Bin Materials Audit

Average results from 36 Secondary School sites

From 2006 to the end of 2016

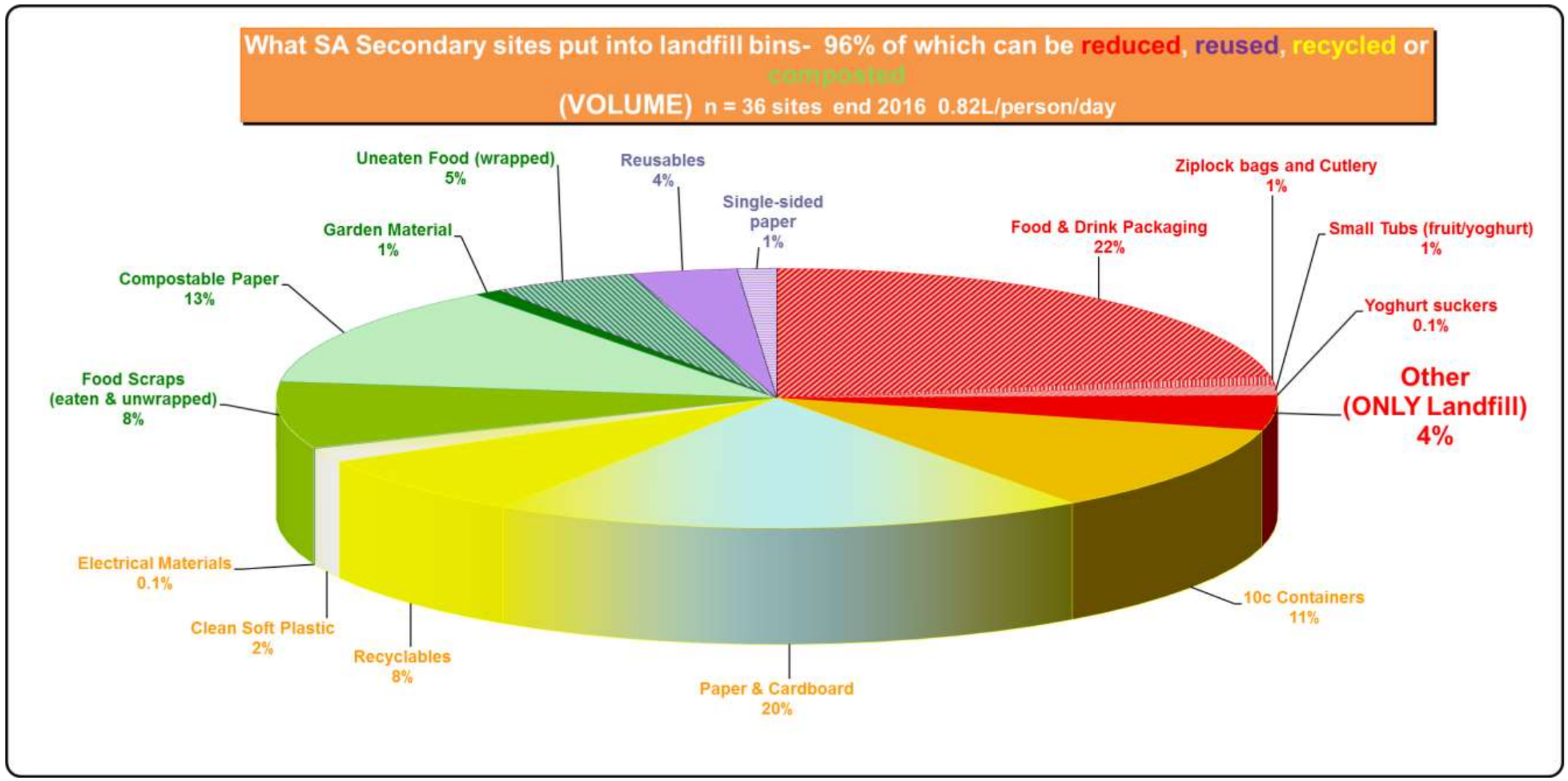
Wipe out Waste

Currently **25 077 Litres** per day are going to landfill for 30 566 people

This is equivalent to **0.82 Litres** per person per day.

