

Resources

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Data collection has dual benefits: to provide a benchmark against which future performance can be measured and the opportunity to recognise and celebrate the achievement of targets.

The whole school approach to waste management in Victorian schools Rutherglen Primary and Cobden Technical, achieved a reduction in waste of 99%, annual savings totalling thousands of dollars and strong evidence of positive behaviour change in staff, students and parents.

Adapted from Pat Armstrong, Gould Group 2005



Wipe out Waste



KESAB Solid Waste Audit Guide

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'Weighing off' and recording data



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Foreword

As part of the development of the WOW - Wipe Out Waste program funded by ZWSA, Solid Waste Audits were conducted by KESAB waste auditors at 10 school sites from pre-school to secondary level.

The audits were undertaken in order to identify:

- ▼ the types of wastes being generated at school sites
- ▼ baseline data for schools to assess the effectiveness of their waste systems
- ▼ opportunities for improvement of these systems and further waste reduction.

This resource has been developed to enable schools to conduct their own audits with minimal assistance and to encourage practical, student-initiated learning.

This guide includes:

- ▼ materials to support planning, conducting, reporting and reviewing a waste audit
- ▼ templates for OHS&W, data collection and reporting / graphing
- ▼ an equipment list of audit and personal protective equipment available from KESAB.

Further information relating to waste audits is available via the WOW website www.wow.sa.gov.au

Please ensure that your audit results and recommendations are forwarded to KESAB so that:

- ▼ KESAB can review recommendations and discuss these with the school
- ▼ a broad picture of school waste management can be developed for South Australia.

Equipment and qualified KESAB auditors are available to assist with your audit.

Introduction

What is a Solid Waste Audit?

This is a comprehensive hands-on audit of solid waste to gather data for specific waste categories by weight and volume. Involving staff and students in the process provides an opportunity for practical student-initiated learning about the waste generated in their school community and to develop systems for waste minimisation.

Why complete an audit?

A Solid Waste Audit will:

- ▼ provide an assessment of current practices and baseline data (ie the source, type and quantity of waste generated in different areas of the school)
- ▼ identify successful programs
- ▼ identify efficiency issues (eg printing only on one side of paper, food wastage, etc.)
- ▼ identify opportunities for improvement (eg paper recycling, 5c deposit container collection)
- ▼ identify school cost savings and fundraising opportunities
- ▼ establish actions for waste reduction
- ▼ provide student learning opportunities about waste management and minimisation

The level of detail of an audit will depend upon the size of the school and the time available to plan and conduct the audit. For some schools it will be possible to audit all waste generated in a given period of time, whereas others may be limited by size and will only audit a percentage of total waste, or specific waste streams at their site.

Learning Through Action

Throughout the audit process students will have the opportunity to learn by:

- ▼ planning and implementing appropriate preliminary investigations prior to audit day to determine the best method of collecting useful data from waste generated by the school
- ▼ researching risks and developing an Occupational Health Safety and Welfare (OHS&W) plan for the audit
- ▼ collecting and classifying the audit data
- ▼ analysing and presenting the audit data
- ▼ recommending how the whole school community can take action to reduce school waste
- ▼ assisting with the implementation of the recommended actions
- ▼ evaluating the success of actions taken (eg cost reductions or funds raised through 5c container collection)
- ▼ promoting the success of the program to the whole school community.



Audit day - 'Weighing off' and recording data



Sorting the paper stream



Teacher and students sorting waste and recording audit data



Pre-audit Activities

What do we know?

A discussion with the class/es involved in the waste audit will help to identify what students already know and practice at school and at home with regard to waste.

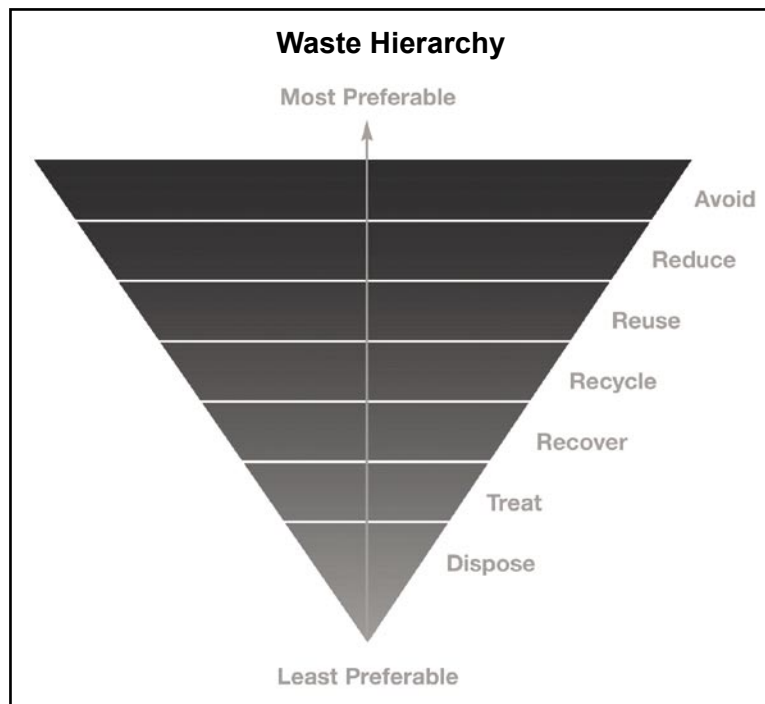
Students can examine their own role at school as generators of waste and share their observations.

Discussion questions may include:

- ▼ What is 'waste'?
- ▼ What waste do we create (types and quantities)?
- ▼ What happens to our waste at home or school?
- ▼ Who is responsible for waste management in the school?
- ▼ What happens to waste from school?
- ▼ What impact does waste have on the environment and how do we manage this?
- ▼ Why recycle? What is recyclable?
- ▼ Why would we consider reducing, reusing, recycling, or avoiding waste?
- ▼ What is a solid waste audit?
- ▼ Why conduct a solid waste audit?
- ▼ What would we learn and what can we do with this information?

Student investigation of school waste practices may include:

- ▼ How much waste goes to landfill?
- ▼ What recycling / waste collection systems are in place at school?
- ▼ Why does the school have these systems?
- ▼ Do these practices differ from recycling at home?
- ▼ What costs are involved for the school?
- ▼ Do they save the school money?
- ▼ How effective do you think they are?
- ▼ How well do students support them?
- ▼ What else might the school do?



5c containers found in waste stream

Pre-audit Planning

Prior to Audit Day the following tasks must be completed

- ▼ Determine the scope of the Audit
- ▼ Map the waste to be collected
- ▼ Pre-audit day procedures
- ▼ OHS&W - Risk Assessment

These tasks may be completed as a class, group or individual exercise. They are ideal for middle primary to year 10. The level of involvement will vary according to the task and the age of students involved.

School environment student groups can assist in the planning tasks in collaboration with students involved in the audit. They may also be involved in assisting with the audit. For secondary schools it may be practical that such groups conduct the audit.

Determine the scope of the audit

To determine the extent of the audit, ask:

- ▼ What do you want to achieve by auditing?
- ▼ Which waste streams will be audited (eg paper / cardboard recycling, outdoor bins, 5c container, food waste)? Are there any waste streams or areas of the school that are a priority?
- ▼ What are the potential categories for sorting waste? (Compare these against the data sheets included in this guide)
- ▼ How many students and staff are there at the school?
- ▼ What percentage of total school waste or specific waste streams will be audited? (This is important in determining the accuracy of the data collected.)
- ▼ How many indoor / outdoor bins, recycling containers are there?

Identify and meet with key staff (teachers, principal, grounds / maintenance staff, cleaners, bursar, canteen and office staff) to determine:

- ▼ who will be involved in the waste collection for the audit
- ▼ the best date to conduct the audit to ensure data is an accurate representation of waste (avoid special events eg sports days or others that might skew the results)
- ▼ audit requirements, possible audit locations, and potential problems and hazards that need to be considered (see OHS&W - Risk Assessment)
- ▼ how much the school pays for waste disposal / collection (collect invoices for the previous 12 months)
- ▼ the best time and day to collect the contents of bins
- ▼ how often the bins are collected and emptied, and by whom
- ▼ how full the bins are at collection time.



Recyclable items found in audits



Pre-audit Planning

Map waste to be collected

Based on the scope of the audit, students will identify:

- ▼ location and type of bins (ie rubbish, recycling, paper / cardboard, 5c containers, green waste, compost)
- ▼ main collection areas (eg skips)
- ▼ bins / containers to be sampled (a school map and a map of bin locations may exist, or can be created)
- ▼ location for the waste audit (consider OHS&W issues, wind, shade, accessibility to main bins for emptying waste after the audit).

