

Worm Watching

Grade Level: K-3

Approximate Length of Activity: 45 minutes plus observation and discussion time after 7-10 days.

Objective

Teacher

1. Provide students with a visual experiment with worms.
2. Discuss the aspects of the soil environment.

Students

1. Learn how earthworms help build good soil.
2. Observe earthworms during an experiment.

Michigan Content Standards: (Science) E.SE.00.11, S.IP.00.13, S.IP.00.12, S.IP.01.11, S.IA.01.13, E.SE.01.12, S.IP.02.11, S.IP.02.12, S.IP.02.13, S.IA.02.13; S.RS. 03.11

Background

Earthworms are very important to agriculture. They improve the topsoil and make it healthier for plant growth. The tunnels earthworms make in the soil help air and water and insects move the soil. Earthworms actually eat the soil and dead organisms in the soil. They digest the parts of the soil their bodies need and excrete what they don't need. The parts they excrete, called castings, are much richer in minerals after they have been through the worm's digestive system. The average earthworm produces its own weight in castings every 24 hours. According to the USDA Yearbook of Agriculture, the earthworms in one acre of land can bring to the surface as much as 20 tons of soil in one year (one acre is just about the size of a football field and one ton is 2,000 pounds.)

Earthworms can be so tiny you can't see them without a microscope, or they can be several feet long. There are many different types of earthworms; including, orchard worms, rain worms, angleworms, red wigglers, night crawlers and field worms.

The earthworm has no head, no eyes, no teeth and no antennae. Its body is made up of many ring-like segments. There is a swollen band, lighter in color than the rest of the body, at the front of the earthworm's body.

You can usually find earthworms near the surface of the soil after it rains. They will die if they dry out and do not like strong light. Earthworms are very sensitive to chemicals. Some people raise earthworms to sell as fish bait or to help enrich poor soil.

Materials Needed

- One-gallon glass jar with holes in the lid
- Loose soil (preferably top soil)
- Handful of earthworms (at least six)
- Lettuce, grass clippings and decaying leaves
- Black or dark paper
- Tape

Activity Outline

1. Fill the gallon glass jar loosely with damp topsoil, leaving at least two inches at the top.
2. Share background material, allow students to examine the worms and draw or describe what they see.
3. Place the worms in the jar, and cover them with lettuce and grass clippings or decaying leaves. Wrap the jar with the dark paper, and tape it into place.
4. Leave jar in a cool, dark place for at least a week. Have students take turns dampening the soil if needed and adding more food as the lettuce and other materials disappear. Do not disturb the jar for at least a week.
5. Have students draw pictures of the earthworms and predict what will happen in the jar.
6. After 10 days, unwrap the jar and have the students observe what the worms have been doing. Have them draw pictures of the tunnels the worms dug.
7. Take the jar outside on a warm day, and carefully dump the contents into a flower garden or some other spot where the worms can work their way back into the earth. Have students gently probe the soil and look for signs of the food they had placed in the jar over the past ten days.

Discussion Questions

1. Why are earthworms important to agriculture?
2. Why do earthworms come out after it rains?
3. Why is healthy soil important to agriculture?

Related Activities

1. Set up another jar, and feed the worms different kinds of organic materials (shredded paper, bread crumbs, thin apple slices, grated orange peel). Earthworm breeders use a mixture of cornmeal and coffee grounds. Have students keep record of how fast each item disappears and make simple bar graphs to demonstrate their data.
2. If your class has started a compost pile, wait until it has had time to start decomposing, and then have an earthworm hunt. Students may use sticks, large spoons or garden trowels to dig gently through the compost. Have them look especially for wormlets (tiny thread-like baby worms about one sixteenth of an inch long-best viewed through a hand lens.)
3. The lesson, "A Slice of Soil" located in the social studies section of this curriculum guide.

Book Resources

1. "The Science of Soil" by Jonathan Bocknek
2. "Dust Bowl Diary" by Ann Marie Low

Acknowledgement: This lesson was provided courtesy of Oklahoma Agriculture in the Classroom.