

How to Build a Worm composter from a 5-Gallon Bucket

Adapted from [How to Build an Indoor Worm Composter / eHow.com](#)

1. **Get two 5-gallon buckets.** Food grade plastic buckets that nest inside of each other are what you're looking for. Wash the buckets out thoroughly and allow to air dry.
2. **Make the drain holes.** Turn one of the buckets upside down and drill several 1/8-inch holes through the bottom of the bucket, spaced evenly over the surface. Flip the bucket back over and remove any attached plastic bits from the holes. Set the drilled bucket inside the second bucket.
3. **Line the drilled bucket with tulle or mesh.** Invert one of the buckets on top of a sheet of tulle or window mesh. Trace the outline of the bucket onto the tulle with a permanent marker. Cut out the circle with sharp scissors just inside the outline. The canvas should fit snugly into the bottom of the bucket without curling upward. If the tulle circle is too big, trim until it fits properly. This will help prevent worms from escaping through the holes in the bottom of the bucket.
4. **Make a ventilation hole in the lid.** Cut a 3-inch-diameter hole in the lid of one of the buckets. You can use a box cutter, or you can drill holes around the perimeter of the circle and punch out. Cut a 5-inch-diameter circle of tulle or mesh and glue or tape it to the underside of the lid hole, ensuring that there are no gaps where worms could escape. If you are lucky enough to get a bucket lid that has a spout, you can use this as your ventilation hole.
5. **Line the inner bucket bottom with shredded cardboard.** You may want to provide some carbon rich materials to get your bucket going. You can do this by adding moist shredded cardboard to the bottom of a tulle-lined bucket.
6. **Add Bedding.** Nest the first bucket once again in the second. Fill the composter loosely with shredded newspaper, cardboard, egg cartons, dryer lint (in moderation, and only if you don't use dryer sheets), or pet hair (in moderation) approximately two-thirds of the way full. Do not compact the bedding. Remember: composting worms are specialized surface dwellers, not burrowers!
7. **Add Water.** Spray the shredded bedding with water from a mister, turning it around and mixing it up in the composter until all newspaper is thoroughly damp but not soaking wet. As a guideline, the wetness level should be that of a wrung out sponge. Note: there should not be enough moisture to drip through the top bucket into the second yet.
8. **Add food.** When you are starting your bucket, mix the food in with the bedding halfway down in to the bedding. Add some egg shells; more if you want your worms to reproduce quickly; less if you want a slower rate of reproduction.
9. **Add the worms.** Place the worms in a hole you have made in the center of the bedding so that they land about halfway down into the bedding.
10. **Cover with shredded cardboard.** To get your bin off to a great start, add more carbon to the system by placing shredded cardboard on top of the bedding. This will also help block out the light.
11. **Feed your worms.** Indoor worm composter operate best when they receive small amounts of compostable scraps daily, rather than large doses more infrequently. Cut larger pieces of compost like watermelon rinds into smaller pieces to make composting easier. Every day, place the food scraps into the middle layer of the composter near the wall of the bin. The next day, move to an adjacent spot. Continue to do this in a circular pattern until you reach the first spot again. This allows the worms time to do their job by the time you reach the first spot again. Continue rotating the placement of food scraps.

12. **Water your worms.** Okay, not literally. Keep the bedding damp but not soaking wet (about the wetness of a wrung out sponge) regularly (2-3 times a week). Excess moisture will drip through the bottom of the bucket into the second bucket. This liquid makes a wonderful organic fertilizer for your plants (aka 'worm tea'). As more composting happens the volume of bedding will decrease. Add more fresh shredded newspapers to the top of your composter to keep it at the two-thirds level.

13. **Harvest your compost.** After 1-2 months, your worms will have completed a large portion of their job in your compost bin. When you add bedding, pull the existing compost and bedding to one side of the composter and add new bedding on the now empty side. Also add your food scraps only on the new half. This will encourage the worms to migrate to the 'fresh' side and will make it easier to scoop out your finished compost on the old side. There are still likely to be worms present in the harvested compost, so gently pick them out and return them to their home.

Quick Facts About Worm Composting

From <http://redwormcomposting.com>

- Worm composting, also known as vermicomposting, involves the breakdown of organic wastes via the joint activities of worms and microorganisms (although there are often other critters that lend a hand)
- Regular (soil and garden) earthworms cannot be used for worm composting. They will die if added to an indoor worm bin. Soil worms will, however, congregate in the lower regions of outdoor bins if open to surrounding soil.
- Composting worms are specialized surface dwellers (not burrowers!), typically living in very rich organic matter such as manure, compost heaps or leaf litter. The most common variety used is *Eisenia fetida* (also spelled '*foetida*'), although its larger cousin, *Eisenia hortensis* (a.k.a. the 'European Nightcrawler') is commonly used as well (more commonly to be sold as bait worms). Common names for *E. fetida* include: red worm, red wiggler, brandling worm, manure worm, tiger worm.
- It is widely believed that composting worm can process the equivalent of its own weight in waste each day. Under highly optimum conditions (not likely to be attained with a small home system) red worms have been found to process multiple times their own weight! This is very much dependent on the foodstock and how well the system is managed.
- A reasonable guideline to follow is ¼-1/2 total worm weight in waste per day. So if you have a pound of worms, they should be able to process roughly ¼-1/2 lb of food waste per day. Keep in mind however that you may need to feed them less during the first couple months since they usually require a period of acclimation when added to a new system.
- Red worms technically graze on the microbial community that colonizes waste materials – not really the waste itself (although they certainly ingest some of the rotting waste in the process). Some research has indicated that protozoans are the primary food sources, while there is also evidence that fungi and other microbes are consumed as well. There have been a number of research studies indicating that vermicomposting can significantly reduce levels of pathogens in waste materials, such as biosolids.
- Red worms love (and can tolerate) very high levels of moisture content (80-90%), but they also require oxygen so it's important to find the right balance.
- Red worms eggs look like tiny straw-colored lemons. Baby worms look like very small versions of the adults (but have less red pigment). Adding crushed egg shells (or other calcium sources) can help stimulate worm reproduction.

Can I Add it to My Bucket?

YES:

- ✓ Vegetable waste: onions and garlic should be avoided when using smaller bins
- ✓ Fruit waste: citrus fruit should be added in moderation when using smaller bins
- ✓ Starchy foods such as bread, pasta, rice, potatoes: in moderation
- ✓ Aged animal manures
- ✓ Shredded newspaper
- ✓ Used paper towels: not if they have been used for something toxic to worms, such as oil
- ✓ Cardboard: add carbon rich materials at the same time you add wet food waste
- ✓ Egg shells: best if ground up and in moderation
- ✓ Coffee grounds: in moderation
- ✓ Tea bags: remove the string and staple
- ✓ Grass clippings: in small quantities
- ✓ Leaves
- ✓ Pet or human hair: does not break down quickly but makes excellent bedding
- ✓ Dryer lint: great bedding material; use only if you do not use dryer sheets or fabric softener
- ✓ Junk mail: be careful as bleached/colored paper and some inks can be harmful to worms

NO:

- » Human or pet waste
- » Non-biodegradable materials, e.g. metal, plastic
- » Dairy
- » Meat or Animal Products
- » Oils or grease
- » Harsh chemicals