Pre-audit day procedures

- ▼ Arrange for liners to be placed in the bins selected for audit at a designated time prior to the audit
- ▼ Develop a labelling system identifying:
 - contents of bags (eg rubbish, paper, 5c containers)
 - where bags were collected (eg classroom, office, oval etc)
- ▼ If waste collected for the audit is stored overnight, arrange a secure area.



Rubbish may be placed in skip after audit



End of the audit day. Material sorted in categories

Pre-audit Planning

OHS&W - Risk Assessment

Health and safety is a priority in every waste audit.

Thorough preparation is critical to:

- ▼ ensure students are safe at all times
- ▼ gain maximum accuracy and benefit from the data collected.

Discuss risks that will need to be managed with students and staff involved.

Consider:

- ▼ audit procedures
- ▼ ensuring a fully stocked First Aid Kit is on site for audit day
- ▼ provision of appropriate Personal Protective Equipment (PPE) for the audit
- ▼ an audit site with adequate shelter, ventilation and access to water for hand washing
- ▼ hazards that may be encountered during the audit and how to deal with them.

It is recommended that students develop a Risk Assessment and Action Table described on the following pages.



Safe handling procedures are essential



On audit day, KESAB audit staff or a school audit coordinator will stress the importance of complying with all OHS&W standards including manual handling of bags / bins, PPE and safety requirements for handling sharps.



Pre-audit Planning

OHS&W - Risk Assessment

It is recommended that students prepare a Risk Assessment Table identifying actions that can reduce potential hazards.

Identify Risks

List all hazards that might be encountered when conducting an audit at your school. Consider the:

- ▼ nature of the waste - eg food waste, liquids
- ▼ audit process - lifting and tipping bags, length of time spent auditing
- ▼ items in the waste - broken glass, pins / sharps, peanuts (allergies)
- ▼ audit site - sun exposure, wind, dust, traffic, wasps, spiders, etc.

Rate Risks

Rate potential hazards according to:

- ▼ how likely they are to occur (ie unlikely, likely, very likely)
- ▼ what the consequences might be should they occur (ie minor, moderate, severe)



Setting up for Solid Waste Audit

Pre-audit Planning

OHS&W - Risk Assessment

Use the **Risk Assessment Grid** below to evaluate the level of risk for each risk identified.

RISK	CONSEQUENCES		
LIKELIHOOD	minor	moderate	severe
very likely	moderate	high	extreme
likely	low	high	extreme
unlikely	low	moderate	high

An example of a **risk** may be peanut butter (or peanut products).

Exposure to peanut products might be **likely** to occur and a student may be identified with a severe peanut allergy. The consequences are **severe** making the risk **extreme**, highlighting the need for careful planning to avoid such an event occurring.

This may be simplified into a **Risk Assessment Table** as below.

RISK	LIKELIHOOD	CONSEQUENCES	RISK ASSESSMENT
Peanut Butter	very likely	severe	extreme
Ants	likely	moderate	high

Identify Risk Controls and Actions Required

Students will identify existing risk controls at school (eg existing action plans for bee stings, asthma) and develop any additional actions required to control risks during the audit. For example:

- ▼ eliminate the hazard (eg selection of audit site)
- ▼ identify appropriate tasks for students at risk (ie recording rather than sorting waste)
- ▼ ensure appropriate equipment is available (eg First Aid kit, tongs, sharps container)
- ▼ ensure appropriate procedures are followed (eg two people or adult to lift)
- ▼ use personal protective equipment (PPE) (eg gloves, masks)
- ▼ any further actions required.

A sample Risk Assessment and Action Table is included on the following page.



Emptying into category containers



Pre-audit Planning

Risk Assessment and Action Table

Risk Identified	Likelihood	Consequences	Risk Assessment	Existing Controls	Further Action Required
Contact with peanuts	likely	severe	extreme	Students with allergies identified and school plan in place	PPE, students identified and given other tasks eg photographing



Audit Day

Audit Set Up

You will have arranged for a KESAB auditor to assist with your audit OR negotiated with KESAB to use audit equipment. KESAB audit equipment must be booked in advance.

The audit area will be set up with:

- ▼ sorting table
- ▼ weighing area
- ▼ system for disposing of waste and recyclables after audit
- ▼ cleaning materials eg brooms, cloths for clean up of audit equipment.

OHS&W briefing

A KESAB auditor or school audit coordinator will explain the waste audit process and OHS&W requirements. This includes safe lifting and emptying of bags and handling of audit materials. They will demonstrate these to students and be on hand to monitor proceedings throughout the audit.

Bins / bags will be collected, labelled and brought to the audit area

If these are collected and labelled on the previous school day (recommended) they will need to be stored in a secure area overnight.

Determine an order for auditing waste

It may be practical to deal with food scraps that are wet or smelly first (particularly in hot weather) or other requirements specific to your site's waste.

Student participation

Students may work best in groups of 4 - 5 depending on the size of the audit and number of classes involved.

Groups will:

- ▼ 'gear up' in their PPE
- ▼ revise OHS&W issues
- ▼ sort for an agreed time
- ▼ 'weigh-off' and estimate the volume in tubs
- ▼ record the data
- ▼ dispose of waste appropriately
- ▼ return tubs for further use
- ▼ return PPE and wash hands immediately.

Student Audit Tasks include:

Recorder/s

- ▼ note any unusual findings
- ▼ record the weight and volume data

Reporter/s

- ▼ photograph proceedings and unusual findings to include in the report
- ▼ may write an item for school newsletter

Sorters

- ▼ sort waste into categories
- ▼ 'weigh-off' waste and estimate volumes
- ▼ empty tubs into larger category containers



Sorting



'Weigh off' and recording



Emptying



Audit Day

Audit Debrief

It is essential to discuss impressions and findings at the end of the audit day.

Topics for discussion may include:

- ▼ What did you find?
- ▼ What did you think?
- ▼ Were the results what you expected?
- ▼ Did you find anything unusual?
- ▼ What recommendations can you make based on audit findings?
- ▼ How can this information be used in the school or community?
- ▼ How will you present the findings in an audit report?

Data Analysis and Reporting

Data can be entered on a spreadsheet (see WOW website or students can generate their own) to present a picture of the quantity and volume of waste generated by the school in the audit period.



Food found in school waste to landfill

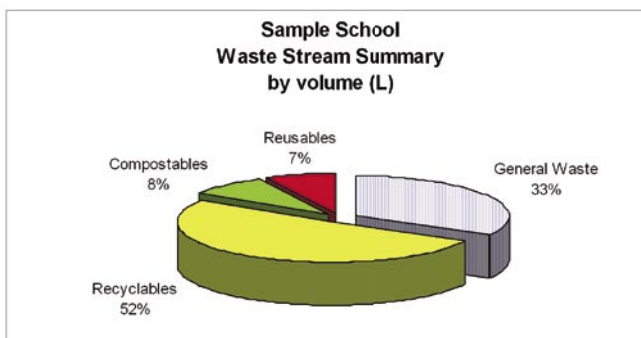
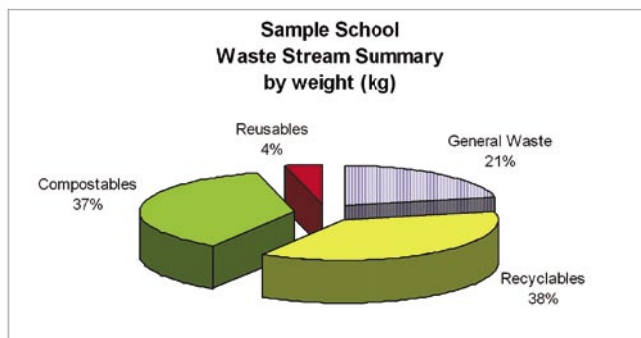
The data can be graphed and compared visually across the categories. An example is included here, with **further information on the WOW website www.wow.sa.gov.au**

Effectiveness of current systems can be analysed from audit findings. Specific and / or unusual findings can be noted and recommendations made for improvements.

It is important to share audit results with the whole school community in order to raise awareness of waste issues and gather support for implementing changes. Changes may relate to uneaten food, packaging, 5c containers, recycling of containers with food residues (eg custard or yoghurt).

Reporting can occur via:

- ▼ school assemblies
- ▼ school newsletter
- ▼ classroom education by student peers
- ▼ presentations to parent groups, teachers and staff
- ▼ presentations to other schools and wider community.



