

# A STEM in the Park

## Take Home Activity

# STEM

in the **PARK**™

Science, Technology, Engineering, and Mathematics



# Vermicomposting: Recycling with Worms

Many gardeners compost both yard waste and kitchen waste with compost piles, sheet composting or some other method during the growing season. Fortunately, very little yard waste is generated during winter months when cold temperatures make composting difficult. However, usable kitchen waste is constantly being generated and must be disposed of. Vermicomposting is the process of using worms and micro-organisms to turn kitchen waste into black, earthy-smelling, nutrient-rich humus.

### ***What You Need:***

1. a container (plastic clamshell)
2. bedding (shredded newspaper)
3. water
4. worms
5. non-fatty kitchen scraps.

### ***Investigate...***

- Soak your shredded paper over night
- Put a couple of air holes in the top of your plastic container
- Add some soil to the bottom of your container
- Add a worm or two
- Wring out your paper so it feels like a damp sponge and place it on top of your soil
- Add a few food scraps
- Seal the system up

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## Learn...

The bedding for vermicomposting systems must be able to retain both moisture and air while providing a place for the worms to live.

Water is needed to moisten the bedding. Place the dry, shredded bedding in a large container and add water until it covers the bedding. Allow the bedding to absorb as much water as possible before putting it in the worm bin. This could take from two to 24 hours.

Before putting the bedding in your bin, squeeze the water out from the bedding as much as possible. The bedding should feel like a well-wrung washcloth. Place the bedding in the bin and fluff.

Your bedding needs to remain moist. If it is drying out, mist the paper with water from a spray bottle and dampen the bedding again.

The worms used in vermicomposting are called redworms (*Eisenia foetida*), also known as red wigglers, manure worms, red hybrid or tiger worms.

The kitchen waste fed to worms can come from a variety of sources, including all vegetable and fruit waste (don't be surprised that some seeds may germinate and potato peels with eyes sprout), pasta leftovers, coffee grounds (with filter) and tea bags. Worms may have a problem with garlic and onion skins. Fine grit should be added to help the worms digest food such as cornmeal, coffee grounds and/or finely crushed egg shells (dry the shells and then crush). Avoid large amounts of fat, meat scraps or bone. Some sources feel that a small amount of meat and eggs will provide protein to the worms, but be careful you don't overdo it and know that you may attract rodents.

First, and foremost, **START SLOWLY**. It will take time for bacteria to form and your bin can quickly become very smelly if you add too much food, too fast. In the beginning, add a very small amount of gritty material (see above) and a small amount of vegetable matter. You can gradually increase the amount of food as the bin becomes established.

The easiest method is to spread the scraps in a thin layer on top of the bedding. If the bin is kept in a dark place or covered, the worms will come to the surface to eat. If you notice odors, cut back on the amount of food or try chopping the food up into smaller pieces.

Given the right environment, the worms will go to work to digest the kitchen scraps and bedding faster than any other compost method. The material will pass through the worms' bodies and become "castings." Compared to ordinary soil, the worm castings contain five times more nitrogen, seven times more phosphorus and 11 times more potassium.

## Try At Home...

Build a bigger vermiculture system in a plastic tote to use all of your kitchen scraps. Use the castings to mix with the soil in your flower bed or garden or make a casting tea to be a foliar spray for all of your plants.

***This activity brought to you by Wood Lane***

