

Worms Eat My Waste

SUMMARY

Students will build an earthworm habitat to illustrate how worms help the decomposition of organic material as it is composted.

OBJECTIVES

- Students will understand the relationship between producers, consumers, and decomposers.
- Students will make predictions and observations.
- Students will learn about the organic component of soil.
- Students will understand how decomposition recycles natural materials and creates useful compost from organic waste.

BACKGROUND

Decomposition is nature's way of recycling. As you can see on the forest floor, leaves and fallen trees are decomposing into fertile soil for new plants. This process is aided by worms, insects and microorganisms. It is possible to contain nature in a compost bin and speed up the process. The resulting soil amendment, compost, is high in nutrients and can be used to feed plants in lieu of commercial fertilizer.

Composting at home has the potential to save up to one-half of the waste stream from the landfill. Food scraps, yard trimmings, and grass clippings can all be composted. In addition, paper that can't be recycled into new paper products, like tissues, paper towels, and waxed paper, can be composted for a garden.

This activity will allow the students to use a terrarium to see earthworms in action and observe the breakdown of organic waste as it is converted into compost.

ADVANCE PREPARATION

Cut the tapered neck off of the 2-liter bottles so that the food scraps and soil can be placed in the bottom easily.

PROCEDURE

1. Discuss recycling and how things in nature are not wasted, but recycled. Use the example of leaves on the forest floor. **Why do you think that worms are sometimes considered to be nature's recyclers?** Make sure the students understand the relationship between producers (vegetable scraps), consumers (classmates), and decomposers (worms). Explain how decomposition works and the worm's role in turning plant material into new, nutrient-rich soil.
2. Have the students don gloves and aprons. Tell them they are going to build a worm habitat and will observe part of the terrestrial food chain as the worms help decompose the plant material.
3. Divide the students into small groups and give each group a bottle. Have the students place thin layers of soil alternating with food scraps, or other organic material, in the terrarium until it is two-thirds full. Lightly water the soil.
4. Have the students take turns placing several worms into the terrariums, watching as they burrow.

Target Level:

Grade 3

SOLs:

Math: 3.14

Science: 3.1, 3.5, 3.7, 3.8

English: 3.2, 3.8, 3.9, 3.10

Materials Needed:

- 1 2-Liter bottle for each terrarium
- Potting soil
- Food scraps (fruits and vegetables only), grass clippings or dead leaves
- Red Wiggler worms (can be purchased at a bait store)
- Watering can
- Rubber gloves
- Aprons or smocks
- Black construction paper

Time Needed:

One class period to build the terrariums

Weekly monitoring

Worms Eat My Waste

5. Have the students individually record what they see in the terrarium by writing or drawing in a science journal. In addition to visual descriptions, students can measure the depth of the soil and plant material and predict if the finished compost will be the same.
6. Have the students predict how long it will take to have finished compost.
7. Wrap the terrarium in black paper to keep out the light and encourage the worms to come to the sides.
8. Remove the paper and check on the terrarium weekly, having the students record the changes they observe each time. Be sure and keep the compost terrariums moist. It will take a few weeks to see the complete compost. At the end of the experiment, use the compost on plants at school or home.

ASSESSMENT

Have the students to choose an aspect of decomposition or composting (i.e. vermiculture, how to build a compost bin, fungi or other organisms, etc.) to research and present a short report to the class.

VARIATION

Have the students make terrariums with and without worms to compare which decompose faster.