

Soiled Art

Created by: Judene Presley	Date:
Subject: Science/Art	Grade Level: 3 rd + (adaptable to different grades)
Time Required: 45 min.	Standards: Grade 3 rd /4 th <u>Standard 2:</u> Physical Science Grade 5 th + <u>Standard 4:</u> Earth and Space Systems

Overview	Students will learn the different soil horizons and construct a soil profile.
Goal(s) & Objective(s)	Students will label the four layers of a standard soil profile diagram. Students will compare their model to actual soil horizons.
Materials	<ol style="list-style-type: none"> 1. Computer per group of 2 or 3 2. 30 pieces white construction paper 3. 15 sheets dark brown, Sandy, tan, and gray construction paper or equivalent in sand paper (1/2 sheet per student) 4. 15 sheets green, brown, black construction paper (1/2 sheet per student)
Teaching Activities: <i>Instructional Approaches/Strategies</i>	<p>Introduction:</p> <p>Use one or more of the following to lead into the lesson:</p> <ol style="list-style-type: none"> 1. If available, take students on a walk to a place where soil has been excavated and different soil layers are visible. Alternatively, bring shovels and have a few students excavate a hole during recess in a designated area a day or two prior to the lesson. Supervise so that the hole is not so deep as to be hazardous. Go out during class time and they should be able to observe the topsoil and subsoil in most locations. 2. Show students samples of large rocks, small rocks, and sand that are likely to have the same parent material. Ask them to form a hypothesis as to how the larger rocks break apart in nature. <p>Procedures:</p> <p>Ask the students if they know the difference between dirt and soil. Dirt is what happens when they play in the mud, but do they know how soil is made? What is it made of, and how long do they think it takes to make an inch of soil? After the teacher finds out their extent of knowledge, the background information can be shared either in discussion, using an overhead, or making copies of the information. Students can then use the web sites listed to check out the different soil profiles</p> <ol style="list-style-type: none"> 1. Tell the students they are going to do an art project to show the different horizons in rangeland soil. They will be making a soil profile with torn paper and glue. 2. Students can then be directed to check out the soil profiles on the web sites

	<p>listed so they understand what they will be making.</p> <p>3. Hand out the student instruction sheet, if desired.</p> <ol style="list-style-type: none"> a. All students will have a 9x12 piece of light colored construction paper for a background. The paper needs to be in the landscape position on their desk. b. Take the dark brown strip of construction paper and tear it unevenly keeping it about .3/4 to 1” thick and glue it to the white piece of construction paper about 3” from the top of the paper. Demonstrate at least one of the steps so students can see how to begin. c. Take the sandy colored strip of sandpaper or construction paper and tear it unevenly keeping it about 3 1/2 to 4” and glue just barely overlapping the dark brown paper. d. Next use the tan sandpaper or light brown construction paper and tear it keeping it about 2 1/2 to 3” and glue just barely overlapping the sandy colored strip. e. Tear the gray construction paper strip keeping it about 1 1/2 to 2” and glue just barely overlapping the tan paper at the bottom of the white construction paper. f. Use the green, brown, and gray scraps of paper to tear vegetation, tree trunks, roots, worms, and rocks. g. Use the markers to label the artwork “SOIL PROFILE” and each horizon.
<p>Assessment:</p>	<p>Discuss the following questions as a class or with a partner: How is your soil profile a good model of soil horizons? How is your soil profile different than real soil horizons? How could our models be improved?</p> <p>Students should have the horizons correctly labeled, and state how their model is different than a real soil horizon.</p>

Attachments: Soiled Art Worksheet

Vocabulary: Soil, horizon, soil profile, topsoil, subsoil, parent material, bedrock

Background:

- Soil comes from decomposed organic matter and weathered rock.
- To decompose the plants, animals, and other living things, it takes microorganisms. You will find approximately 6 billion microorganisms in a pinch of soil.
- In the dry western states, the soil has less organic matter because there is less moisture and vegetation.
- In rangeland soil there will be variable accumulations of clay, calcium carbonate, and soluble salts in the subsoil.
- Soil is divided into layers called horizons. There are at least 4 horizons.
- Topsoil is the first horizon and is darker in color because of organic material.
- The second horizon is the subsoil which is lighter in color, less productive, and made up of clay, silt, or sand with little organic material.
- The third horizon is the layer of small rocks that has broken off of the bedrock. It is called the parent material of the soil and will in time become the subsoil.
- The final horizon is the solid rock at the bottom that is called the bedrock.
- It takes 500 to 1000 years to make 1” of soil.
- Soil is considered a nonrenewable resource since it takes so long to make.
- Time, climate, topography, and the diversity of living things determine the kind of soil an area has.
- Worms are a sign of good soil. They break down organic matter for the plant to use. They aerate the soil making for good drainage.
- When earthworms eat, they leave castings that fertilize the soil.

Soiled Art

Name _____

Background Information:

- Soil comes from decomposed organic matter which includes plants, animals, and other living things and weathered rock.
- To decompose the plants, animals, and other living things, it takes microorganisms. You will find approximately 6 billion microorganisms in a pinch of soil.
- In the dry western states, the soil has less organic matter because there is less moisture and vegetation.
- In rangeland soil there will be variable accumulations of clay, calcium carbonate, and soluble salts in the subsoil.
- Soil is divided into layers called horizons. There are at least 4 horizons depending on where you get your information.

Go to the website: <http://www.biodiversity911.org/swf/soil.html>

List one fact you learned while taking the quiz:

Go to the website:

<http://www.butlerswcd.org/Education/Kids.html>

Even though there can be more soil horizons than those listed here, the basic ones are (list them from top to bottom):

Subsoil

- Topsoil is the first horizon and is darker in color because of organic material.
- The second horizon is the subsoil which is lighter in color, less productive, and made up of clay and sand with little organic material.
- The third horizon is the layer of small rocks that has broken off of the bedrock. It is called the parent material of the soil and will in time become the subsoil.
- The final horizon is the solid rock at the bottom that is called the bedrock.
- It takes 500 to 1000 years to make 1" of soil.
- Soil is considered a nonrenewable resource since it takes so long to make.
- Time, climate, topography, and living things determine the kind of soil an area has.
- Worms break down organic matter for the plants to use. They aerate the soil making for good drainage.

- When earthworms eat, they leave castings that fertilize the soil.

Follow the instructions below to make a model of the soil horizons:

1. Place the large, light colored piece of construction paper lengthwise on your desk.
2. Take the dark brown strip of construction paper and tear it keeping it about 3/4 to 1" thick and glue it to background paper about 3" from the top. This is your topsoil!
3. Take the sandy colored strip of construction paper or sandpaper and tear it unevenly keeping it about 3 1/2 to 4" and glue just barely overlapping the dark brown paper.
4. Next use the tan sandpaper or light brown construction paper and tear it keeping it about 2 1/2 to 3" and glue just barely overlapping the sandy colored strip.
5. Tear the gray construction paper strip keeping it about 1 1/2 to 2" and glue just barely overlapping the tan paper at the bottom of the white construction paper.
6. Tear the green, brown, and gray scraps of paper to make vegetation, tree trunks, roots, worms, and rocks.
7. Now, label each horizon, starting with the Topsoil. Label the artwork "SOIL PROFILE", and be sure to write your name in a corner or on the back!

Questions:

1. List three ways your soil profile is a good model of the soil horizons found on the earth.

2. How is your soil profile different than soil horizons found on the earth?

Soil Profile

