

Results

- Clearly labelled table of waste audit results.
- How the amount of each type of waste for the whole school per year and per student per year were calculated.
- Present results in graph or chart form. Students can use Excel or similar to chart and graph results.

Explaining the results

- Summarise the findings from the results.
- Summarise what types of waste the school

should focus on reducing and why. What percentage of the waste stream does this represent?

Recommended actions (you may like to brainstorm these first and get students to focus on only one area)

- An overview of a particular type of waste concern, the effects of this going to landfill and the alternatives to sending it to landfill.
- Students may wish to research specific details or costs of alternatives to sending it to landfill.

Conclusions

- Provide evidence of waste minimisation practices.
- Include a school plan for waste minimisation and recycling practices to be implemented at your school.

To simplify

Instead of a written report, waste audit results can be presented as a play, poster or a display.

To extend

- Student groups concentrate on specific areas of the school audit and report on it. For example, the canteen, staff room, lunches, purchasing, packaging or photocopying.
- Students could write letters to the school administration to outline how the school can improve current waste practices.
- Students could write letters to other classes to encourage them to become responsible for overseeing the diversion of a particular type of waste from landfill. For example, they could become responsible for diverting organic waste by composting this material.
- Students could interview parents, grandparents or an older neighbour about how waste collection has changed in their lifetime, what kind of waste they produced as children and how they disposed of it.

More curriculum links

Maths

- Estimate and then measure the weight/number of pieces of paper/plastic/organic material produced by a class. How does this vary across classes/year groups/days?
- Compare the amount of waste produced from consuming small multi-pack chips and one large pack of chips. Use a range of operations to consider how much more waste would be produced by a student/class/school/nation if they used multi-pack types of packaging over a year compared to bulk packaging.

English

- Students are to imagine that it becomes illegal to send rubbish to landfill as there is no room. It has instead been proposed that rubbish will need to be kept either at home or at school. Students could act as a reporter at the scene or write a diary entry or a poem.
- Students are to imagine that they have been transported into the future, a future where the principles of the waste hierarchy (avoid, reduce, reuse, recycle) have not been adopted - what would it be like? This could be the beginning of a story.

Humanities and Social Science

- Research how waste is disposed and how it can be minimised/reused/recycled.

- Research how much energy and water is used to make a recycled aluminium can or recycled paper compared to a new product.

Science

- Investigate how long it takes for different waste materials to break down when put into landfill.
- Research how organic materials break down in compost with oxygen (aerobic) or without oxygen (anaerobic).

Aerobic decomposition occurs when organic material breaks down in an environment with oxygen, allowing living organisms to feed upon the organic material.

Anaerobic decomposition occurs when organic material breaks down in an environment without oxygen, such as a landfill cell, causing organic material to putrefy and ferment.

The Arts

- Create a poster showing how much waste is produced by your school/students. For example, visually represent one piece of information such as how much paper a student would throw away in one year if it wasn't recycled.
- Make recycled paper.
- Use recycled materials to create a robot. Consider how your robot could encourage people to dispose of their waste correctly.

Resources

Trafford, C., 2006, World-wide Waste, Etram Pty Ltd, Australia

Useful websites

www.storyofstuff.org

A light-hearted short video about consumerism and the problems this creates.

www.sfenvironmentkids.org

This site has great lesson ideas.

<https://kab.org.au/litter-facts/>

Keep Australia Beautiful has educational resources free to download and use

<https://recyclingnearyou.com.au/nationalrecyclingweek/at-school/>

Planet Ark has activities and resources suitable for students

<https://www.cleanup.org.au/recykool>

A pilot online program for Australian schools

<https://nre.tas.gov.au/environmental-management/education-and-awareness-about-waste/schools>

Waste education and awareness activities from the Tasmanian Government

Example letter to inform parents/guardians of the waste audit:

Dear Parent/s - Guardian/s,

Our class is planning to conduct a waste audit on _____

Waste audits provide an opportunity to find out how much and what type of waste is produced by our school. This information can then give us an idea of where to begin our waste minimisation efforts, for example, what type of recycling to implement or what type of waste to reduce. The process of conducting a waste audit, the need for waste audits and the findings from this are also embedded within our programing and planning for this term.

When participating in the waste audit, the students will sort the waste into different categories and measure each of these. With a focus on the largest waste categories, the students will then collaboratively develop a plan to reduce waste in these areas.

Waste audits are carefully planned and the safety of students conducting the audit is paramount. Sorting is done in a ventilated area and is carefully controlled and supervised. Safety issues are discussed and the students will be provided with gloves and tongs to conduct the audit. Waste is never handled with bare hands.

The main goals are to become more aware of the waste we produce and to develop ways to reduce the amount of waste we would normally throw away. Conducting a waste audit is the first step to reducing waste in our school and playing our part in making our planet a healthier place to live.

You may also wish to be involved in this activity, please let me know if you are.

If you have any questions please contact: _____

Thank you for your support

Please complete the information below and return to: _____

My child, _____ has my permission to participate in the school waste audit to be conducted at school.

I, _____, am also interested in assisting on the day.

