



A Deadly Sort

Rubbish and Recycling Education Games

Aboriginal Communities Waste Management Program



Artist:

Jordan Ardler

La Perouse Aboriginal Community, Bidjigal People

Artwork:

This artwork represents various landscapes from across New South Wales. Symbols include (from bottom to top) rocks on riverbank/land, river/ocean, land environments, and tree engravings. Movement is also represented through lines and the positioning of animals and symbology representing people. The addition of the people and animal symbology also acknowledges that all land is occupied. The specific colours reflect the range of scenery depicted.

Circular and line symbology throughout the artwork highlights community growth through collaboration and working as one to proceed through a journey.

The NSW EPA acknowledges and pays respect to the First Nations peoples of the land on which we live and work, and to elders past, present and future.

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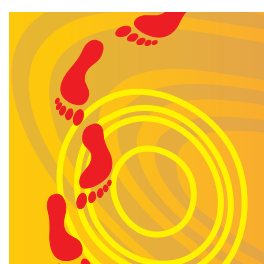
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Game 1

A Deadly Sort: Recycle Relay

Knowledge sharing before you start Game 1

Why do we recycle?

Recycling protects Country by turning old, unwanted items into new ones by reusing the materials and resources from the original item. Recycling saves energy and water because it takes much less energy and water to make products from old items, rather than mining new materials to make the same product from the beginning. A lot of resources (like coal and petroleum oil) take millions of years to be created, so the supply is limited. Recycling helps preserve these resources. Recycling also means less waste goes to landfill. Landfills create harmful gases (methane) and liquids (leachate) that are damaging to Country.

What can be recycled in your Council area?

Depending on where you live, you will have different access to recycling services. Almost all Councils will have collections for steel (for example bicycles, car parts, whitegoods). Across NSW, collection points for drink containers are also available, offering a 10c refund per container. This program is called Return

and Earn. Some Councils in NSW collect recycling bins from your home. What can go in these bins varies, so check with your local Council. Common items include glass, paper, cardboard, hard plastics, steel and aluminium cans. Your local transfer station or landfill may also offer collection of electronic waste (such as mobile phones, computers or televisions), car batteries, car motor oil, tyres, green waste, hazardous household chemicals and/or chemical drums.

Where can you find out what can be recycled in your local area?

The Recycling Near You website <https://www.recyclingnearyou.com.au/> will help you find the recycling services offered by your local Council and also the locations to drop-off other items for recycling, such as electronic waste, batteries, printer cartridges, white goods and much more.

To find out where your closest Return and Earn collection point for drink containers is, visit <https://returnandearn.org.au/>.



Learning aim

To learn how to sort your rubbish correctly and separate what can be recycled and composted.

Aim of the game

To be the first team to correctly sort the mixed pile of rubbish, recycling, compost and drink containers into the correct buckets.






Equipment to get ready

- 5 buckets for each team of 5 people (if available you can use 5 different colour buckets). So if there are 10 people playing, you'll need 10 buckets. If there are 30 people playing, you'll need 30 buckets
- Label the buckets
(signs are provided in **Appendix 1**)
- Collect a mix of rubbish, compost, recycling and drink containers that is common on your community. Place this in the mixed rubbish

bucket. You will need about 15 items of rubbish for each team of 5 people (make sure each team has the same number of items in their mixed bucket). For food items, just collect a few things like bread or vegetables that won't be too smelly or hard to handle.

How to set up the game

- Along the starting line of the relay, place one bucket of mixed rubbish for every team that is playing.
- Approximately 5 metres away from the starting line place the 4 buckets for each team, labelled COMPOST, RECYCLING, RUBBISH, DRINK CONTAINERS.

