

Primary Years Lesson Ideas

Below you will find a selection of Australian curriculum-aligned lesson ideas and activity sheets relating to the topic of waste management. They are written for primary years students but can easily be modified to suit other year levels.

Adult supervision is recommended for these activities.

Please note: There may be some variation in the waste disposal and recycling regulations and services between local councils. Please check with your council and make the necessary adjustments to the lessons.

In addition to these lesson ideas, KESAB *environmental solutions* offers a number of 'hands-on' excursion and incursion programs and options to complement students' learning. For details, simply download KESAB's latest '**Waste and Recycling Education**' information brochure.

Go to www.kesab.asn.au ('Schools' > 'Classroom sessions').

Broad learning outcomes

Using this curriculum material will assist students in achieving the following learning outcomes:

- Students will explore the principles of waste management with a particular focus on waste management practices in their area.
- Students will discover which items go into each bin.
- Students will consider the greater impacts of correct and incorrect waste management practices.

Humanities and Social Sciences

Geography

In addition to the Geography lessons below, there are further comprehensive lessons based on food waste and practical solutions for reducing food scraps on the KESAB website:

www.kesab.asn.au ('Schools' > 'Education microsites' > 'Food scraps to compost' > 'Schools' > 'Teachers').

- Students to test their knowledge of which items belong in each bin by completing the **'Where does it go?'** activity sheet (provided). They will need access to the 'Which bin' website: www.whichbin.sa.gov.au/a-z-items to complete this activity.

Students may wish to have an adult at home try this activity too.

Following this, students to design a flyer to inform others about what can be recycled and how the items should be treated before they are placed in bins (e.g. lids off, washed etc.). This flyer could be sent home or included in a school newsletter.

- Students to review the waste management systems that they have in place at home (e.g. who is responsible for the bins, do family members know what goes in each bin?). Students to decide if their family manages their waste effectively and if not, design a process that might improve it.
- Students to explore different ways of sustainably managing waste and how these include the principles of avoid, reduce, reuse and recycle.
- Students to investigate what we do with items that do not go into any of their wheellie bins. What other options are there?
- Students to create (write about, draw or create) a representation of their preferred future waste management system for a particular product.
- Students to research two different methods of composting, (compost bins, worm farms, Bokashi buckets, etc.) and select one method they think could work at their home. Consider the organisation, time and equipment required. How would students ensure their whole family could participate?
- Students to make a commitment to reducing the waste they produce by completing and signing the **'Reduce my waste'** activity sheet (provided).
- Students to think of an everyday item or material that gets disposed of regularly and use the **'Ways to reuse it!'** activity sheet (provided) to record ideas about different ways they could reuse that item.

- For facts written specifically for students about household waste and recycling, students to visit the KESAB website:
www.kesab.asn.au ('Schools' > 'Education microsites' > 'STUFF AT HOME – put it in the right bin' > 'Student facts').
Then, in pairs, students to explore the '**STUFF AT HOME – put it in the right bin**' interactive house on the KESAB website:
www.kesab.asn.au ('Schools' > 'Education microsites' > 'STUFF AT HOME – put it in the right bin' > 'Interactive') to see which household items belong in each bin.
This link also leads to 'Curriculum support' resources consisting of lesson ideas and more activity sheets to support the interactive.
- Students to research household bin collection systems in other countries. They could choose one (or more) countries with which they have a family connection, or in which they are particularly interested. What are the similarities and differences between the bin collection systems in their chosen country and Australia? Students to record their findings and report to the class.

History

- Waste management in Australia has changed considerably in recent years. Students to interview an older person to find out how waste management has changed since they were young. How much waste did they create and what did they do with it? Did they reuse or recycle? If so, what types of materials did they reuse or recycle and how? Students to record their findings and report back to the class.

Civics and citizenship

- Students to research their local government's responsibility to manage waste in their area.
- Students to consider how policies and legislation, such as the container deposit legislation (CDL) and 10c plastic bag levy, impact on waste management.

Economics and business

- Students to contact a business in their local area to find out what they are doing to manage their waste.
- Students to discuss the role of consumers in reducing packaging and waste, both in the supermarket and in retail shops. Research the role of the Australian Packaging Covenant Organisation.

- Students to research, and then demonstrate their understanding of the 'circular economy' by completing the 'Recover and recycle' activity sheet. To access the '**Recover and recycle**' activity sheet, visit the KESAB website:
www.kesab.asn.au ('Schools'>'Education microsities'>'Metal Recycling'>'For educators'>'Lesson ideas and worksheets').

