

# School Waste Audit Guide

Waste Education and Policy Officer  
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## Introduction

Building waste reduction and waste education into every aspect of school life not only benefits our environment, it also helps schools reduce costs and improves quality of life for the community.

In schools the majority of waste is made up of food, paper and packaging, as well as glass, plastic, and aluminium. The majority of your school waste goes to landfill. Landfills are filling up at an alarming rate. If current disposal rates continue there are concerns about the health impacts of this disposal technique. Reducing, Reusing, Recycling and other more sustainable waste management techniques are helping to reduce waste to landfill, but much more can still be done.



Figure 1: The Waste Hierarchy. NSW EPA. NSW Government

Due to the sheer number of people who attend school, and the subsequent waste that is potentially created, schools are in a great position to significantly reduce the amount of waste they create and send to landfill.

As well as this, schools being the epicentre of community, have an opportunity to send those lessons learned from undertaking a waste audit into the homes that surround the school, which in turn can have widespread positive impact on the way local residents think about and handle their waste.

This School Waste Audit Guide is designed to help schools carry out their own waste audit. Appendices 1-3 provide a range of tools to assist in preparing for an audit, undertaking the audit, and how to take practical action to reduce the amount of waste you create and send to landfill.

This guide also highlights the learning outcomes that can be achieved for each stage under the National Curriculum by undertaking a waste audit.

## **What is Waste and Where does it go?**

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 that goes into the bins that are scattered around the school (playground, classrooms etc) will be sent to landfill.

## **What is Landfill?**

We are going to be mentioning this word a lot so it's a good idea that we explain what a landfill is and its purpose.

A landfill is a location where disposable materials (rubbish) are sent. There, the rubbish is buried underground to remove it from sight. It is done in a way that aims to prevent any of the rubbish coming into contact with and potentially contaminating any groundwater or affecting any of the surrounding environment. Although there are a lot of new technologies that exist in the modern-day landfill, the concept of burying our rubbish is one of the oldest forms of waste disposal and is still one of the most common practices of waste disposal in the world.

## **What is a Waste Audit?**

A waste audit is an evaluation of the waste produced by the school that is being sent to landfill.

Conducting a waste audit allows your school to discover two things:

1. How much waste your school produces
2. What type of waste is produced

This information will provide a starting point to begin your journey of waste minimisation in your school by highlighting some important questions, such as:

- What are we sending to landfill that can actually be recycled or composted or reused?
- How can we reduce the amount of waste we create?
- How can we increase the amount of stuff we recycle?

The information gathered will become a valuable measuring tool to be used as a baseline for making changes to waste management at your school.

## **What are the Benefits of doing a Waste Audit?**

There are many sustainable benefits to carrying out a waste audit in your school. Not just for the environment, but it will also save your school money and help to make your school a happier, healthier place.

### Environmental

There are a number of environmental problems connected with landfill including:

- 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. The more greenhouse gases that are created the more we are adding to the problem of global warming. Global warming means the Earth's air temperatures are gradually increasing more and more, which in turn is changing the current climate of our planet at an unnatural rate.


So, if we can reduce the amount of waste going to landfill, we are doing a great thing for the environment!

### Save your school MONEY!

Did you know it is expensive to get rid of your waste! Schools have to pay to have their waste removed and taken to landfill. Imagine if you could reduce the amount of waste you sent to landfill by over 50% every week. You would half your waste bill every week.

What could you do with that extra money? Maybe it could go into a "Green Project" fund, which could help to fund more environmental projects.

### Makes your school a healthier and happier place



When you reduce the waste that your school creates and sends to landfill, you are not only helping to create a healthier planet, but also a healthier school.

How? Often, improving your waste habits includes:

- Hosting 'nude food' days to reduce single use plastic consumption
- Whole food sale at the canteen
- Creating a composting or worm farming system that in turn encourages the development of a veggie garden
- Encouraging healthier eating habits in the home
- Learn how to make home-made snacks to reduce soft plastics and individually wrapped snack items in your lunch box.

As well as this, students will discover how important their role is in helping to reduce global pollution by tackling a local issue and thus increasing community and environmental stewardship.

## Pre-Audit

Before undertaking the waste audit there are a few steps we need to do first.

### Step 1:

Understand the existing waste collection system of your school. Use Appendix 1 to determine how much waste your school currently produced as well as the cost of disposing this waste. This will help you know how much you can potentially save after you conduct your audit, it is helpful to have this information together before completing your first audit.

### Step 2:

- Determine your goals and objectives for doing the waste audit.
- Waste Reduction Goals and Objectives

It is one thing to decide that you want to reduce the schools waste creation and disposal. It is another to actually do it. Writing down your goal and objectives with respect to waste will assist you and the school to understand how to improve the way you look at waste and how you manage it.

