



Creating Sustainable School and Home Gardens: Composting

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Composting reduces landfill waste, promotes soil conservation, and creates healthy, sustainable environments.

Compost, a mixture of decayed organic material, can be used as a natural way to enrich soil and fertilize plants. You can create compost for your home or school garden by using food scraps (e.g., vegetable and fruit peels, coffee grounds, tea leaves, egg shells), yard waste (e.g., grass clippings, leaves, twigs), and waste paper (e.g., toilet paper rolls, newspaper, cardboard

boxes). You can even compost human hair and dryer lint! Follow the best gardening practices below to reduce landfill waste, promote soil conservation, and create healthy, sustainable environments for plants, humans, and many garden critters that depend on healthy soils.

Overview

- Choose the size and location for your compost. These can range from a 2-liter plastic bottle in the house to a large container or pile outside (several gallons or more in volume).
- Locate your compost in a partial sunny to partial shady location. Around 4 to 6 hours of direct sunlight work well, but some shade is needed, especially in the summer. If your compost is in the direct sun, it will decompose faster but dry out quickly. If your compost is in the shade, it will decompose slower and stay moist longer.

- Your compost pile requires a mixture of ingredients (“browns” and “greens”), assembled in layers, plus air and moisture. See “Assembly” in the Details section below.
- Your compost pile requires maintenance—regular turning or mixing, the addition of new material, and perhaps moistening.
- Composting takes time. Expect your compost to be “mature” in several months. Timing depends on what and how much you are composting, but most compost is ready within 12 months.

Details

Containers

Composting can be done in a small container indoors, in an enclosed container outdoors, or in an open pile outdoors. In any of these, ensure there is good drainage and that you can turn or mix the compost. You can purchase compost bins and barrels or build them “from scratch.” See the Resources section for different options to build bins.

Assembly

To assemble your compost pile:

1. Collect and prepare ingredients.

You’ll need “browns” (carbon-rich material) and “greens” (nitrogen-rich material). Browns include dry leaves, small twigs, shredded newspaper (not glossy paper) and brown bags, cardboard, and untreated wood chips. Greens include grass clippings, coffee grounds and paper filters, paper tea bags (without staples), and fruit and vegetable scraps. Add nothing oily—no animal or dairy products. A 2:1 to 3:1 ratio of browns to greens is recommended. Browns contain more carbon relative to nitrogen, whereas greens contain more nitrogen relative to carbon, so it is the balance between the two that is important for making good compost.

- **Do not include** pet waste or pet litter, or any animal products (meat, bones, butter, dairy products, fish skins). Also **avoid** toothpicks, wine corks, raspberry and blackberry brambles, weeds and weed seeds, oils, and fats.
- Shred/chop/crush your ingredients. Smaller pieces have more surface area, which speeds up the composting process.

2. Construct your compost pile.

Layer greens and browns in your composting location, with the brown layers 2–3 times thicker than the green layers. For composting



This backyard compost container is built from wood.

Photo: University of New Hampshire Extension



A gardener mixes vegetable food scraps into leaves.

Photo: North Carolina State Extension

outdoors, layer greens 2–3 inches thick, and layer browns 6–8 inches thick. If all ingredients are dry, sprinkle on enough water so that the ingredients have the dampness of a well-wrung-out sponge.

Maintenance

Maintaining your compost pile requires:

1. Mixing.

Mixing your compost pile helps maintain the oxygen levels and speed up decomposition. Mixing about once a week is a good rule of thumb. If your compost is in a container that can be rotated (i.e., a drum on rollers), a few slow rotations are sufficient. If your container or pile cannot be rotated, then mix it by using a pitchfork to move material from the outside of the pile to the top and center of the pile. You only must mix about 25% of the volume of the pile each week.

2. Adding water.

- As needed, add just enough water to keep the pile as damp as a well-wrung-out sponge. Don't overwater!
- How often you'll need to water and how much you'll need to add will depend on where your compost pile is located (indoors or outdoors), the amount of recent precipitation (if outdoors), and whether your area is humid or dry.

3. Adding new material.

As you mix your compost pile, you can add new material—but be sure to add it at the ratio of one-third new greens and two-thirds new browns. If your compost is in a container that rotates, add the new material after rotating. If your container or pile can't rotate, make a small depression in the center of your pile as you turn it, and add the new material into that depression.

Use the Compost

Your compost is ready to use when it looks, feels, and smells like rich, dark earth rather than rotting vegetables. It will be dark brown, crumbly, and smell like earth. Screen or sift your finished compost to filter out materials that didn't break down; those can be added into a new compost pile. Composting adds valuable nutrients to the soil and improves soil health and plant health, reduces waste and carbon emissions, and decreases the use of chemical fertilizers. It is fun to watch the living organisms in your soil create black gold from waste!



This finished compost is ready to nourish the garden.

Photo: Oregon State University Extension

Resources

- [Rodale Institute](#) (videos and a webinar on composting)
- [How to Build a Compost Bin](#), University of Missouri Extension fact sheet

Useful Websites

- [Composting](#), Small Farms, Utah State University (USU) Extension
- [Composting 101](#), Extension Natural Resources Defense Council (NRDC)
- [Composting at Home](#), U.S. Environmental Protection Agency (EPA)
- [How to Compost: A Guide to Composting at Home](#), Almanac, Yankee Publishing, Inc.
- [Composting](#), U.S. Department of Agriculture (USDA)
- [International Compost Awareness Week \(ICAW\) for Teachers](#), Compost Research & Education Foundation
- [Composting Education – Curriculum for Schools and Communities](#), Cornell University Library

Acknowledgments

[Smart Foodscapes](https://usu.edu/smart-foodscapes) (usu.edu/smart-foodscapes)

Learn more by scanning the QR code.



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