

# Waste and materials inquiry:

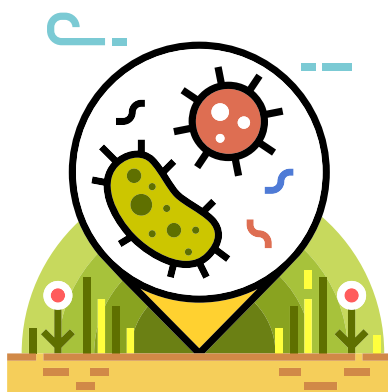


## How do materials break down in compost?

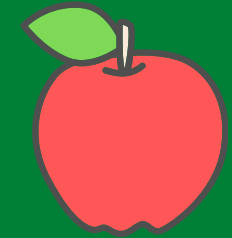
Composting your food and organic waste is a great way to reduce methane emissions from landfills. This is because in a composting system, when we get the balance right, everything will decompose



Successful composting requires a balance of different organic materials to ensure a



**Let's investigate !**



# Compost experiment



In this experiment, you will find out how different materials break down in a landfill. This is a long term enquiry, you will be making observations over a month.

## Equipment:

- An empty washed-out 2-litre bottle from your recycling bin (clear bottles will allow you to see the changes throughout this time, but milk bottles will work just as well). You do not need the lid.
- A paper bag big enough to cover the bottle, or you can make a big cone out of newspaper
- Dirt from the garden
- A little water, preferably also a spray bottle
- Different kinds of organic waste, including fruit or veggie scraps, leaves, grass clippings, cardboard or paper. If you have a compostable bag, you may like to include some.

## Method design:

Remember, to make this a fair test:

**C**ows

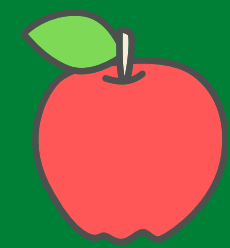
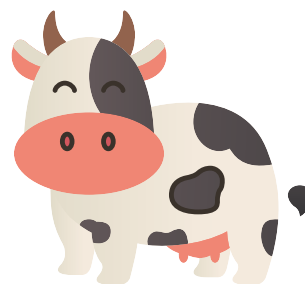
**M**oo

**S**oftly

We **C**hange one thing

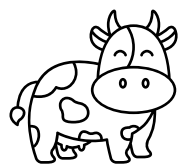
**M**easure one thing and

Keep everything else the **S**ame



# Method design:

## Cows/ Change



The one thing we are changing is the:

***types of rubbish***

They are made from different materials

## Moo / Measure

The one thing we are measuring is the:

***decomposition of the rubbish***

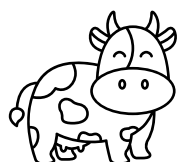


## Softly / Same

We are keeping the:

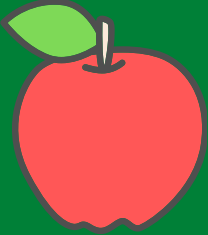
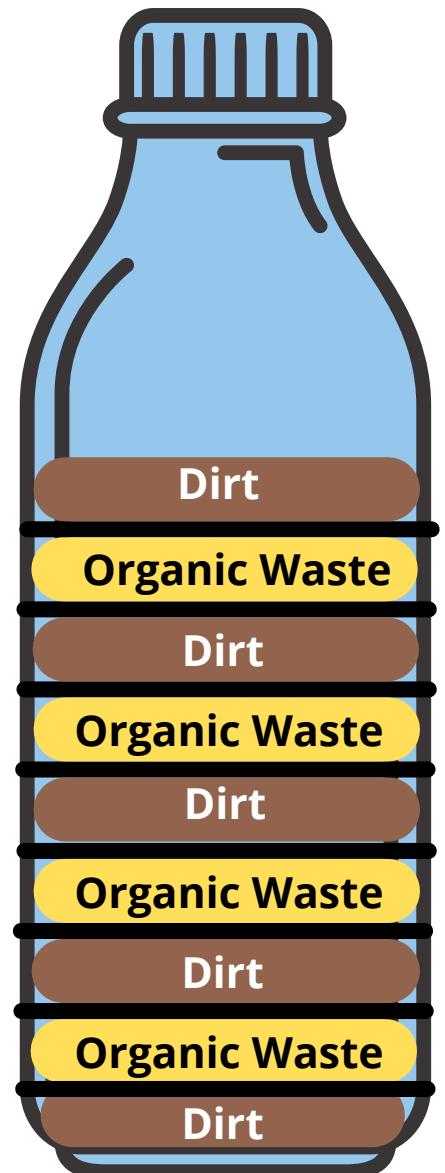
***"landfill" conditions, dirt, water and weather conditions***

