

The Waste Wise Schools Program

# Waste Audit Toolkit



Department of Environment and Conservation  
Waste Authority

**WRIGLEY**  
A Subsidiary of Mars, Incorporated

# Acknowledgments

**Written by** Danielle Ralph

**Illustrations by** Rod Waller

**Designed by** Su-Anne Lee, Spice Creative

**Edited by**

Jennifer Weston

Patrick Hamill

Wendy Aspden

This guide was developed by the Waste Wise Schools Program which is managed by the Department of Environment and Conservation and supported by the Western Australian Waste Authority through the landfill levy fund, with additional assistance from the Wrigleys Corporation, a subsidiary of Mars.

**For more information about the program please contact:**

The Waste Wise Schools Program  
Department of Environment and Conservation

Locked Bag 104  
Bentley Delivery Centre, WA 6983

Phone: (08) 6467 5011

Fax: (08) 6467 5532

Email: [wastewise@dec.wa.gov.au](mailto:wastewise@dec.wa.gov.au)

Web: [www.wastewise.wa.gov.au](http://www.wastewise.wa.gov.au)

# Contents

<b>Introduction</b>	<b>1</b>
<b>Chapter 1 Waste Wise Schools program</b>	<b>2</b>
About the Waste Wise Schools program	2
<b>Chapter 2 Waste audits</b>	<b>3</b>
A waste audit	3
Waste and related issues	3
A typical breakdown of waste in schools	4
<b>Chapter 3 How to conduct a waste audit</b>	<b>5</b>
Plan it	5
Set it up	6
Run it	6
Keep it going	8
<b>Chapter 4 Waste audit scope and sequence, lessons and tools</b>	<b>9</b>
Waste audit scope and sequence	9
Scope and sequence table	10
Waste audit mathematics lesson plan	14
School waste audit report lesson plan	16
More curriculum links	19
Other resources	19
Useful websites	20
Example letter to inform parents/guardians of the waste audit	21
Waste audit results table	22
Waste audit signs	25

# Introduction

The **Waste Audit Toolkit** is an operating practices manual that is intended to guide the development and implementation of waste audits in schools. The information gained from an audit is an invaluable step towards developing a focused and data driven method to reducing the amount and types of waste your school sends directly to landfill. It is usually the second step schools take towards becoming a Waste Wise School after completing the Waste Wise introductory workshop.

The **Waste Audit Toolkit** has been designed to promote best practice; however, the key is finding what works for your school. This toolkit has been designed with the intention that 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 Waste Wise Team**



For more information go to  
[www.wastewise.wa.gov.au](http://www.wastewise.wa.gov.au)



# Chapter 1

## Waste Wise Schools program

### About the Waste Wise Schools program

Waste Wise Schools throughout Western Australia are reducing waste by implementing the 3Rs – reduce, reuse, recycle – while developing positive environmental values in students and the whole school community. Waste Wise Schools model responsible environmental behaviours through hands-on learning experiences that are linked to the WA Curriculum Framework. The program helps schools set up infrastructure and provides resources aimed at changing attitudes and behaviours in regards to sustainable waste management. The program is free and available to all schools in Western Australia.

**“The Waste Wise Schools program has been developed based on best practice education for sustainability principles.”**

### The Waste Wise Schools philosophy

The Waste Wise Schools program has been developed based on best practice education for sustainability principles. The overarching message of the program is to reduce, reuse and recycle to promote the sustainable use of natural resources and minimise our collective environmental footprint.

### The Australian Sustainable Schools Initiative – WA

Through participation in the Waste Wise Schools program, your school has already begun participating in Australian Sustainable Schools Initiative – WA (AuSSI – WA), and schools can formally register and learn more about AuSSI – WA through the online toolkit. For further information regarding the Sustainable Schools Initiative WA, visit the project website: [www.det.wa.edu.au/sustainableschools](http://www.det.wa.edu.au/sustainableschools)





# Chapter 2

## Waste audits

### A waste audit

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. The information can give you an idea of 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 of measuring improvement, particularly if you're planning on implementing a waste management plan.

### 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 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, with one such 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 brother, sister or friend.

There are a number of places we put our waste, including the rubbish bin, recycling bin, compost bin and worm farm. Usually if a school has not arranged for a recycling service, the waste in the rubbish bin is sent to landfill or the rubbish tip. This traditionally involves burying or piling our waste in or on the ground. There are a number of issues that our waste can create. Some may include:

