

Composting is nature's way of recycling leaves, grass clippings, kitchen scraps and other organic wastes by converting them into a valuable soil amendment called compost.

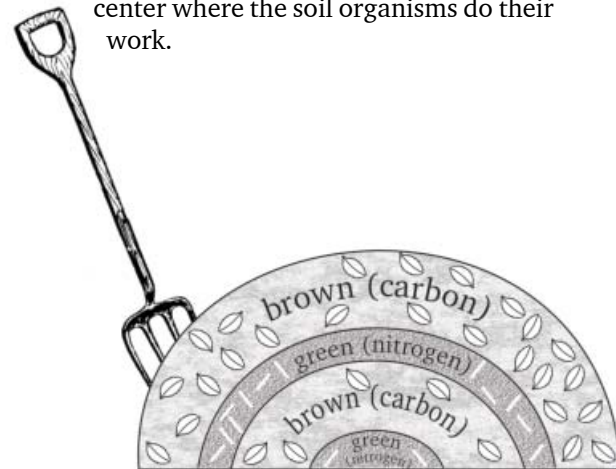
Composting at home is easy and the benefits are endless. Compost can lead to faster-growing and healthier plants. Generous incorporation of compost into the soil improves soil structure, texture, aeration and water-holding capacity. Compost increases the organic matter content of clay and sandy soils, allowing them to better retain water and nutrients. It also helps control erosion, pH balance and plant disease. By composting at home, you'll enjoy the financial benefits of free soil enrichment, reduce the amount of solid wastes sent to landfills and conserve resources.

## How Compost Becomes Compost

After you build a compost pile and bring together the raw materials, nature does most of the work. Successful composting requires four things:

**Organic matter**, such as leaves, grass clippings, garden plants, kitchen scraps and shredded paper make excellent compost materials. Leaves, woody branches and paper have a high carbon content, which microorganisms need for energy. Grass clippings and vegetables are higher in nitrogen, needed to make the enzymes used in decomposition and other processes. Achieving an optimum balance of carbon to nitrogen (*C:N ratio*) is important for effective composting.

A higher ratio of carbon to nitrogen is preferable. High carbon materials are commonly referred to as "**brown**" and high nitrogen materials as "**green**." A variety of materials is desirable, with a rule of thumb being a ratio of five parts **brown** to one part **green**.



The composting process slows if there is not enough nitrogen, while too much nitrogen may cause the unpleasant odor of ammonia gas.

**Soil organisms**, such as bacteria, fungi and other decomposers, are largely responsible for the composting process. Since these organisms naturally occur in soil and vegetable matter, their presence is guaranteed.

**Water** is essential for composting. A moisture level of 40 - 60 percent is best. Your compost pile should be about as wet as a wrung-out sponge. If it is too soggy, the bacteria and other beneficial organisms will not get enough air. On the other hand, a lack of moisture will cause microorganisms to go dormant and delay the composting process. Generally, the initial moisture will be adequate when grass clippings, vegetable trimmings or garden plants are used. Since leaves usually contain little moisture, a pile with large quantities of leaves will probably require the addition of water.

**Oxygen** is vital because the bacteria need oxygen to live and multiply. If the air supply is cut off, anaerobic bacteria will take over, resulting in unpleasant odors. To ensure that enough oxygen is available, turn your compost pile. Turning also brings the outer, less decomposed portions of the pile into the center where the soil organisms do their work.

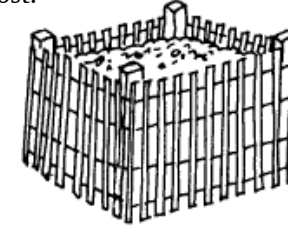
## Bin There, Done That

You can purchase a composting bin in a wide variety of types and prices, or you can build your own. All bins should have some method of easy opening for turning and retrieving the compost.

The ideal size for a composting bin is one cubic yard (3' x 3' x 3').

Multiple bins or piles are recommended for different stages of the process.

It's important to note that while many people prefer to use an enclosure for composting, bins are not essential to the process. Excellent compost can be made in open piles.



### Build Your Own Bin

- Logs or poles stacked or bound together.
- Cinder blocks laid without mortar, with air spaces between them.
- Snow fencing or chicken wire supported by upright posts.
- A steel barrel with the bottom removed and holes punched in the sides.
- Other container, limited only by your imagination.

## Put Your Pile Together

First, select a well-drained spot out of direct sunlight. Then layer your materials like this:

- Start with a layer of "**brown**" material, like straw and leaves.
- Add a layer of "**green**" material, such as grass clippings.
- Alternate layers of brown and green materials as they are available.

Once your bin is full, or the pile is the size you want, turn the mixture every three to five days. You may turn it less frequently or not at all, but the compost will take longer to heat up. Water regularly to ensure enough moisture is present. Remember that when squeezing a handful of compost, it should be as wet as a wrung-out sponge.

If you do not have enough material when you start your pile, additional layers may be added later. Smaller piles are okay, but the rate of decomposition will be slower.