Please ensure that your audit results and recommendations are forwarded to KESAB so that:

- ▼ KESAB can review recommendations and discuss these with the school
- ▼ a broad picture of school waste management can be developed for SA.

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KESAB Audit Kit & PPE

The following equipment can be booked through KESAB

A trained waste auditor is also available

Bookings essential

Ph: 8234 7255

Fax: 8234 7266

email: admin@kesab.asn.au

KESAB audit kit includes:

- ▼ Sorting Tubs - 10 x red (25L)
- ▼ Sorting Tubs - 10 x blue (25L)
- ▼ Larger containers - 6 (up to 60L)
- ▼ Waste category labels (match categories on KESAB data sheets)
- ▼ Sharps collection container
- ▼ Tongs - 12
- ▼ Electric scales (accurate to .02kg, valued at \$450)
- ▼ Dustpan / broom, cleaning cloths
- ▼ Tarpaulin / barrier for audit tables / trestles
- ▼ Clipboards, pencils, eraser, etc.




**Students should wear
old / sports clothes
(long pants preferred)
and covered shoes.
Schools to provide
trestles or tables.**

Personal Protective Equipment (PPE)

- ▼ Dust masks
- ▼ Protective eyewear (safety glasses - 12)
- ▼ Aprons - 8
- ▼ Hats (prefer students bring their own, 8 are available if audit is conducted in sunny area)
- ▼ Latex gloves
- ▼ Heavy duty gloves - various sizes suitable for Years 3 -12




Sorting safely

		WASTE AUDIT - Waste to Landfill - RECORDING SHEET					Bag no:	Date: / /	Recorder:	Page no: of
Site details:										
Cat. no.	Category description		Mass (kg)		Volume (L)	Comments				
1	Contaminated paper									
2	Food / Drink packaging									
3	Other									
4	5c Containers									
5	Paper / Card									
6	Recyclables (cans, plastic containers.)									
7	Food scraps (eaten and unwrapped)									
8	Garden waste									
9	Food (wrapped or mostly uneaten)									
10	Reusables - Pens, stationery, etc.									
Notes:										



KESAB Solid Waste Audit Guide



		WASTE AUDIT - Paper / Card - RECORDING SHEET					Bag no.	Date: / /	Recorder:	Page no.	of
Site details:											
Cat. no.	Category description		Mass (kg)		Volume (L)	Comments					
1	White paper 2 sided										
2	Coloured paper 2 sided										
3	Cardboard										
4	Newspaper										
5	Scrunched paper										
6	White paper 1 sided										
7	Coloured paper 1 sided										
8	White paper unused										
9	Food scraps										
10	Stationery										
11	Contaminated paper										
12	Plastic										
Notes:											



Solid Waste Audit Glossary

Waste to Landfill

Compostables - refers to any organic materials that are suitable for composting.

Contaminated Paper - paper material contaminated by food or other products that make it unsuitable for paper / card recycling. Some of this material may also be suitable for composting.

Kerbside - refers to a typical council curbside collection (eg plastic yoghurt containers, steel, aluminum food cans, etc.).

5c containers - refers to any containers with a 5c deposit.

Food / Drink Packaging - packaging material from food or drinks.

Food (wrapped / uneaten) - refers to food that was found still in a wrapper or items mostly uneaten (eg apple with one bite taken).

Food scraps - leftovers from eaten food - fruit skins, sandwich crusts, etc.

Garden Waste - material from school grounds - leaves, clippings, etc.

Organic material - plant or animal matter.

Other - miscellaneous rubbish items - often film (soft) plastics, or unusual items.

Paper / Card - refers to any paper or cardboard materials suitable for recycling in a paper card collection.

Recyclables - refers to items that could be placed in a collection for recycling.

Reusables - refers to items found in the waste stream that appeared to still be functional.

Waste to Landfill - refers to materials found in rubbish bins, and destined for landfill. These materials may also be referred to as the waste stream or rubbish stream.

Paper / Card Recycling

Cardboard - cardboard including packaging (eg cardboard boxes) and card used for art / craft activities.

Coloured paper 1 sided - coloured paper with a blank side which could be used before recycling.

Coloured paper 2 sided - coloured paper that has been used on both sides before recycling.

Contaminated paper - paper with food residues, oil, or plastic (often laminated) which is not suitable for the recycling stream.

Contamination - refers to any materials that contaminate the paper / card recycling process and should not be placed in the recycling collection.

Food scraps - refers to food found in the paper / card collection.

Newspaper - newspaper!

Plastic - generally plastic packaging, wrap, or plasticised paper wrapping from reams of paper.

Recyclables - refers to paper / card items that have been used to maximum efficiency before recycling. Ideally the majority of paper / card items will be in this category.

Reusable - refers to materials that were found in paper / card recycling, that had the capacity to be reused before being placed in the recycling collection.

Stationery - pens, pencils, rulers, hardcover books, diaries, paper clips, etc.

White paper 1 sided - white paper that can has a blank side which could be used before recycling.

White paper 2 sided - white paper that has been used on both sides before recycling.

White paper unused - paper that hasn't been used at all.



Waste Audit Permission Slip

Dear Parent / Guardian,

As part of the Wipe Out Waste (WOW) schools program, a waste audit will be conducted at our school.

Information collected will assess the success of waste management programs and identify opportunities for improvement. The outcomes will be reported to the school community.

Students will have the opportunity of taking an active role in the waste audit. They will work in small groups under supervision. Safety equipment (aprons, safety glasses, gloves, tongs, masks) will be provided.

Parent involvement and assistance is welcome!

Participants / Classes	
Date:	Students arrive at school at normal time.
Times:	The audit will begin around 9:30am.
Food arrangements:	REMEMBER - WATER BOTTLES! Recess and lunch as normal.
Clothing:	All students must wear covered shoes, long sleeves, long pants (preferred) and a school hat.
Contact teacher:	

WIPE OUT WASTE - SCHOOL WASTE AUDIT

I give permission for _____

to take part in the Wipe Out Waste School Waste Audit on _____

Photographs of my child may be used in WOW education resources and the WOW website www.wow.sa.gov.au

Yes / No (please circle)

I am interested in participating the audit.

Yes / No (please circle)

Parent / Guardian: _____

Signed: _____ Date: _____

SACSA Framework Links

SACSA Framework Links

Learning Area	Strand	Activity
Mathematics	Exploring and analysing data	<ul style="list-style-type: none"> Students generate data about the school waste and recycling streams, and use technology, to collect, organise and represent this data. Students use audit data to analyse and describe current practices and make decisions to improve these.
	Measurement	<ul style="list-style-type: none"> Students weigh and estimate the volume of the categories of waste and recyclables, compostables, etc. Students compare and quantify audit data across the school and different waste streams.
	Number	<ul style="list-style-type: none"> Students input audit results into a data sheet, tabulate overall figures, and generate representations with tables and graphs using Excel.
	Spatial sense and geometric reasoning	<ul style="list-style-type: none"> Students estimate the volume of different waste streams sorted into 20L tubs. Students extrapolate audit data to gain a 'bigger picture', especially if a snapshot or partial audit has been conducted.
Society and Environment	Place, space and environment	<ul style="list-style-type: none"> Students examine the 'waste' environment in their school community, analysing patterns, systems and relationships in its collection and use a range of resources and technologies to gather and present this information. Students develop mapping and graphing skills to represent current waste management practices and consider measures to improve these. Students consider sustainability and care of resources, and people's attitudes and values about the impact of waste. Students educate themselves and the wider school community about waste management and minimisation
	Critiquing	<ul style="list-style-type: none"> Students design and implement systems and strategies to effect change in current recycling / reusing / reducing programs. Students communicate programs and processes using reports generated from the initial audit and follow up programs to monitor progress.
Design and Technology	Designing	<ul style="list-style-type: none"> Everyday products designed for convenience contribute to waste at school. Students can examine why food in particular is packaged and marketed in this way. Students can explore and suggest changes to the purchasing of packaged goods in the school community.
	Health of individuals and communities	<ul style="list-style-type: none"> Students prepare a Risk Assessment and Action Table to identify potential hazards associated with conducting a waste audit and ensure maximum safety for all involved. Students ensure that required personal protective and first aid equipment is available and used correctly.



Waste Audit Assignment

Year 8 Maths

Julie Sampson for Cornerstone College 2005

Your assignment is to collate the data collected at Cornerstone College during the KESAB waste audit and produce a report for the 'Working Towards Sustainability' group.

