

INTRODUCTION

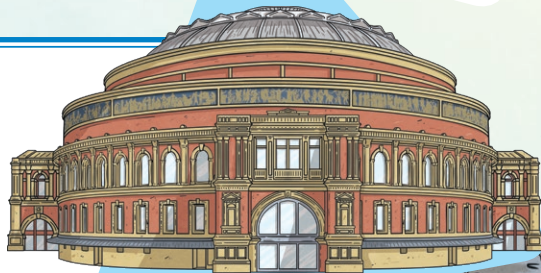
What Is Waste?

Simply put, waste is any unwanted or unusable materials or objects that are thrown away. It is something that has served a purpose and is no longer used.

Some waste is **organic**, which means it is living and comes from a plant or animal, e.g. scraps of food, grass and leaves. Other waste is **inorganic** or non-living, e.g. glass, metal and plastic.

The amount of waste we produce worldwide has increased rapidly as the global population has grown. All that rubbish needs somewhere to go and this is where waste becomes a problem for our planet.

In less than 2 hours, the UK produces enough waste to fill the Royal Albert Hall in London!



Why Is Waste a Problem?

Everything we buy and use has come from somewhere. **Energy**, water, materials and/or land may have been used to make it. If we keep throwing items away without thinking about it, this can cause problems for wildlife and the environment.

Waste that is thrown away is often buried in the ground in **landfill** sites. Some items we throw away are **biodegradable**. This means that they can be broken down by bacteria or other living things and **decompose**.

Unfortunately, many more items are not **biodegradable**, which means they can stay in the environment for a very long time, causing **pollution**. Waste in **landfill** sites can also release harmful **greenhouse gases** into the atmosphere.



DIFFERENT TYPES OF WASTE

There are many different types of waste that we produce and they all affect the planet in different ways.

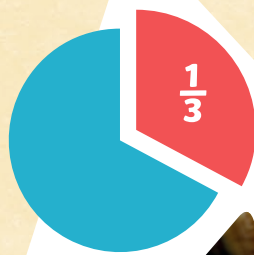
Food Waste

Food waste makes up a massive amount of our household waste.

Around one-third of all food produced for humans is wasted worldwide. Food waste is any food that could be eaten but is thrown away.

This waste costs people money that they have spent on food but also contributes to **greenhouse gas** emissions.

In the world, around one in ten people do not have enough food so lots of it being thrown away is a big problem.



Did You Know...
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Packaging

A lot of the things we buy come in packaging that ends up as waste. Can you think of anything that is used to package your food? Much of this waste can be recycled or avoided altogether. Recycling saves **energy** compared to making new items and reduces the amount of **greenhouse gases** being released.

Single-Use Items

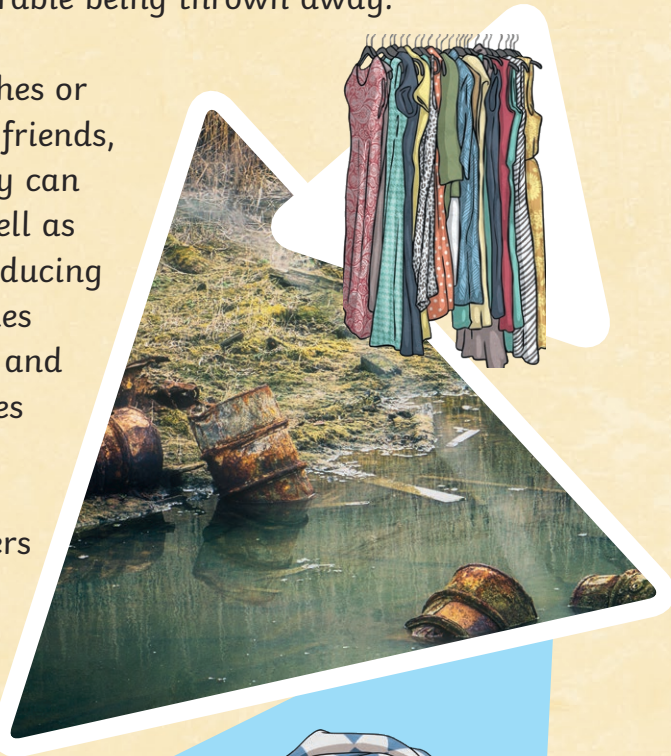
Anything that is used only once and then thrown away is known as a '**single-use**' item. These items often go to **landfill** sites, where they take a very long time to **decompose**. Examples include plastic items, such as drinks bottles, straws, toothbrushes and cotton buds, but also paper towels, wrapping paper and batteries.



Clothing

Clothing is often not thought about as a type of waste but increased demand for regular new clothing has led to what is known as 'fast fashion'. Fast fashion is current, fashionable clothing that is produced in large quantities as cheaply as possible. It can lead to more clothing that is used but still wearable being thrown away.

Recycling old clothes or donating them to friends, family and charity can save money, as well as **reduce** waste. Producing clothing in factories uses lots of water and **energy**. It also uses large amounts of chemicals, which can end up in rivers and oceans and be **toxic** to people and wildlife.



Electronics and Appliances

Electronic waste (e-waste) is a more recent challenge. E-waste includes any electronic items with plugs, cords or electronic components, such as televisions, laptops, mobile phones and fridges. As the range and availability of electronic devices has increased, more is being thrown away regularly.

E-waste includes items that are broken, as well as items that are replaced or upgraded. It is estimated that there are 140 million charging cables in total in UK homes. That's enough to wrap around the Earth five times!



What problems does e-waste cause?