the same



# Method:

1. Chop up your larger pieces of organic waste so they are small enough to fit into the bottle top. Try to keep the sizes of all roughly the same, around 4cm<sup>2</sup> is a good size. Take a photo of the different materials with a label in the picture.
2. Pour about 3cm of dirt into the bottom of your bottle
3. Create a layer of organic waste by putting in pieces of all materials
4. Cover this layer with 3cm of soil and sprinkle with water
5. Repeat 3 times, so you have 4 layers of organic waste
6. Sprinkle the entire "compost" with water
7. Place the paper bag over the bottle and put it in a warm spot
8. You will leave this "compost" for four weeks in the same position, sprinkling it with water every few days to stop it drying from out. If it looks moist, you don't need to add any water.
9. At the end of this period, you will cut open the bottle and record your observations, compared to the photos you took at the beginning.



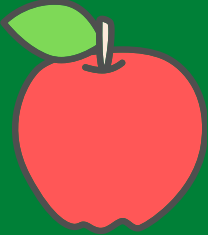


# Hypothesis: what do you think will happen?



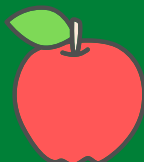
We have different materials in our compost some further down and some near the surface. Which materials do you think will break down the faster and the slowest? Do you think there will be a difference between to top and bottom layers? Write your hypothesis below.

## My hypothesis:



# Results:

Material:	Observations at the end of the month:	Compared to photos at the start of the experiment:

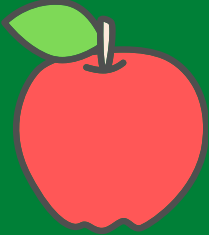




# Results:



Which item/s decomposed (rotted) the most?



Which item/s decomposed the least?



Did this support your hypothesis? (Was it what you predicted would happen?)



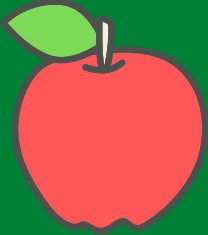


# Questions:



As we saw on the first page, when things decompose rot in a landfill we see a gas called methane produced. Why is methane bad for the environment?

Can you name some ways to compost or divert these organic materials from landfills? Think about council bins, whether you have room to do this at home etc.





# There are things we can all do to help!



Disposing of waste to landfills should be your last resort. Reduce, reuse, recycle, repurpose and compost.

There are small steps we can make every day to help. If everyone takes small steps, it makes a big difference!

- **Reduce the number of things you buy that you don't need.**
- **Take your own bags to the shops and buy foods with less packaging.**
- **Take a reusable lunch box and drink bottle to school with reusable containers for your food.**
- **Don't just throw things in the bin when you don't want them, stop and think- would they make a good present for someone else? Is there something you could make out of it, or find a different use?**
- **Recycle, buy things in packaging that can be recycled, and even clothes and toys can be made out of recycled items!**
- **Start a compost or worm farm. If you live in a council that has organic recycling bins, use those- make sure you visit the council website so you know what things should go in.**





# Doing my part!



What are some things you can do to help at home and school? You can write or draw them below.

A large, empty yellow rounded rectangle with a thick border, intended for students to write or draw their answers.