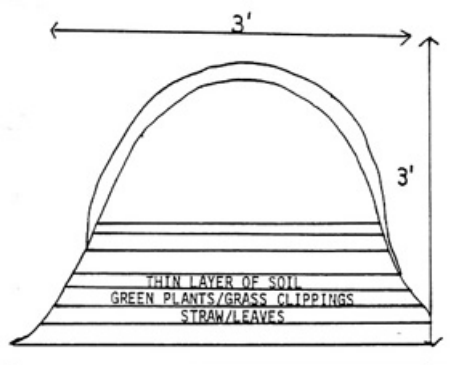


## Composting Basics

Composting is the recycling by decomposition of kitchen and yard wastes and other organic materials, combined in a specific manner, into a wonderful soil amendment for the garden.

Home composting is most often done in a pile or a bin. The standard pile is 3 feet by 3 feet by 3 feet, of a generally domed shape.



### Types of materials

Compost piles need both carbon and nitrogen containing materials to work, in an ideal ratio of 30:1 C:N. In general, woody materials are high in carbon, and referred to as "browns". Dry leaves, corn stalks, straw, bark, and wood shavings are good sources of carbon. Shredding or clipping these materials increases the surface area and makes decomposing easier for the microorganisms.

Nitrogen sources are often referred to as "greens." Grass clippings and pruning are good sources of nitrogen. Others are kitchen scraps and animal manures, including cow, horse, and poultry (not dogs, cats, humans). Avoid fats, meats, and bones in kitchen scraps. You can see from the table below that it takes a mix of lower carbon "greens" and higher carbon "browns" to achieve the desired ratio.

If your compost mix is too low in nitrogen, it will not heat up, and you need to add some nitrogen rich materials. If the nitrogen proportion is too high, the compost may become too hot, killing the compost microorganisms, and you need to add some carbon rich materials, or it may go anaerobic, resulting in a foul-smelling mess.

The carbon/nitrogen ratio does not have to be exact. You can calculate the C/N ratio of your compost mixture, or you can estimate optimal conditions simply by using a combination of materials that are high in carbon and others that are high in nitrogen. A rule of thumb is that two to three volumes of browns be mixed with one volume of greens in order to produce a mix with the correct C/N ratio for composting.

### C:N Ratios of Some Common Compost Materials

Material	C:N	Material	C:N
Bark	120:1	Paper	170:1
Coffee Grounds	20:1	Poultry Dung	10:1
Cow Manure	20:1	Sawdust	500:1
Grass Clippings	20:1	Straw	40-100:1
Horse Dung	25:1	Vegetable Scraps	12-20:1
Dry Leaves	60:1	Wood Shavings	100-500:1

### Simple but important rules

The composting process is actually a highly complicated chemical and biological process, but you don't need to understand all that for it to work. The simplest method is to build the compost pile, and let it sit for six months to a year, after which the compost will be ready. To shorten that time, and create compost much faster, several rules need to be followed:

- The pile (inside or out of a bin) is built in layers—alternating layers of green and brown—each green layer about 4 inches thick, each brown 8-10 inches—start with brown material.
- Each layer needs to be well watered as it is added—the material needs to be about 50% water content. A simple test is to squeeze a handful—if it falls apart, it's too dry. If it oozes a lot of water, it's too wet. With correct moisture the handful will hold together, and just a few drops of water might appear. It will take more water than you think to achieve this—it's not just a light sprinkle.
- The decomposition process generates heat, CO<sub>2</sub> and water vapor, and the pile has to reach an internal temperature of 120-130 degrees to work well. With the correct C:N balance, size and water content, a pile will reach working temperature in 1-2 days. A digital thermometer duct-taped to a stick is a must.
- However, the compost pile must not get too hot—not above 160 degrees, or the microorganisms die, and to prevent that, it needs to be turned periodically. The longer the interval between turning the longer it will take for the composting to finish. A standard compost pile is turned weekly, and will take 6-8 weeks to complete. A rapid compost pile, turned daily, will complete in about 2 weeks. Every other day, about three weeks. Turning means thoroughly inverting the pile—inside to outside, with a pitchfork.



The completed compost pile will be much smaller, and the compost much finer than at the beginning. Some people screen their compost to remove remaining large pieces, but that's not mandatory. And here's what the finished product looks like, ready to work magic in your garden:

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