- › Electronic items often contain substances such as lead and mercury. These can be **toxic** if they get into the soil and water via **landfill** sites.
- › E-waste can also contain precious metals, including gold, silver and platinum. These are **non-renewable** resources, which means they will run out. When we dispose of e-waste, we lose these resources.

THE JOURNEY OF WASTE



So what happens to your waste when you throw it away? Let's follow its journey to find out more!

At home, most people now have different types of bins so you can sort your rubbish. Some of it can be recycled.



On collection day, household waste/recycling is collected and tipped into a bin lorry. It is usually taken to a recycling plant, sometimes called a Materials Recycling Facility (MRF).

Here, waste is sorted by machines or by hand into different categories. Some materials are sent to recycling or reprocessing plants, where they can be turned back into raw materials to make new products.



Metal, such as aluminium and steel cans, is melted down and turned into metal sheets, which are used to form new products.



Glass bottles and jars are crushed up into smaller pieces and are then mixed with other raw materials, melted and shaped to make new products.

Plastic is washed and then shredded or melted and is then used to form new products.

Garden and food waste is often shredded and left to **decompose**. It is then turned into compost and used by farmers and gardeners.

Waste that cannot be recycled or reused is either burnt in an **incinerator** and used to power electricity or buried in **landfill** sites.



Paper and card are washed to remove glue and ink. They are then mixed with water to form a pulp. The pulp is pressed and dried and then made into large sheets of recycled paper for items, such as books and newspapers.



Landfill Sites

In the past, most rubbish was sent to **landfill**, where it was buried and left to **decompose** over many years.

This was a convenient way to deal with waste. However, we now know it also brings several problems:

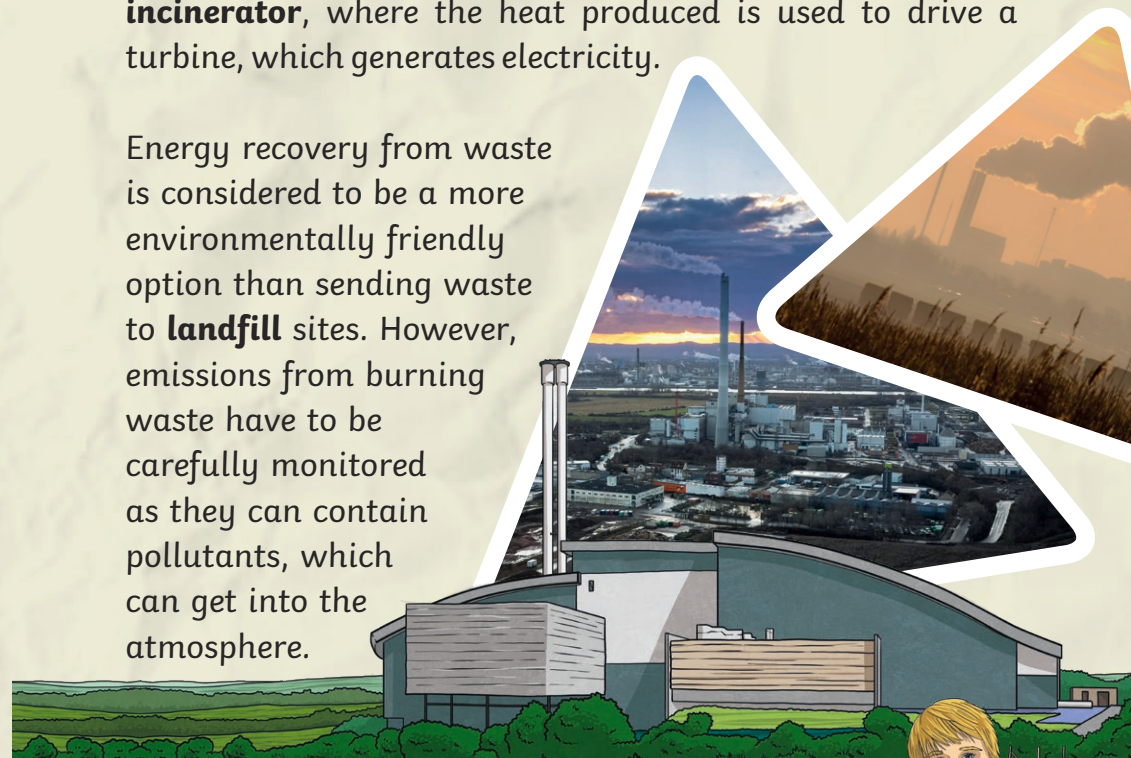
- › Habitat and **biodiversity** loss due to clearing the land needed for **landfill** sites.
- › Impacts on nearby residents – **landfills** do not look nice and can be smelly and noisy.
- › Leachate is the liquid produced in **landfills**, which contains many toxins. This can leak out and pollute the soil and nearby water.
- › Methane (a **greenhouse gas**) is naturally released from **landfills** as **organic** waste decomposes. This gas is more damaging than carbon dioxide and contributes towards **climate change**.
- › They are expensive to run and require a lot of space.



Incineration and Energy Recovery

Incineration is the burning of waste materials. This process can be used to generate **energy**, known as 'energy from waste' (EFW). Waste is burned in a device called an **incinerator**, where the heat produced is used to drive a turbine, which generates electricity.

Energy recovery from waste is considered to be a more environmentally friendly option than sending waste to **landfill** sites. However, emissions from burning waste have to be carefully monitored as they can contain pollutants, which can get into the atmosphere.



In Europe in the Middle Ages (5th–15th century), waste, such as rotten food and leftovers, was thrown onto the streets of cities! In Scotland, people would often shout "Gardyloo" as a warning before tipping human waste from their chamber pots (an old portable toilet pot) into the street below.



Did You Know...

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