<p>1. MIXED RUBBISH</p> <p>(this bucket contains all the items for each team at the starting line)</p>  <p>Mixed Rubbish</p>	<p>2. COMPOST</p>  <p>Compost</p>	<p>3. RECYCLING</p> <p>(if you don't have access to recycling in your community, leave this out)</p>  <p>Recycling</p>	<p>4. RUBBISH</p>  <p>Rubbish</p>	<p>5. DRINK CONTAINERS</p>  <p>Drink Containers</p>
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How to play

1. Divide the players into teams of 4 or 5 people.
2. Each team stands next to their mixed rubbish bucket along the starting line of the game (make sure each team has the same number of items in their mixed buckets at the start).
3. Explain that the aim of the game is to sort out contents from the mixed rubbish bucket into the 4 buckets at the other end – rubbish, compost, recycling and drink containers – one piece and one player at a time.
4. Remind the players of the basics of what type of items can go in each bucket.
5. When everyone is ready to start, countdown: “3... 2... 1.... GO!”.
6. Players take turns running one item at a time to the buckets at the other end and placing the item in the correct bucket.
7. They then run back to the starting point and tag the next player in their team.
8. The next player then picks up an item from the mixed bucket and runs it to the other end to place the item in the correct bucket, then runs back to the start and tags the next player.
9. Repeat this until every item from the mixed bucket has been sorted.
10. Encourage players to work as a team when sorting through the mixed bucket. The players standing at the starting point can offer advice to the player choosing which bucket to put the item in.
11. When all items are sorted, the team sits down.
12. The first team to sit down is the winner.

Revise what you learnt

Once everyone has finished, go through each team’s four bins to see if they have sorted their items correctly. Get the whole group to help with this. Ask them if they can see any items that are in the wrong bin. Work together to get all the items sorted correctly and share knowledge along the way.



Getting your buckets ready

Game 2

Living on Borrowed Time

Knowledge sharing before you start Game 2

Ask players questions before you start the game to get them thinking about waste.

What is waste and where does it come from?

Waste is stuff that we no longer want or need, such as empty packaging, unwanted household items, broken toys and furniture, and rotten food.

What happens to waste when you leave it on the ground?

Some types of waste break down quickly (like paper or fresh food) but other types of waste can take a very long time to break down and might stay in our environment for thousands or even millions of years. Plastic products never breakdown, they just break into smaller and smaller pieces.

Why is waste a problem?

On Country, waste can be the source of terrible pollution and environmental damage. If waste is not disposed of correctly, it can clog up rivers and the ocean and damage Country. If animals eat plastic, they may get sick and sometimes even die. Certain types of waste (like batteries, electronic waste, paint and plastics) release harmful chemicals onto Country when they break down. These toxins can be harmful to animals, plants, water and people.



Over 1 million seabirds die each year from digesting plastic

What helps to decompose waste?

Materials break down faster when exposed to the sunlight, heat, rain, and moisture. There are also plants and animals such as micro-organisms, worms, fungi, bacteria, insects and other invertebrates that help decompose waste back into nutritious soil.

Why doesn't plastic breakdown?

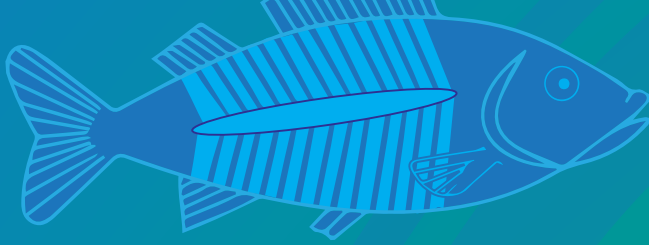
Most plastic is made from petroleum oil, a naturally occurring mineral. However, when plastic is manufactured, the petroleum oil is heated, which changes the chemical compound of the oil. Nature's decomposers don't recognise this man-made product. The new and foreign compound is too tough for them to break down and requires too much energy, so they leave it alone and look for recognisable materials like an apple, wood or organic materials.



Worms are great decomposers



Fungi are great decomposers



Learning aim

- To understand the difference between rubbish that will break down in the environment (decompose or biodegrade) and rubbish that won't break down in the environment.
- To understand the impact of rubbish and littering on the environment.