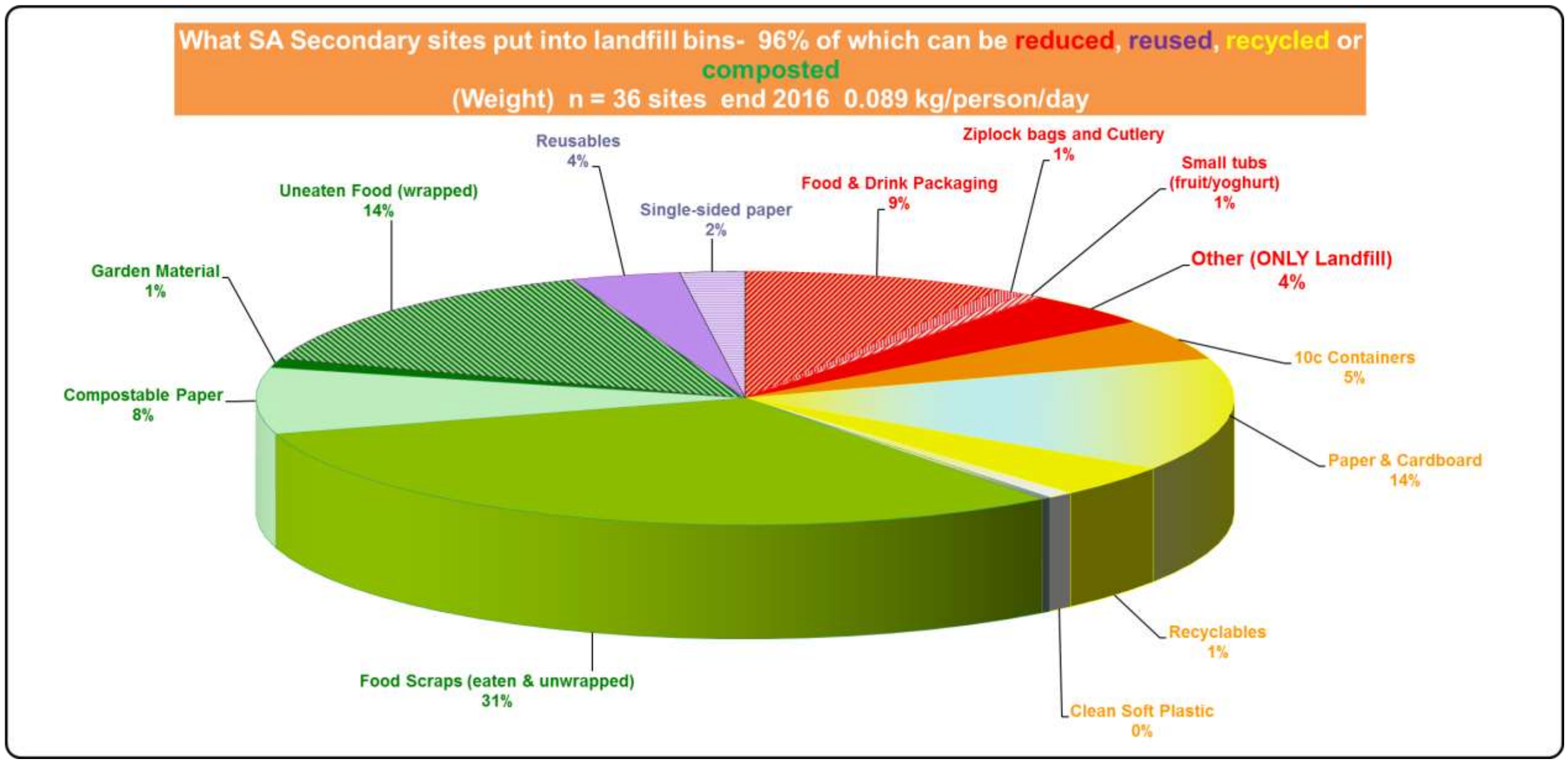
HOWEVER – only **1 109 Litres (31 L/site)** HAS to go to landfill (from these sites).

