

Dirty Jobs

THEME

Worms recycle food waste and make rich soil for plants to grow.

SUB THEMES

- 1) Worms have an important job in the food chain.
- 2) Anyone can put some worms to work in their own home and turn their kitchen waste into a beautiful garden.
- 3) Worm composting at home is a great way to recycle and help the environment.

VOCABULARY

Producers, consumers, decomposers, food chain, biotic, abiotic, vermicomposting, composting, recycling, temperature, humidity, pH, castings, fertilizer

ACTIVITY MATERIALS

Can of vegetable soup, food web poster, completed vermicomposting bin, 2 plastic bins, paper bag & worm bin supplies, stopwatch, data sheets, clip board, pencils, soil thermometers, 3-way soil meter (humidity & pH), food waste, poster for optimal conditions, composting log sheet

INTRODUCTION

Introduce yourself and state the title of the activity. Preview the main points of the activity and give students an idea of what they will be doing. Conversationally state the theme and sub themes. Hold up a can of vegetable soup and ask: **What ingredients do you think are in this can of soup** (water, carrots, peas, potatoes, etc.)? Ask: **Where do these ingredients come from** (gardens and farms)? Encourage the students to think about all of the things needed for these vegetables to grow for us to have foods like this soup. Explain that water, sunlight, carbon dioxide, and healthy soil are all important in helping plants grow. Ask: **What role do you think worms play in helping vegetables grow** (worms devour organic material such as decaying food and turn it into beautiful, rich, healthy soil)? Explain that the most important ingredient for healthy soil is healthy worms.

Explain that worms have an important job in the food chain. Ask: **What kinds of living things play a part in a food chain and what are their “jobs titles”** (list of plants and animals)? Explain that plants are producers and animals are consumers. Discuss the terms herbivore, carnivore, and omnivore. Ask: **What do you think the job title of a worm would be** (decomposer)? Explain that worms convert organic material into rich compost called castings (a.k.a. worm poop), which helps plants grow. Decomposers, like worms,

Teacher’s Corner

Grade Level(s)

6th, 7th, and 8th

State Performance Indicators

SPI 0607

-Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

-Inq.4: Draw a conclusion that establishes a cause and effect relationship supported by evidence.

-2.1: Classify organisms as producers, consumers, scavengers, or decomposers according to their role in a food chain or food web.

-2.2: Interpret how materials and energy are transferred through an ecosystem.

-2.3: Identify the biotic and abiotic elements of the major biomes.

-2.4: Identify the environmental conditions and interdependencies among organisms found in the major biomes.

SPI 0707

-Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

-Inq.4: Draw a conclusion that establishes a cause and effect relationship supported by evidence.

SPI 0807

-Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

-Inq.4: Draw a conclusion that establishes a cause and effect relationship supported by evidence.

Dirty Jobs

INTRODUCTION (cont.)

form the foundation of the food chain and every living thing depends upon the food chain. That's one important job!

ACTIVITY

Introduce students to the worm bin and explain that some people like the idea of having worms work for them in their home by converting their kitchen waste into rich, healthy soil for a garden. This is known as worm composting or vermicomposting. Have the students gather around the bin and explain the various components using the sheet: **Worm Bin Components**.

Next, break the group up into two teams. Have each team stand behind a cone and explain that they are going to compete with to see which team can complete their own worm bin most correctly. Present each group with a plastic bin into which they will place their collected supplies. Dump the paper bag containing the worm bin supplies (different types of food, rocks, bedding materials, trash, etc.) onto the ground several yards away from the students, set the timer, and let them collect supplies as quickly as possible for one minute. Once the timer goes off, have each group go through their supplies. The group with the least amount of incorrect supplies in their bin wins (use the above components list as a guide).

Bring the group back together and explain that to keep a vermicomposting bin working properly, weekly maintenance needs to be done. Today, they will get to help Butternut Valley properly take care of this vermicomposting bin by taking some important measurements. Break the group up into smaller groups of two or three students. Provide each group with a clip board, data sheet, and pencil. Quickly explain how the equipment works and how to use the data sheet. Explain that they will be measuring the abiotic and biotic factors of the bin. Ask: **What do I mean by abiotic and biotic factors** (abiotic is non-living things like soil, water, temperature and biotic is living things like worms, microbes, etc.)? Allow the students to gather data using the equipment for 15 to 20 minutes.

DISCUSSION

Next, ask each group to provide their assessment. Have the groups compare their results to the poster of optimal conditions. Ask: **What changes need to be made to ensure that the vermicomposting bin continues to work properly** (using the poster students can make suggestions, such as adding more water, draining water, keeping in a warmer/cooler location, etc.)? If there is time, have the students assist with adding food waste to one of the nine sections and record the time and section location on the composting log sheet. Discuss the advantages vermicomposting can create for the environment such as decreasing the amount of waste in landfills, using worm castings in a garden to help plants grow, etc.

WRAP-UP

Let the group know that the activity is coming to an end. Conversationally review the theme and sub themes. Give the teachers any of the materials that students are able to take home with them.

ACKNOWLEDGEMENTS

- Copyright © 2010 Healing Stones Foundation. All rights reserved.
- Activity developed by Melissa Squirlock; January, 2010.
- Appelhof, M. (1997). Worms Eat My Garbage. (2nd ed.). Kalamazoo, MI: Flowerfield.