**Objectives - general statements of what needs to be accomplished**

**Goals – provide specific milestones with a specific timeline for achieving a goal**

Sample objectives:

- significant waste reduction across the school
- Reduction in waste going to landfill?
- increase in recycling
- Saving money from reduced waste disposal fees
- Educating students and staff on waste
- Separating food waste

Sample goals:

- 50 % reduction in waste disposal fees by mid next year
- 25% increase in Return and Earn containers collected by end of year
- 2 x240L compost bins in use by mid next year
- Develop a range of media for waste separation

*Council can attend your school to work through the objectives and goals setup. Allow approximately 45 minutes for the session. This will include a 15-minute introduction to waste and what an audit is and then time working through the objectives and goals.*

### Step 3:

Determine the number of days' worth of waste you would like to conduct the audit on and arrange with the relevant person to ensure this waste is stored for the audit in a sanitary manner.

Following the Audit you can use the results to determine projected waste volumes for a week/month or year (see Appendix 2)

*Most schools do 1-2 days' worth of waste, based around their collection requirements.*

### Step 4:

Determine what waste categories you want to include in your waste audit (e.g. soft plastics, organics, paper etc...) and how you are going to measure the amount of that waste type.

For example, if you are trying to find out the amount of organics (i.e. food, hand paper towels) in your waste, will you:

- Weigh it using scales
- Measure the volume using additional containers (make sure you know the volume of these containers)
- Count the individual organic items

Depending on the waste type and the information you want to know, will affect what measurement you may take (e.g. bottles and cans for return and earn would be counted). However, it is recommended that as well as individual methods, you also use a consistent form of measurement, such as volume across the entire waste audit so it helps you understand what you have uncovered by the end of the audit.

#### Types of waste to include in your audit:

The most common waste categories targeted in the waste audit include:

- **Paper and Cardboard.** Most schools already have a paper/cardboard collection service, so how is paper and cardboard ending up in bins that are going to landfill?
- **Organics – food waste.** How much food are you throwing away that could either been eaten or composted?
- **Recyclables.** Items such as bottles and cans can not only be recycled, they could earn you money as part of the Return and Earn scheme
- **Landfill/residues.** And finally. What is left over that has to go to landfill? (you may be surprised at how little the amount is!)
- **Soft Plastics.** Did you know any plastic that can be scrunched into a ball can be recycled now at Coles or Woolworths? From here it is turned into plastic furniture or children's play equipment.



- **Other.** Have a special waste type at your school you want to identify and measure – just add it in!

### **Step 5:**

Carry out a spot check of the volume of rubbish you are about to audit.

You may be doing an audit of all your school bins, but are they all full? (this step can be aligned with Step 1)

Simply decide if they are:

- Full
- $\frac{3}{4}$  full
- Half full
- $\frac{1}{4}$  full

*Example – Colo Vale Public School conducted a waste audit on 11 x 120L bins. These bins were half full, which means approx 660L of waste was audited (rather than the maximum of 1320L). From this 660L only 30L actually had to go to landfill with the remaining 630L either having the potential to be repurposed, recycled, provide income through the Return and Earn Scheme or be composted.*

# Undertaking the Audit

## Resources

- Gloves\*
- Safety Glasses (optional)\*
- Tongs or grabbers
- Large rubbish bags
- Tarpaulins
- Rake or broom
- Scales/Spring balances/hanging scale – measures in 0.1kg increments between 100g – 20kgs
- Clip boards and pens for recording
- Buckets for waste sorting and weighing
- Bags for sorted waste
- Felt tip Marker for labelling bags
- Whiteboard and pens for recording weights

\*For each student

***Note: All students must have enclosed shoes on the day to participate***

## Student Roles

**Sorters:** Students will sort through the waste placed on a central tarp and separate the waste types to additional tarps (one for each different waste type). Label each tarp with the type of waste you are placing on it

**Weighers/Volumer (not a real word):** As the waste is sorted students will either weigh each of the waste types or measure the volume of each waste type. If you are weighing, weigh in increments then total the waste type at the end.

**Scribes:** the students will write down and record the waste types, weights, volumes and make comments on what is being found as the audit is being conducted.

**Counters\*:** Count the number of items in each category where possible e.g. straws, drink containers, sandwiches, whole fruit etc.

Note\* ***How many 10c containers are you throwing away?*** If you are interested in knowing how many eligible containers under the Return and Earn scheme you are throwing away (i.e. potential money going into the bin) make sure you get your counters to record this.

**Data analyst:** A student who is good at entering the data for closer examination in the post-audit stage.

**Audit recorder:** This is a great step your school is taking to reduce its impact on the natural environment. So, make sure to record this wonderful collaborative event for future promotion and to use in potential future grant applications, include photos, or even video if you like.

