



Soil Secrets

NGSS Standards: 2-PS1-1, 2-PS1-2

Level: 1- 6 grades

Time: 45 minutes

Objectives:

1. Students will understand how soil is formed and label the soil profile.
2. Students will observe the soil samples and identify at least two living organisms.
3. Students will conduct an experiment to identify the composition of a soil sample.

Materials:

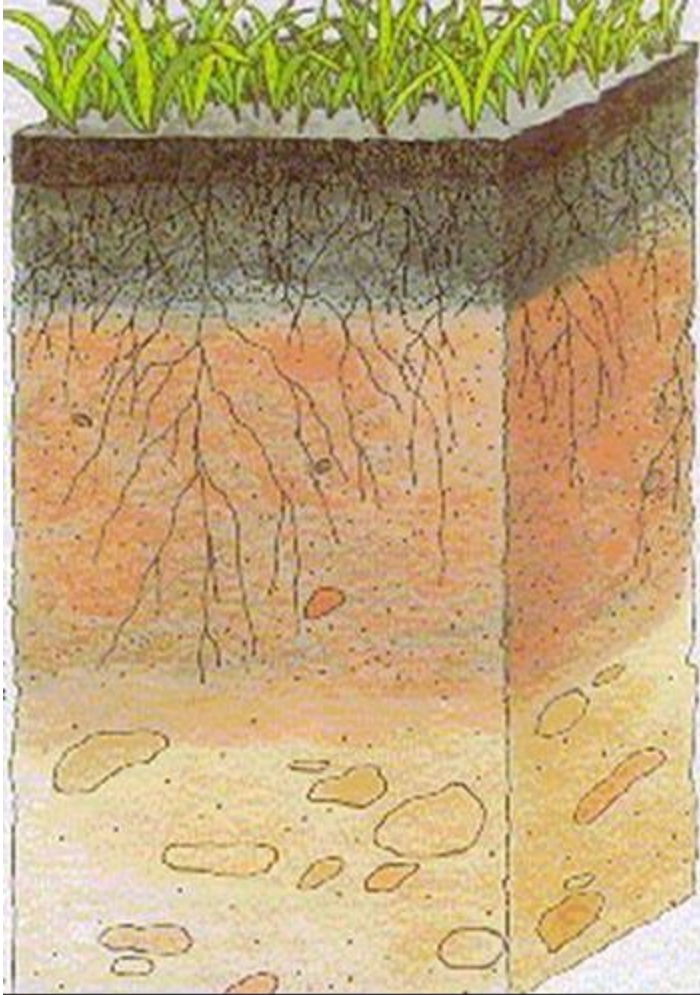
- The topsoil tour kit
- Soil life discovery kit
- Hand held magnifying glasses
- Rock cycle visual
- Butcher paper (to cover tables)
- 1 large soil sample (user needs to collect)
- Apple and knife for Earth as an Apple activity

Pre-Activities:

Oregon Agriculture in the Classroom has a wonderful Soil PowerPoint in pdf that covers terms, function of soil and soil formation. <https://oregonaitc.org/resources/oregon-soil-unit/>

Procedure:

1. 5 functions of soil: place for plants to grow, recycles nutrients and organic material, habitat for soil organisms, water supply and purification, human and animals build with it. Use the Earth is an Apple activity to demonstrate how much soil we have available on earth to grow food. Soil is important for life on earth. <https://oregonaitc.org/lessonplan/part-i-earth-is-an-apple-soil-conservation/>
2. Using the [rock cycle](#) discuss physical and chemical weathering. 5 factors play into the formation of soil in the environment: climate, organisms, relief/topography, parent material, time. Students can share their observations of soil formation in nature (example: can you spot weatherization in your yard; can you spot parent material breaking into smaller sediments in your yard?)
3. Have students look at [soil profile](#) and discuss soils in relation to plants and habitats. Have students label the horizons on the image below: O (organic matter) A (surface) B (subsoil-sand, silt, clay) C (parent material-minerals) R (bedrock)



4. Now that students understand the formation of soil, they can be challenged with identifying the composition of a soil sample. Have the students start with a marshmallow size soil sample in their palm and add drops of water until the sample is moist like putty. Follow the chart to identify the type of soil sample. https://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050352.jpg
5. As a review to the soil lesson student will investigate a soil sample with magnifying glasses to identify living organisms that help to create rich soil. Can you find an earth worm? Can you find a pill bug?

Post-Activities & Resources:

Edible Dirt Cake Activity <https://oregonaitc.org/lessonplan/edible-dirt-cakes/>

From Rocks to Soil Lesson Plan <https://oregonaitc.org/lessonplan/from-rocks-to-soil/>