

LET'S MAKE A LANDFILL!

OBJECTIVES

- Students will be able to
- Understand how food waste breaks down in a landfill
 - Recognise the impact of waste on the environment

MATERIALS NEEDED

- Plastic bottles and labels
- Balloons
- Food waste scraps
- Soil
- Water

BACKGROUND INFORMATION

Please see the web page for more information about Enhanced Landfill Mining and Food waste

- Each year 15 million tonnes of food waste are generated in the UK and 40% of this ends up in landfill¹
- The food waste is buried and broken down in a process known as anaerobic digestion (anaerobic = without oxygen)
- This produces methane and carbon dioxide, which are greenhouse gases

STEP-BY-STEP INSTRUCTIONS

The aim of this practical experiment is to investigate what happens to different waste foods as they break down in a landfill and see how much gas is produced.

1. Collect different food waste scraps. You can use anything you have to hand, for example, banana peel, cucumber and strawberry waste.
2. Put each food waste in a different, clean plastic bottle and label them.
3. Fill the rest of each bottle with soil – this is to mimic the anaerobic environment in a landfill. Add a few mL of water to the top of the soil.
4. Fill one plastic bottle with soil only – this will be the control.
5. Attach a balloon to the top of each bottle – this will fill as the food waste is broken down and gas is produced.
6. Each day observe and record any changes in the balloon and food waste, repeat this for 2 weeks
 - What conclusions can you draw from this experiment?
 - Which food waste has the largest environmental impact?

You can repeat this experiment with different food waste scraps, see if you can find the fruit or vegetable that produces the most gas.

ADDITIONAL ACTIVITIES

- Can you find out what happens to your food waste?
 - Does it go to a traditional landfill, a methane-recapture landfill or is it incinerated?

¹ <https://www.vision2020.info/about/>