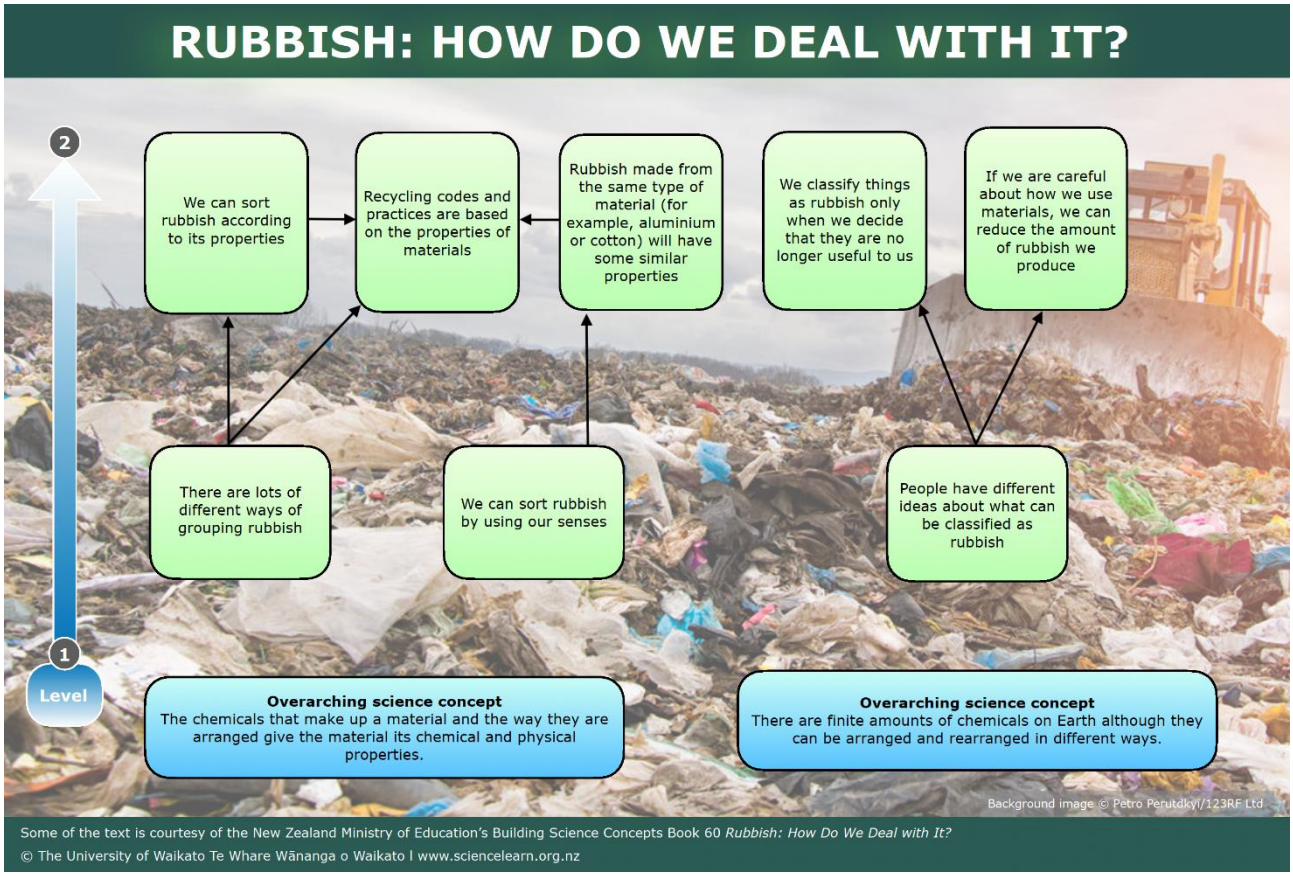
Rubbish: how do we deal with it?



This interactive diagram explores the science concepts that underpin how we classify and sort materials that are no longer useful to us.

The concepts listed just above the overarching concepts reflect learning at New Zealand Curriculum level 1 and show how they may build in sequence. The overarching science concepts are fully developed concepts and might not be achieved until level 7 or 8.

Some of the text is courtesy of the New Zealand Ministry of Education's Building Science Concepts Book 60 *Rubbish: How Do We Deal with It?* The links to Hub resources provide additional background information and classroom activities that will support teachers to scaffold the development of their students' conceptual understanding about the properties of rubbish and how we sort materials by their properties. The images provide a means to initiate discussions, check student thinking and consolidate student understanding.

The Hub also has a curated resource on recycling and biodegradability that includes articles, interactives and images and provides links to citizen science opportunities.

The article Building Science Concepts: Rubbish provides additional science and pedagogical information.

Transcript

We can sort rubbish according to its properties

The University of Waikato Te Whare Wānanga o Waikato

We can sort (whakawehewehe) rubbish in a variety of ways using senses, material properties and origins (pūtake). Senses can be used to classify rubbish (rāpihi). Rubbish can be sorted by its properties as in the Physical properties of rubbish table and by its origins in the Waste classification table (pūtakenga).

Rubbish can also be sorted by how we dispose of it. Food and organic material may be composted, and recyclable materials such as cans, plastics, glass are chemically altered during the recycling process.