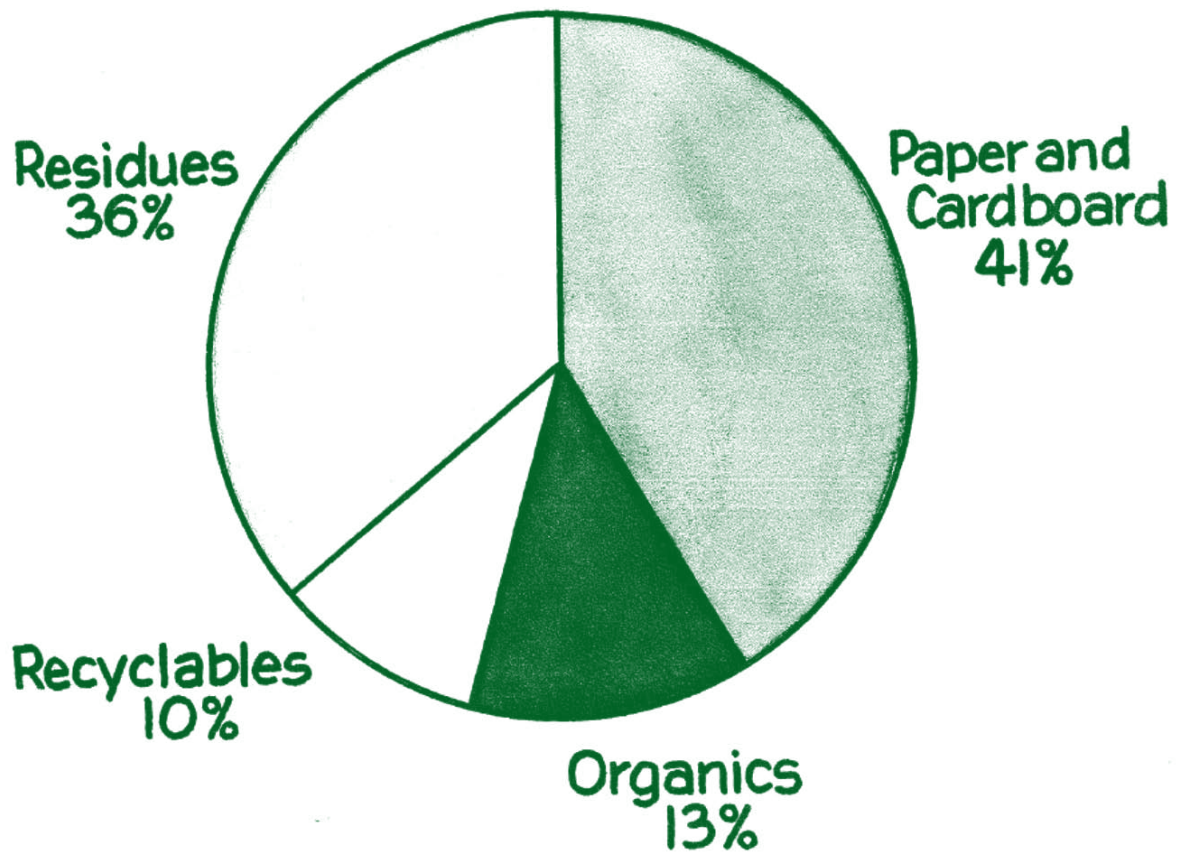
- Land clearing to build landfills may cause loss of biodiversity and habitats.
- Windblown waste from the landfill may allow litter to enter waterways or the bushland and could affect native fauna.
- Leachates or toxic liquids from products such as batteries and old paint may contaminate the soil and ground water (if the landfill or tip isn't lined with protective plastic).
- Social impacts that may occur from the unpleasant nature of the landfill include 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 about 20 times stronger than carbon dioxide. This refers to it being 20 times more able to hold heat in the atmosphere than carbon dioxide.

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.



## A typical breakdown of waste in schools

In November 2001 a series of waste audits were conducted in Perth schools. Results showed that there were significant opportunities for schools to reduce the amount of waste that they are sending directly to landfill.



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

**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 (soiled paper).

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

**Recyclables:** Approximately 10 per cent of total waste is comprised of common recyclables such as liquidpaperboard (drink cartons), 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 the 3R principle – reduce, reuse, recycle – to all the resources used in a school will further reduce school waste.



# Chapter 3

## How to conduct a waste audit

### 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 the rest of your school 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 having 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 that the benefits of the audit reach several year groups.

#### 2. Work out how many bins will be used.

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 sort only a percentage and adjust the results accordingly. If your bins are not emptied daily make sure that you consider this in your final results.

It is important that you conduct the audit after lunch or at 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.

**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.**

#### 3. 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 just how much is preventable or recyclable.

#### 4. 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.



#### 5. Choose a suitable location for your waste 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.

#### 6. Plan the cleanup.

Make sure that you have a hose available for washing down the materials following the audit. You may want to ask the students, gardener or cleaner to wash down the area following the audit. Plastic sheeting is used to reduce the mess. However, a certain degree of mess is unavoidable. You can request a waste audit toolkit by emailing [wastewise@dec.wa.gov.au](mailto:wastewise@dec.wa.gov.au). The kit includes black plastic sheeting and gloves.





## Set it up

### 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, chapter 4 of this document.

Students can bring tongs from home if parents don't feel that gloves are sufficient. If you think that it may be necessary, ask parents to complete a permission slip for their children to participate.

### 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 4), provides examples of how you may like to do this. By following these lesson plans, you may spark the interest of the students to change their behaviour in regard to their current waste disposal practices. You will also provide them with the skills and knowledge base to enable them to make a valuable contribution to their local community based on informed decisions.

### 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 and what you plan on doing with the data.

Consider enabling the students to plan and set up the audit themselves or break the group into two 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
- sorting containers or squares of newspaper for each of the 15 waste categories
- [waste audit signs](#) for each of the waste categories. (You may want to laminate these for future use, see the 'tool's' section, chapter 4).
- gloves for each student participating and a box to keep these in
- copy of '[Waste Audit Findings](#)'(chapter 4), pens and clipboards for each group
- a portable scale that can measure large amounts and hold the containers
- waste audit results.

## Run it

### 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 (excluding all recycling bins). If you are auditing a percentage of the waste then ensure you have collected bins that represent the correct percentage of waste to be sorted.



## 2. Arrange the audit equipment.

- Lay out a sheet of sturdy plastic big enough to accommodate all the waste from the bins.
- Place 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. Discuss the importance of waste audits.

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 would also be 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 (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 per cent).



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

Rubbish (other non-recyclables), fruit and vegetable and food scraps can just be weighed. However some of the waste categories would 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 are also identified on the signs.



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

- Gather in a circle around the containers to discuss what you have found. For example there was more paper than you expected or less food than you thought.
- Calculate the number of items or mass over the school year and the amount produced per student on the attached table '[Waste Audit Results](#)' (Chapter 4).
- Record your results in the attached document '[Waste Audit Findings](#)', including the four items that you found the most of 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 may like to establish a worm farm.



## Keep it going

### 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 would 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.











































