You have to investigate what the statistics reveal about rubbish and recycling at Cornerstone. Statistics help us answer questions. For example - How much recycling is happening? How much recyclable material is put in the rubbish instead? Could more recycling be done?

Your report must contain the following:

- An introduction to the survey and what your report is about
- A presentation of the data in tables and graphs
- A report of your findings (Minimum of ½ page)
- Appendix - A printout of your spreadsheet of tables and graphs with all formulae and formatting instructions used added by hand (eg %, totalling columns).

Steps to help prepare your report

1. Make a table of the data. Your data should include a summary of all the results for both rubbish bins and recycling bins. You have only collated one of these. Collect the other set of data from another group.
2. You can extend your research by looking at whether there are any particular patterns around the school. This will involve collating the data and doing some extra tables and graphs. For example is the recycling better in certain parts of the school? This needs to be done for an 'A' grade.
3. Collect the data for the bottle recycling bins from Mrs Sampson.
4. Calculate the percentage calculations relevant to your report by hand, minimum of 5. (There may be more percentages than this.)
5. Prepare tables and graphs on a spreadsheet. Use what you have learnt in ICDL to present your tables and graphs with labels, borders and formatting that makes them easy to read. Tables must have a title, headings for columns, use formulas for calculations for sums and percentages. Graphs must have a title, axes labels, be appropriate types of graphs and have a key.
6. Discussion - To prepare your report consider questions like:
 - What are the results of the survey?

- How much recycling is happening?
 - How much recyclable rubbish is put in the rubbish instead?
 - Could more recycling be done? What limits recycling?
 - Are there any surprising results? Why do you think this is so?
 - What didn't surprise you?
 - If waste management continued in the same way, what would happen?
 - What doesn't the data tell us? What about rubbish at Cornerstone can't you comment on from the data?
 - If you could do the survey again, or get extra information what information would you collect?
7. Present all your findings in a report to the 'Working Towards Sustainability' group here at Cornerstone. Your report can be in one of the following formats but whichever you choose must include some discussion that presents your findings including answers to Q6 questions. The maths and spreadsheets are required no matter which presentation format you choose. You may need to present them as an appendix.
 - A. Make a poster showing your results and your recommendations.
 - B. Write a letter of advice to the 'Working Towards Sustainability' group.
 - C. Based on your findings, design a better way to manage waste in our school.
 - D. Write a script for a TV Ad about waste management.



	0 marks	1 mark	2 marks	3 marks	4 marks	5 marks	Result
Data Presentation	No tables or graphs	Tables or graphs missing, no labels or lots of mistakes	Graphs titled and labeled but include mistakes in data or presentation or choice of graph.	Mostly correct but only includes Step 1 or Step 2 has errors.	Maximum marks for correct tables/ graphs fully labeled if only Step 1 completed	Tables labeled, correctly & all present including extra investigation of Step 2	/5
Maths Calculations	No Maths, % not done.	Lots of errors in the Maths or parts missing.	Hand-written % not done or errors in other parts	Hand-written % & formula in tables and graphs correct			/3
Discussion of the data Q1.	No discussion presented	Only answers that describe the results.	Some conclusions and answers but errors or incomplete answers	All qns answered including conclusions drawn from the stats. Total answer at least ½ page. Max if only answered	Some conclusions and answers including Step 2 stats. Step 1 stats correctly analysed.	Comparisons between data and good analysis. Must include Step 2 analysis. Total answer at least ½ page.	/5
Presentation criteria for...	POSTER	LETTER	DESIGN	SCRIPT			
Specific criteria for the presentation options (Max 5 marks) Choose ONE only.	Show the tables & graphs incldg required presentation. Include discussion that explains the findings, min 150 words writing. Include title and catchy presentation appropriate for a poster.	Have correct letter structure eg. Address, Dear... Yours ...etc. Include some tables & graphs to emphasize your points, be written in a formal business style, Min 200 words.	Your design will take into account your findings, be logical, affordable and solve some of the problems that showed up in the statistics. Include some tables & graphs to emphasize your points.	The script will run for 30 seconds to 1 minute, include facts from your findings about the problems at cornerstone and some solutions, needs to be catchy like a TV ad.			/5
Comment					Total		/18



Solid Waste Census

This information is requested to help identify appropriate points of contact and opportunities to establish or further develop a whole school approach to waste management.

School

Name: _____

Address (street): _____

Address (postal): _____

** if street address is same as postal address, enter 'as above'*

Number of staff: _____

Number of students: _____

Contact Person

Name: _____

Position: _____

Contact Number: _____

E-mail (if relevant): _____

(Please indicate whether other staff and / or students assisted in completing the census including their role)

**** See also Feedback on the last page of this census****

Solid Waste Census

Waste to Landfill

1. Who is / are your waste contractor/s (eg Collex, Cleanaway, SOLO, SITA, Remove All etc)?

2. What size is the general waste bin / skip at your school? If you have several bins / skips, please add their volumes together and provide a figure for total general waste capacity
(1 cubic metre = 1,000 litres).

Total school waste disposal capacity: _____ litres
*Note: the volume of receptacles for collecting **recyclable** materials should be excluded from this figure.*

3. How often is your bin / skip emptied?

4. What is the cost of your waste service? Include as much detail as you have eg cost per collection, per week, per term or year. For DECS sites, please also include your annual allocation for waste disposal.

Recycling

5. Does your school have any recycling systems in place?

☐ Yes ☐ No

If no, go to Question 10.

If 'yes', what types of materials do you recycle at your school? Tick all relevant boxes:

- ☐ white paper
- ☐ mixed paper
- ☐ cardboard
- ☐ toner cartridges
- ☐ fluorescent tubes
- ☐ computers & IT equipment
- ☐ 5c deposit containers (CDL)
- ☐ plastics
- ☐ cans
- ☐ milk / juice cartons
- ☐ glass
- ☐ batteries (vehicle, mobile phone)
- ☐ food waste
- ☐ green waste (eg prunings, grass)
- ☐ other (please list): _____



Solid Waste Census

6. Who is / are your recycling contractor/s (eg SITA, AMCOR, Visy, Go for Green, Close the Loop, etc.)?
Please list council if a council system is used.

7. What is the cost of your recycling service/s? Include as much detail as you have eg cost per collection, per week, per term or year) for the various collections.

8. Are there systems in place for obtaining feedback on or for measuring the quantity of materials recycled or composted?
eg recycling contractor provides data, or a system to monitor organic waste recycling in school worm farms.

☐ Yes ☐ No

If 'yes', please provide details on systems in place for all materials recycled at your school

Note: ongoing waste reporting requirements will be easier to fulfil if systems are established, or if service provider contracts include a requirement for them to provide this information.

9. Approximately what amount of material is recycled annually by your school?

Recycling data may be collected using different measures, by volume, by weight, or both.

Where possible, please provide aggregated totals of all materials recycled by weight, and / or aggregated totals of all materials recycled by volume.

Total materials recycled by weight (tonnes)
1 000kg = 1 tonne

Total materials recycled by volume (litres)
1 000 litres = 1 cubic metre

Ask recycling contractor(s) if they can provide any information on the amount of recyclable waste collected from your school.

Solid Waste Census

10. Are there any particular wastes which your school has difficulty in managing and / or finding recycling options? eg polystyrene, plastic packaging.
Please identify whether you have any unusual waste streams, stockpiles, or large quantities of certain types of wastes. If possible, please provide approximate volumes (an estimate will be sufficient).

☐ Yes ☐ No

If 'yes', please provide details:

11. Please provide any additional details or comments which may be relevant.

Thank You

The details you submit will help to build a picture of school waste management / recycling arrangements and the destination of waste streams from schools throughout the State.

Feedback on this Census

- a. How long do you estimate that it took to complete this census? _____
- b. How many people were involved in gathering the data? _____
- c. Should other questions be included? Please detail.

If you have questions on completing a Solid Waste Census, please contact WOW staff at KESAB.

admin@kesab.asn.au

Ph: (08) 8234 7255

Results can be faxed: (08) 8234 7266



SAMPLE

School Waste Policy

Our school aims to reduce waste going to landfill. This will lead to cost savings for the school, benefits for the environment and opportunities for students to learn sustainable attitudes and habits.

Our school aims to have a litter-free environment. This will make our school more attractive and save money and time in collecting discarded litter.

The school is committed to a whole-school approach to waste education through a School Waste Action Plan and associated strategies.

It is our policy that:

- strategies of avoid, reduce, reuse, recycle and recover will be incorporated in our everyday practices
- waste minimisation and litter reduction will be included in the relevant areas of the school curriculum
- recycled products and others that help reduce waste will be purchased where possible.

