

FACTivity

Time: One class period

Needed: Plastic cups, trowel, water, small amount of dishwashing liquid, rulers, plastic tweezers, various sizes of plastic or glass containers, pencils, and copies of the student worksheet on page 16. The total number needed of these supplies will depend on how many groups of students are doing the FACTivity. Each group should have one ruler, two pairs of tweezers, and plastic containers, as well as a pencil and worksheet for each member of the group.

Your teacher will place several pitfall traps in your schoolyard at least 24 hours and up to 48 hours before the activity. He or she should set out one trap for every team of students doing the activity. If there is time, your teacher may have teams of students place these traps 1 to 2 days before the FACTivity.

The teacher should set the traps in a range of settings (for example, near the forest's edge, an open field, near a stream or other water feature), depending on the size of the area being used for the activity. Using a trowel, your teacher will dig a hole large enough to bury a plastic cup up to the rim. It is best to find areas rich in leaf litter or compost, as this is the preferred habitat of earthworms.

Your teacher will then place 2 inches of water in the bottom of each cup, along with a tiny drop of dishwashing liquid. The teacher should place several small stones

around the rim of the cup and cover with a small piece of wood to protect the animals that fall into the trap from rain. A small plastic plate, weighted down with a small rock, can also be used for the lid. Remember to leave enough space for organisms to enter the trap. The cover will prevent the cup from filling with water and drowning any organisms that fall into the trap. If any leaf litter was removed to place the trap, replace the leaf litter around the trap. If time is available, students may help the teacher set the traps.

The questions you will answer with this FACTivity are:

- 1) Are earthworms a part of your school yard habitat?
- 2) How much difference exists among the types of soil-dwelling organisms that live in your school yard?

(Note: This FACTivity is best to do after a rainfall event in the fall and spring months when soil-dwelling organisms are more active.)

The method you will use to answer the questions is:

1. Your teacher will divide the class into groups of three. Each group will work with a different trap. You should prepare the study area by placing several containers around the trap in which to sort the organisms.

2. Begin by recording the site conditions surrounding the trap. Record weather conditions over the past day. These could affect earthworm activity. Use the ruler to measure the depth of leaf litter in inches surrounding the trap. Use the chart on this page to observe and record the site conditions.

3. Examine the Pitfall Trap Survey Table. Notice the categories of organisms listed in the table. These are the categories into which you will sort your captured organisms.

4. Remove the lids from the traps. Using the tweezers, carefully remove the trapped organisms one at a time. Remember that the organisms are an important part of your school yard habitat and that they should be returned to their habitat the same way you found them. The containers should be used to sort the organisms. Record what you find and how many of the various types of organisms you find on the Pitfall Trap Survey Table.

(Warning: Be careful when handling the organisms as they could have a harmful bite or sting. Do not use your fingers to handle the organisms!)

| Pitfall Trap Site Collection | | | | |
|---|--|------------|---------|--------|
| Date _____ | | Time _____ | | |
| Weather Observations (circle all that apply) | | | | |
| Conditions over the past 24 hours | | sunny | cloudy | windy |
| | | cool | warm | rain |
| | | | | other |
| Current conditions | | sunny | cloudy | windy |
| | | cool | warm | rain |
| | | | | other |
| Vegetation | | | | |
| Type of vegetation surrounding the trap | | grass | flowers | shrubs |
| | | | | trees |
| Leaf Litter | | | | |
| Measure the depth of the leaf litter surrounding the trap | | _____ in. | | |

| Pitfall Trap Survey | | |
|---------------------|-----------------------|------------------------|
| Type of Organism | Number of Individuals | Total Number Collected |
| Insect | | |
| Earthworm | | |
| Other | | |

Total number of all collected organisms _____

Percentage of insects _____

Percentage of earthworms _____

Percentage of other _____

100%

5. Inside the classroom, count the number of individual organisms you collected in each category. Add these numbers to determine the total number of organisms collected by your class. Use these numbers to determine the percentage that each type of organism represents among the animals you trapped. If possible, reproduce the Pitfall Trap Survey Table and percentages on the white board so that the entire class can see it.
6. After you have completed counting the number of organisms collected, return the organisms to the area where they were collected. Remove the pitfall traps and fill the holes with soil.
7. Your teacher should lead a class discussion to talk about the results of the activity. Here are some questions that he or she may use to start the discussion:
 - How did the percentage of earthworms compare with the percentages of other organisms that were collected from the traps?
 - Based on what you know, do you think the earthworms collected from the traps are native to the area or an introduced, invasive species? Why or why not?
 - Was there a relationship between the amount of leaf litter surrounding the traps and the number of earthworms collected from that trap? If so, what was the relationship?
 - Why would the amount of leaf litter found in an area provide a clue as to how many earthworms might be expected to be found living in that area?

- Do you think the number of earthworms living in your school yard has an impact on the other organisms living there? Why or why not?

8. Answer the two questions asked at the beginning of this FACTivity.
9. As a class, make a list of at least three weaknesses of the inquiry process you just completed. Discuss what you could do differently to improve the study. (For example, a weakness might be that the traps were left out only overnight. An improvement might be to collect organisms from traps left out for 3 days.)

FACTivity Extension

(or in cooperation with the Art teacher)

Time: One class period

Need: Poster paper, colored markers

One of the ways invasive earthworms travel to new areas is through the actions of anglers. Create colorful posters to educate anglers about invasive earthworms. These posters should recommend that worms be disposed of properly (not discarded on the ground). Your teacher may set up a display of your posters in your school hallway or in a local library or other public area.