

Edible School Garden Educational Handouts

Food Stamp Nutrition Education Program

OPA 147

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FSNEP

Cycling Nutrients in the Garden: Building Healthy Soil through Composting at School

What is Compost?

Compost is the biologically active material that results from microbial decomposition of organic matter under controlled conditions. Compost is similar to the organic matter, commonly called humus, found in healthy soil. Compost provides organic material to soil derived from living organisms. Compost is used to improve soil properties and supply a wide array of nutrients. With some basic knowledge and little work you can create a natural rich soil amendment.

Why Compost?

Compost helps recycle organic matter back to the soil, instead of sending it to the landfill. Many waste disposal companies have begun to reduce the amount of organic matter going to landfills by composting green yard waste, kitchen scraps and other biodegradable waste.

What materials to include in your compost pile?

Many types of organic materials can be used for composting, but some components are essential to produce a healthy garden material: sufficient quantities of water, air, nitrogen and carbon to effectively break down materials into a usable form. Two types of organic materials need to be included in your compost pile: carbon-rich or brown materials, and nitrogen-rich or green materials. Both the brown and green materials are needed to produce a healthy environment for the bacteria that break down. Brown materials provide the cellulose, while green materials provide protein to the compost pile. As a rule of thumb the ratio of Carbon materials to Nitrogen materials should be 30:1 (C: N). Sometimes this ratio can be difficult to measure, but mixing equal parts of green plant and brown material will give a C: N ratio of about 30:1. A few telltale signs of a carbon/nitrogen imbalance are ammonia odor, rotten odor, and excessive pests. With proper aeration and watering many of these problems can be easily remedied.

Chart of Green and Brown Materials to include and/or exclude in the composting

Greens (Nitrogen Rich materials): Alfalfa hay, Sea Weeds, Grass clippings, Rotted manures, Green plant materials, Coffee grounds, Fruit and vegetable wastes

Browns (Carbon Rich materials): Cornstalks, Dry Leaves, Straw, Sawdust, Wood, Mixed paper, newsprint and used paper towels, Cardboard

Things Not to Include: Bermudagrass, Meat & Bones, Oil, Dairy products, Soil, Cooked vegetables, Dog & Cat feces

Building Your Compost Pile

Location:

The best location for a compost pile is a well-drained site that is sheltered from the wind and sun. A location in or near the garden is desirable for convenience. Since the compost pile needs to be kept moist, a source of water is helpful as well. A shaded area is desirable for the best composting. Do not place a compost pile beneath a tree, as the roots of the tree may be attracted to the organic matter and grow into the bottom of the pile, making the compost difficult to dig and use.

Size:

The size of the pile will vary greatly with the amount of material available. A pile should not be less than 3 feet wide and 3 feet high. If there are materials available it may be desirable to create more than one pile. The optimal size for your compost pile is 3 to 5 feet square and 3 to 5 feet in height.

Containing the Pile:

It is advisable to have a bin or some sort of enclosure, although it is possible to stack compostable materials in a loose pile. Many materials can be used, as enclosure as long as air is allowed to move through the pile. Some materials include woven wire fencing, wood slat fencing, cement blocks, bricks, or scrap lumber.

Constructing the Pile:

Compost pile construction is usually described in terms of layers, although layering is not essential, it provides the quickest and most complete decomposition.

1. Start your pile directly on the ground, layering 6-8 inches of the coarsest carbon materials on the bottom. If possible chop or chip very coarse material, as smaller pieces of material break down faster.
2. Wet the materials until they are as moist as a rung out sponge. Do not water fresh materials such as grass clippings as they tend to mat together creating an anaerobic environment.
3. Next, alternate by adding a 6-8 inch layer of nitrogen-rich material. After adding each nitrogen layer mix thoroughly with a garden fork to aerate. Continue alternating carbon and nitrogen materials, moistening after each carbon layer until you reach your desired height. Top the pile with a layer of carbon materials and moisten as done previously.
4. Turn the composting pile once every 2 weeks with a garden fork to speed up the decomposition process. Once a pile is started, do not add anything. It takes a certain length of time for the materials to breakdown and adding new materials will prolong the decomposition for the whole pile.
5. To prevent the pile from drying up, after each turning, spray with some water.
6. As the composting process nears completion little or no heat is produced. The compost is then ready for use. A screen can be used to remove large, undecomposed pieces. These pieces can be added to the next pile where they will eventually decompose.

Helpful Hints

- ✓ To prevent rodents and other unwanted pests do not include food scraps, unless you have a fully contained compost pile.
- ✓ Use vermiculture (worms) composting to breakdown food waste before adding to the compost pile.
- ✓ During the rainy season, cover the pile to keep it from becoming too wet.
- ✓ Small amount of garden soil is fine to provide beneficial microorganisms. Too much soil will slow down the process.
- ✓ Yard waste, waste paper, coffee grounds and nonfood kitchen scraps are all excellent materials to include on your school compost pile