

Edible Soil!

Essential Question:

What are the layers of soil?

At a Glance:

Learners expand their knowledge of the soil profile by making 'soil pudding'.

Background Information:

Soil takes many years to form from a starting point of bedrock or parent material, a layer of rock upon which soil accumulates. As years pass, good quality soil will develop four or more distinct layers. At the surface is the O horizon, a layer of organic material, usually partly decomposed, also called residue or leaf litter. Next is the A horizon, also called topsoil. Most plant roots grow in this layer and it holds most of the soil's nutrients. The B horizon (subsoil) contains sand and silt, and perhaps some nutrients that have dripped through (leached) from the layers above. The C horizon is partially broken down bedrock. The last layer, the R horizon, is bedrock. Some classification schemes add other layers, but this is a simple one. The deeper the O and A layers are, the richer the soil is. Soil profiles vary greatly. Good Iowa farmland has an A horizon that is 3 feet thick. A typical eroded Georgia soil may have little or no A horizon. For simplicity in this activity we use the terms: parent material, subsoil, topsoil, and residue or leaf litter.

Getting Ready:

1. Prepare the pudding according to the directions on the package.
2. Place chocolate sandwich cookies into a sealed plastic bag and crush using a rolling pin. Alternatively, use a food processor to crush the cookies.
3. Add a couple of drops of food coloring to the coconut in a plastic container or baggy. Shake for 30 to 45 seconds. Pour coconut onto paper towels to dry (about an hour).

Procedure:

1. Review the layers of a soil profile from Lesson 1 of the soil module. Tell learners that they will be making their own edible soil profile.
2. You will first be showing the group each layer of soil and demonstrating how to make an edible soil profile. Each learner will then be able to make their own. You may have the attached diagram available for review.
3. Place each soil layer ingredient by its appropriate label
 - a. candy coated chocolate = 'Parent Material'
 - b. chocolate pudding = 'Subsoil'

Location: Indoors

Objectives: *Learners will*

- 1) identify the layers of a soil profile.

Skills: identification

Supplies:

- clear plastic cups for each student
- spoons
- candy coated chocolate
- 2 -3 boxes of chocolate pudding (prepared)
- gummy worms
- ½ cup+ colored sprinkles
- chocolate sandwich cookies, crushed
- ½ cup coconut
- yellow, brown or green food coloring
- labels/paper:
 - Parent Material
 - Subsoil
 - Topsoil
 - Organisms
 - Residue or Leaf litter
 - Earthworms or red wigglers

Subjects: science

Time: 20 minutes

- c. crushed chocolate sandwich cookies = 'Topsoil'
 - d. colored sprinkles = 'Organisms'
 - e. coconut = 'Residue'
 - f. gummy worms = 'Earthworms' label.
4. Place spoons with each of the soil horizon/layer ingredients.
 5. Demonstrate making the soil horizons of your edible soil.
 6. Put a spoonful of candy-coated chocolates into the bottom of an individual cup; discuss what Parent Material is. Repeat this procedure with the pudding (Subsoil), followed by cookie crumbs (Topsoil), sprinkles (Organisms), coconut (Residue) and finally a gummy worm (Earthworms).
 7. Allow each learner to prepare their own Edible Soil. Enjoy!



SOIL PROFILE

<http://www.conservationinformation.org/publications/BetterSoilRecipe.pdf>

Discussion:

What are the layers of soil?

What types of organisms live in soil and aid in soil production?