Principal.....(signed)

Name.....

Date...../...../.....

Chair, School Council.....(signed)

Name.....

Date...../...../.....

WOW Home Survey

Our school is participating in the WOW - Wipe Out Waste program, a statewide initiative of Zero Waste SA to assist school communities in reducing waste and recovering valuable resources.

This survey is to help determine whether waste learning at school relates to actions at home. We appreciate your time in completing this survey which should take only 5-10 minutes.

Please feel free to discuss any of the questions below with your child / children.
If you are unable to complete the survey, please return it to the school for reuse.

1. Is your family familiar with the 3R's – Reduce, Reuse, Recycle?

☐ Yes ☐ No (Please circle)

List one or two actions your family does at home under the following headings:

Reduce _____

Reuse _____

Recycle _____

Are you aware of similar actions which occur at school?

☐ Yes ☐ No

2. Does your family consider waste reduction to be one way you can contribute positively to a more sustainable future?

☐ Yes ☐ No

Please rank the following waste related actions in order of their importance from 1 to 5:

- ☐ Reusing
- ☐ Purchasing recycled products
- ☐ Recycling
- ☐ Reducing
- ☐ School / community involvement in waste reduction initiatives

3. Are you familiar with any waste reduction policies, practices or strategies at school?

☐ Yes ☐ No

If yes, please list briefly





Wipe Out Waste



4. Are you familiar with any learning about waste issues at school?

☐ Yes ☐ No

If yes, please list briefly

5. Is your family involved with any school waste reduction practices?

This may include reuse of materials, recycling initiatives or composting for school gardens.

☐ Yes ☐ No

If yes, please list briefly

6. Food and drink packaging is a significant contributor to school waste. Does your family or school act to reduce packaging in school lunches?

☐ Yes ☐ No

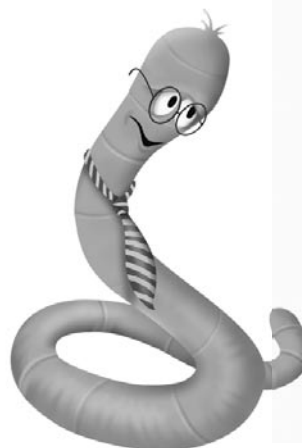
If yes, please explain briefly

7. What waste initiatives would you suggest the school be involved in, and how could the wider school community assist?

Your comments are appreciated. Please return this form to the school.

Please return even if you have not filled it in, so that it can be reused.

Thank you



WOW Actions Checklist

Area of school	Beginning	Planning and Developing	Implementing	Achieving
In the Classroom				
Use the chalkboard / whiteboard / smartboard more often to reduce paper use				
Use data projectors, OHP for large group presentations to reduce paper use				
Place more emphasis on oral work				
Proof read work from the computer screen (emails etc) before printing				
Use one exercise book for multiple subjects and fill it before beginning another				
Encourage students to use both sides of a sheet of paper before beginning a new sheet				
Ensure handouts make best use of a sheet of paper ie double-sided, single-spaced, and sized to match the information provided				
Use scrap paper as notebooks (cut A4 in half and staple for notepads)				
Avoid providing additional copies of handouts. Encourage students to value copies that they are given				
Laminate class sets of regularly / annually used handouts / worksheets / instructions				
Collect handouts / multiple choice and other tests for reuse				
Use shredded paper for bedding for class pets or donate shredded paper to pet shops or recycle				
Use shredded paper in compost or worm farm				
Use plastic sleeves to cover exercise books instead of contact paper				
Maintain and store supplies of pens, pencils etc which can be used for more than one school year.				
Encourage use of refillable ballpoint pens rather than disposable biros				
Collect printer / copier cartridges from home, friends, etc to recycle as a fundraiser (eg Go for Green)				
Have a container for suitable food scraps in / near each classroom for compost / worm farm				
Have a container for 5c beverage containers in / near the classroom				
Conduct a Waste Free Food Day on a regular basis				
Display a list of environmental "do's" and "don'ts" to remind others of accepted practices within the classroom. Formulate these as a group to encourage ownership				
Store paint and glue in small containers that can be reused or returned to larger containers				
Have a swap box for students / class to deposit unwanted items that are not broken or damaged				
Establish a 'Reverse Rubbish' craft and reuse centre at the school which is open to the community to contribute to and purchase from for community market days, craft stalls etc				

This checklist has been adapted from SCRAP Ltd, NSW 'Avoid, Reduce, Reuse'.



WOW Actions Checklist

Area of school	Beginning	Planning and Developing	Implementing	Achieving
In Staff areas (eg Staffroom and offices)				
Use a noticeboard / whiteboard / daily book / email for messages / notices				
Use a system of coloured folders for distribution of information / notices to faculty / year level staff. Folders keep things organised and prevent things from being lost				
Buy in bulk eg tea, coffee, sugar, milk				
Use cutlery / crockery rather than disposable cups, plates and utensils				
Make composting and other environmental tasks part of teacher roster / duty				
Provide relief teachers with folders outlining school policies re; waste and other practices				
Fill one tray of the photocopier with used paper and use that tray for drafts and single-sided copies and provide appropriate signage				
Have a paper reuse box near the photocopiers				
Have different bins for sorting waste e.g. compost, 5c containers, non-refundables, paper / cardboard, corks, waste				
Recycle as many waste products as possible, including paper, food and garden waste				
Inservice new staff and students in WOW actions / policies				
In Administration areas				
Use email where possible				
Tailor paper size to the size of the message				
Provide one newsletter per family				
Review school newsletter, magazines and course description booklets for their efficient use of paper				
Design newsletters or other materials to be posted so that the postage details / envelope is on the back. Fold and tape / staple closed				
Proof read from the computer screen (emails etc) before printing				
Reuse single-sided paper in Fax machines with appropriate loading instructions				
Omit a cover page from Faxes and print all details on top of the information page				
Fill one tray of the photocopier with used paper and use that tray for drafts and single-sided copies and provide appropriate signage				
Photocopy double-sided where possible				
Set printers to 'default duplex' setting				
When purchasing new photocopiers, select those that will accept recycled paper and copy double-sided				
Encourage bookshop to stock fountain pens and refillable pens and pencils				
Have a paper reuse box near all photocopiers (eg staff areas and resource centre)				
Recycle envelopes and stapled items				
Make notepads from used paper				
Encourage bookshop to stock recycled paper				
Use recycled products where possible				
Purchase recycled products when available eg stationery, toilet paper, paper towels, plastic furniture				
Recycle as many waste products as possible, including paper, food and garden waste				
Collect printer / copier cartridges from home, friends, etc to recycle as a fundraiser (eg Go for Green)				

WOW Actions Checklist

Area of school	Beginning	Planning and Developing	Implementing	Achieving
General – Indoor / Outdoor				
Encourage food / lunches for staff and students in reusable containers				
Use cutlery / crockery rather than disposable cups, plates and utensils for school functions				
Encourage the use of non-disposable items eg fountain pen or pen with refills instead of single-use pens				
Encourage students to use recycled paper products				
Offer unwanted books to other countries, schools or students before recycling or disposal				
Encourage all members of the school community to contribute suggestions to continuously improve the school's efforts to minimise waste and reduce litter				
Promote the school's successes in minimising waste in newsletters and invite feedback				
Give incentives for sustainable practices eg picking up litter unprompted, using a fountain pen or pen with a refill, placing an item in correct bin (or reminding someone in a pleasant manner)				
Have a reuse bin in all work places (offices, staffroom, classrooms, resource centre, etc.) for paper that can be used for scrap, drafts, etc. Organise a system for collecting this paper so that the boxes do not overflow				
Use one-sided / scrap paper for note pads				
Have a charity bin in the school				
Encourage the use of clean waste materials in the Art rooms and classrooms eg materials from 'That's not Garbage', used margarine and ice cream containers etc				
Label bins to encourage waste sorting				
Hold regular assemblies, demonstrations etc to remind others of the sorting procedures				
Consider options for hand drying in toilets				
Have separate containers in / near all rooms for materials to be recycled. Organise a system for collection.				
Have a bin in all rooms for paper / cardboard that has no further use and can be recycled. Organise a system for collection				
Have regular Waste Free Food Days. Only provide bins for recyclables and compost. Take wrappers home. Promote the day to parents and seek their support				
Have containers for food scraps. Organise a system for collecting and depositing contents in compost bin/s. Link this system to the curriculum				
Department / Faculty areas				
Develop and implement a system for filing class sets of materials				
Offer unwanted class sets of books to other schools or to students instead of throwing them out				
Set a goal of 10% reduction in paper use over a year and see if it can be achieved, even exceeded				



