

James Farm Activity

This activity is designed for 6th grade. It is designed to correlate with curricular resource: Earth History, Full Option Science System (FOSS)

Challenge: Can you describe the difference between four soil samples and determine where they came from?

Materials:

Containers for soil samples such as coffee filters or small paper plates, plastic spoons pencil and clipboard, copies of the handout for each student, copies of “Soils Data Chart” “Soil Analysis Guide” for each student, hand lenses for observation,

Pre-trip Procedure:

Using a box of crayons (Crayola box of 64) students will color the “Soil Color Chart” found at the end of the Soil Analysis Guide. You may want to provide the opportunity for students to practice using the “Soil Color Chart” at school before the trip.

Procedures for the teacher:

1. Classes will meet at the pavilion. Teachers will review the rules and procedures for the day.
2. Students can be divided into groups so that each group will have an adult leader to observe the soils at each site.
3. While you are in the pavilion area the teacher will collect a soil sample from the grassy area and use it to model what the students will do with their “Soil Data Charts” as they are out on the trail. Review the “Soil Analysis Guide” with students to insure they will complete the “Soil Data Chart” in the same manner. Students can be called on to help analyze the soil properties of the sample the teacher has collected. All students will record the results on the first row of their charts.
4. Following the Red Trail, the class will make stops at the Amphitheater, just before the first boardwalk you come to (edge of wetlands), and the beach.
5. Teachers will instruct students to look around and describe the site. Observe the vegetation (kinds of plants) and source of water (if the soil is wet, where does the water come from).
6. Students should collect a small soil sample at least one inch below the surface. With a sample of the soil students will use the color chart to determine the color of the soil.
7. Each student will be given a sample of the soil to feel. They should record their texture observations on the “Soil Data Chart”.
8. Using the hand lenses students should determine particle size and record on the “Soil Data Chart”.

9. After both groups have completed their observations and collected their data, the groups will return to the pavilion area to discuss the results of their data. Teachers may lead the discussion with the following questions:
- What are the differences between the soil samples from each site?
 - Can you describe the characteristics of each site?
 - Which soil do you think would be best for growing plants? Why?
10. Once each group has reported about their soil texture have the students summarize their findings.
- What kind of soils do they expect to find in a forest?
 - What kind of soils do they expect to find at the edge on a wetland?

Extensions:

- Can you find evidence in your sample of where the soil came from?
- Compare the soils from James Farm to soil around your school or home?
- Make a terrarium in your classroom with each type of soil. Research what plants and animals would survive in each terrarium.

Soils Data Chart

Challenge: Can you describe the difference between four soil samples and determine where they came from?

Your job is to complete the soil data chart by collecting soil samples and using the soil analysis guide to evaluate the soils. You will complete the first section of the chart with your teacher's guidance then as you walk along the Red Trail you will stop at the amphitheater, edge of the wetlands and the beach to collect soil and fill in the chart.

Site	Texture (feel)	Particles (describe)	Color	Other
Grassy Area				
Woods				
Edge of Wetland				
Beach				

Things to think about when you get to soil sample collection areas

- What kind of plants do you see?
- If the soil is wet, where did the water come from?

Soil Analysis Guide

Texture: Rub the soil between your fingers. Is it dry, moist, wet, or drippy? Does it fall apart together, or is it sticky. Can you mold it or is it too wet.

Soil Particles: What size and shape is the particle? Sand (feels Gritty), minerals (tiny bits of rocks) silt (like flour or powder), pebbles, organic matter, bits of leaves, twigs, or bark.

Other features: What does it smell like? Describe any rocks, dead plants or other non-living materials in the soil. Describe any living things such as worms, roots, or insects.

Possible Water Sources:

Rain

Run-off

High tides from the bay

Groundwater

Soil Color Chart

Directions:

1. Use your crayons to color the simplified Soil Color Chart. Be sure that the name on the crayon matches the word in the box. If two colors are listed, fill the box with the first color listed first, then lightly color over it with the second.
2. Take soil samples from two sites to match up with your color chart.
3. Record and write up your results and conclusions.

May be wetland soil				Probably not wetland soil			
Black	Gray	Black + Sepia	Brown + Gray	Tan	Olive Green + Raw Sienna	Bittersweet	Goldenrod