Science

- Students to use the '**Waste management KWL chart**' activity sheet (provided) to record what they know, what they want to know and what they are learning about waste management.
- Students to investigate which natural materials are used to make one of the following: paper, glass, steel, aluminium or plastic. They then create a presentation (booklet, oral presentation, PowerPoint, poster etc.) to include the following:
 - an explanation of the process of making new and recycled products from this material.
 - a list of benefits for the environment of recycling products made from this material.
- Teachers to conduct an experiment to find out how quickly a type of food decomposes under various conditions.

Note: the use of gloves, masks and tongs and other appropriate safety equipment is recommended for both teachers and students involved in this activity.

For example, take several pieces of bread and place one, uncovered, under a window, one inside a paper bag, bury one underground (or cover it in dirt in a plastic container), and seal one in a plastic bag (you may wish to conduct this experiment using zip lock bags and/or clear containers for all materials to avoid and/or limit exposure to mould). Analyse the results, take pictures and write a report.

Alternatively, the experiment could compare the decomposition rates of other food items under the same conditions. What do the results mean for waste management (think about separating food and packaging before disposal)? Students can use the '**Watch it waste**' activity sheet (provided) to record data.

- Students to test their knowledge on how long some common litter items take to break down. Students use the '**Litter break down cards**' to attempt to match up the common litter items with their break down times. To access the 'Litter break down cards' visit the KESAB website:

www.kesab.asn.au ('Schools'>'Education microsites'>'Litter Less'>'Unit of work'>'Lesson 7').

Students to then play the '**Litter break down drag and drop**' interactive on the 'Litter Less' website. To access the interactive visit the KESAB website:

www.kesab.asn.au ('Schools'>'Education microsites'>'Litter Less'>'Interactives').

- Students to consider how the properties of materials affect the way they are managed as recyclables. For example, how does the management (e.g. production, transport, and/or disposal) of hard glass products differ from the management of soft plastics?
- Students to investigate what separation techniques are used to manage various waste and recycling items and consider how these techniques impact on the environment.
- Students to consider the question "Why does it matter what we put in each bin?" Discuss the idea of contamination and what they think it means for waste management in their local area.
- Students to test their knowledge of composting with the '**What goes in your kitchen caddy? Drag and drop**' interactive. To access the interactive visit the KESAB website:
www.kesab.asn.au ('Schools'>'Education microsites'>'Food scraps to compost'>'Schools'>'Students'>'Fun activities').
- Students to determine how much they know about which food scraps can go to compost, by completing the '**Food scraps for compost true or false quiz**' interactive. To access the interactive visit the KESAB website:
www.kesab.asn.au ('Schools'>'Education microsites'>'Food scraps to compost'>'Schools'>'Students'>'Fun activities').
- Students to complete the '**Feed the kitchen caddy!**' activity sheet (provided) to display the types of kitchen scraps that can be disposed of in the caddy.

For further information about organics disposal (including fast facts for students and the journey of food scraps from bin to compost) visit the KESAB website:

www.kesab.asn.au ('Schools'>'Education microsites'>'Food scraps to compost'>'Schools'>'Students'>'What goes in my green organics bin?').

Technologies

Design and technologies

- Students to design a fully automated waste management system for 2030. How might it incorporate the ideas of waste separation that we use today?
- Supermarket items come wrapped in many different types of packaging (plastic, cardboard, metal). Students to select some common items and discuss why they might be packaged as they are. What properties do the packaging materials have that make them suitable for the product? If the packaging cannot be recycled, investigate and discuss alternative packaging for the product.
- To explore the importance of disposing of waste correctly, students to research the life cycle of a commonly used item (e.g. a plastic water bottle). How is the product manufactured, marketed, distributed and disposed of or recycled? Is the system a closed or open-loop system and what are the implications for the environment?
- Students to use their imagination to design a new and innovative kitchen caddy. Their design should be labelled, with the new features explained.
- Students to research the design and construction of modern landfills. What are the features of a suitable or unsuitable location for a landfill site? Identify potential hazards of landfill and create innovative solutions to deal with these problems. Students can use the '**Landfill PMI**' activity sheet (provided) to record ideas.
- Students to design their own version of a waste management collection truck. Their truck must show any working or moving parts.

Health and Physical Education

- Students to investigate the health risks associated with waste that isn't properly managed. What issues would be faced by individuals, society and the environment if we did not have adequate waste collection and disposal services?
- Students to create a week of healthy lunchbox options that use minimal or reusable packaging. Create some great low or no waste lunch menus and display them around the classroom or school.
- Students to conduct a canteen audit (if your school has one) in relation to how much packaging the items have and consider if there are ways that this could be reduced.