### **Undertaking the Audit**

1. Ensure that students have been allocated to their specific roles as listed above
2. Tarps are laid out on site and labelled and all equipment is ready to go, and students have been supplied with the gear required.
3. Spot check of bins to determine the volume of waste being audited
4. All waste to be tipped out on to the large central tarp
5. Begin sorting the waste into the correct areas – continue until all the waste has been sorted.
6. Allocate two weighers/volumers, counters and scribes to each tarp for weighing and recording of items\*.
7. Once all the waste is sorted into the different types you can take a closer look at what is in the recyclables, including:
  - a. 10c containers, bottles, cans and poppers (Return and Earn)
  - b. Plastics – soft and hard separately
  - c. Paper and Cardboard – if it has not been placed in the paper and cardboard area
8. Data analyst to compile all the records of weights and waste types for further discussion during the post audit process
9. Complete the projected waste volumes, potential return and earn and Snap Shot of the Day (appendix 2) to get a picture of what you have just discovered

\* See appendix 2 for Waste Audit Record Sheet

***Note: Stained paper lunch bags, tissues or other dirty paper need to go into the organics***

## Post Audit – Where to from here?

The results are in!!

Once the audit is complete it is important to undertake a post audit review, so we can understand what the results mean. Appendix 3 has a number of tools to help you do this and begin to develop your schools' future plans to reduce waste going to landfill.

### Recommendations

Have a look at the results of the audit and make recommendations on how you may reduce your waste to landfill. The template has been divided into the different waste types, so you can address each waste type individually

- Organics
- Recyclable
- Soft Plastics
- Landfill

Add other categories if you wish

### Review Waste Reduction Goals and Objectives


Often as we carry out a project we learn new things along the way. As a result, you may want to change goals and objectives or add goals and objectives. There is nothing wrong with this. It shows that you are paying attention to what you are doing and are open to taking on new information as it comes to light.

Here we give you an opportunity to review the goals and objectives that have been set during the pre-audit process and determine if they need to be adjusted or can remain as they were.

### Waste Reduction Action Plan

Action plans are developed to provide a clear picture of how you will specifically achieve your goals and objectives.

This template will help you prioritise and develop actions for each of the waste audit objectives and goals developed.



Here are a few actions to get you started:

- Develop waste education signage around the school to help students sort their waste
- Zero waste lunch day
- Nude food day
- School assembly update sessions. Take the entire school on the waste reduction journey
- Establish compost or worm farming areas. Great for your veggie garden
- Work with canteens to reduce single use plastic items being handed out. Can alternatives like bamboo or compostable material be used?
- Fix it day. Hold 'fix it' events with the aim of reducing the amount of stuff that is thrown out
- Reusable Art and craft competition. Encourage fun activities like a reusable art and craft competition that sees students repurposing items that would otherwise be thrown in the bin. Display the artwork as a point of pride in the administration offices

Utilising school newsletters to get your great waste work out to the wider community.



## Share your story

As we have already discussed, doing a waste audit and taking action to reduce the waste your school creates is a great thing for your school, community and global environment. So why not share it with your community through the schools media avenues.

### **Southern Highlands Schools Waste Reduction**

At Wingecarribee Shire Council we are always striving to reduce our impact on the environment and also look for opportunities to assist members of the community to reduce their environmental footprint.

By collecting the waste audit data from your school, we can start to paint a picture of how much waste we have stopped going to landfill collectively. From this information we can also calculate how many tonnes of greenhouse gases we have prevented from being produced.

So please, send us all of your audit information!!

Email: [waste.education@wsc.nsw.gov.au](mailto:waste.education@wsc.nsw.gov.au)

Send us any photos, data and funny stories associated with your audit time.

## Syllabus Links for Waste Audits\*

Waste Audits and the development of a School Waste Reduction Plan provide opportunities for students across a range of subject areas. The following are some of those links:

**Geography:** Investigations into managing waste sustainably can support the following syllabus areas:

Stage 2 The Earth's environment – protection of environments

Stage 3 Factors that shape places – factors that change environments; humans shape places

Stage 4 Place and liveability – environmental quality

Stage 4 Interconnections – production and consumption

Stage 5 Environmental change and management – environmental management

**Mathematics:** Mathematics is utilised in the collecting, analysing and representing data. Students will measure weight and volume, and use multiplication, division and percentages to analyse data.

**English:** If the school develops the Waste Reduction Plan students will use literacy skills to collaborate and communicate proposed waste reduction strategies.

