

Activity 1: Investigate your waste

Resources:

- Bag to collect waste
- Rubber gloves or tongs
- Newspaper
- Large table or a few desks pushed together
- Signs for each waste category.

Aim

Students will conduct a mini waste audit in the classroom or home, examine the waste produced on a typical day and observe how much waste they are responsible for.

Background information

Waste is classified into either organic (living) or inorganic (non-living). Organic waste is food scraps, paper, grass clippings and other garden waste (green waste). A large proportion of the waste thrown out by schools is organic waste, such as garden and food waste. By reusing and recycling organic waste alone, most families and schools could cut their contribution to landfill by half.

Inorganic waste includes plastics, glass, aluminium and other metals, as well as materials such as sand and bricks and hazardous household waste. Both organic and inorganic waste can be divided into categories such as

- 'reduce' to examine if it was really necessary,
- 'reuse' if there are ways to use it,
- 'recycle' if it was made from plastics, paper, glass, aluminium or other metals
- 'compost' if it is organic rubbish.

Note: This audit does not replace the whole-school audit which is required to become an Accredited WasteWise School.

Instructions

At the end of a day gather all the waste and recycling bins for. Consider omitting tissues and instead keep a written tally of those used so they don't have to be handled again.

1. Weigh the contents of each bin and record the weight in the waste audit table. On a sheet of newspaper, spread out the day's waste and sort into the following categories: reduce, reuse, recycle, compost and rubbish, note any contamination, meaning items that have been put in the wrong bin. Weigh items in each category if possible (amounts could be too small to get an accurate number). Count the number of items in each category.
2. Copy the waste audit table onto the whiteboard or a piece of butcher's paper and have students record the class results.
3. Examine the items in each category. How can you reduce, reuse and recycle the items at school?

To simplify

- The student record sheet can be made using pictures that are available in the WasteWise clip art file or from supermarket catalogues.
- Make a record of the waste as it is produced rather than collecting the waste in a bag.

Going further

- Write instructions for a waste reduction plan using the 3 R's. Conduct a similar waste audit at home, tallying how much waste is reused, recycled, composted or put out in the bin for landfill in one day, over a week or on a weekend.

Activity 2: Waste Audit Data Sheet

School: _____

Conducted by: _____

CLASSIFICATION	EXAMPLES	WEIGHT (KG)
Recyclable items:		
Paper		
Cardboard		
Plastics		
Steel		
Aluminium		
Electronics		
Other waste. Light bulbs, Batteries, Chemicals, Tyres, Cleaners, Paint, Oil. etc		
Total weight of recyclable resources:		
Compostable items:		
Food waste		
Paper towels and paper packaging		
Total weight of compostable resources:		
Non-recyclable items:		
Food wrappers/Soft plastics		
Other e.g. Light bulbs, Batteries, Chemicals, Tyres, Cleaners, Paint, Oil etc.		
Total weight of non-recyclable resources:		
Total Weight Of Resources:		

Note: not all hazardous waste is recyclable but should be disposed of safely at your local transfer station.

Activity 2: Timeline of waste

Resources:

- Information about the history of waste (see the 'What is Waste' introduction)
- Books and websites with information about waste history ('The Stinking Story of Rubbish' by Katie Daynes is a good one to start with)

Aim

Students will investigate disposal methods of the past and construct a timeline detailing how waste was disposed of at various times in human civilisation showing changes in waste disposal over time.

Background information

There are a number of historical moments that can be discussed and related to waste, such as the invention of plastics, the plague in England, or the first landfill in Ancient Greece. Archaeologists also study debris consisting of bones, shells and stone tools called middens. By studying the materials people used in the past, we can develop a better understanding of life at different periods of human history.

Depending on the level of the students; teachers can either provide information about the history of waste or students can use resources/internet to research their own information. Students can focus on New Zealand or world history. Students will develop an understanding of the history of consumerism and waste and will then be empowered to discuss the problems associated with it.

Instructions

Encourage students to brainstorm current waste disposal practices and the waste disposal practices of the past.

