Polymers and the Environment
Polymers and the Environment

- Waste plastics
  - Disposal of waste plastics
  - Biodegradable plastics
  - Summary activities
What do you know about waste plastic?

Are the following statements about waste plastic and recycling true or false?

Press "start" to find out.

start
What happens to waste plastic?

When an object made out of a natural material (such as cardboard) is thrown away, it is slowly broken down by micro-organisms in the environment. This is known as **biodegrading**.

However, micro-organisms are unable to break down most types of plastic. Plastic is generally **non-biodegradable**.

What implications does this have for the environment?
How much waste plastic?

In the UK, 3.5 million tonnes of plastic packaging is thrown away each year. Plastic litter can cause significant harm to animals and birds.

There are three ways to dispose of waste plastics:

- landfill
- incineration (burning)
- recycling.

Each method of disposal has its own advantages and disadvantages.

Why has the issue of dealing with waste plastic in a cheap and environmentally-friendly way become more important?
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How is waste plastic disposed?

How to dispose of waste plastic

There are three main ways to dispose of waste plastics: landfill sites, incineration and recycling. However, each method has advantages and disadvantages.

Press on the buttons to find out more.
Landfill – pros and cons

What are the advantages and disadvantages of landfill sites?

advantages

disadvantages

convenient
Incineration – pros and cons

Advantages and disadvantages of incineration

What are the advantages and disadvantages of incineration plants? There are three advantages and three disadvantages in this activity. Try to find them all.

Press "start" to begin.
What are the advantages and disadvantages of recycling?

**Advantages**
- **Reduced need for fossil fuels**

**Disadvantages**
Disposing plastics

What is the best method for disposing of waste plastic?

Which waste disposal method do members of the class think is best for waste plastic? Drag the bars on the graph to register the votes in the class.

Press "start" to begin.
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What are biodegradable plastics?

One of the problems with traditional plastics is that they do not break down when thrown away.

**Biodegradable plastics** are plastics that can be broken down. They are converted into carbon dioxide, water and minerals by micro-organisms.

Biodegradable plastics are increasingly being used in carrier bags, bin bags and food packaging.

Biodegradable plastics, such as **polylactide**, are plant-based polymers. They are often made from starch that has been modified to become more stable.
How is biodegradable plastic made from corn?

Biodegradable plastic rots away naturally by the action of microbes, but how is it made?

Press "play" to find out.
Dealing with waste

Dealing with waste is important, but there are many issues involved.

- What can businesses and individuals do to reduce the amount of waste they produce?
- How many products could be made from biodegradable plastic?
- If more products are made from biodegradable plastics, how will the management of landfill sites change?
- What will happen to closed landfill sites in the future?
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biodegradable – A substance that can be naturally broken down by micro-organisms.
Can you recycle your knowledge of polymers and the environment in this quiz?

Press "start" to begin.

start