- Even though food can be disposed of in the organics bin, we still waste a huge amount of edible food in Australia. Students to discuss how we can reduce this. Students to complete the **'My favourite healthy foods'** activity sheet to help reduce food wastage. To access the activity sheet visit the KESAB website:
www.kesab.asn.au ('Schools' > 'Education microsites' > 'Food scraps to compost' > 'Schools' > 'Teachers' > 'Lesson 3').

Students to then research how to store certain foods properly so they can be used as leftovers. Create a campaign to promote food-waste reduction.

Mathematics

- Over a week, students to collect data on which items they place in the various bins at home (i.e. landfill, recycling and organics). When finished students could:
 - collate the lists and present the results as a bar graph
 - calculate the percentage of items that were placed in the wrong bin
 - use Excel to create a table representing the percentage of listed items that are made from different materials. For example, if there are 50 items and 20 are made of plastic, plastic items make up 40 percent.
- Students to use a street directory, or online map website, to find a map of their street and all the roads within a 2km radius. Students to then calculate the shortest route for a collection truck to empty all the wheelie bins in this area. Calculate the total distance travelled. Remember that bins on both sides of the road need to be emptied.
- One way to reduce our waste is to buy less packaged items. Students to select some items that their family buys regularly that could be bought in bulk quantities (e.g. chips, flour, milk, rice, nuts etc.) and compare prices per 100g. They could do this via shopping websites or during a visit to a local supermarket. Students can then record the data on the **'Save packaging – buy in bulk!'** activity sheet (provided).

For more information, or for extension lesson ideas on this topic, visit the 'Wipe out waste' website:

www.wow.sa.gov.au ('Resources' > 'WOW Learning Resources').

- Students to create a 'Waste and Recycling' boardgame. They must use recycled and/or reused materials for their game, such as bottle tops for counters and cereal box card for the game base. Students should include directions such as 'move back 3 spaces' for incorrect waste disposal, or 'move forward 3 spaces' for using the correct bin etc.

English

- Students to create a sequential explanation text to explain what happens to waste items after they have been collected from your wheelie bins. They could focus on landfill, recycling or organic waste.
- Students to produce an information brochure for their parent/carer about avoiding packaging when shopping. It could include looking for products with recyclable packaging or buying in bulk to reduce packaging.
- Students to visit the 'Which Bin' website www.whichbin.sa.gov.au and view the videos in the 'Meet Vin' section. These videos are a humorous way to engage all ages with recycling. Students to discuss the features of the videos that make them successful and then apply these to create their own video on a waste management topic of their choice.
- Students to view the recycling symbol. Ask students to look for the symbol on packaging in the classroom and/or at home. Discover what the different numbers (identification codes) on the recycling symbols mean. Students to practise drawing the symbol on their own. Discuss why symbols are important.
- Students to start a waste management key words dictionary using the '**Waste words**' activity sheet (provided).
- Students to create their own 'waste warrior' characters and include them in a comic strip. They must include some key waste management tips in their work. Students can use the '**Waste warriors comic strip**' activity sheet (provided) to plan their comic strip.
- Students to complete the '**My waste management truck story**' activity sheet (provided) to create a narrative about the waste management collection trucks. Before getting started, students to review the essential elements of a good narrative (orientation, complication, a series of events and a conclusion).
- Students to view, and listen to, the '**Larry Litter**' online story book. To access the story book, visit the KESAB website:
www.kesab.asn.au ('Schools' > 'Education microsites' > 'Litter Less' > 'Interactives').

After viewing, students to discuss Larry's journey and brainstorm a list of environmental impacts that littering and putting rubbish into incorrect bins can have in their local area, state, our country and even the world.

The Arts

Visual arts

- Students to research the lid colours of the waste bins in their local council area and use only those colours to create waste management information posters.
- Students to use recyclable items to create a class mural, collage or sculpture that can also be recycled after it is finished within the classroom.
- Students to use the **'Wheelie bin template'** to make their own mini bin. This could be kept on their desk for recycling paper or to collect pencil shavings etc. To access the wheelie bin template, visit the KESAB website:
www.kesab.asn.au ('Schools'>'Education microsites'>'STUFF AT HOME – put it in the right bin'>'Curriculum support'>'Sustainable choices resources')
- Students to complete one or more of KESAB's **'Junk Craft™'** activities that combine the use of common classroom resources with recycled materials and objects from nature to create interesting craft items. To access the activities, visit the KESAB website:
www.kesab.asn.au ('Schools'>'Education microsites'>'Junk Craft').

Languages

- Students to research the top ten languages, other than English, spoken in their school/community, then design a simple 'reduce, reuse, recycle' poster using one of the languages. Students could also produce a 'reduce, reuse, recycle' poster that uses pictures only (no language).