

# Compost Construction

**OBJECTIVE:** To build, monitor and maintain a composter.

**MATERIALS:** material and tools to make composter, HANDOUT: **Backyard Composters** (E17)

**VOCABULARY:** anaerobic, brown, carbon, composting, green, landfill, nitrogen, pile, ratio, surface area, volume, waste

## BACKGROUND:

Composting can reduce the amount of waste going to landfill by 40%. It is also the most natural form of waste management. There are five factors contributing to a good compost pile.

The carbon to nitrogen ratio is the first factor. Wastes high in carbon are called "brown". Wastes high in nitrogen are said to be "green". A compost pile with the correct carbon to nitrogen ratio will have alternating green and brown layers plus a thin layer of soil every so often; the pile should roughly be 50% green and 50% brown. Surface area of waste is factor number two. Chopped, shredded or split waste has a large surface area. This increases the temperature and rate of decomposition in the pile. Factor three is moisture. A good pile will have a moisture content of 40-60%. If the pile is too dry the decomposition will slow down. An overly wet pile will stink; this is called an anaerobic condition. Material in a pile should be moist to touch but should not yield water when squeezed. The fourth factor is air. Without air a pile will experience anaerobic conditions. As stated above, this causes a foul odour. Using a pitchfork to stir or mix waste in a compost pile provides sufficient air. The final factor is volume. A good guideline for a pile should be approximately one cubic metre. The five factors are necessary to encourage growth of the bacteria and insects which process the waste into compost.

## PROCEDURE:

1. Explain the benefits of composting to the class. Mention, waste reduction, the landfill space this reduction saves and the nutrients compost returns to the soil.
2. Give the students the five factors of successful composting. Discuss the factors to ensure their importance is well understood.
3. Tell the students they are going to put these factors to work by composting at school. Distribute copies of the HANDOUT: **Backyard Composters** (E17) to the class. Ask the class to decide which composter they think they should construct or have them design one themselves. You may wish to avoid building a composter by purchasing a commercial unit. If the school's population or waste production is sufficient you may use several composters.

# Compost Construction (cont.)

## **PROCEDURE (cont.)**

4. The students are to collect waste from the school. Waste should be piled in green and brown layers. Students should keep a log of how much waste (by weight) is added to the pile, a description of the pile (i.e. foul odour, etc.) and describe what is happening.
5. Periodically finished compost should be removed. Its weight should be recorded.
6. At the end of the school year the class is to compare how much waste went into the composter to how much finished compost was produced.

## **EXTENSION:**

1. Use the finished compost to grow flowers and plants in the school's foyer.
2. Write to the school board asking if a central composting operation for all schools could be established.
3. Arrange a class trip to visit a commercial or central compost facility.

## **EVALUATION:**

1. Did the students keep an accurate record of the compost?
2. Did they seem enthused about the project?
3. Ask them to name the five factors of composting.