

Look Before You Leap! Pitfall Traps

Pest Control Standards check Activity

Essential Question:

What kinds of insects and arthropods live on my club site?

Background Information:

In this lab, learners will use pitfall traps to explore the population of ground-dwelling creatures. These traps are used to sample the surrounding environment for living organisms.

Getting Ready:

Choose the site(s) to place the pitfall traps. Decide whether learners will place their traps in similar environments or compare different areas (wet soil, sandy soil, forest, garden, lawn)?

Procedure:

1. Choose several places where you want to sample the ground-dwelling insect community. Choose a variety of places: under trees, in open fields, in a garden. Do not place your traps in hard-packed soil. You can mark the sample sites on a map of your site. As a Standard Check, each group walks two paces from the Checkpoint in the direction North, South, East or West. Have learners mark the location of the pitfall trap on the data sheet.
2. Remove a core of soil from the site with the bulb planter or trowel. Place the largest cup of the pitfall trap in the soil. You may need to use the trowel to remove additional soil to make the cup fit. Be sure that the cup is flush with the ground surface. It cannot stick up above the ground, or the insects will walk around it.
3. Place the smaller cup inside the larger one. This cup will catch the insects when they fall into the trap. It can be removed without disturbing the larger cup. If you are collecting insects to keep as samples, you can place a small amount of water and dish detergent in the bottom the smaller cup. This will cause the insects that fall into the cup to drown.
4. Place the paper cone or funnel over the top of the largest cup so that it is flush with the ground. Insects that crawl across the trap will slide through the hole in the funnel into the cup below. The funnel will keep flying or jumping insects from getting out.
5. Mark the location of the pitfall trap with a flag.

Location: School Site and classroom

Objectives: Learners will

- 1) explore the local ground-dwelling community.
- 2) use a pitfall trap and field guide to collect and identify organisms.

Skills: data collection, analysis, observation, communication, inference

Supplies:

- pitfall traps: plastic cups of two sizes that fit inside one another and a funnel or paper cone that fits over the top of the larger plastic cup
- bulb planter or a trowel
- flags for marking trap locations
- vials or insect boxes for observing insects and other arthropods
- Pest and Disease Control Data Collection Worksheet – one per learner
- an insect field guide (if a field guide is not available use the online field guide at www.enature.com/guides/select_Insects_and_spiders.asp)

Subjects: Science

Time: 30 minutes (overnight collection time is best)

6. Place pitfall traps in as many places as desired by repeating steps 2-5.
7. Leave the cups in place for approximately 24 hours. Do not sample for insects on a night when rain is expected. Your trap may fill with rainwater and all the insects will get washed away.
8. On the following day, help learners carefully remove the inner cup without allowing insects to escape. Empty the cup into the vial or insect box.
9. Identify the insect using a field guide. Learners should record the insects and other arthropods that are found on their worksheets.
The large cups may remain in place for the next time that you sample insects, but the rest of the pitfall trap should be collected and returned to the classroom. Cover cups to prevent capturing other animals when traps are not in use.

Discussion/Assessment:

Would you find more or less animal life at a different time of year?

Are the kinds and numbers of animals different in the different environments?

Does the weather affect the variety of life found in the trap?

Does the time of day affect the variety of organisms found?

Pest & Disease Control Department
ECO-STANDARDS CHECK

LOOK BEFORE YOU LEAP!

Team Members _____ Date _____ Time _____

Checkpoint # or Name _____ Direction (circle) N S W E

Weather Conditions: _____

INSTRUCTIONS: Pitfall traps provide an easy way to sample the insects and other arthropods walking on your site. Carefully remove the inner funnel. Remove the large cup from the ground and identify and count the organisms you find in the cup. If there is more than one kind of beetle or ant, give each type a name and count it separately (for example, small black beetle and long brown beetle). Complete one worksheet per pitfall trap. Use 2 traps per checkpoint.

Pitfall Trap 1

Type of insect or arthropod	Number found	Descriptions
Example: Ant	///	Large brown ant

Pitfall Trap 2

Type of insect or arthropod	Number found	Descriptions

Summary of the total numbers of animals observed in 2 traps

Insects (6 legs)	Arachnids (8 legs)	Isopods	Centipedes Millipedes	Other