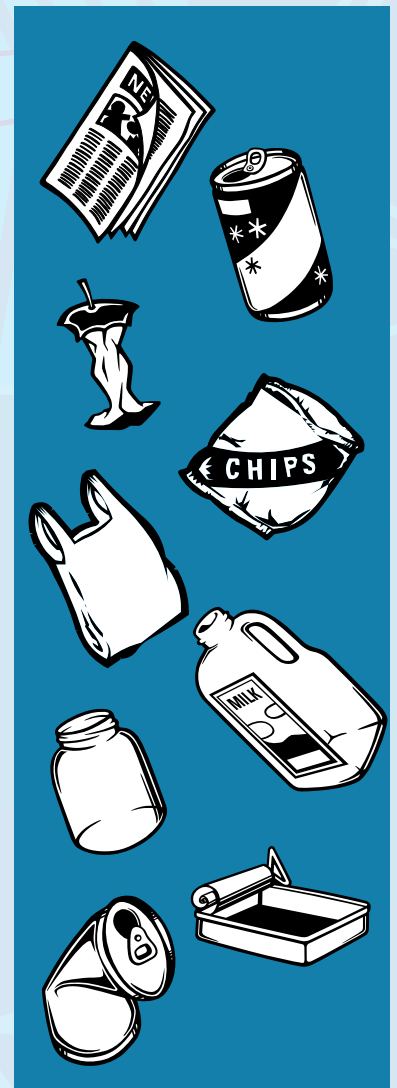
Aim of the game

To match rubbish items along a timeline with the correct time it takes for each item to breakdown.

Equipment to get ready

- A rope or piece of string around 10 metres long
- **Cut out the cards in Appendix 2**
- Collect the items on the list below

Rubbish items to collect	Checklist (tick)	Rubbish items to collect	Checklist (tick)
Aluminium can		Glass bottle	
Banana skin (or other fruit)		Mobile phone	
Chip packet		Paper	
Cigarette butt		Plastic bag	
Cotton shirt		Plastic bottle	
Fishing line		Plastic straw	
Football		Styrofoam	
Food can			



How to set up the game

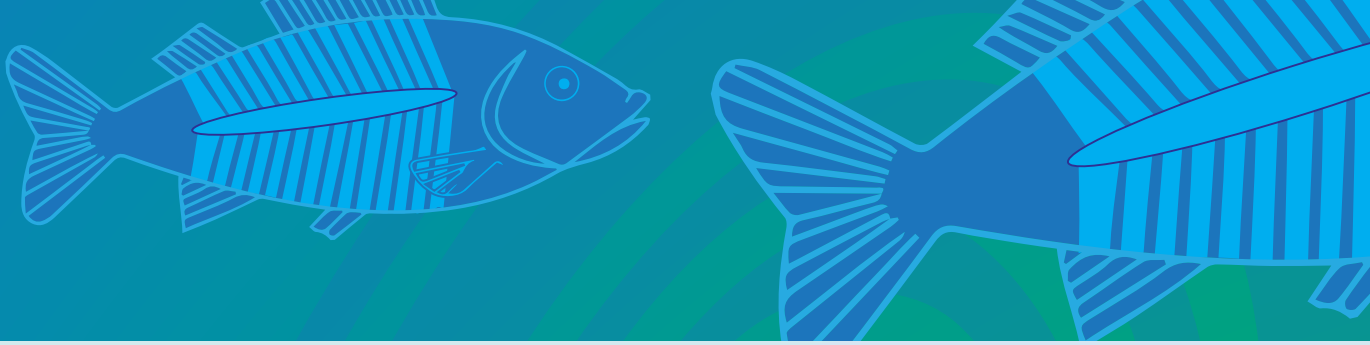
1. Lay the rope out in a straight line along the ground or on a long table. Make sure there's enough space for players to walk around the rope.
2. Lay out the rubbish items at the start of the rope.








Set up of game

How to play

1. Start by discussing waste and how long it takes different materials to break down. You can refer to the 'knowledge sharing' section on page 5.
2. Ask the players to create a timeline by placing the time cards along the rope, with the start being today and the other end of the rope being 5 million years into the future.
3. When they have finished placing all the labels along the rope timeline, ask them to stand back and check that they are placed in the correct order, and help them make any changes if needed.
4. Ask the players to place the waste items along the rope timeline against the time they think it will take the waste item to break down. To help them get started, you might like to pick the first item and ask the group how long they think it will take to break down and then place it beside that time label (for example, place a cotton shirt against the "1 year" time label). You can either instruct them to do this activity as a group or ask them to take turns so that one player at a time collects one item and places it on the rope timeline.
5. When all the waste items have been placed along the rope timeline, ask the players to stand back and assess whether they think all items are correctly placed. Ask them if they want to move any items.
6. Starting at the beginning of the timeline, discuss where each item is placed and whether it is correct. If not correct, ask the players to move the item to the correct position on the rope timeline. Work your way down the timeline until you make it to the end. The correct answers are listed in the table on the next page.



Correct answers

Rubbish items to collect	Time to break down	Items that will decompose (completely breakdown)
Banana skin (or other fruit skin)	1 month	
Paper	2 months	
Cotton shirt	1 year	
Cigarette butt	10 years	
Food can	50 years	
Aluminium can	200 years	
Plastic straw	200 years	
Football	300 years	
Fishing line	500 years	
Plastic bottle	500 years	
Chip packet	1000 years	
Glass bottle	1 million years	
Styrofoam	1 million years	
Mobile phone	5 million years	

Revise what you learnt

Take time to reflect with the players about the length of time it takes different waste items to break down. Ask them to place the thumbs up cards against the items that will decompose completely

(these are indicated above with the thumbs up sign). All other items have a plastic component in them and will never completely break down.

Game 3

Know Your Stuff: The Resource Game

Knowledge sharing before you start Game 3

What are resources?

Resources are naturally occurring materials from the Earth, and include air, water, soils, rocks, timber, animals and plants. The Earth is the foundation of all life and we all share responsibility to take care of it. All resources are interconnected, so a deficiency in one area puts pressure on all others.

How do different styles of land management impact resources?

Dominant culture land management practices in Australia and across the world have led to over-harvesting of natural resources. Many of the practices used to harvest resources are also destructive to the Earth and have led to deforestation, loss of biodiversity, pollution of water supplies, climate change and erosion.

In contrast, Indigenous land management practices respect the limits of available resources, and cultural and customary practices assign rights and responsibilities to customary owners to ensure the sustainable harvest, protection and access to resources to protect Country now and for future generations.

What is the difference between a renewable and non-renewable resource?

A renewable resource is one that can be replaced after it's been taken from the Earth, such as plants, which can grow again, or energy from the sun, which is continuous. A non-renewable resource is one that can't be replaced once it is used because it takes thousands or even millions of years to replenish the supply, for example fossil fuels, minerals and metals.



Renewable resources: energy from the sun and timber from trees

Learning aim

- To understand the connection between waste and the resources used to make products that become waste.
- To understand the difference between renewable and non-renewable resources.

Equipment to get ready

Cut out the cards in Appendix 3. Collect some common household items from each of the categories below.



Steel

food cans

Aluminium

drink cans
foil
small food cans

Plastic (for recycling)

milk bottles
drink bottles
hard plastic food containers
shampoo bottle
detergent bottle

Rubbish

batteries
electronic equipment
soft plastics
broken toys
toothbrush
cigarette butts

