



# Try This at Home Science: 5 Gallon Compost Bin

## Activity Overview:

Create an inexpensive compost bin at home to reduce landfill waste and create fortified soil or fertilizer for your garden!

## Materials:

- 5 gallon bucket with lid
- Drill with ¼ inch bit
- Twigs and small sticks
- Green and Brown composting materials (see below)
- Potting soil (optional)

## Collect your Compost:

About 3-5 days before constructing your compost bin, you can begin collecting materials to be composted which might normally end up in the trash. Set aside a medium size container with an air-tight lid in your kitchen to begin collecting some of the below materials:

**Brown Compost Items:** Leaves, shredded cardboard, brown paper bags or paper, minced corn cobs, dryer lint, and wood chips.

**Green Compost Items:** eggshells, fruit/veggie scraps or peelings, tea leaves and tea bags, coffee grounds, grass clippings, garden plants, and flower cuttings.

## Try This!

1. Drill 10-15 holes into the lid of the bucket. Drill 15-20 holes around the outside of the bucket. Drill 10-15 holes into the bottom of the bucket.
2. Start by adding a layer of sticks and twigs to the inside of the bucket. This will ensure your drainage holes on the bottom will not get blocked by composting items.
3. Add a 3:1 ratio of Brown items to Green items as listed into the bucket. Optional: add a layer of potting soil on top of compost items.
4. Saturate the mixture with water, but be sure not to over-water.
5. Place the lid on the bucket.
6. Roll and shake the bucket to create an even mixture of items.
7. Let sit for 48 hours before remoistening and rotating the mix again.
8. Repeat Steps 3-7 until the bucket is ¾ full, stop adding items, and let “cook” for 5-7 weeks. You may want to build and start using a second bucket at this time.
9. Continue to rotate and moisten the full bin every other day.
10. After 5-7 weeks, or when the mixture looks like soil, add the contents to your garden or potted plants.
11. Start all over again, or alternate buckets for a constant supply of fertilizer!

## What's happening?



Once the perfect mixture of Brown and Green items has been mixed, microorganisms called detritivores begin to breakdown the mix and create a fortified compound used to enrich soil. Brown and Green items are not necessarily those colors; instead they represent the compound's chemical make-up. Brown items are high in carbon, while Green items are high in nitrogen and the ratio of carbon to nitrogen should stay close to 3:1. Too many Brown (carbon-rich) materials will result in dry compost which is slow to decompose. Too many Green (nitrogen-rich) materials can result in slimy, smelly compost.

It is also smart to avoid putting certain items in the compost bucket. Meat and fat products can attract unwanted animal visitors to your compost bucket, whereas other items can slow down or spoil your compost. Certain items like salts or onions can have harmful effects on the good microorganisms living in the bucket which aid in decomposition.

**Compost Items to Avoid:** meat and dairy products, sauces, salad dressings, cooking oils, onions, processed paper products, pet feces or cat litter, perpetual weeds that have gone to seed, and cooked foods containing salt.

As the microorganisms, like bacteria and fungi, feed on the once living organic waste, they create their own waste in the form of soil. Worms are extremely good to add to compost bins as they help the microorganisms by breaking down larger items in the mixture which speeds up the entire composting process.

## How does this help my garden?

Composting allows us to reduce the amount of trash we produce on a daily basis. Instead of discarding old food, moldy fruits, peels, and plant clippings, we can add them into a compost pile to make fortified soil for our gardens and potted plants. By setting aside any Brown or Green items into a lidded container on your counter, those items are removed from the trash and will reduce the amount of trash produced in your household as it is now repurposed to make soil! Furthermore, by composting you have created a sustainable source of fortified soil for your gardens, hanging baskets, and potted plants!



## Taking it Further...

- Record how much compost can be collected in a week. Weigh your compost materials to see how much waste you've saved from your local landfill.
- Create a pallet compost bin if you have an extremely large yard or community garden, like the one pictured above.
- No yard? No problem! Use a large storage bin to make your compost bin, and you can even divide it to compost on one side and grow a tomato plant on the other!