By **reducing**, **reusing** and **recycling** SA Secondary education sites **could reduce their waste to landfill by 96%.**



During a WOW audit, the materials are measured by volume and weight. Often information relating to landfill, recycling and resource recovery is reported by weight, as this is how we pay for landfill in metropolitan areas. We believe that volume is a more useful measure for education sites as this determines how many bins are required and also how much space in the landfill the materials will take up. Throughout this report, the volume measure is more prominent; however the weight is referred to in a few cases.

The table below indicates the materials found in bins, by WEIGHT. While we don't CURRENTLY consider this to be as useful a unit of measurement for sites (this may change as the increased landfill levy may affect the way sites are charged for collections). Comparing heavy items (e.g. food scraps) with their equivalent volume can be particularly dramatic! This may then prompt the question: which unit of measurement provides us with the most useful information? This is a very important factor in developing experiments and surveys. This could also be applied to information about recycling (e.g. some councils have high recycling rates- by weight- as they may generate more glass items than other areas which may have a higher volume due to more plastics and cardboard). Several follow up activities are at http://www.wow.sa.gov.au/bin-materials-audit-bma.html
You could do weight vs volume recycling activities as homework or between classes or areas of your site.



Recyclable Materials - 40% of the total volume of materials to landfill

2 003 600 Litres/year of recyclable materials could be recovered from the landfill bins (**from the 36 sites audited**).

Recyclable materials are things that could be reprocessed and turned into products again, instead of going to landfill.

Paper/Cardboard

An average of **27 200 L/site/yr** was found in landfill bins, which is **20%** of the total **volume** of materials in landfill bins.

10c Containers

86 containers//site/day*
= 15/person/year

In a year an average SA Secondary school could raise at least **$1 720**

* based on averaged 2016 audit data (n= 4)

Clean Soft Plastic

This mostly comes from libraries, canteens and offices.
An average of **2 522 L/site/yr** found in landfill bins.

Recyclables

Usually from OSHC, school canteens, home economics areas, and staff rooms where there is access to water for rinsing. An average of **10 800 L/site/yr**, **8%** of the total **volume** of materials, were found in the landfill bins.

Electrical Materials

This is a growing global issue. Electrical materials should be disposed of correctly and safely.
An average of **140 L/site/yr of electrical materials** were found in landfill that **MUST BE** disposed of differently.

Compostable Materials - 27% of the total volume of materials to landfill

1 349 200 Litres, 225 400 kg/year (**66% total weight)** of compostable items could be recovered from landfill bins (**from 36 sites).**

Compostable items are things that once grew and can be returned to the earth as compost to help more things grow.

The type of composting system and ability to compost on site will depend on the size of your site and conditions specific to your area.

Food Scraps

11 800 L/site/yr of the landfill bins were food scraps on avergae - **8%** of the total **volume** of materials in landfill bins.

Food scraps are some of the heaviest landfill items, weighing in at **3 600 kg/site/yr - 31%** of total **weight.**

Compostable Paper

This consists of paper towel, tissues and paper bags, and on average secondary schools produce **18 000 L/site/yr- 13%** of total landfill **volume**.

Garden Material

800 L/site/yr of garden materials were in the landfill bins. This often consists of flowers from staff areas, leaves and twigs.

Uneaten Food

An average of **6 600 L, 1 628 kg/site/yr,** was found in landfill bins, often still wrapped or in an unopened packet. This was **5%** of the total **volume** of landfill bins.
Ideally this would be significantly **reduced**.

Recycling- 55 656 L/site/year

Paper/Cardboard recycling: The average volume of paper/card found in landfill bins was 20% of total materials, with over **27 000 L/site/year (9 skips a year)** going to landfill rather than being recycled each year. Regular reminders to both staff and students, ensuring paper recycling bins are provided next to all office bins, and containers are consistent in all rooms will help further reduce this stream.

