

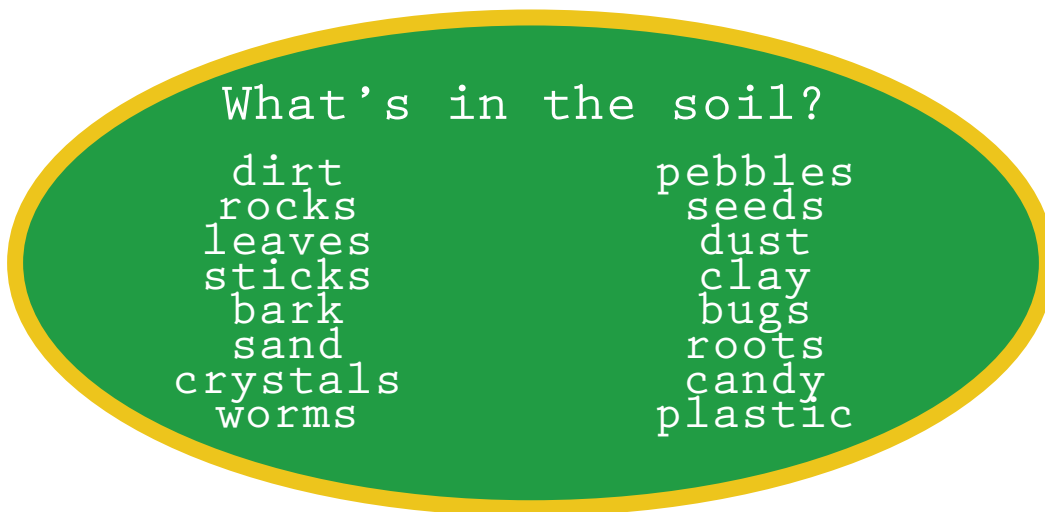
Pre-visit Activity:

Soil Detectives

Objective

Different ecosystems have different soil types. The types of plants and animals that can be supported in an ecosystem depends, in part, on the components of the soil. Students examine a sample of soil and sort the various components to discover the variety of items that make up soil. Students will also classify soil components into two major categories: plant and mineral.

Next Generation Sunshine State Benchmarks: SC.4.N.1.1, SC.4.N.1.2, SC.4.N.1.4, SC.4.N.1.5, SC.4.N.1.6, SC.4.E.6.2, SC.4.E.6.4, SC.4.E.6.5, SC.4.E.6.6, SC.4.P.8.1, SC.4.P.9.1, SC.4.L.16.2, SC.4.L.17.4, LA.4.1.6.1, LA.4.1.6.4, LA.4.1.6.5, LA.4.4.2.2, LA.4.5.2.1, LA.4.5.2.2, LA.4.5.2.3, LA.4.5.2.4, LA.4.5.2.5, SS.4.G.1.3, MA.4.A.6.6



Materials

4 soil samples (about 3 cups each)
Plastic spoons

Magnifiers

Popsicle sticks
Bug box

Poster board
Pencils/crayons/markers

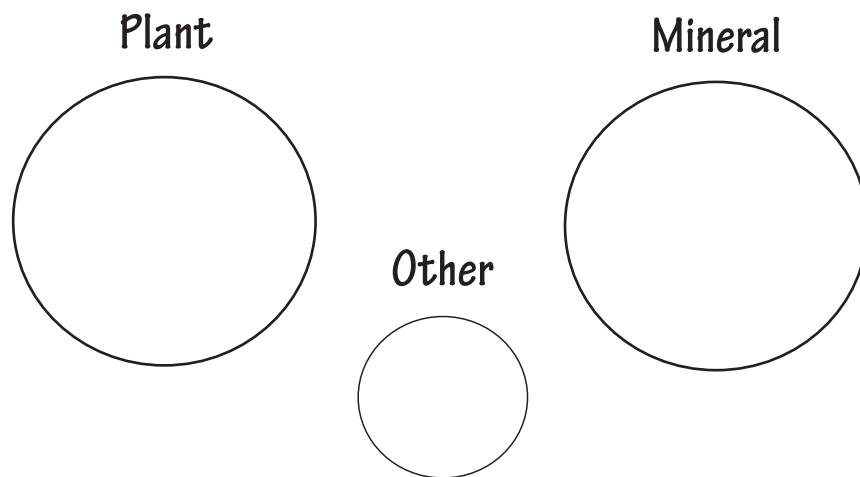
Blank paper

Procedure

1. Before class begins, collect soil samples from several areas that haven't been watered recently. Dry soil is easier to sort.
2. Make a chart entitled "What's in the Soil?" on the board. (See list above for some examples). On another board, make a line dividing the space in half vertically. Title the left side of the chart "Plant" and "Mineral" on the right side.
3. Ask the class why they think soil is important, i.e., plants grow in it, we walk on it, animals live in it, etc. Point out that soil is a mixture of many different things, some of which traveled many miles before ending up in the schoolyard.
4. Ask the students to predict items they might find in a spoonful of soil and list these on the "What's in the Soil?" chart. This list will give everyone ideas about the things they might find in their own samples.
5. Explain that scientists and farmers talk about the soil because the quality of the soil's ingredients

determines the quality of the plants that grow in it. Review the needs of plants with the students, emphasizing water and nutrients, both of which are held in the soil. An even mixture of plant and mineral debris is best.

6. Define the term “plant” as items that came from plants such as roots, leaves, sticks, seeds, and bark. “Minerals” constitute rocks, sand, pebbles, crystals and clay, all of which are important for plant growth.
7. Divide the students into groups and explain that each group will study a small soil sample, sorting their items into the two major categories: plant and mineral. Each group will receive a blank piece of paper and will draw two big circles (see example below). Label one “plant” and the other “mineral”. Show the students that they will use their toothpicks to drag an item, such as a leaf over to the plant circle, or a pebble to the mineral circle. If there is an item doesn’t fall into those categories (e.g., a dead animal, trash), tell the students to draw a third circle and label it “other”.
8. Distribute the equipment and direct everyone to collect their soil samples and place a spoonful of soil between the two circles. Distribute one magnifier to each group. As you circulate among the class, ask students why they sorted particular items in the “plant” or “mineral” category.
9. If students find any critters, point out that most soil organisms are good and harmless. Encourage children to gently collect their critters in a “bug box” to share with the group, and release at a later time.
10. Ask how their soil samples compare with the class’s predictions. Did they find examples of each thing listed under “What’s in the Soil?” What new kinds of items did they find? Were there items that didn’t fit in either the “plant” or “mineral” category (toys, trash)?



Analyzing the Data

1. Ask a group to share the items they found and how they classified it: plant or mineral. Write it in the appropriate column. Now ask for a show of hands of those students who also found this material in their sample. Record this number next to the item.
2. Once the entire class has reported their results, discuss the following findings:
 - * What soil item was reported most often? What item was reported least often?
 - * Which category had the most items?
 - * What type of soil would be better for growing plants? Why?
3. Ask students to create a two-part name for their soil, using a plant and a mineral characteristic (leafy-sand or twiggy-clay).