Smart cities

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## Scope:

* Waste Education App
* 3 main Languages – Chinese and 2 others
* Content should include information about how to recycle correctly and why it is important to recycle correctly
* Should be fun and engaging
* Should include a carbon emission savings calculations

## Problem description:

1. Students do not recycle correctly. More often than not, recycling bins are contaminated by other waste products, meaning that all of the waste and recyclables go to landfill and nothing is recycled.
2. A lot of waste is generated in the Hub, from food scraps and coffee cups, to paper, batteries and plastic containers. This is a big problem.
3. Waste education an ongoing battle, due to a high annual turnover of students, language barriers and the fact that waste education is typically boring.

## Bin colours:

There is an Australian Standard for mobile bin colours:

* Waste (red) – otherwise known as landfill, garbage, general waste or trash
* Recycling (yellow) – otherwise known as comingle or mixed recycling
* Paper/Cardboard (blue)
* Organics (green) – otherwise known as compost or food scraps

## Waste products disposed of in Hub Central:

Approximately 27 tonnes of waste & recyclables are disposed of each year in Hub Central, including:

* 73,000 coffee cups
* 9 tonnes of organic waste (40% of the total waste)

**Typical waste products found in bins includes:**

* Food scraps – banana peel, apple core, left-over salads & sandwiches, sauces
* Takeaway coffee cups
* Drink cans
* Milk & juice cartons
* Glass drink bottles
* Plastic drink bottles
* Hard plastic containers for food
* Yoghurt containers
* Tissues & paper towel
* Coffee grinds
* Paper bags
* Plastic food wrap
* Chip packets
* Tin cans

**Other less-common waste disposed of includes:**

* Paper – copy & coloured paper, post-it notes, envelopes, newspapers, magazines, flyers, brochures, cardboard
* Batteries
* Mobile phones
* Tea bags
* Flowers
* ‘Bio’ cups, plates & cutlery
* Paper & plastic plates
* Plastic bags
* Foam cups/trays
* Pizza boxes
* e-recycling

## Why recycle?

* **Recovers useful resources** such as plastics, metals and inks that can be used to make new products like pens, fencing and park benches
* **Diverts waste from landfill** and as a result, **reduces greenhouse gases**
* **Saves water and energy** by making products from recycled materials, rather than making new products from raw materials
* Prevents toxic materials that are harmful to the environment and human health, from leeching into soil and waterways
* Helps to conserve valuable non-renewable resources like nickel and lead

Over 70% of SA's waste gets recycled. But a lot of valuable resources that could be recycled are still going to landfill.

## What goes where?

**Recycling – Yellow**

* Drink cans
* Tin cans
* Milk & juice cartons
* Glass bottles
* Plastic bottles
* Hard plastic containers
* Paper & plastic plates
* Yoghurt container
* Takeaway coffee cups
* Paper & cardboard (if there is no blue bin)

**IMPORTANT: No containers contaminated with food or liquid**

**Paper/Cardboard – Blue**

* Copy paper
* Coloured paper
* Post-it notes
* Envelopes (with & without windows)
* Newspapers & glossy magazines
* Flyers & brochures
* Cardboard

**IMPORTANT: Must be dry and clean**

**Organics - Green**

* Food scraps – banana peel, apple core, left-over salads & sandwiches, sauces
* Liquids
* Tea bags
* Paper towel & tissues
* Coffee grinds
* Flowers
* Egg shells
* ‘Bio’ cups, plates & cutlery

**The general rule is that if it once lived, it can be recycled in this waste stream.**

**Waste – Red**

* Plastic wrapping e.g. glad wrap
* Chip packets & foil wrapping
* Dirty food containers
* Plastic bags
* Polystyrene/foam cups/trays
* Tissues (if there is no organic bin)
* Food waste (if there is no organic bin)

## How to recycle correctly

* Scrape out any food remains/pour away excess liquid
* If possible rinse the container
* Remove lids from coffee cups and drink bottles
* Crush metal cans
* Squeeze plastic bottles flat to expel as much air as possible
* Flatten cardboard boxes



## Contamination of bins

Contamination occurs when items that do not belong in a particular bin are placed in that bin.

If there is contamination of a recycling, paper or organics bin, none of the items in that bin can be recycled and the entire bin will go to landfill.

In the recycling bin, the most common contaminants are food scraps, plastic wrapping and dirty plastic containers.

In the organics bin, the most common contaminants are plastic bags, containers and wrapping.

In the paper bin, the most common contaminants are dirty coffee cups and lids and food scraps.

If you are unsure about what goes where, put your item in the landfill bin.

## What recycling facilities are available in the Hub?

NOTE: Bin infrastructure and signage will be updated in January/February. This information reflects the updates.

On the ground floor of Hub Central there are numerous waste stations that have a **red** general waste bin and a **yellow** mixed recycling bin.

There is one **green** organic waste bin for food scraps.

On the lower ground floor there are **blue** paper/cardboard bins near printing areas and a **grey** battery and mobile phone recycling station near Ask Adelaide.

## Stats & Facts

* Less than 5% of used batteries in Australia are disposed of correctly.
* Around \*8,000 tonnes (183 million batteries) end up in landfill each year.
* Since 2009, the University has diverted nearly 100 tonnes of e-waste from landfill!
* Once the green bin is collected, it takes about eight weeks to be processed and turned into a valuable soil additive, like mulch or compost.
* Around 90% of greenhouse gas emissions from landfills are a result of decomposing organic material which could be diverted.
* Virtually anything electronic with a power cord or plug can be e-recycled, including:
  + TVs, monitors and hard drives
  + Notebooks, laptops, i-pads and i-pods
  + Keyboards, mice and cables
  + Networking and lab equipment
  + Cameras and video cameras
  + Printers, projectors, scanners and fax machines
  + Stereos, VCR and DVD players
  + Electronic games
  + Mobiles and desk-top phones
* Making a can from recycled materials rather than bauxite saves up to 95% of energy
* Recycling glass saves 75% of the energy to make glass from raw materials
* The energy saved by recycling one plastic bottle will power a computer for 25 minutes
* Making paper from recycled materials uses 99% less water and 50% less energy than if produced from raw materials (Sita)

## Q & A

**What types of plastic can I recycle?**

If a plastic container holds its shape when crumpled, and/or would hold liquid in it, then the item is suitable for recycling and can be placed into the yellow lid bin. Soft plastics, such as freezer bags, plastic packaging and glad wrap cannot be recycled at the University, but many supermarkets, such as Coles, have a soft plastic recycling bin.

**What does the number on a plastic container mean?**

The triangle with a number from 1 to 7 is not a recycling symbol but rather a Plastic Identification Code that tells manufacturers what type of plastic the item is made from. All rigid plastics labelled 1, 2, 3 & 5 can be recycled. Some plastics labelled 4 & 6 can be recycled.

**Why do I need to remove lids before I recycle my plastic bottle?**

Plastic bottle lids are usually made from different materials to the bottle itself and not all of the lids can be recycled.

**Why can’t food scraps go into the landfill bin? Don’t they decompose in the ground?**

Unless regularly turned over, food breaks down slowly in landfill due to a lack of oxygen. This creates methane, a greenhouse gas that is 20 times more potent than carbon dioxide. Food scraps that are composted through an organic recycling stream are mixed with other materials like lawn clippings and garden waste, to create soil conditioners and humus.

## How to reduce waste

* Recycle everything possible
* Bring lunches to uni in reusable containers and take a reusable coffee cup with you when buying take-away coffee
* Re-use items like plastic bags, water bottles and takeaway containers before throwing them away
* Stop buying bottled water! Use a re-usable water bottle instead and fill up at one of the water refill stations on campus.
* Ensure that your computer is set to print double-sided and in black and white
* Go paperless. Read, note, edit and highlight on screen. Use a soft-copy rather than a hard-copy version
* Request electronic versions of newsletters, guides, invitations and brochures
* Look for goods with little or no packaging, and try to avoid single-use items
* Look for items made from materials that can be recycled

## Examples of Waste Apps

<https://my-waste.com/>

<http://www.westtorrens.sa.gov.au/Services/Mobile_apps/West_Waste_App>

<http://www.brisbane.qld.gov.au/environment-waste/rubbish-tips-bins/recycling-reducing-waste/brisbane-bin-recycling-app>