Examples of focus questions include:

1. How do we dispose of waste at school? At home? Where does it go?
 2. How do you think waste was disposed of in 1900? How about 1800? What about 1,000 years ago?
 3. How is the waste that we dispose of today different from the waste thrown out at these earlier points in history?
 4. Record the brainstorm notes on the board for all the students to view while completing the exercise.
 5. Read the information about human waste practices over time (provided in the introduction) or one of the books on the history of waste.
1. Have the students construct a timeline. Students can draw the timeline in a notebook using pictures and labels to show the significant historical points along the timeline. Alternatively, students can make a human timeline. Have students stand at certain distances apart and act out waste activities from different times.

To simplify

The students learn about a specific time, such as colonisation in New Zealand, or the Middle Ages in England. Compare the waste produced then with the waste produced today and how the waste disposal methods compare.

To challenge

- The students can work individually or in small groups to research a specific time period in terms of the types of waste created and how waste was transported and disposed of. Students can investigate how waste was handled historically in communities and/or councils local to the school. This could make up a larger long-term project.
- The students interview grandparents or an older neighbour about how waste collection has changed in their lifetime, what kind of waste they produced and how they disposed of it.

Going further

Ask the students to close their eyes and use their imagination. Imagine it is the year 2050, all people are working together peacefully and our environment is healthy. What does it look like? Do we have rubbish? Is there any litter? Do we recycle? What does our packaging look like? Have students record their ideas as a short story or poem.

Activity 4: Time capsule of waste

Resources:

- Plastic three-litre juice bottle
- Paper and pencils for letter writing

Aim

Students will understand that certain waste materials will not break down easily in a landfill and that these materials will have an impact on the future.

Background information

One of the problems with landfill sites is the breakdown of materials. For waste to decompose, air, light and moisture are needed. If waste is buried, these essential components are missing and waste will take a lot longer to break down. Organic materials break down in less than six months if exposed to all the components needed for decomposition, but may take many years if they are not. Non-organic manufactured items such as plastic, glass and aluminium take a lot longer to break down and may not even break down at all.

Instructions

1. Discuss the following:
 - a. What is waste?
 - b. Where does our waste go when we throw it out?
 - c. What happens at a landfill site?
 - d. What are the benefits of using landfill sites to make our waste 'disappear'?
2. Does our waste really 'disappear'?
3. Explain what a time capsule is. Explain that the class is going to make a time capsule and they are all going to write a short note that someone will read in the future. Students may like to write about the state of the environment at the moment or about WasteWise activities in which they have been involved.
4. Have each student sign and date the letter then place in the plastic bottle with a 'Time Capsule' label.
5. Explain to students that when plastic is buried within a landfill site, it takes a long time to decompose. Because plastic has only been around for 80 to 90 years, scientists calculate that it takes anything from 100 to 1,000 years to decompose. Therefore, the time capsule could be recovered from the landfill site with the message still intact in the year 3010!
6. Have the class move outside to the waste skip and place the time capsule in the skip. Ask the students some questions to help them write a reflection on the completed activity:
 - a. How did you feel about throwing the time capsule in the waste skip? Do you feel the same when you throw waste in the bin at home?
 - b. Do you think the waste that we throw away today will cause problems for us in 50 years? How and why?
 - c. Imagine the world 500 years from now. What do you think people of the future will think about the way we have disposed of today's waste?
 - d. What should we all be doing to limit the amount of waste we are leaving for future generations to worry about?
7. After the students have completed their reflection, retrieve the time-capsule from the bin so it can be properly recycled. Explain to the students that the plastic will be recycled.

To simplify

Write a class letter about the waste that the school produces and your plans for how you are going to work to reduce it, to put into the capsule.

To challenge

For older students, skip the initial discussion and have students write a letter to be included in a time capsule. When students have finished, place all of the letters in the plastic bottle. Tell students you are going to send their letters somewhere where they will remain for a long, long time. Nonchalantly drop the bottle of letters into the waste bin. Students will be shocked, bewildered, amused etc. Now have the discussion about how slowly things break down in landfill and how plastic will be around for a long time. Have students reflect on their feelings at having their letters thrown in the bin versus how they feel when they usually throw a bottle in the bin. Retrieve the bottle at the end of the lesson so it can be recycled.