Paper

egg carton
newspaper
cardboard box
notebook
office paper

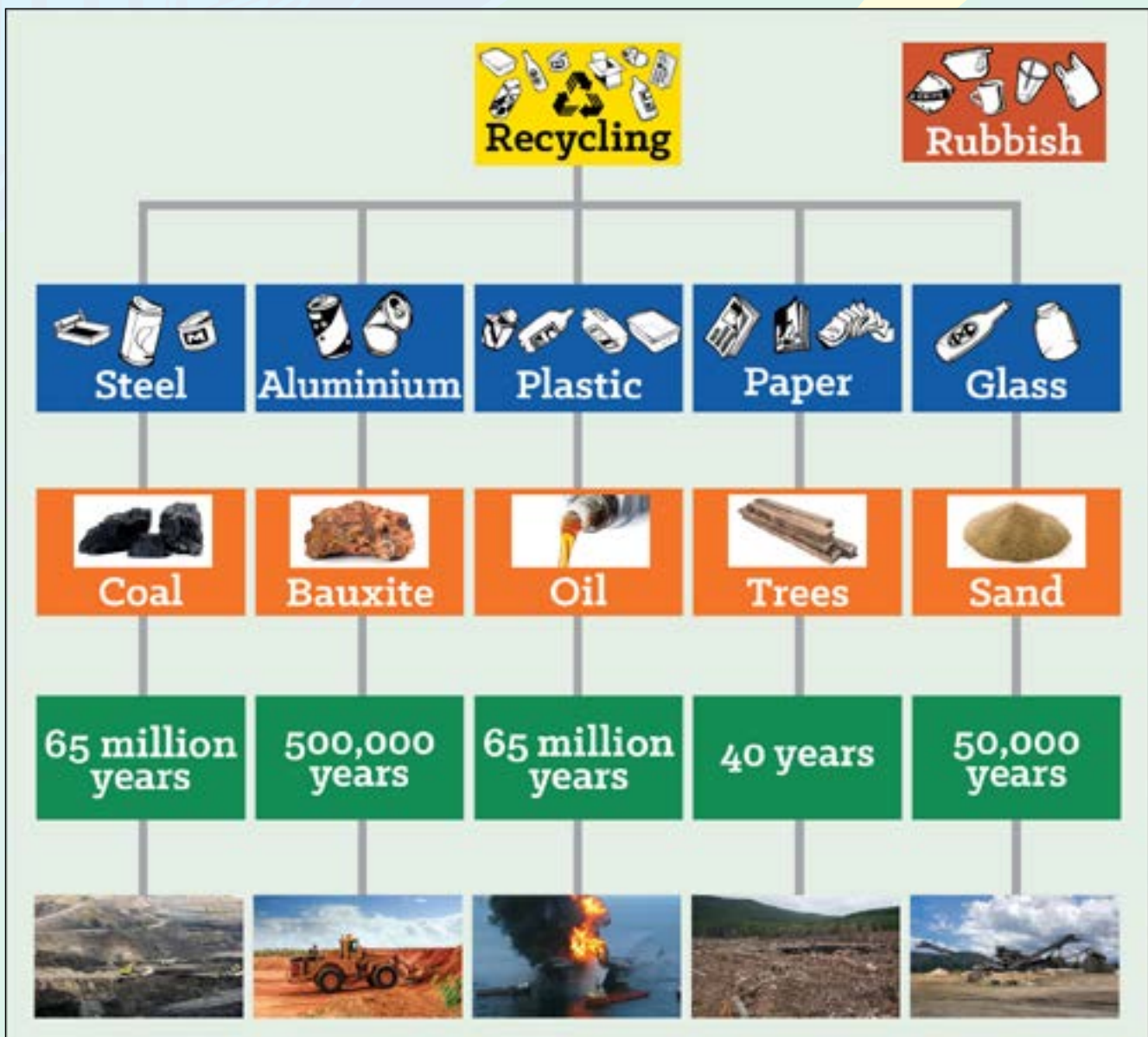
Glass

drink containers
jars

How to set up the game

1. Create enough space on the floor so that all the cards can be laid out as shown in **Figure 1**. This will be the final layout, once you have completed the game. However, to start the game, you will place only the two cards that say Rubbish and Recycling on the floor.
2. Put all the rubbish you've collected in a pile near the cards on the floor. Make sure the rubbish and recycling items are mixed together.

Figure 1: Final layout of the cards



How to play

1. Discuss with players that every item that we use is made from resources from the Earth and we'll end up either throwing it away as rubbish or recycling it. Ask players to explain the difference between renewable and non-renewable resources. You can refer to the 'knowledge sharing' on page 10 to guide your discussion.
2. Ask the players to name the common items that can be recycled. These are steel, aluminium, plastic, paper and glass. You may have to help them by giving an example. Lay these out under the card labelled Recycling (see **Figure 1** on page 12 to assist with layout).
3. Ask the players to sort the pile of mixed rubbish, one item at a time. Ask them to place each item beside the correct category. The categories are steel, aluminium, plastic, paper, glass or rubbish (see **Figure 1** to assist with layout).
4. Once all the items are sorted and laid out on the floor against the correct card, ask players which resources are dug up from the Earth to make the items in each recycling category. These are either coal, bauxite, oil, trees or sand. As the players name which resource each recycling category is made from, place the resource card next to the correct recycling category. Start by demonstrating an easy one, like paper, which comes from trees. You may have to give them clues to help them with the harder ones (see **Figure 1** for the correct responses).
5. The next step is for players to understand whether the resource is renewable or non-renewable. Ask players how long they think it took the Earth to make each resource (see **Figure 1** for the correct responses). Place these time cards next to the correct resource. Ask the players to identify which of the resources we use are non-renewable.
6. The final step is to link the mining of these resources in Australia to a specific place and people's Country, where the mines are located. **Use the picture cards (in Appendix 3)** with the images of the mining of each resource and place them beside the correct resource.

