

## Eco-Schools Scotland Litter & Waste Live Lesson

### Litter and Waste Experiment

#### *“It’s just an apple! Does it matter? - How long does it really take for litter to degrade?”*

##### Description:

We tend to think that some litter will always stay as it is, some will break down, and some will disappear very quickly because it is ‘natural’. But, is it? How long do different types of litter actually take to decompose, if they do? And what about those materials that are ‘biodegradable’ or that are natural, such as fruit cores? Do they decompose quickly?

The following activity is an experiment that will allow pupils to see first-hand how long different types of materials take to decompose, enabling an informed discussion around the following presumption and question:

*When out and about, it is better to hold on to your waste until you can dispose of it correctly, even if this waste is ‘natural’ or ‘compostable’. – Why?*

##### Aim:

Through observation, to learn how long it takes for different types of waste to decompose or break down (‘disappear’).

##### Materials:

- 1 or 2 egg boxes per table or group (preferably for 10 or 12 eggs, so pupils can test many different things at the same time).
- A copy of the Observation Grid per table or group (sample document provided, please modify if needed)
- Compost (in trays or bags per table or group).
- Bits of different types of commonly found litter, of around 1-2cm<sup>2</sup> /cm<sup>3</sup>. For example: fruit cores and peelings, cardboard, plastic wrappers, plastic bits, etc. If possible, compostable food containers like take-away cups, and non-compostable ones, and/or biodegradable dog poo bags or food cady bags would also be excellent types of materials to test.
- Felt pens, spoons, scissors, large scrap paper if you can.
- Water.
- Clipboard chart to keep your observation notes on.

##### Setting it up:

*This experiment can be done in groups (one per set of tables for example).*

*The setting up of the experiment will be demonstrated during the workshop, but as it might be a bit messy, pupils will be invited to carry out steps 1-3 during the workshop and to continue with the following steps afterwards. You are of course welcome to have your pupils carrying out all of the steps during the workshop if you think this will be ok for your pupils. You might want to consider placing sheets of scrap paper on the tables to minimise the mess.*

1. Per group or table and using felt pens, pupils should write their names on the lid of the box/boxes and number each egg space in the box.
2. Also per group or table, pupils should write their names on the Observation Grid and fill in the number of egg spaces they will be testing in their box/boxes.
3. If you are not sure pupils will be able to see the numbers in each space once they fill them in with the experiment, ask pupils to draw a grid on the inside of the lid that will represent each of the egg spaces, and to number them accordingly (this will be demonstrated during the activity).
4. Using spoons, ask pupils to fill each egg space with compost, shaking the box a little to make sure there is not much air left.
5. Using scissors, ask pupils to cut bits of the materials they gathered and that will represent different types of common litter. Encourage them to make their bits of around 1-2 cm<sup>2</sup> / cm<sup>3</sup>.
6. Ask pupils to place different types of litter in each space box, and to make a record of what goes on each space on their Observation Grid by writing the number of each space and the type of litter that they have added to it. For example: Space: 1, Content: banana skin; Space: 2, Content: Wipe, etc.
7. Once they have filled in the grid, ask pupils to attach it to a clipboard.

That's the experiment set! Encourage pupils to make observations during the following weeks, making notes on their observations grid. Every now and again encourage pupils to spray some water on the box as a way of representing the conditions that litter normally face while lying outdoors.

Questions you can ask while setting up and conducting the experiment (pupils can think of many more!):

- Which type of fruit peeling/core will be the first one to decompose and full disappear?
- Estimate how long it will take for the different types of litter to decompose, degrade or disappear.
- If fruit peelings/core start getting mouldy, where do they think the fungi that is making it mouldy comes from?

Extension:

1. Debate. Organise a debate against and in favour of the following statement: "It is ok for people to drop fruit cores and peelings when being outdoors in natural settings, as they are 'natural' materials."
2. Research. 'What about when 'nature calls' and you are in the wild?' Toilet paper and wipes have become an unfortunate common sighting in hills, nature reserves and parks all around the country. But this can be avoided: do you know how? Research ways in which people could do the toilet without leaving litter behind, and produce a leaflet that could help educate visitors.

