

# A Soil Ecosystem Transparency

## Background Information

The soil beneath our feet is full of life. Many animals, such as moles, badgers, and prairie dogs use the soil to find food and shelter. Earthworms and many insects also live in the soil. As these animals burrow and tunnel, they mix the soil, allowing air and water to penetrate beneath the ground's surface. Plant roots stretch down through the soil where they can absorb the air, water, and nutrients needed for growth.

In addition to these plants and animals, billions of microscopic organisms, such as bacteria and algae, inhabit the soil. They, along with fungi, earthworms, and other soil creatures play an important role in the decomposition of organic material. Decomposers help break down dead plant and animal tissue. Nutrients are returned to the soil, where they become available once again to plants.

The next time you stand on the soil, think about the billions of organisms at work beneath you. They are part of a cycle that returns valuable nutrients to the soil. Without these unseen creatures, the plants we depend on for food could not grow, and the life-sustaining cycle on earth would be broken.

## About the Transparency

The transparency illustrates a cross-section of hypothetical soil. The top portion of the circular enlargement is about 50X normal size; the center, about 150X; and the bottom about 300X. You can write on the transparency with a grease pencil or water-soluble marker, and remove markings with a dry towel. Permanent-ink writing cannot be removed.

## Activities

- ★ Use the transparency to introduce the topic of soil.
  - What evidence of plant life do you see in this soil profile? (dandelion, grass, leaves, acorn, algae)
  - What animals live here? (earthworm, snail, centipede, spider, cricket, daddy-longlegs, shrew, grub, ants, nematode, bacteria)
  - What role do these plants and animals play in the ecosystem? How do they use the soil? How do they contribute to the nutrient cycle? Can you see different soil layers? Do some plants extend their roots into the subsoil layer?

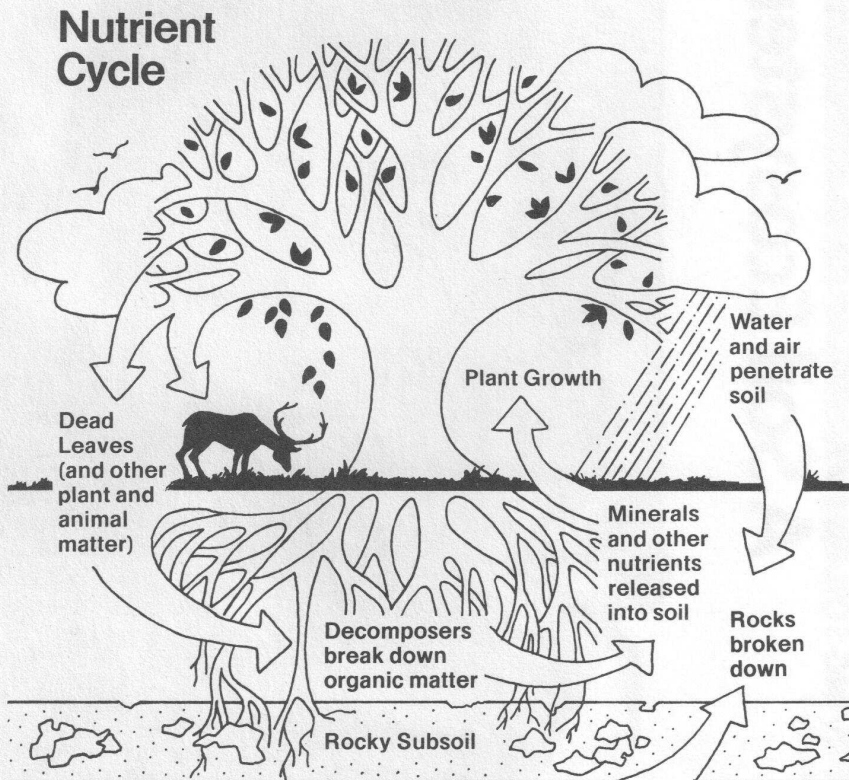
- ★ Collect soil samples from different areas. Working in

groups, have your students examine the soil samples using a white tray or sheet of paper, a bright light, forceps, and a magnifier. What different plants and animals can they find? Can they identify them using resources from your library? Find out what role these plants and animals play in the soil ecosystem.

- ★ Create a soil mural by projecting the transparency onto a large sheet of white paper, using an overhead projector. Trace the image and add other plants and animals that live in the soil.



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