

THE 'OLE PERCOLATING SOIL

Activity 27

AGE LEVEL = 10-16 (7-9)
DURATION = 45-60 min.
LEARNING STATION = Outdoors
RELATED ACTIVITIES = None

WHEN =



UNDERSTANDING: The ecological effects of human activities on plant and animal communities.

MATERIALS:

For each pair of children:

- Empty tin can (soup, tomato sauce, etc.)
- Watch
- Clipboard with Data Sheet (see Activity A)

PREPARATION: Choose an area that represents several community types within a relatively short distance. Look for grassy areas, swamps, evergreen forests, broad-leaved forests, beaches, plus an area humans have changed (i.e., gravel road, path). Six test sites are best. Prepare percolation test equipment by cutting both the top and bottom out of the tin cans.

LESSON:

Warm-up: Discuss the importance of water and soil on nonliving members of all ecosystems. Soils, much like the foundation of a house, support all that goes on above. Inform the students that they will be investigating how different “soil basements” dictate the type of plant and animal communities that can thrive there.

Activity: Divide the group into pairs. Each pair is responsible for 1) placing their can about an inch into the soil as each community type is identified; 2) filling the can with a predetermined amount of water (usually one-half cup); 3) charting the amount of time it takes for water to enter the soil completely; 4) describing the soil grain size by: a) observation, or b) rolling moistened soil between thumb and forefinger.

Wrap-up: Gather the group together and examine the data. Discuss: Why might it take longer for water to percolate through one type of soil than another? Did you notice any positive or negative effects on plant and animal life in each community? Is there a direct correlation between soil grain size and the time it took water to completely percolate through the soil? Did the sites changed by humans show a difference from the communities unaffected by humans? If so, what are the implications for the living members on that site?

OPTIONS AND FURTHER EXPLORATIONS:

1. In addition, you might test the soil pH and discuss the implications of differing nutrient and soil conditions.
2. Two excellent resources for expert soil advice are the University of Maine Cooperative Extension and the Soil and Water Conservation District (SWCD) in your area. SWCD educators are available to teach units on soils.

Soil Testing Form

Community Site	Amount of Water ¹	Amount of Time	Soil Grain Size*	Soil pH

¹Predetermined amount

*Fine = clay, medium = silt, coarse = sand, mixed = loamy