

LESSON PLAN

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Following is an example of a lesson plan that might be used to teach about soils to 4th grade students using activities included on this CD. There are so many wonderful activities on this CD and on the internet links that it is hard to narrow down a list. Follow the links provided in the lesson plan to view the references necessary to teach each section.

Most activities could be used at higher grade levels, and some could easily be adapted to lower grade levels. At grade 6 or above, the activities [Soil Crayons and Painting With Soil](#) would be great to convey a deeper appreciation of soils and the fact that they come in many colors. Unless the teacher wants to do most of the preparation work, these activities are not suitable for younger students. You know the abilities of your students better than anyone, so you may pick and choose.

[Soil and Pizza ... What's the Connection?](#) - (Activity 1 SWCS)

- Students will develop an awareness of soils.

[How Soils Are Made](#) (Activity 1 from The World Beneath Our Feet)

- Students will be able to describe the two types of weathering: mechanical and chemical.
- Students will be able to identify the main parts of soil.
- ❖ [Frost Action](#) (Activity 4 from The World Beneath Our Feet). This activity could be incorporated into How Soils are Made.
 - Students will be able to predict the changes in matter as an object is heated or cooled.

[A Profile of Pudding](#) – (Activity 6 from The World Beneath Our Feet)

- Students will be able to name the soil layers.
- Students will be able to identify color changes in the soil.
- ❖ Replace Part Two with the following Edible Soil Profile. The edible soil profile is easier, and the students still learn the same objectives.

Edible Soil Profile

Served in 5-oz. bathroom cups, this recipe will serve 25 to 30 students. The teacher should do the serving.

Materials needed: 4 packages 3-oz. vanilla pudding
1 package 3-oz. chocolate pudding
1 package 3-oz. chocolate fudge pudding
11 cups milk
½ cup chocolate chips
Gummi worms (chopped into thirds or fourths)
6 sandwich cookies (Oreo)
Container to shake pudding (a half-gallon thermos)
A clear container to layer the pudding into

Bottom Layer – 3 packages vanilla pudding plus 6 cups milk (Have students put 2 cups milk, then one package of pudding; repeat until all ingredients are added.) Shake one minute. Pour into clear container. Add the chocolate chips. (They represent rocks.)

This layer represents the C Horizon, or Parent Material. This layer of soil really isn't suitable for growing plants.

Middle Layer – 1 package vanilla + 1 package chocolate pudding + 4 cups milk. Shake one minute (use the same shaker; no need to wash between layers). Slowly pour on top of bottom layer. The layers will mix slightly but should stay separate. Add the worms and talk about the importance of worms to the soil.

This layer represents the B Horizon, or the Subsoil. It should be darker than the parent material and could grow plants, although it really is not as suitable for plant growth as the top layer.

Top Layer – 1 package chocolate fudge + 2 cups milk. Shake one minute. Pour on top of subsoil layer.

This layer would represent the A Horizon, or topsoil. Explain how thin the topsoil layer is compared to the others and that the topsoil is best suited for plant growth. Emphasize how very important it is to use our topsoil wisely. It takes between 500 – 1000 years for one inch of topsoil to be formed naturally.

Crush the cookies and sprinkle them over the top. This represents the twigs, leaves, and other decomposers that naturally enrich the topsoil with nutrients and minerals, or an O Horizon.

Now let the students enjoy the soil!

Collecting Soil Samples – by students (Activity 2 SWCS). Depending on time of the year and where your students live, the teacher may have to collect the soil samples.

- Students will collect and/or examine soil samples.

Make a Soil Composition Chart – (Activity 3 SWCS)

- Students will analyze and compare different soil samples.
- Students will be able to identify the three particles that make up soils.

Rolling a Snake – (Activity 8 from The World Beneath Our Feet)

- Students will be able to describe four basic soil types by texture and then identify them by name.

Shaky Ground – (Activity 20 from The World Beneath Our Feet)

- Students will be able to identify the main parts of soil.
- Students will be able to describe the properties of color, texture, particle size, and organic matter in various soil samples

- ❖ Another good source for texture is 4-H Soil and Water Project Book Level 1 page 6 – **Texture Feely Bags**

Soil Acidity – (Activity 15 from The World Beneath Our Feet)

- Students will be able to classify various soils as acidic, basic, or neutral by comparing them to a pH “color scale” made up of common substances.

Seeping Away + Easy as Rolling Down a Hill + Soil Loss + Up and Down or Side to Side + Splish Splash (Activities 9, 3, 16, 19, 17 from The World Beneath Our Feet). All activities will help understand the same education principles. Most of the activities use the same materials.

- Students will be able to identify the harmful and beneficial effects of natural forces (wind, water, volcanoes, and earthquakes) upon the earth’s surface.
- Students will be able to identify how the effects of soil erosion by wind and water may be reduced or prevented.

Soil: Dead or Alive? (Activity 13 from The World Beneath Our Feet). Timing of this activity can be varied, depending on how the soil samples are collected. If the students collect the samples at the beginning of the unit, this activity should be done then. It is a great activity to lead into your next unit of study.

- Students will observe the types of organisms found in various habitats.
- Students will be able to identify the main parts of soil.
- Students will be able to describe the properties of color, texture, particle size, and organic matter in various soil samples.
- Students will be able to predict the types of organism in various ecosystems.

[Read Me First-A Guide To The Resource Conservation Kit for Educators by Henry Ferguson, NRCS](#)

[Additional Lesson Plans form Corne11 - Agriculture in the Classroom](#)

[Additional exam questions for older grades](#)

[More homework problems for math](#)

[Indiana Department of Education Standards](#)