WOW Actions Checklist

Area of school	Beginning	Planning and Developing	Implementing	Achieving
Art				
Promote key WOW messages via Art mediums				
Reuse scrap paper for papermaking				
Reuse canvasses for paintings				
Avoid washing brushes, glue / paint pots in sink. Wash in a bucket and dispose of water on garden area				
Encourage use of found objects for art work				
Design and Technology				
Display Waste Hierarchy Triangle in Design / Technology Studies area				
Use woodchips as packaging for items made by students				
Use sawdust for covering spillages or as garden mulch				
Donate wood shavings to pet shops for pet bedding				
Buy radially sawn timber to conserve trees; try to buy recycled materials for projects				
Recycle wood and metal offcuts and paper in woodwork / metal rooms				
Design and create products / systems for WOW (eg collection containers)				
Home Economics				
Install grease traps in all sink outlets and ensure oils etc are collected and disposed of in compost bin				
Compost any leftover food scraps or feed to agricultural animals				
Use cake tins instead of disposable patty pans				
Use cutlery / crockery rather than disposable utensils				
Encourage students to store food in reusable containers				
Use greaseproof paper for wrapping food instead of film plastic				
Encourage staff to review their work practices and products to see whether they can reduce waste or use of resources, and use more environmentally friendly products				
Involve cleaning staff in the setting up of composting and recycling programs				
Science Laboratory				
Display Waste Hierarchy Triangle in laboratories				
Ensure appropriate disposal of hazardous chemicals				
Store leftover non-toxic chemicals in small containers that can be refilled or return unused amounts to large / bulk container				
Maintain compost / worm compost system				
Research natural resources, processing and recycling: display posters and artefacts in Science areas				

WOW Actions Checklist

Area of school	Beginning	Planning and Developing	Implementing	Achieving
Canteen				
Use greaseproof paper to wrap food instead of film plastic. Greaseproof paper can be composted				
Examine ways to reduce packaging of food and drinks sold at the canteen				
Avoid the use of disposable items				
Make ice blocks in moulds instead of buying commercial ice blocks (eg frozen fruit salad blocks)				
Sell more foods purchased in bulk than individually wrapped food				
Encourage students to bring their own mugs for soups and drinks				
Encourage staff to use own plates and cups				
Develop a system for the return of paper and cardboard				
Develop a system for the return of 5c containers for recycling				
Develop a system for the collection of food scraps for composting, worm composting or chickens				
Grounds				
Involve staff and students in the design, construction and management of the school's composting system				
Allow grass clippings to mulch into the grass, leaves to provide mulch for garden beds, and avoid putting green waste in general rubbish				
Encourage staff to use the mulch produced from the school's green waste instead of purchasing mulch				
Encourage staff to use compost produced from the school's food waste for the school's gardens				
Provide opportunities for staff to attend seminars / workshops on the correct ways to prepare mulch and compost				
Cleaning				
Encourage staff to review their work practices and products to see whether they can reduce waste or use of resources, and use more environmentally friendly products				
Involve cleaning staff in the setting up of composting and recycling programs				
Other School Activities:				
Excursions, Fetes, Open Days, Parent / Teacher Nights				
Encourage a 'no disposables policy' / minimum waste policy for excursions and other events eg only reusable crockery and utensils				
Rationalise use of paper, notices and decorations for special events: produce or purchase reusable materials instead of creating waste				
Take students and parents on excursions to landfill sites, recycling depots and education centres featuring waste minimisation so that they can learn new ways to minimise waste				
Raise money with a 'trash and treasure' stall				
Encourage sale or exchange of used uniforms				
Encourage students to bring back all rubbish generated on excursions, separating out recyclables. Take two bags on excursions: one for rubbish, one for recyclables				



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Chart Your Progress

Set goals and chart your progress.
The chart below can assist this process.

Target Outcomes	1st Year	2nd Year	3rd Year	Not at this stage
Planning group formed				
Waste management and minimisation policy written				
Recycling strategy in place				
Composting / Worm composting strategy in place				
Litter strategy in place				
Purchasing / Packaging strategy in place				
Waste reduction of 25% achieved				
Waste reduction of 50% achieved				
Waste reduction of 75% achieved				
Paper recycling in place				
Cardboard recycling in place				
5c container recycling in place				
Non-deposit (Council) container recycling system in place				
Compost system in place				
Worm composting system in place				
Printer / Fax cartridge collection in place				
E-waste / Computer collection in place				
Fluorescent light tube collection in place				
Film plastic recycling system in place				
Aluminium can ring pull recycling system in place				
Bread tag recycling system in place				
Corks				
Plastic lids				
Stamps				



Field Trips • Excursions

Site	Location	Contact / Bookings	Available to:	Numbers	Cost
Statewide Recycling Education Centre	Duncan Crt OTTOWAY	Sandy Lea (KESAB) www.kesab.asn.au/edservices/ programs.htm#Statewide p: 8234 7255 f: 8234 7266 admin@kesab.asn.au	Any school or group in SA (Not suitable for JP) Wetland / Waste option for 2 class groups	Min 12, Max 30 per session	Price per student
Paper Chase (Adelaide Botanic Garden Education Service)	Adelaide Botanic Garden	www.oac.schools.sa.edu.au/ outreach/oes/botanic/ Education Booking Officer p: 8222 9311 or f: 8222 9399	Years 2 – 12	Recommended maximum of 30	Price per student
Adelaide Waste and Recycling Centre	181 Morphett Rd NORTH PLYMPTON	Michael Moore p: 8295 5077 or f: 8295 5778 solomari@solo.com.au	All year levels	Min 10, Max 30 per session	Price per student
NAWMA (Northern Adelaide Waste Management Authority)	Cnr Peachey & Bellchamber Roads ELIZABETH WEST	Theresa Dolman p: 8252 9666 f: 8252 7258 admin@nawma.sa.gov.au	Any school or group in SA if there is nothing in their area (Check local council first)	Recommended maximum of 30, but flexible	Free
Uleybury Balefill	Medlow Road ULEYBURY	Theresa Dolman (NAWMA) p: 8252 9666 f: 8252 7258 admin@nawma.sa.gov.au	View of balefill activity from an elevated interpretative boardwalk	No limit except on viewing platform	Free
Pedler Creek Landfill (Southern Waste Regional Authority)	PEDLER CREEK	Robyn Tydeman Onkaparinga Council p: 8384 0128 f: 8327 3041 robtyd@onkaparinga.sa.gov.au	View of landfill activity from an elevated interpretative boardwalk	No limit except on viewing platform	Free
The Food Forest	Clifford Road HILLIER (near GAWLER)	Annemarie Brookman p: 8522 6450 brookman@bigpond.com	Any school, all year levels on a range of subjects	Max 40, but 15 to 25 preferred	Price per student

Incursions

Provider	Service	Contact / Bookings	Available to:	Numbers	Cost
Paper Nymph (papermaking)	Papermaking / paper art workshops	Traci King p: 8854 4137 or f: 8854 5040 papernymph@hotmail.com PO Box 63 MARION BAY 5575	Any school in SA	8 per session	Price per session
Bugs n Slugs (Invertebrate Education and Consultancy)	'Recycling in nature' program. Also available thru' Adelaide Botanic Garden Education Service	Kristen Messenger m: 0407 317 757 www.bugsnslugs.com.au fairyqueen@iprimus.com.au	Pre-school to Year 12 Any school in SA	Flexible	Price per session
Dynamic 3E Entertaining Environmental Education	Waste and recycling programs - can include 'Precious Possum', puppets, songs and actions	Peter Schulz m: 0421 017 693 dynam3e@tpg.com.au	Pre-school to Year 12 Any school in SA	Flexible	Price per session

Texts & Resources

Resources are arranged in alphabetical order under the categories:

- ▼ Books / Texts
- ▼ CD Rom, Multimedia and Video

Disclaimer: *The availability of these resources is subject to change. Please check the WOW website or those listed below for updates.*

Books / Texts

ABC Book of Gardening for Kids

Author: Cushing, H

Summary: A lively, fun and practical guide to getting the kids started in the garden and keeping up their interest once they do. Includes photographs of children in the garden, gardening activities, simple and fun craft ideas, recipes using fresh products from the garden, information about plants and garden animals and handy hints sent to the Gardening Australia program by children.

