



Soils

Grade Level: K-2

Time: 45 minutes

Materials:

- 5 sets of sand, silt, and clay soil samples.
- Newspaper
- Grass clippings
- Small woody debris or crushed dried leaves
- Sand
- Small Pebbles
- Biodegradable dish soap
- 5 glass jars with lid
- Pitcher of water
- Spray bottle

Introduction

Soil is extremely important; not only does it host our earth's plants but also the world's agriculture! Understanding soil and soil structure is imperative to understanding earth's formation. In this lesson, children will be introduced to soil texture, structure, weight, parent material, and overall benefits to our society. For more activity ideas on soils refer to the book [Dig In! Hands-on Soil Investigations](#) by the National Science Teachers Association Press.

Activity

Introduction-5minutes

Ask students some general questions about soil.

Suggested questions:

Ask students what they know about soil? Why is it important? What grows within soil? Could the earth survive without soil? How would humans and other animals eat? How could we all breathe? What would we build our houses from? Where would animals hide? How would valleys form?

Sand, Silt, and Clay-15 minutes

Sand, silt, and clay are the basic texture classes of soil. Have children break into 5 groups; sit each group in a circle. Place a newspaper in the center of each group. Pass out the first soil sample to each group. Tell the class to dump it onto the newspaper and to grab a handful. Ask the class to describe what they see and feel. When finished have the group put the soil sample back into the ziplock bag. Repeat this exercise for each sample. With the clay sample have the children squeeze a handful and ask them if it sticks together. **If using the trunks' soil samples you will need to re-wet them by using a spray bottle in order to resurrect their original consistency.



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Activity Cont.

2nd Grade:

You may wish to discuss the permeability of each soil type. The permeability is a direct result of the soil particle size. Sand particles are larger so they allow for more air and water to filter through where as clay is plate-like in structure and does not allow for much air to flow between particles and thus traps water. See attached master gardener soil chapter for more information.

Soil Layers-20 minutes

Student should remain in current circled groups. Pass out a glass jar with a lid to each group. Create a soil “buffet” table at the front of the room before class. In this buffet you will want to lie out: grass clippings, small woody debris or dried leaves, small pebbles, sand, clay soils, silty soil, biodegradable dish soap, and a pitcher of water.

Call one group at a time up to the “buffet” with their jar. An adult will help facilitate the passing out of each item to be put in the jar. (Adult facilitation will be more time efficient.) At the last station of the buffet, fill each groups jar with water and 2 drops of dish soap and secure the lid. Have children sit down and shake the jar vigorously, each taking a turn while waiting for the other groups to pass through the buffet line. Once all students have obtained their materials ask the class to leave their jars still in the center of their group circle.

Ask students to predict what will happen.

Basically the layers will settle according to particle size and weight.

1. Dried organic material will float on top
 2. Clay will be located higher in the profile
 3. Silt will be in the mid layer.
 4. Sand will sink to the lower range of the profile.
- Pebbles/parent material will sit on the bottom.

Conclusion

Review soil profiles. Remind students that all soil on earth contain layers. This profile is created by texture, weight, organic material, and size and shape of each soil type. Ask students to name the 3 soil textures. (Sand, Silt, and Clay)

Clean-up activity.

****This activity was modified from Dig-In! Hands-On Soil Investigations, Lesson 3: *Soil Supreme*.**