



Worms, Worms, Worms!!

Who knew they could be so much fun...

MAKE YOUR OWN VERMI-COMPOST BIN

Standards Addressed:

Strand II: Content of Science Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

K-4 Benchmark I: Know that living things have diverse forms, structures, functions, and habitats.

5-8 Benchmark I: Explain the diverse structures and functions of living things and the complex relationships between living things and their environments.

Materials:

- some form of container with a depth between 8-12 inches (wood is preferred because plastic makes the compost very wet)
- Yard clippings, dead leaves, wood shavings...etc.
- A handful of sand or soil
- Newspaper (torn up and soaked in water)
- Any moistened organic matter
- Worm food: coffee grounds, egg shells (dried & crumbled), banana peels, choc. cake, melon rinds, bread, peels (apple and carrots), lettuce
 - ***SEE SECTION ON WHAT NOT TO FEED THEM!!!**
- **WORMS:** 1-2 pounds of **Red Wigglers** (*Eisenia foetida*) often called brandling or manure worms.

Getting Started:

1. Ask an adult for help before starting. Assemble all materials.
2. Locate a place for your bin. It should be somewhere with a temperature between 55-70 degrees F all year round. You can move your bin from indoors to outdoors in the milder months. Make sure, however, that the worms are not in hot sun or heavy rain.
3. Drill 8-12 **small** holes in the bottom of container for aeration and drainage. Raise the bin on bricks or wooden blocks, and place a tray underneath to capture excess liquid which can be used as liquid plant fertilizer.
4. The bin will need a cover to conserve moisture, provide darkness for the worms and to keep them from escaping!! Make sure that there is enough air for the worms to breathe. You may have to poke some tiny holes in the cover.
5. Place bedding in the bin. Vary it as much as possible. A little damp newspaper, some leaves, a

little sawdust, etc. IT IS VERY IMPORTANT TO MOISTEN DRY BEDDING BEFORE PUTTING IT IN THE BIN. Add a couple of handfuls of sand or soil to give the worms the grit they need for digestion. The bin should be about 3/4 full. Lift the bedding gently to create air spaces.

6. Place the worms in the bin and feed with the appropriate amount of food. One pound of worms = 2 lb. of food waste per day. Decrease or increase the amount accordingly.
7. How to feed:
 1. Make sure the overall mix is moist (like sponge cake)
 2. If things are cut up or ground recycling time will be cut in half!!!
 3. Bury the waste about an inch or two below the surface and not too evenly. Worms like some spots without food and some with.
 4. Add new scraps every day or every other day, depending on amount of food present. Do not add more than 7 lbs. per week!
 5. ***DO NOT FEED WORMS THE FOLLOWING ITEMS:** metals, foils, plastics, chemicals, solvents, soaps, paint, Citrus products (oranges lemons, limes, grapefruit), onions, garlic, hot and spicy foods, meat, pasta and other cooked food!
8. Maintenance: After about 2 2 months have passed there should be little or no original bedding visible in the bin and the contents will be brown and earthy looking. Time to change the bedding and enjoy your fertilizer!!! It is important to separate the worms from the finished compost, or the worms will begin to die. The quickest way to do this is to simply move the finished compost over to one side of the bin; place new bedding in the space created, and put food waste in the new bedding. The worms will gradually move over and the finished compost can be skimmed off as needed. Make sure to separate any of the worms who may still be lingering, as well as the tiny lemon-shaped cocoons which contain between 2 and 20 baby worms! Always mix a little of the finished compost in with the new bedding.

PROBLEMS AND SOLUTIONS

1. **Problem:** Strong Odors
Cause: Lack of oxygen in the compost, due to overloading with food waste.
Solution: Stop adding food waste until the worms and micro-organisms have broken down what food is in here. Stir up the entire contents gently to allow more air in. Also, check the drainage holes to make sure they are not blocked. Drill more if necessary.
2. **Problem:** Worms are crawling out of the bedding and onto the sides.
Cause: Bedding may be too acidic, or moist.
Solution: Add a little gardening lime, remove any acidic fruits, such as oranges, limes, grapefruits, etc., and add some crumbled up egg shells. Allow to dry out until the soil is just lightly moistened.
3. **Problem:** Fruit flies
Cause: Too much food.
Solution: Do not overload food, keep the cover on, move to a place where spiders are present!