

Composting 101

WHAT IS COMPOST? Compost is organic matter created by microorganisms (bacteria and fungi) when they break down the carbon and nitrogen-rich materials in the compost pile.

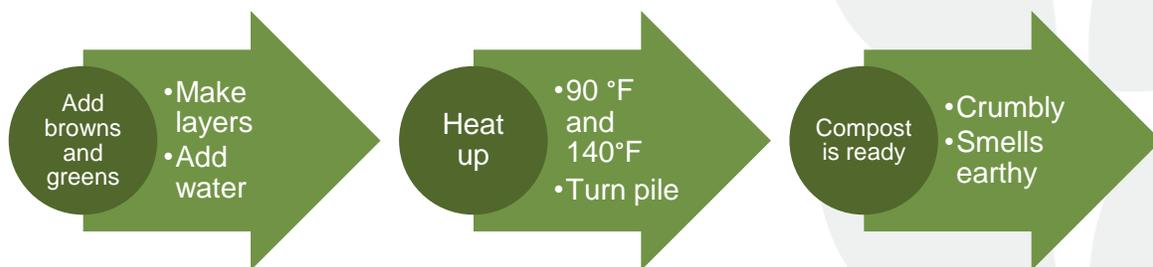
Ingredients:

- Nitrogen (green materials; wetter)
- Carbon (brown materials; drier)
- Water (enough to keep it moist not wet)
- Oxygen (provided by turning the pile)



Benefits of Composting:

- Helps retain moisture in the soil
- Creates a better environment in the soil for beneficial bacteria and fungi that help break down organic matter for plants, which they love and need!
- Reduces household waste



WHAT SHOULD I ADD TO MY COMPOST PILE?

Do Add: Greens/Nitrogen-rich materials: veggie and fruit scraps, grass clippings, hair, eggshells, coffee grounds, flower trimmings or weeds (careful of seeds!), animal manure (**except** dog or cat), and fireplace ash (neutral)

Browns/Carbon-rich materials: sawdust, wood chips, twigs, cardboard, shredded paper/newspaper, coffee filters, cornstalks, hay, leaves, and dryer lint

Do Not Add: raw meats and bones, fatty or greasy foods, dairy products, dog or cat manure, lime peels, diseased plants or plants treated with chemicals

Sources: Vanderlinden, C. (2019, Feb. 2). "Which Items Are "Greens" and Which Are "Browns"?. The Spruce. <https://www.thespruce.com/composting-greens-and-browns-2539485>

USDA. (n.d.). "Composting". USDA. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/features/?&cid=nrcs143_023537

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WHAT A COMPOST PILE NEEDS:

Note: Many materials can be used to create a bin: bricks or pavers, wire mesh, wood or use a trashcan with ventilation holes.

Hot Composting: Hands-on method that requires frequent attention, but pile decomposes fast (ready in a few weeks or months).

- Equal mix of layered nitrogen (greens) and carbon materials (browns) required.
- Internal temperature should stay between 90°F and 140°F. Check with thermometer or if it's too hot to touch.
- Pile should be watered periodically but never wet.
- Turn pile at least once or twice a week to add oxygen.

Cold Composting: Hands-off method that requires little attention, but pile takes long time to decompose (can take more than a year).

- Add yard waste to the pile as you accumulate it and let it sit in a pile or bin.
- Mulching leaves or yard waste before adding it to the pile will help speed up the decomposing process.



WHEN IT'S READY! The pile is ready to be used when it looks like dark, crumbly soil and smells earthy.

TROUBLESHOOTING: It can take some trial and error!

Problems	Solutions
Nothing is happening	Add more Nitrogen materials, water, or air
Pile is too hot	Add more Carbon materials to reduce the temperature and turn the pile to add oxygen
Bad smell	Add more Carbon materials to balance the Nitrogen and turn the pile to add oxygen
Flies and insects around the pile	Bury kitchen scraps in the middle of the pile

Sources: Vanderlinden, C. (2019, Feb. 2). "Which Items Are "Greens" and Which Are "Browns"?. The Spruce. <https://www.thespruce.com/composting-greens-and-browns-2539485>
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WAYS TO USE COMPOST

Compost Tea

Great for fast-acting nutrients and adding beneficial microbes

Fill a 5 gallon bucket with water

Let sit for 24 hrs to remove chlorine. Chlorine kills the good microbes in the compost.

Add a few handfuls of compost to the bucket and stir twice a day to add air for microbes

Let sit for 24-48 hrs and apply through drenching or watering can

Use air pump so no stirring required

Put compost in pillowcase or pantyhose and tie at top to make "tea bag" for steeping

Compost Tower

Constant addition of microbes, nutrients, air, and moisture directly to bed

Drill holes into the sides and bottom of a 5 gallon bucket using a spade drill bit

Dig a hole into the bed that is the same depth as the bucket and place bucket in hole

Fill bucket with items to compost (same items as regular compost pile) and a handful or two of compost

Add a bit of water to moisten, if needed, and place top on bucket. Replenish items in bucket as needed.

Watch worms eat the food scraps and add air tunnels in the soil

Worm castings will add more nutrients to the bed



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WAYS TO USE COMPOST

Soil Amendment

Add directly into hole or container when planting

Mix into top 2-6" of soil twice a year

Lay a 2-4" layer on top of the soil as mulch

HAPPY COMPOSTING!

VERMICOMPOSTING

This is similar to a regular compost pile by using food scraps, paper, moisture, and the right temp. However, this method uses worms to help break down the materials, as well as add oxygen to the pile by creating air spaces when they move (no turning needed). The nutrient-rich scraps in the pile are turned into nutrient-rich compost for the plants once it passes through the worm's body.

Add In:	Don't Add:
Fruit/veggie scraps (except citrus) and coffee grounds	Oily or fatty foods such as meat
Shredded paper, cardboard and leaves	Dairy

Tips:

- Any type of container will work so long as there is air flow through holes or a loose lid and the bottom is enclosed
 - *It may be beneficial to use a wider and shallower container vs. deep and tall since worms like to stay near the surface of the soil*
- Use Red Wiggler worms (easily found online)
- Try not to overfeed the worms. Don't add new food scraps until they've begun eating what is already in the bin
- Worms like food that is cut into small pieces
- Temperature of the bin should stay between 60°F and 80°F
 - *Bring bin inside if weather will be below 40°F for an extended period of time*

Sources: Fong, J., Hewitt, P. (n.d.). "Worm Composting Basics". Cornell.
<http://compost.css.cornell.edu/worms/basics.html> B, D. (2015, Jan.) "How Many Red Wigglers Do I Need to Start?" The Squirm Firm. <https://thesquirmfirm.com/how-many-red-wigglers-need-to-start/>

Vermicomposting

How many worms do I need?

Use ½-1 lb. of worms for every square foot of the bin.

OR

$(\# \text{ lbs of waste per week} / 7) \times 2 = (\text{recommended worm weight})$

WHEN IT'S READY! The pile is ready to be used when it looks like dark, crumbly soil and smells earthy.

How to harvest the compost:

Push all contents of bin to one side. Add new food scraps, leaves, and papers to **empty** side.

Wait to harvest compost until worms migrate to side with new contents

Once worms move, collect compost and replenish the bin

Fun Facts About Worms:

- Worms are hermaphrodites (have both male and female reproductive parts)
 - Don't worry if some worms die. They reproduce quickly!
 - Don't remove dead worms. They will become compost.

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