

Know Soil, Know Life

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TOPIC: The Biography of Soil

THEME: All life above ground is dependent on life below ground.

DESCRIPTION

- What is soil (a living, dynamic ecosystem) and where do you find it (found in every part of the world)?
- What are the basic soil ingredients: MAWOL (Minerals, Air, Water, Organic Matter, Living Organisms)?
- What are the general characteristics of soil (color, structure, texture, porosity) and how do these characteristics influence the functions of soil?
- What are the natural forces that create soil: CLORPT (Climate, Organisms, Relief, Parent Material, Time)?
- How do humans impact the quality of soil and how does that effect an ecosystem?

ACTIVITIES

1. Discuss the diversity and abundance of life in soil using a soil-life pyramid.
2. Let students feel the difference between soil ingredients (sand, organic matter, clay).
3. Impact of soil composition on water holding capacity and filtration potential of soil.
 - a. Prepare equal quantities of at least three soil preparations, each with differing amounts of sand, organic matter and clay.
 - b. Place these soil samples into prepared containers (e.g. disposable plastic bottles with the bottoms cut out, pour- ends stoppered).
 - c. Prepare an adequate volume of water mixed with debris, humus, mud or clay.
 - d. Pour equivalent amounts of “dirty” water onto each soil sample. Remove the stoppers.
 - e. Collect any water that runs out the unstoppered end of each bottle and compare how much of the original water sample was retained for each of the soil types.
 - f. Compare the collected water samples with a sample of the original “dirty” water sample.
 - g. Discuss the results (water holding capacity, filtration efficiency) and implications for the effect of soil composition on soil life and on life above ground.
4. Have students use a story board to discuss how much we depend on soil for food, water, fiber and shelter.

PREFERRED AUDIENCE – Students 8-12 years old

LOCATION – School laboratory, classroom or outdoor learning area.

Additional activity suggestions (Deborah Price):

- Investigate what type of plants do best in each type of soil. Bring in various samples and have students notice the different soil needs of different plants.
- Bring in some earthworms in soil. What type of soil do earthworms need? How do they help the soil? How does what they do to help the soil help plants (and people)?