

ACTIVITY 2.4 What is Soil? Part I

Overview: Students will collect soil samples and identify that soil is a complex mix of several organic components, sand, and clay.

Lesson Background: What is soil? Soil is a living, dynamic resource that grows the food we eat. It is made up of different materials such as leaves, pine cones, grasses, small sticks, rocks (that have been broken down over time into tiny grains by wind and rain), decayed plant and animal material (organic matter) and numerous species of living organisms. Soils are home to millions of organisms and it is used to feed the world's population. Soil is important for plant growth because it provides many of the nutrients and holds water for the plant. Plants and soil also need sunlight, water, nutrients, earthworms, bacteria and time. Time is a key ingredient for soil. It takes 50-100 years to make an inch of topsoil, imagine that the topsoil we see today started when our grandparents were babies. Talk with the students about the importance of soil in our lives... all of our food comes from soil!

Key Vocabulary: soil, hummus, clay, sand, and loam

Soil: The upper layer of earth, where plants grow. It is a complex mixture of rocks, minerals and organic matter.

Humus: the organic component of soil

Clay: A stiff, sticky particle of earth

Sand: Loose Granular substance made from the erosion of rocks. Found in deserts, beaches and riverbeds.

Loam: a fertile soil containing equal portions of hummus, clay and sand

Instructions:

1. Have the students work in groups of 2-4.

Grade Level: 1st through 3rd Grade

Objective: Students will understand that 1) soil is comprised of many things, including living organisms, and 2) that soil a key ingredient to growing food in their garden.

Subject Area/ CO State Standards: Science
Plant and Earth Science

Duration: 45 minutes

Group Size: 2-4 students per group

Setting: School Garden and surrounding outside school grounds

Materials: plastic bags, small hand shovel, paper plate, pencil/pen, and notebook (for recording observations and conclusions.) watering can

2. Each group has 5 minutes to collect a small soil sample from a designated area outside their school (the garden, a tree bed, the playing field, etc.) in a small plastic bag, using a small hand shovel or trowel.

3. After each group has collected their samples all groups will meet back in the garden with their soil samples in hand. Designate an area for each group to pour their sample onto their paper plate and carefully examine all of the materials in the soil.

4. Write down the following questions on a poster board or dry erase board big enough for the students to see and ask students to record their answers on one piece of paper per group.

- A. What is the color of the soil? (Dark brown, light brown, reddish-brown, etc.)
- B. How does it feel? (Gritty, sandy, smooth, etc.)
- C. What kinds of things can be seen in the sample? (Leaves, small twigs, rocks, worms, paper, plant/food materials, animal material etc.)
- D. What is the texture of the soil? Is it soft, or does the sample have hard clumps?

5. Once the students have answered these questions ask the different groups to share their observations and conclusions leaving the group that observed the garden soil for last. Tour the garden area, taking note of the soil quality in the garden and how it differs from the other group's soil samples. Notice what types of plants are growing in the garden soil and why they are growing in this area versus the other sample sites.