Related article

- Waste management

Related activities

- Thinking about landfills
- Plastic – reuse, recycle or rubbish game
- Determining the properties of plastic and glass

Related video

- Evidence for policy change and microplastics research

Related images

- Litter categorising
- Plastic types and uses
- Identifying different types of plastic
- Plastic types and biodegradation

Related Word downloads

- Physical properties of rubbish
- Waste classification

There are lots of different ways of grouping rubbish

Lara Bieleski

People sort (whakawehewehe) rubbish in a variety of ways whether it is according to its properties or by the recycling codes.

Curated resource collection

- Recycling and biodegradability including articles, activities, interactives and citizen science opportunities

Related articles

- Biodegradability
- Potato plates – introduction
- Waste management
- Oceans of rubbish
- Determining the properties of plastic and glass

Related activities

- What happens to our plastic bottles?
- Biodegradability experiment
- DIY plastic recycling plant
- Determining the properties of plastic and glass

Related video

- PET recycling and the circular economy

Related image

- Household waste

Recycling codes and practices are based on the properties of the materials

The University of Waikato Te Whare Wānanga o Waikato

Waste is classified based on the physical properties of rubbish (rāpihi). Rubbish is sorted into categories (rōpū, wehenga) so that it can be disposed of in the most effective way.

Source separation is when the consumer sorts their rubbish into landfill and recyclable refuse. The transfer stations or recycling companies then sort (whakawehewehe) this material again according to the different properties such as colour.

Related article

- Waste management

Related activities

- Plastic – reuse, recycle or rubbish game
- What happens to our plastic bottles?
- DIY plastic recycling plant

Related videos

- Recycling – part of the problem and part of the solution
- What can we recycle? – learning opportunity 2

- Auckland recycling – learning opportunity 1
- Sorting technology – learning opportunity 2
- PET recycling and the circular economy
- PET plastic recycling process

Related images

- Used New Zealand plastic baled and ready to be recycled
- Plastic types and uses

Rubbish made from the same type of material (for example, aluminium or cotton) will have some similar properties

The University of Waikato Te Whare Wānanga o Waikato

Identifying what an item is made from helps to work out the best disposal method. Glass comes in many different colours and shapes but has similar properties and is classified similarly in the classification phase.

Related articles

- Properties of materials – introduction
- Waste management
- Rethinking plastics

Related activities

- DIY plastic recycling plant

- Determining the properties of plastic and glass
- Making a composite material container
- LItterati – citizen science
- Litter Intelligence – citizen science

Related image

- Litter categorising

We can sort rubbish by using our senses

V Bootham

Over time, some materials change their properties and may cease to be useful. Bread that was soft when fresh may go hard when stale, while fruit that was firm when fresh may go soft when stale. Food that we call stale is often classed as rubbish.

Food may be discarded if it:

- smells bad (haunga)
- feels hard and stale or soft and pulpy
- looks rotten, contaminated or mouldy (pirau)
- tastes peculiar
- sounds mushy or hollow.

Other materials can be classified using our senses. Timber that feels soft may be rotten, rubber bands that feel hard may have lost their elasticity and be discarded and fabric may rip more easily when it has been in the sun too long. These changes in properties can lead people to classify these materials as rubbish and dispose of them.

Related articles

- Waste management
- Measuring biodegradability

Related activities

- Plastic – reuse, recycle or rubbish game
- Biodegradability experiment

Related images

- Household waste
- Mouldy fruit

We classify things as rubbish only when we decide that they are no longer useful to us

sergiobarrios, 123RF Ltd

What is rubbish? Rubbish refers to something that is no longer wanted or valued by the individual. One person may classify an old chair as rubbish, but it could be a treasure to someone who likes to renovate old furniture.

Related articles

- Structure of landfills
- Seagull Centre – reducing, reusing and recycling

Related activities

- Looking at modern landfill systems
- Determining the properties of plastic and glass

Related media

- PET recycling and the circular economy – video
- Getting rid of e-waste – image

People have different ideas about what can be classified as rubbish

Anne Barker

There are many ways that a person's rubbish can become a useful item to someone else. Recycling centres, garage sales, second-hand shops and online sales of unwanted goods enable some items to carry on being useful and valued by someone else.

Related articles

- Waste management
- Seagull Centre – reducing, reusing and recycling

Related image

- Getting rid of e-waste – image

If we are careful about how we use materials, we can reduce the amount of rubbish we produce

The University of Waikato Te Whare Wānanga o Waikato

We can **reduce** the amount of rubbish that we produce.

We can **reuse** items rather than throwing them away.

We can **recycle** items for similar or new uses. For example, old curtains can be remade into reusable shopping bags. Materials can be put through a chemical process to reuse the chemical components into new items. For example, plastic bottles can be used to make fleece clothing. Even composting is a chemical process that changes food and vegetable matter into compost for the garden.

Related articles

- Middens
- Waste management
- The future of plastics: reusing the bad and encouraging the good
- Rethinking plastics in Aotearoa New Zealand – the report
- Turning old into new
- Seagull Centre – reducing, reusing and recycling

Related activity

- Investigating middens

Related video

- PET recycling and the circular economy

Related images

- Illegal dumping
- South Westland landfill breach
- Household waste
- Harmful impacts
- Getting rid of e-waste