10c Containers: An average of 86 containers/site were found in landfill bins during audits at Secondary sites in 2016 (n=4). Averaged over all sites, this was over **$61 560/year,** or **$1 710/site/year** going to landfill. Clear pictorial signage on the 10c collection container and placing a container next to every landfill bin will help maximise collection, plus regular reminders in newsletters. Integrating 10c bin signage and container design into the arts and technology curriculum areas will also encourage student ownership and increase the success of new systems. http://www.wow.sa.gov.au/10c-collection-systems.html

Clean Soft Plastic: An average of 13 L/site/day was going to landfill. This can be collected to take to local supermarket collections (currently) to be made into recycled plastic furniture and boardwalks- a better option than sending plastic to landfill. Your contractor may offer a collection service for this material.

Recyclables: Items from the staff room, OSHC and canteen are the ONLY areas we recommend collecting these from, as there is opportunity to rinse or wipe out containers to ensure they are empty and dry enough for recycling. Only collect if you have access to a council bin or local depot collection.

Electrical Materials: It is important to be aware of safe disposal methods as **Electrical items (anything with a battery or cord) and Fluoro tubes are banned from landfill and MUST NOT go into school skips or bins. For more information on e-materials disposal see** www.epa.sa.gov.au/community/waste_and_recycling/e_waste

Fines from $300 to $30 000 can apply for inappropriate disposal.

Composting- 37 478 L/site/year

Food Scraps: The average volume of food scraps in landfill was 8% of the total materials. This is an average of **293 L/site/week**. Collection containers could be placed next to bins at indoor eating times and perhaps moved outside at lunchtime. Consider possible enterprise options to create saleable materials, e.g. worm juice or compost that could be sold to the community, or added to the vegetable garden. It may not be viable to compost (or worm farm) everything on site- consider offering buckets of scraps to families with chooks or animals– another great way to use this valuable resource, or speak to collection contractors about options, which are much less costly than landfill collections. Most offer 660L/week Organics collections for much less than the cost of sending to landfill.

Compostable Paper: On average, 13% of the total volume of landfill material paper in Secondary schools, or **450 L/site/week**. Consider collecting paper lunch-order bags, the paper hand towels from staff toilets and tissues for compositing, as the paper to food scraps ratio is important for a successful composting mix. Paper towel can also be collected separately in toilets, perhaps in a green tub or bucket to reflect the colour of the compost bin that it is later transferred into. This would also make it clearer for cleaners, and could be enhanced with a graphic and word label if needed.

Garden Material: On average, 1% of landfill material was garden material for Secondary schools. While very little garden material is generally found in bin audits, it is often is placed directly into skips by ground-staff. Consider mulching large prunings for use on site or by local families (your local council may be able to assist).

Uneaten Food: On average, 5% of landfill material was uneaten food for Secondary schools. Aim to reduce this by sending uneaten food home and encouraging discussions with parents about how much and what students eat in a day. Work with families to ensure that it is OK for children to bring home uneaten food to eat later, and they are involved in preparing their own lunches.

Reusable Materials – 4% of the total volume of materials to landfill

223 200 Litres/year of reusable items that could be used again before disposal **(from 36 sites audited).**

This includes **246 kg/site/year** of single-sided paper, or approximately **2 458 pieces/site/year** of A4 paper that could be **reused** before recycling!

Items commonly include:
Pencils, plastic sleeves, pens, mugs, hats, folders, fabric, string, or materials that could be used for art activates.

Reusing- 6 200 L/site/year

Reusables: The items that were found could be easily reused by having a communal storage area, where reusable items can be placed and shared amongst staff/all school attendees. This can have cost savings for the school in the materials purchased - for example, saving pencils and resharpening them means less need to be purchased each year.

Single Sided Paper: Because paper is a big budget item for education sites, it is important to try and use both sides of suitable paper before recycling to make the most of this valuable resource.

Reducable Materials - 29% of the total volume of materials to landfill

1 442 340 Litres of materials/year (from 36 sites audited) currently have no easy way to be managed in a school environment. Many of the things such as food and drink packaging can be avoided or sent back home to reduce the amount of materials going to landfill from your site.

