

CB 19 Composting

What is compost? How do you make a compost column or a compost pile? What happens to compost over time? Why do these changes occur? In this activity, you will create your own individual compost column and/or pile, and you will use it later for experiments and observation.

Part A: Your Own Compost Column

Materials

- Three two- or three- liter plastic soda bottles per student or group
- Mix of leaves, grass, vegetable food scraps, water
- Very sticky, clear packing tape approximately 5 cm in width, preferably with handle dispenser
- Scissors with sharp ends
- Dissecting needle
- fine netting such as from nylon hose
- small rubber band
- Several old shoe boxes for the class to share
- One or more moisture meters for the class (available in garden stores)
- Casio QV 2800 Digital Camera

Safety Considerations

- Wear goggles whenever you are using the pointed scissors or the dissecting needles.
- Take special care when cutting and putting holes in the soda bottles

Procedure

1. Put on your goggles. Cut three plastic 2 L or 3 L plastic soda bottles as indicated in Figure 19.1. If you place the bottles in a shoe box on a level laboratory table, the bottles will not move as you cut them.
2. Cover the downward opening with a small piece of fine netting and secure with a rubber band.
3. Join the bottles as indicated in figure 19.1 to complete your column.
4. Make small holes in the bottles with a dissecting needle, as indicated in Figure 19.1. These holes allow air in to the compost. Your teacher will tell you how to make the holes.
5. Fill the column with leaves, grass, vegetable food scraps, and enough water to moisten the contents. In your *Log*, record the types and estimated amounts of materials that you put in your column.
6. Seal the seams of the column with clear tape.

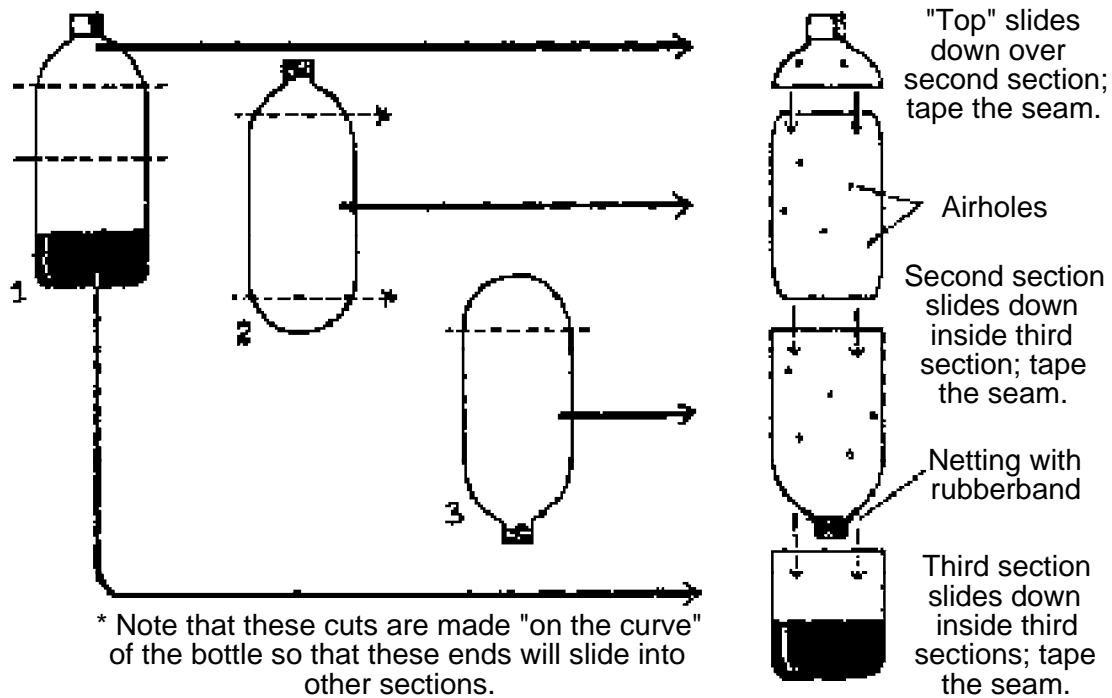


Figure 19.1 Construction of an individual compost column using plastic soda bottles. Cut three plastic bottles and assemble them as directed by your teacher.