**PDHPE:** Undertaking personal actions that reduce waste such as not littering, recycling, bringing low waste lunches and re-usable containers are actions that contribute to healthy and safe lifestyles and communities.

**Science and Technology:** Investigating sustainable resources in design and production processes in the following syllabus areas:

Stage 2 Material World – materials are used for a specific purpose

Stage 3 Material World – properties of materials determine their use

Stage 4 – Earth and space – how scientific understandings influence choices

\*Information from Guide to Conducting a Waste Audit NSW Department of Education, August 2018



# *Appendix 1 – Pre- Audit Preparation and Checklist*



## Outline of existing services

School:

Date:

Name:

Phone:

Waste Type	Size and Number of Containers	Contractors Name	Collection Frequency	Cost of Collection

# Pre-Audit Waste Goals and Objectives

**Objectives:** What you hope to achieve

**Goal:** to determine if you're meeting your objectives

Objective
Goal
Goal
Goal

Objective
Goal
Goal
Goal


Objective
Goal
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Goal

Objective
Goal
Goal
Goal

## Pre Audit Check List

- Make sure you have approval from the principal to undertake the audit
- Invite your local Council or environmental agency staff to support or assist with your audit
- Give details to the Council support person of any existing environmental initiatives currently in operation at the school e.g. composting, paper recycling and environment club
- Inform all staff including cleaners, canteen staff and maintenance staff of your intention to complete the audit
- You may want to hold a briefing with staff and interested parents (optional)
- Select students, classes and or/special groups to be involved
- Inform the students involved of the purpose of the audit, and how their input will contribute to improved waste management at the school
- Divide students into teams
- Issue permission notes for students if required
- Computer on the day to add in results (optional)
- Map of bin locations and number of bins on school grounds and buildings identifying where the different bins are located (for use after the audit)
- Organise to remind all staff in the school notices the day before the audit of any changes to routine
- Inform the whole school and student body that a waste audit will be taking place – short whole school assembly on the morning of the audit happening
- Afternoon of audit schedule a follow up assembly to present the preliminary findings – students can present for each of the waste streams
- Organise the waste from either the day before/week before to be kept aside
- Prior to the audit line all the bins with plastic bags, and store the waste in a secure location for sorting on the day of the audit
- Label each bag of waste with where it has come from
- Organise an area for sorting of the solid waste out of the way of students at recess and lunch
- Council can supply some tongs and gloves, it is recommended to encourage students to bring some along also
- Spot check of bins to estimate the total volume of waste being audited

*Infrastructure changes – please be aware that at times changes in bin types can be challenging as it will involve in potentially changing arrangements with cleaners and existing waste collection contractors.*



## *Appendix 2-Undertaking the Audit – Measuring and Recording sheets, and Snap shot of the day*



## SNAP SHOT OF THE DAY

Make Comments about the type of waste in each category and be sure to mention anything unusual

### ORGANICS

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### RECYCLABLE

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### SOFT PLASTICS

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### LANDFILL

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**REDUCE OR AVOID – what waste created here can be reduced or avoided? What are your suggestions or ideas**

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# *Appendix 3 -Post Audit – Recommendations, Goals and Objectives and Waste Reduction Plan*



## RECOMMENDATIONS

What are the recommendations for each of the waste types to reduce or avoid the waste generated and the waste sent to landfill? You may want to look at the suggestions/ideas written down during 'snap shot of the day'

### ORGANICS

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### RECYCLABLE

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### SOFT PLASTICS

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### LANDFILL

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## Review Waste Reduction Goals and Objectives

Objective
Goal
Goal
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Objective
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Objective
Goal
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Goal





## Waste Reduction Action Plan

The waste reduction action plan will help you identify what actions you need to undertake to achieve your objectives and overall goals. The actions you develop should follow the SMART framework:

*Specific*      *Know what has to be achieved*

*Measurable*    *Know how to show the results*

*Agreed*        *Agree on what and how*

*Realistic*      *Know that it can happen*

*Time-based*    *Know when it is to happen by*

## Predicted Savings and predicted income

As mentioned in the beginning of this guide, undertaking a waste audit increases your sustainability, not just environmentally and socially but also financially. You can expect to see some financial savings from waste reduction as well as potential financial income from initiatives such as the Return and Earn Scheme. It is important that you document these saving and income, so you can demonstrate to the relevant stakeholders (e.g. Principal, P&C, DEC) the financial incentives of becoming a more sustainable school.

*Use the template on the next page to write out the actions that will go with each Goal and Objective as well as any predicted savings and or income.*

## Template for Waste Reduction Action Plan

<i>Goal</i>	<i>Objective</i>	<i>Action</i>	<i>Timeframe</i>	<i>Predicted Savings</i>	<i>Predicted Income</i>	<i>Priority</i>