

Intro to Soil Ecosystems

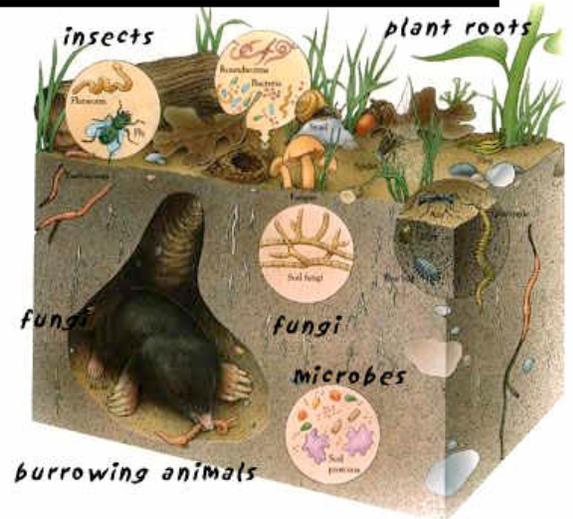
Purpose: This activity will allow students to get up close with soil and explore some of its components. It will also help to generate questions students have about soil and bring to light knowledge or misconceptions students have about soil.

Materials:

For each student or group: Pencil, clipboard, trowel, Activity Sheet, bug boxes (optional).

Background Information:

Students should be able to define **organic** and **inorganic** and be able to identify which category objects belong to.



Set expectations: Respect all living things found in the soil, including all plants and insects.

Define Ecosystem: An interconnected natural environment of living and non-living things functioning together.

What do you think of when you think about soil? Do you think it is just dirt?

Ask students if they think there is an ecosystem within the soil. Tell them they will be exploring the topsoil and journaling/ recording what they find.

Activity

Visit a natural area, open space, or garden on a field trip or in the schoolyard.

Have students work in groups, pairs, or individually. Have them choose one small area to investigate (approx. 2 ft. x 2 ft. area)

Give students 10-15 minutes to explore and record their findings on the Activity Sheet

Optional: After completing all questions, have students find a second area to explore and repeat the process.

Remind students to restore the area to the condition they found it in when they are done.

Questions for Discussion

(Optional: Have students from different groups meet to compare their findings and discuss some of the following questions. Students could also come up with their own question as a result of this activity.)

How would you describe the ecosystem your area is a part of?

What living things did you find in your soil? What non-living things did you find?

Were you surprised by anything you found? Or by anything you didn't find?

What role do you think the soil plays in the ecosystem it is a part of?

How does the soil support the animals you found living in it? What are the sources of food, water, and shelter in the soil ecosystem?

How do you think the soil support plants living in it?

What additional information do you need to better understand your soil ecosystem?

Soil Ecosystem Data Sheet

1. Describe the area surrounding the plot that you have chosen. Is it under a tree canopy or in the open? Is it in a path or an area that is rarely walked on? Sloped or flat?

2. Predict what you will find on the surface of the area to be studied. List your predictions:

3. Take a closer look at the surface of the soil. List and describe anything you find there (i.e. rocks, plants, decomposing organic matter, insects, etc.)

| Name or Description of item in the Soil | Quantity | |
|--|-----------------|--|
| | | |
| | | |
| | | |
| | | |
| | | |

4. Now pick up a handful of soil from the surface. Use a trowel if necessary to get a good handful. Record your observations:

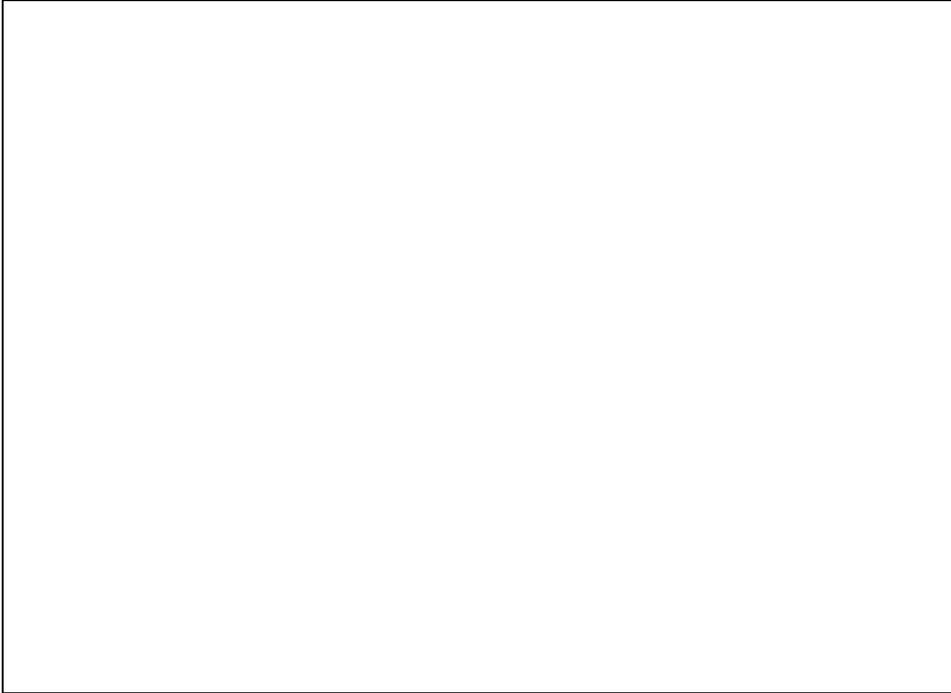
| | |
|---|--|
| | |
| Color | |
| Smell | |
| Temperature | |
| Moisture | |
| Living Organisms (plant or animal) | |

Be sure to replace all items and fill in the hole. Leave the area looking as close as possible to the way you found it!

Soil Ecosystem Activity Sheet

As you are exploring the soil, remember to respect all living things you find. Keep in mind that most soil critters are found in the top 2 to 3 inches of the soil.

1. Describe or sketch the area you chose to explore. Include information such as whether there are trees, plants, buildings, roads, or paths nearby, if it is flat or on a hill, etc.

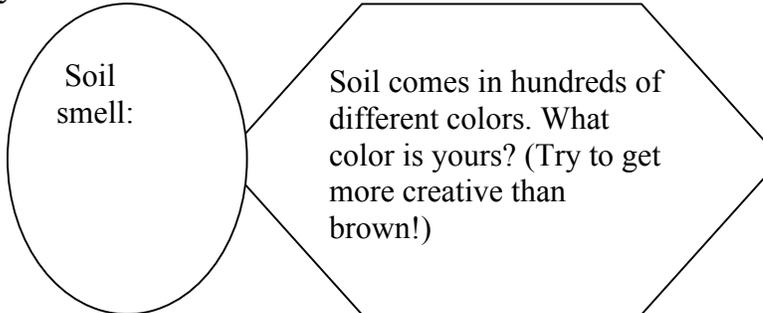


2. Make a list of everything you see on the surface of the soil:

Organic:

Inorganic:

Now, use your trowel to dig up a small sample of soil from the top 2 to 3 inches. Record your observations below:



Hold the soil in the palm of your hand and rub it with your fingers. Describe how it feels.

Draw any plants and animals you found living in your soil (use the back of this page if you need more space). Try to label what type of plant or animal it is.: