

Title: Investigating Soil Texture

Purpose:

A lesson to introduce students to some basic soil characteristics. This lesson provides a jumping off point for further investigations of soil properties and structure.

Objectives:

Students will be able to:

describe the constituent particles of soil

define vocabulary related to soil science (pedosphere, texture, color, structure)

Materials:

Water to fill bottles

bottle and cap (one per group)

Soil (enough to fill a third of each bottle)

Clock

Soils Worksheet for each student

Introduction:

Soils provide the point of contact between the biosphere and the lithosphere while acting as an important mediator in the hydrosphere. This thin layer of rock particles, organic matter, water and living things covering Earth's surface is referred to as the pedosphere. Like landforms, changing through time by erosion and deposition, soils change through time. The primary factors that influence the formation of soil are parent material, time, vegetation, climate and topography. Today, we are going to examine some soil to learn more about what makes up soil.

Student Worksheet
Investigating Soil Properties

Name:

Overview:

Soils can be described by their *texture, color and structure*. We will use the soil guides to describe our soil's color and structure. Then, we are going to shake up some water and soil and time how long it takes for soil particles to sink out. Particles of the same size should shake out together and sort our soil into layers of *deposition*.

Directions:

1. Working in groups, fill your bottle about 1/3 full with soil from the baggie.
 - a. *Color* is an important to soil scientists because it is an excellent way to identify the minerals that make up the soil particles. What color is the soil? Be as descriptive as possible.
 - b. Soil *structure* describes the way soil particles glue together into larger chunks. Farmers focus on *structure* because it plays a role in how water moves through soil. Does the soil have any structure? Again, be descriptive as possible.
2. Top the bottle off with water from the tap and cap it tightly.
3. Shake your bottle to mix the soil and water together. Be careful! Hold your thumb over the cap while you shake.
4. Check the clock as soon as you stop shaking the bottle and make a note where the second hand is.
5. As different layers are deposited in the bottle, note the time on the clock and record it in a table below.

6. Describe what you see in a labeled drawing below. Is the water totally clear? If not, what color is it? Can you estimate the size of particles in each layer in millimeters? Is anything floating on top? What is it? Include all of these answers as labels in your drawing.

7. When your finished, uncap the bottle and dump the soil, water mix in the waste bucket. Clean up your tables and your finished!