Revise what you learnt

Reflecting on the cards and the sorted rubbish and recycling laid out on the floor, ask players what they learnt from the game that was new for them.

Game 4

Bad Water, Sick Country

Knowledge sharing before you start Game 4

What is leachate?

Leachate is a toxic liquid produced when rainwater filters through decomposing waste in landfills. Landfill sites contain everything we throw away, including food waste, metals, plastics, oils, batteries, electronic waste, paints, household chemicals and more. A lot of these materials contain harmful chemicals that are released when they start to break down.

As rubbish starts decomposing, all the oxygen gets used up, the temperature in the landfill heats up, and the pH drops. This makes the liquid very acidic and metals dissolve in the developing leachate. This can start breaking down other materials that would not normally break down, and harmful gases like methane are produced. Leachate is also known as bad water because it can make Country sick.

Managing leachate in landfills

Properly managed landfills are lined, and the leachate is pumped into ponds or tanks where it can be managed. Leachate collection systems are essential, to stop the leachate from entering the groundwater. If a landfill is not managed properly, the leachate could seep into the ground water. Once groundwater is contaminated, it can contaminate rivers and drinking water.

How can you reduce the leachate in landfills?

Leachate is produced during the chemical processes that happen as organic waste materials break down. Organic materials like food scraps and garden waste speed up the breakdown of rubbish in landfill. One way you can greatly help reduce the production of leachate in landfill is by composting organic materials at home, rather than sending them to landfill.



Leachate can pollute waterways and impact water quality

Learning aim

To understand how leachate is produced and the damaging effect it has on the environment around landfills.

Equipment to get ready

You can make leachate out of any rubbish, however there are a few rubbish items, such as paint and used car oil that will help the demonstration have a stronger visual impact. Gather all the essential items below and about 6 items from the optional list. They need to be small enough to fit into the glass jar or bucket that you'll make the leachate in.

* Please note that at the end of this game you will need to dispose of the leachate in your Council's hazardous household chemical collection.

Essential

- A clear large glass jar to make the leachate in (if you don't have a glass jar you can use a large bucket or ice-cream container)
- 2 litres of water
- Essential rubbish item: black or blue paint or used car oil (1 tablespoon)

Optional

- broken toy
- broken mobile phone
- small battery
- chip packet
- food scrap
- paper
- fishing line
- packaging
- a sock

How to set up the game

1. Place the jar or bucket on a table where all the players can clearly see it.
2. Place all the rubbish items and water next to the jar.



How to play

1. Talk to participants about what leachate is and where it comes from. You can look at the 'knowledge sharing' section on page 14 to guide this discussion.
2. Place the items one at a time into the jar or bucket you are using for the experiment (you could ask participants to volunteer to do this).
3. As you place each item into the jar, talk a little bit about how this item might contribute to making leachate and whether it contains toxins that will be released.
4. Once all items are in the jar, pour water into the jar to demonstrate what happens when it rains on the landfill (the water will quickly turn dark when paint or used oil is added).

Revise what you learnt

Talk to participants about where their waste goes and ask them to identify where the leachate in the local landfill ends up.



Set up of game

The Aboriginal Communities Waste Management Program

The Aboriginal Communities Waste Management Program aims to reduce litter and waste and increase amenity of discrete Aboriginal communities (former missions or reserves) across NSW.

This four-year program runs from 2017 to 2021. The program aims to assist communities by providing funding, access to resources, expertise, and advice as they develop community-based solutions for waste management.

The program is an initiative of the NSW EPA and is delivered in collaboration with Aboriginal Affairs NSW, the NSW Aboriginal Land Council, NSW Department of Health, NSW Rural Fire Service and Local Government NSW.

To contact the Aboriginal Communities Waste Management Program

Please email rubbish.projects@epa.nsw.gov.au

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NSW Environment Protection Authority

59 Goulburn Street, Sydney NSW 2000
PO Box A290, Sydney South NSW 1232

Phone: +61 2 9995 5000 (switchboard)
Phone: 131 555 (NSW only – environment information and publications requests)
Fax: +61 2 9995 5999
TTY users: phone 133 677, then ask for 131 555
Speak and listen users: phone 1300 555 727, then ask for 131 555
Email: info@epa.nsw.gov.au
Website: www.epa.nsw.gov.au

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