Level: Primary (Years 1-7)

Available: ABC Shops www.shop.abc.net.au

Affluenza: When too much is never enough

Authors: Hamilton, C and Denniss, R

Publisher: Allen & Unwin

Summary: (240 pages) The Western world is in the grip of a consumerism that is unique in human history. We overwork, we spend huge amounts on things we never use, then we chuck them out. The author of the bestselling 'Growth Fetish' pries into our wardrobes, kitchens and backyards, and shows us what choice really means.

Available: www.growthfetish.com or electronic format from: www.ebooks.com

ISBN: 1741146712

A Practical Guide to Composting

Author: Haddon, F (1993)

Publisher: Simon and Schuster, Australia

The Australian Compost and Worm Book

Authors: Rutherford, P and Lamonda, M.L

Publisher: Apollo Books (1996)

Summary: (80 pages) Comprehensive, easy to read guide to home composting and worm composting. Chapters include: what's in composting for you, practice and theory of composting, how to make compost - the recipe, different compost systems, wonderful worms, question time.

Backyard and Balcony Composting

Authors: Cullen, M and Johnson, L

Publisher: Bookman Press, Melbourne (1992)

CSIRO Publishing

A range of resources (Books, CD Rom, DVD, Video and Journals)

See Environment category: Pollution and Waste Management at www.publish.csiro.au



Earthworms: Lower, Middle and Upper Primary - an integrated activity package

Summary: A series of three educational activity books with two main objectives; to provide the necessary background information for teachers to approach the study of earthworms and to expose students to a cross-section of skills through a variety of stimulating activities in different subject areas. Activities can be photocopied.

Available: Learning Solutions PO Box 1447 Osborne Park WA 6916

Ph: (08) 9244 1100

Fax: (08) 9244 4044

Email: enquiries@learningsolutions.com.au

Earthworms for Gardeners and Fishermen, Discovery Soil Series, No 5.

Authors: Handreck, K.A and Lee, K.E

Publisher: CSIRO Division of Soils (1986)

Summary: (31 pages) Looks at many aspects of earthworms: species in Australia, benefits of earthworms to soils, vermiculture, the biology of earthworms, and a simple to use identification key.

Available: CSIRO Publishing www.publish.csiro.au/nid/18/pid/212.htm and Acres www.acresaustralia.com.au/bookstore

Earthworms in Australia

Author: Murphy, D

Summary: Using current information from leading agricultural research centres around the world (including the CSIRO), it provides a comprehensive and easily understood guide for gardeners, conservationists and worm farmers. Includes information on earthworms, soil fertility, breeding, castings, starting a worm farm, profits and how to breed worms for fishing.

Available: Acres www.acresaustralia.com.au/bookstore

Educating for a Sustainable Future - A National Environmental Education Statement for Australian Schools

Publisher: Australian Government Department of the Environment and Heritage

Publication: Statement, November 2005

Summary: A nationally agreed description of the nature and purpose of environmental education for sustainability through all years of schooling, including a vision and a framework for its implementation. It is intended for teachers, schools and their communities, education systems and developers of curriculum materials. A companion to existing State and Territory policies and programmes.

Available: Community Information Unit, Department of the Environment and Heritage, GPO Box 787

Canberra ACT 2601 Ph: 1800 803 772

www.deh.gov.au/education/publications/sustainable-future.html

ISBN: 1 86366 597 8 SCIS order number: 1222203

The Footprints Project

▼ Waste Not Want Not (The Footprints Project)

Author: Murdoch, K

Publisher: Vox Bandicoot Pty Ltd for G & M Consultancy

Publication: PDF document (Revised 2003)

Level: Primary teachers

Summary: (33 pages) Four-week unit of work in English and SOSE Key Learning Areas of the Curriculum and Standards Framework (Vic). It can be used as an integrated unit or as separate subjects. Addresses waste minimisation, composting, packaging and recycling.

Available: www.ecorecycle.sustainability.vic.gov.au/www/html/413-curriculum-materials-for-vce-studies--csf-key-learning-areas.asp?intSiteID=1

▼ **The Environmentally Designed Hamburger That Tastes Great (The Footprints Project)**
and

▼ **Waste Is My Problem Too (The Footprints Project)**

Author: Elz, J

Publisher: G & M Consultancy

Publication: PDF document (Revised 2003)

Levels: Primary and Secondary teachers

Summary: (18 pages) Two units of work for Health and Physical Education and Technology (Vic). The first unit focuses on students designing and making a hamburger (with packaging) that is healthy, popular and produces a minimum amount of waste.

The second unit focuses on whether planning meals and buying only what one needs helps to reduce waste. Students have to plan a menu for a family for one week, and then prepare a meal for four people. Addresses composting, packaging, nutrition and health.

Available: www.ecorecycle.sustainability.vic.gov.au/www/html/413-curriculum-materials-for-vce-studies--csf-key-learning-areas.asp?intSiteID=1

Gardening Down-Under: A Guide to Healthier Soils and Plants

Author: Handreck, K

Publisher: Landlinks Press (2001)

Summary: (224 pages) Includes the basics of soil, composting, fertilisers and potting mixes, as well as simple tests and colour guides to nutrient deficiencies. Covers much practical information left out by other gardening books.

ISBN: 0643066772

Gould League

▼ **Compost Kit**

Includes Compost Activities for Schools and Poster; 'Compost Creatures'

Authors: MacLean, R, Armstrong, P and Winters, B

Publisher: Gould League of Victoria Inc. (1997)

Level: Primary teachers (Years 4-6)

Summary: (32 pages) Uses composting theme to study the world of minibeasts. Includes teaching ideas, background information and blackline masters. A valuable resource.

Poster features creatures commonly found in a compost bin. Reverse side provides detailed identification and classification notes.

Available: Gould League www.gould.edu.au/shop

▼ **Green Maths Levels 2 - 5**

Authors: Vingerhoets, R and Winters, B

Publisher: Gould League of Victoria Inc.

Publication: Booklets, Kit

Level: Primary and early secondary

Summary: A terrific set of four booklets with many activities in blackline masters for CSF II levels 2 to 5. The complete kit has all the equipment for a class to work in groups on interesting environmentally-based maths activities.

Available: Gould League www.gould.edu.au/shop

Green Home Recycling

Author: Windust, A

Publisher: Allscape Illustrations (2000)

Summary: (76 pages) This book offers ideas on 16 ways to compost or worm farm.

Well illustrated and easy-to-understand. Explains the secrets of composting and shows how to solve the household organic waste problem. Save money and save the environment.

Available: Acres www.acresaustralia.com.au/bookstore

ISBN: 0958616310



Green waste matters! A guide on green and organic waste management for schools

Author: Angela Colliver Consulting Services Pty Ltd

Publication: Australian Government, Department of the Environment and Heritage (1999)

Summary: A curriculum guide containing 8 research and action units, song lyrics and extensive references.

Available: Download from web only www.deh.gov.au/settlements/publications/waste/go.html

Growth Fetish

Author: Hamilton, C

Publisher: Allen & Unwin

Summary: (280 pages) A coherent new set of ideas for critics of economic rationalism and globalisation. Hamilton argues that an obsession with economic growth lies at the heart of our current political, social and environmental ills - and offers a thought-provoking alternative.

Available: www.growthfetish.com Available in electronic format from: www.ebooks.com/

ISBN: 1741140781

Natural Capitalism: Creating the Next Industrial Revolution

Author: Hawken, P, Lovins, A. B and Hunter Lovins, L

Publisher: Little, Brown (1999)

Summary: (416 pages) In this blueprint for a new economy, three leading business visionaries explain how the world is on the verge of a new industrial revolution and describe a future in which business and environmental interests increasingly overlap, and in which businesses can better satisfy their customers' needs, increase profits, and help solve environmental problems all at the same time.

Available: www.natcap.org or www.natcap.org/sitepages/pid5.php - downloadable chapters

ISBN: 0316353167 (Hardcover), 0316353000 (Paperback)

No Dig Gardening

Author: Gilbert, A

Summary: How to create an instant, low-maintenance garden.

Available: ABC Shops www.shop.abc.net.au

No Garbage - Composting and Recycling

Author: Gilbert, A

Publisher: Thomas, C. Lothian Pty Ltd (1992)

Summary: (64 pages) Easy to read, commonsense guide to composting. Topics include how to make good compost, soils, methods of composting, types of containers, volunteer and community gardens, no-dig gardens, home composting, control of pests and weeds, and problems with composting. Photographs and diagrams included.