- After you build your compost column, describe it in your *Log*. Decide which types of observations you will make to detect changes in your compost column over many months. Be consistent in making the same types of observations throughout the life of your compost column. For example, you can describe:
 - the height and composition of materials in the column
 - moisture content (using a moisture meter)
 - temperature (taken at several different places in the column)
 - appearance of materials in the column (unchanged, partially degraded, much degraded)
 - living organisms in the column.
- Take a digital image of your compost column at this time. You will add other images as you note changes during the next several months.

Part B: An Outdoor Compost Pile (optional class or individual activity)

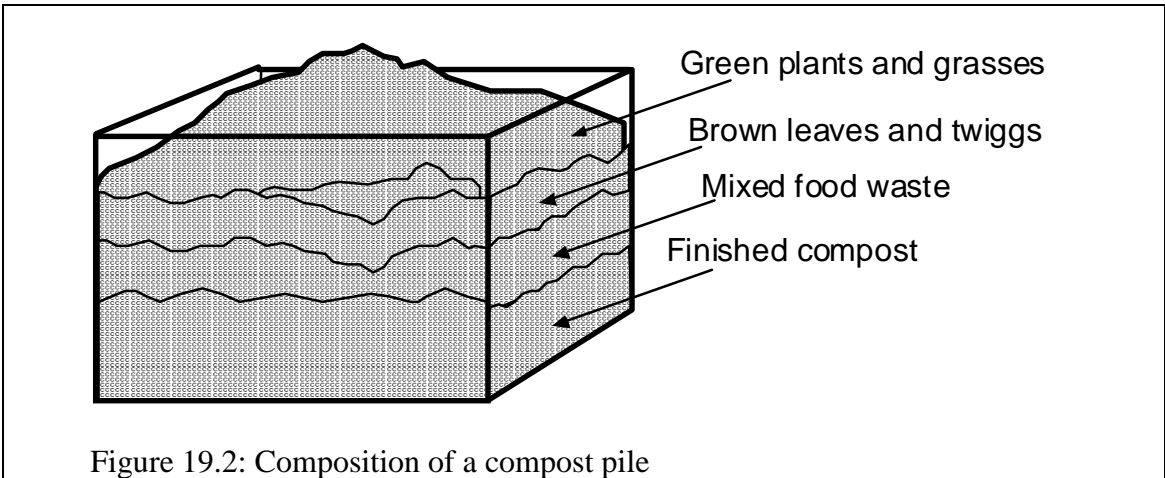
If you have an outdoor area available at your school, the class can construct its own compost pile. Or perhaps you'd like to make one of your own at home. Check with your teacher for options.

Materials

- An outdoor area about one meter square
- Compostable material such as grass, vegetable food scraps, or leaves
- Sturdy containment material such as chicken wire or picket fencing
- A shovel, rake, or pitchfork
- Topsoil

Procedure

1. Building a compost pile outside, in an area over soil, works even better than the indoor compost column. Make the pile as large as you can, but one square meter is sufficient. Surround the area with sturdy fencing material to hold in the decomposing matter. Picket-style fence is best because it contains the decomposing material but still allows extensive ventilation.
2. Mix a few handfuls of topsoil with each cubic foot of material to be decomposed. You can experiment with the amount of soil that will encourage the material to decompose, or biodegrade, most rapidly. Do not pack the material. Keep the material in the compost column moist by sprinkling it with water every few days, but do not soak the pile. You want high humidity, but no standing water.
3. Work your compost. Once you have built your compost structure, either indoors or outdoors, begin adding organic materials. Start with plant material such as lawn clippings with some leaves added. You may want to include some food scraps such as banana peels, apple cores, and vegetable scraps. Do not use meat products or manure because they might attract disease-causing microorganisms, called pathogens.
4. Mix air into your compost. As the material in your pile settles, be sure to turn it. Use a shovel, a sturdy rake, or a pitchfork to mix the materials (Figure 19.2). You can avoid any unpleasant smells from the pile if you turn it frequently, so that the interior gets air. As the material decomposes, continue to add new material. You can also add red earthworms to your individual compost column or the outdoor pile. They will aid in breaking down biological materials. Nature will decompose almost any organic matter.
5. Observe your compost over time. Take multiple digital images, initially and as you notice changes. You will probably notice some interesting changes. You will make some specific observations of your compost in some of the inquiries which follow. If you keep your compost going all year if possible, you will observe some interesting changes occurring in the compost pile.



Materials you can compost:	Yard Trimmings	Egg Shells
	Fruit & vegetables	Coffee Grounds
	Cut Grass, small twigs	Leaves