



Mini-Composter

Background Information

All the factors that affect the mini composter in this activity also apply to a large outdoor compost bin. If you have one in the school use it to make similar observations.

The activity works best if you make at least four mini composters one for each compostable material - fruit and veg scraps, grass clippings, leaves and straw or shredded paper. You can then observe how the different materials decompose. Some will release more water than others depending on the water content of the material.

Science

Unit 4B Habitats

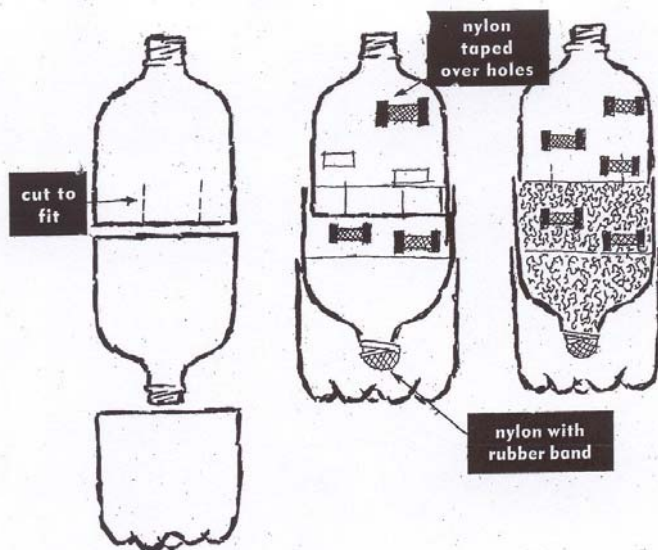
Unit 6B Microorganisms

Unit 6D Reversible and irreversible changes

This is a good general activity to introduce composting and links with a few QCA units.

During this activity children will find out about the composting process and can test different factors which affect the composting process, such as type of material being composted and what size it is.

How to make a mini-composter



Equipment

- Compostable materials
 - Fruit and vegetable scraps
 - Grass clippings
 - Leaves
 - Straw or shredded paper.
- 2 x two-litre plastic drinks bottle per mini composter
- Garden soil
- Nylon stockings or tights
- Sticky tape
- Elastic bands
- Labels & pens
- Craft knife or scissors



Teaching activity

1. Cut the bottles in half and cut air holes in the sides as shown in the diagram.
2. Using the sticky tape cover the air holes with small pieces of nylon stocking or tights. Stretch another piece of stocking over the opening of the bottle B and hold it in place with an elastic band.
3. Put garden soil in bottle B and bury the compostable items making sure they are labelled. Add just enough water to keep the soil as damp as a wrung out sponge.
4. Assemble the bottles as shown in the diagram and replace the bottle top bottle A.
5. Keep the soil moist by recycling the water from the bottom container back into the mini-composter. Every two or three days mix the compost with a spoon.
6. Over the next two weeks observe what happens.
 - Measure the height of the compost over a 2-week period.
 - Is there any change in the materials? Have some changed more than others?
 - Is there any odour change?
 - Which mini composter has released the most water?
 - Can you see any evidence of organisms? Use a magnifying glass to get a closer look.

Alternative Activities

Does temperature affect the composting process?

Although composting can occur during a wide range of temperature, composting organisms are more active in warmer temperatures.

1. Fill three mini-composters with the same material, label them cold, room temperature and warm, and put them in suitable positions.
2. After two weeks look inside the mini-composters and observe the difference between the materials.
 - Did you notice any difference in the decomposition rate?
 - How does temperature affect the decomposition rate?
 - Why is it important to keep the containers moist?
 - How do you think the composting process is affected at different times of year?

Does size affect the composting process?

Smaller pieces of material make it easier for the organisms to get to their food supply, therefore speeding up the decomposition process.

1. Prepare two mini composters. In one place half an apple intact, in the other place the other half of the apple chopped into 2cm cubes and label.
2. Put the composters in the same place (at room temperature) and keep them moist but not wet.
3. Observe what happen to the apple after one and then two weeks.

What is the difference between the two mini composters?

Why has one half of the apple decomposed more than the other?