Organic Gardening, Gardening Australia Collector's series No.1

Author: Cundall, P (1993)

Publisher: Federal Publishing Company Alexandria NSW 2015

Organic Growing with Worms: A Handbook for a Better Environment

Author: Murphy, D

Publisher: Viking (2005)

Summary: (286 pages) Contains all you need to know to; introduce worms to your soil, create an instant garden bed, recycle household waste, build your own worm composter, and set up a waste management system.

ISBN: 0670041742

Rodale Book of Composting

Authors: Martin, D et al

Summary: (278 pages) Completely updated version of the 1979 classic guide covering both small and large-scale composting, with a focus on composting for the home and garden. Teaches the composting process from start to finish. Looks at compostable materials and their properties and includes plans to build several types of composters.

Available: Acres www.acresaustralia.com.au/bookstore

Recycle Your Garden: The Essential Guide to Composting

Author: Marshall, T

Publisher: ABC Books (2003)

Summary: (112 pages) Recycle your garden explores how composting works, outlines the multiple benefits for your garden, and shows how to build a foolproof heap and maintain it well. From ash to algae, human hair to shredded newspaper, this book shows how the materials used for composting can go much further than kitchen and green waste. A comprehensive list of all compostable materials and their various values is included.

Includes sections on biodynamic composting methods and ingredients; composts for different climates; maintaining a thriving worm colony; plus the many ways to use the rich, crumbly organic matter your compost will produce.

Available: ABC Shops www.shop.abc.net.au Acres www.acresaustralia.com.au/bookstore

ISBN: 0733309844

The Reverse Garbage Garden

Author: Clayton, S

Publisher: Hyland House, South Melbourne (1993)

Waste Facts Sheets

Author: Gould League of Victoria

Publisher: Environs Australia / Gould League / EcoRecycle Victoria (2000)

Level: General, primary to secondary students and teachers (Years 5-10)

Summary: Provide information on key aspects of waste minimisation; sheets developed include Garbage, Waste Facts, the 3Rs, Paper Recycling, Plastics Recycling, Glass Recycling, Steel Can Recycling, Aluminium Can Recycling, Milk and Juice Carton Recycling, Composting.

Available: www.ecorecycle.sustainability.vic.gov.au/www/html/589-information-sheets.asp?intSiteID=1 and www.gould.edu.au/wastewise/waste_stop/act_01.htm

World-Wide Waste

Author: Trafford, C

Publisher: Etram Publishing (2006)

Level: Primary (Years 1-7)

Summary: Is our future being wasted? Pollution is accelerating, climate change is threatening and we live in a world where we want everything... now. What is all this doing to our planet? The answer could be the greatest challenge of our time. Meet the gang who've dug deep and are ready to come clean with the biggest scoop of the century.

Available: Etram Publishing PO Box 1003 Rozelle NSW 2039 www.planetkids.biz

Support Materials: Fact Sheets www.planetkids.biz

A Worm's Eye View... the History of the World

Author: Trafford, C

Publisher: Etram Publishing

Level: Primary (Years 1-7)

Summary: Take a journey through time and follow the history of the world as told by Wilbur Worm. Worms have been around since the days of the dinosaurs...eating their way through giant, steamy dung heaps and turning them into food for plants - organic recycling. Sounds simple doesn't it? But the history of the worm has not always been easy. Check out how worms have survived through the ages to claim their rightful place among us as Nature's recyclers.

Available: Etram Publishing PO Box 1003 Rozelle NSW 2039 www.planetkids.biz

A Worm's Eye View... the History of the World (Posters)

Author: Trafford, C

Publisher: Etram Publishing

Summary: Set of 4 Posters

Level: Primary (Years 1-7)

Available: Etram Publishing PO Box 1003 Rozelle NSW 2039 www.planetkids.biz



Worm Farming Made Simple

Author: Windust, A

Publisher: Allscape (1997)

Summary: (221 pages) This essential handbook covers worm farming for profit, worm biology, marketing ideas, waste reduction and recycling, and getting started. Contains interesting facts about the benefits earthworms provide, the secrets of worm composting for beginners and those wishing to improve their operation, and how to encourage earthworms to garden for you.

Available: Acres www.acresaustralia.com.au/bookstore

ISBN: 0646326643

Worms Garden For You

Author: Windust, A

Summary: (274 pages) Written for gardeners, this book gives insights into the biology, behaviour and management of the earthworm.

Available: Acres www.acresaustralia.com.au/bookstore

CD ROM, Multimedia and Video

Kids In The Garden

Author: Hardcastle, N

Publication: DVD (2005)

Summary: Rated G. While discovering the science behind how plants work, Nick uses humour to make gardening a fun activity for kids.

Duration: 75 mins

Available: ABC Shops www.shop.abc.net.au

Recycle with Wally

Publication: CD ROM

Level: Early / Primary years.

Summary: Contains games, information and ideas for use in schools, the office and by families and gardeners. View a video of earthworms in an observation chamber mixing layers as they do under the ground. Recycle with Wally also contains games, information and ideas for use in schools, libraries, the office and by families and gardeners.

Available: Worms Galore PO Box 2110 Esperance WA 6450

Mobile: 0407 081 963 Fax: (08) 9072 1020 Email: orders@wormsgalore.com.au

Ollie Saves the Planet

Author / Publisher: Sustain Ability International P/L

Publication: CD ROM (2002)

Level: General, students (Years 2-9)

Summary: An outstanding interactive CD ROM on all aspects of sustainability, including waste and litter. Has interactive content, printable infosccreens, animated cartoon movie, case studies, teacher's notes and lesson plans, and links to website.

Available: Copy sent to all schools in Australia in 2003

Sustain Ability International Pty Ltd PO Box 75 Camberwell Victoria 3124 www.sustain-ability-int.com

Tel: (03) 9817 7722 Fax: (03) 9817 1466 Email: info@olliesworld.com

Ollie's Island

Author / Publisher: Sustain Ability International P/L

Publication: CD ROM (2006)

Available: Sustain Ability International Pty Ltd PO Box 75 Camberwell Victoria 3124

Tel: (03) 9817 7722 Fax: (03) 9817 1466 Email: info@olliesworld.com

www.sustain-ability-int.com

Due for release late 2006

Gardening Australia - Permaculture

Publication: DVD (2006)

Presenter: Josh Byrne

Summary: Permaculture is all about finding creative solutions to living a more sustainable life by growing local organic food, reducing energy consumption, recycling our waste and creating habitat for other life around us. Demonstrates how to create a productive permaculture garden step-by-step in an inspirational guide.

Duration: 102 mins

Available: ABC Shops www.shop.abc.net.au

Down to Earth

Publisher: CSIRO Publisher (1990)

Publication: Video

Summary: Presented in 13 segments with useful information on soil and gardening by Kevin Handreck from CSIRO's Division of Soils.

Segment 3: MAKING COMPOST - Gives a few simple tips that will make all the difference in producing good compost.

Segment 6: EARTHWORMS - Demonstrates how to set up an earthworm farm to turn kitchen scraps into compost where space is limited.

Available: CSIRO Publishing 150 Oxford Street Collingwood Vic 3066

Phone: (03) 9662 7500 www.publish.csiro.au (www.publish.csiro.au/nid/18/bcid/58.htm)

ISBN: 0643000009

The Recycling Challenge

Publisher: Publishers National Environment Bureau (PNEB)

Publication: CD ROM

Summary: Fun and informative movie, starring Ben Hewett from Network Seven's Big Arvo, as he races against the clock to recycle his daily newspaper in 24 hours.

Duration: 12 mins

Available: www.pneb.com.au/educator/class.html

Also available: Recycling Newspapers Poster and Fact Sheets



WOW Web Links

A comprehensive list of waste-related websites with live links is included on the accompanying CD ROM and the WOW website www.wow.sa.gov.au

Disclaimer: Every effort has been taken to ensure that the web links are up-to-date. Due to the changing nature of websites, the web links will be regularly updated. If there are errors, omissions or problems, please contact KESAB.

Web links are arranged under the following headings:

- ▼ Waste Education
- ▼ Waste Management and Minimisation
- ▼ Reduce / Reuse
- ▼ Purchasing / Packaging
- ▼ Organics (including composting / worm composting)
- ▼ School Gardens
- ▼ Recycling
- ▼ Litter
- ▼ Cultural / Historical / Futures Perspectives
- ▼ Environmental Sustainability
- ▼ Paper / Cardboard
- ▼ Plastic
- ▼ Plastic – Biodegradable
- ▼ Aluminium
- ▼ Steel
- ▼ Glass
- ▼ E-waste
- ▼ Collection Organisations
- ▼ Industry Organisations