If interested in assisting, please provide a phone number so we can let you know how you can assist:

Ph: _____

Parent signature: _____ Date: _____

Waste audit results table

Name of School: _____

Date: _____

TYPE OF WASTE	Weight of waste (kg)	Weight of waste equals	Number of items
RECYCLABLE (organic)			
Food scraps (sandwiches etc.)			
Fruit and vegetables (scraps)			
Paper and cardboard			
Whole fruit/vegetables			
RECYCLABLE (non-organic)			
Aluminium - cans, trays and foil			
Glass			
Other recyclables			
Plastic bottles and tubs (e.g. yoghurt containers)			
Steel cans (tuna cans etc.)			
NON-RECYCLABLE			
Chip packets (and salty/savoury wrappers)**			
Lolly and ice cream wrappers**			
Plastic bags and cling wrap**			
Rubbish (other non-recyclables)			
Whole packaged food (unopened)			

** These soft plastics can only be recycled in the REDCycle recycling bins found at supermarkets.

What we found:

The items we found in the largest quantity were: _____

Ideas from students on how to minimise this waste: _____

More ideas to consider

The table below contains more ideas that you could consider implementing at your school to further Rethink Waste.

Canteen	
	Work with the canteen to encourage healthy eating, as healthy options often have less packaging.
	Work with and encourage the canteen to provide food options with little to no packaging. The canteen can also look into zero waste food storage options (i.e. containers instead of cling wrap or aluminium foil).
	Suggest the canteen makes some food from scratch in bulk volumes such as pasta bakes or lasagne that can be served in reusable containers/plates.
	Minimise the use of canteen paper by placing orders onto a white board (use in conjunction with reusable containers or plates/bowls).
	Keep in mind that dirty canteen paper can be shredded and processed through worm farms.
Collection	
	Look into collecting items for a charity organisation. For example, Rotary Australia donates reusable equipment for people in need - see website www.rawcs.org.au
	Collect other items from the community such as batteries, printer/copier cartridges, CFL light globes and old mobile phones - see the Rethink Waste Tasmania website for a list of recycling and collection services.
Organic waste	
	Sell or give away 'worm wiz' and worm castings from worm farms as a plant tonic.
	Look into creating permaculture gardens/beds that may be used in conjunction with compost and worm farms.
	Consider the possibility of having chickens, to feed food scraps.
	Keep in mind that dirty canteen paper can be shredded and processed through worm farms.
Recycle	
	Talk to your local council about what can be recycled in your area to avoid confusing the message.
	Organise paper recycling at your school and investigate recycling bins for other materials.
	Paint boxes with bright (obvious) colours to be used as recycling and rubbish bins in each classroom, and allocate students to empty them into larger recycling bins. Stick to red for rubbish, yellow for co-mingled recycling, and lime green for food and garden waste.
Reuse	
	Make paper from 'waste' paper. Homemade paper note pads or cards can be sold to parents and the school community.
	Make and distribute note books from used paper that is blank on one side.
	Obtain a 'reuse shed' where teachers and students can store items that can be reused at a later date (for art, science classes etc.).

	Consider having student groups collect and repair old bicycles that can be sold to the school community or donated to charitable organisations.
Support	
	Form a committee of interested teachers and students to help share the workload.
	Encourage other teachers, groundskeepers and canteen staff to attend a Rethink Waste follow-up workshop.
	If possible, enlist the support and involvement of groundskeepers/gardeners as they can be invaluable to the success of your Rethink Waste activities, especially for composting, veggie gardens and worm farms.
Whole School	
	Publicise the results of the audit in your school newsletter to notify parents and other students about waste generated at school (especially wasted food).
	Create a 'reuse fashion show' as an assembly item to demonstrate and promote reusing.
	Create a display from your waste audit results to put up in a common area and/or show at assembly - include results, pictures, fact sheets etc. You may also want to announce results over the public address (PA) system.
	Hold school swap meets or garage sales, where students can bring in old books, toys and sports gear to swap with one another.
	Record how much paper you are recycling on a weekly basis (for example, if one ton of recycled paper saves about 13 trees) - plant a 14th tree in celebration of your efforts. If there is no space to plant a tree on school property, look at working in conjunction with an organisation or community group to have them plant a tree on your behalf.
	Contact us about our Rethink Waste School videos, books, props, and resources available to borrow.

Next steps:

Rethink Waste Steps (if not yet completed):

- Use the results from your waste audit to write a waste action plan for your school based on the sample plan provided. This is simply a broad outline of the actions you intend to take and an approximate timeline. Remember, this doesn't have to be complicated. Use the sample plan as a guide and make sure the timeline is realistic!
- Write a school waste policy – this should be a simple statement of intent for the entire school. Feel free to use the sample policy on www.rethinkwaste.com.au for ideas.

Grants

Investigate if there is a community or government grant program that is relevant to your school's waste reduction initiatives.

Advice

- Ask us about schools you can be in contact with for ideas and to start communities of practice.
- Talk to the lead teacher at your nearest Sustainable School.

FOLD HERE



Other recyclables

For example batteries and reuseable goods

FOLD HERE



Food scraps

FOLD HERE



Plastic bags and cling wrap

Soft plastic

Please count all plastic bags and cling wrap before weighing

FOLD HERE



Fruit and vegetable scraps

FOLD HERE



Plastic Bottles and Tubs

Please count all plastics before weighing

FOLD HERE



Lolly & ice cream wrappers

Sweet wrappers

Please count all wrappers before weighing

FOLD HERE



Chip packets

Salty/Savoury wrappers

Please count all packets before weighing

FOLD HERE



Paper and cardboard

FOLD HERE



Steel cans

Please count all steel cans before weighing

FOLD HERE



Glass

Please count all glass items before weighing

FOLD HERE



Whole fruit

Please count all whole fruit before weighing

FOLD HERE



Whole packaged food

Unopened

Please count all whole packaged food before weighing

FOLD HERE



Rubbish

Other non-recyclables

FOLD HERE



Aluminium

Cans, trays and foil

Please count all aluminium items before weighing

Reth!nk Waste

TASMANIA

www.rethinkwaste.com.au