223 200 Litres/yr (from 36 sites audited) are in the category of **'other' - in an ideal situation, 'other' is the ONLY material that would be going to landfill.** This is just 44 x 140L bins/site/yr.

Food and Drink Packaging

On average was **31 260 000 L/yr (36 sites) or 5 000 L/site/yr**

This was **25%** **of the total volume of materials in landfill bins.** As these items can't be recycled, reducing their use is the best option!

Ziplock Bags & Cutlery

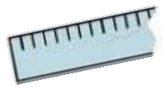
223 ziplock bags/site/day were found.
This equates to **44 550/site/year,** or around **$2 673** of ziplock bags per site each year

Small Tubs and suckers

There were **52 tubs/day/site,** which equates to **10 360/site/yr,** or **2000/person/day**

And **6 yogurt suckers**/ site, which equates to **1 150/site/yr,** or **2 200/person/yr**

This costs more than $1 461/site/yr.



Other

Only **6 200 L/site/yr** of material **per site** could not be reduced, reused, recycled or composted was sent to landfill. This was just **4%** of what went to landfill.

OR just 44 x 140L bins/site/yr.

Reducing- 40 067 L/site/year

Food and Drink Packaging, Ziplock Bags & Cutlery, Small Tubs:
This could be reduced by encouraging *Wipe Out Waste* or *Nude Food* days, and trying the *Less to Landfill Challenge* across the school. Reducing and avoiding packaging also links well with healthy eating strategies in consultation with parents.
Strategies that have worked well at sites include:

- Regular Nude Food or Waste Less lunch/recess days http://www.biome.com.au/274-lunch-boxes;
- Parents and VIP initiatives, which may be linked to healthy eating and food garden programs;
- Bin-free days so that leftovers and packaging are taken home;
- Homemade sandwich wraps (which can make an excellent fundraiser)–see www.4myearth.com.au and https://www.facebook.com/littlelittlekidstuff/

For long-term reduction of packaging, education and support for parents and the students is essential so that families and students are responsible for their own packaging. Most of the materials to be reduced come from families purchasing decisions, and we suggest sharing audit results with both the parents and students and encouraging students to pick unpackaged food items. Newsletter articles, discussions at assembly, or new student information packs could be a way to inform families about more sustainable alternative ways to bring food to school.

Several sites have removed outdoor bins for students and staff, placing the onus on individuals to take personal responsibility for excess materials they create, and **saving significantly on time spent by staff emptying bins as well as school $$ spent on collection and disposal of these materials!**

Other: In an ideal situation where items are reduced, reused, recycled or composted there is very little material that MUST go to landfill. This is a long term goal to aim for which can provide a range of contextual learning opportunities and cost savings for the site. You could easily become a Zero Waste Bin free school within the next 2 years!

Currently, 5 015 400 Litres/year, or an average of 139 317 L/site/year, are going to landfill from the 36 audited Secondary school. However, with 'ideal' collection and avoidance systems in place, the total daily volume of material to landfill for an entire school could be around

31 L/day = 6 161 L/year – or just 44 bins/site/year!

This is a great long term goal to strive for, and some sites have reduced their material to landfill by more than half after conducting a bin audit. This can also deliver significant cost savings for the school and is worth discussing with finance staff.

Your site compared to State Average

When comparing between sites, a per person per day (pppd) measure is used. This allows a degree of normalisation for sites of differing sizes.
A brief comparison is shown in the table below - see the data sheets for more detailed data.

	Average of Secondary SA Sites (n=36)
Recyclables stream	0.33
Compostables stream	0.22
Reusables stream	0.04
Landfill stream	0.24
Total Material Audited	0.82

Please ensure that your site makes contact with the council Waste/Sustainability Education Officer:

And NRM Education staff, particularly if you are a Sustainable School site, as they can support you with engaging staff, linking to a School Environmental Management Plan- SEMP. Your contact is

Summary of Recommendations

Reducing - 29% of the total volume

Composting - 27 % of the total volume

Recycling - 40% of the total volume

Reusing - 4 % of the total volume

Wipe out Waste

For more information, questions or queries, please contact the WOW team at KESAB.

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