If you have a thermometer available, test the temperature of the pile. The temperature inside of the pile should range from 130° to 150° F. When it begins to cool, the bacteria and other organisms need more air, so it's time to turn and water the pile.

The top should be covered with a layer of earth, with a depression to collect water if precipitation is low. This top layer should be thick enough to retain the heat of the pile and prevent rapid loss of moisture. Your compost pile will also benefit from ventilation. A broomstick, fence post or similar device can be used to punch three or four holes from the top to the bottom of the pile.

## How Long Will It Take?

Compost can be made in just two or three weeks during the summer if the leaves and other materials are finely ground or shredded, turned frequently to provide good aeration and supplied with sufficient moisture and nitrogen. The usual method, however, is to turn the pile once a week for two or three weeks, then once a month until the compost is ready to use. Shredding or grinding the material prior to adding it to the pile will expose a greater surface area to the bacteria and fungi and will speed up the process. Compost made in the fall is usually not ready for use until the following spring.

Compose Your Compost	
Recommended	Not Recommended
<ul style="list-style-type: none"> <li>• Fruits and vegetables</li> <li>• Grass clippings</li> <li>• Shredded brush</li> <li>• Leaves</li> <li>• Straw</li> <li>• Wood chips and sawdust</li> <li>• Wood ash</li> <li>• Egg shells</li> <li>• Coffee grounds and filters</li> <li>• Cereals and bakery products</li> <li>• Shredded paper, newspaper and cardboard</li> </ul>	<ul style="list-style-type: none"> <li>• Dairy products</li> <li>• Bones</li> <li>• Meat</li> <li>• Oils and fats</li> <li>• Pet wastes</li> <li>• Weeds with seeds</li> <li>• Diseased or infested plants</li> <li>• Painted, treated or pressurized wood</li> </ul>

### How Do I Know If It's Working?

Heat is generated inside the pile as soil organisms decompose organic material. Therefore, temperature is a good indicator of effective composting. A compost pile with a temperature over 130° is composting efficiently. (You may see steam when you turn the pile.) Larger pile size helps retain heat.

Compost is ready to use when it is dark brown in color, easy to crumble and breaks up readily when turned over. A good practice is to screen the compost through a 1/2-inch screen. The material that falls through is ready to use. Return the unfinished material to the bin for further decomposition.

### What Can I Do With It?

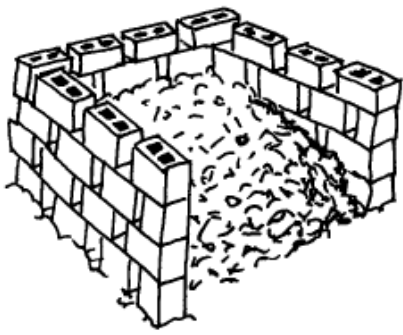
Compost can be used as mulch or worked into the soil. If used as mulch, it should be applied two or three inches deep. The same amount or more should be worked into heavy clay soils.

### Eliminate the "Ewww" Factor

Some people are concerned that their compost piles will have an unpleasant odor or attract animals. To avoid this, omit cooked kitchen waste, grease, meat, bones and fat unless the bin is rodent-, fly- and dog-proof. But if your pile smells bad, turn it to make sure it has enough oxygen.

But don't worry about attracting some animals. Earthworms, sow bugs, pill bugs, centipedes, mites, ground beetles and many other kinds of small living things will find homes in the compost pile and in the garden soil to which compost is added. They help with the decomposition process and add value to the soil.

And finally, remember that not every plant is good for your compost. Be sure you don't use weed seeds or diseased plant materials in your pile. They may survive during the composting process and negatively impact your garden later on.



### Want to Learn More?

To find out what composting options are available, contact your local solid waste management district, health department or Ohio EPA office. Additional information is available from these Web sites, your local library or cooperative extension service.

**Ohio EPA-Division of Solid and Infectious Waste Management**  
[www.epa.ohio.gov/dsiwm/](http://www.epa.ohio.gov/dsiwm/)

**OSU Extension**  
<http://ohioline.osu.edu>

**Compost Resource Page**  
[www.howtocompost.org](http://www.howtocompost.org)

**U.S. Composting Council**  
[www.compostingcouncil.org](http://www.compostingcouncil.org)

**Ohio Compost Association**  
[www.ohiocompost.org](http://www.ohiocompost.org)

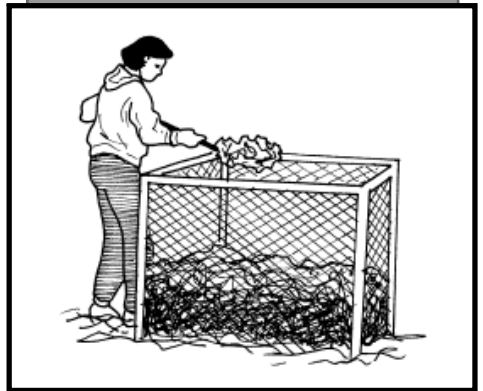
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## Composting: Recycle the Natural Way



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