Earth Science Activity Bag

Formation of Soil: Student Activity Guide

Have you ever looked closely at the soil under your feet? You probably have not asked yourself what it's made of, how it was made, or how it got there. In this activity, we will look at that soil and see what we can figure out.

These directions will get you started. Your teacher will be in contact to guide you and provide information.

Materials from the bag

- 1 Plastic vial containing a few rocks
- 2 Food tray (paper tray with red and white pattern)
- 1 craft stick

Part 1: What Is Soil?

1. For this part of the activity find an old spoon and get the food tray from the bag. Head outside with your spoon and the food tray. Find someplace where there the soil is exposed. If you can't find bare ground, you might have to move aside some grass, leaves, or gravel. Try to get a heaping spoonful of **mostly dry** soil. Put that soil in the food tray.
2. Use the craft stick from the bag to separate the soil in the tray into little piles of similar things. *What do you notice?*
3. Allow the soil you collected to sit out for about a day, or until it gets dry.
4. When your sample is dry, keep separating it with the craft stick. Sort your soil into small separate piles, for example, sand, rock, clay, leaves, stems, and roots.
5. *How do you think these things got to be where you found them?*
6. Write a short paragraph explaining to a friend what your soil is made of.

Part 2: How Does Soil Form?

1. Get the vial of rocks and the other food tray from the bag,
2. Pour the rocks out of the vial into the food tray and look closely. Write down what you see.
3. Put the rocks back in the vial. Put the lid on tight and hold it on, then shake the vial and rocks hard for half a minute.
4. Pour everything in the vial back into the tray.
5. Pick out the rocks and return them to the vial. Look closely at what's left in the tray. Write down what is different in the tray now from what you saw before.
6. *What did you notice in the tray? Where did it come from?*
7. Shake the rocks again for another 30 seconds and repeat step 4. *What do you think would happen if you did this for hours or years?*
8. You just experienced one way that rocks break apart in nature. *What other ways do you think rocks break apart in nature?*

What's going on?

Soil begins its life when rocks break down over a long time. This is called **weathering**. Weathering can happen from water, pressure, and ice, and from chemicals and living things. The kind of soil you get depends on the kind of rocks that broke down to make it. For example, in central North Carolina, a common rock is a kind of blue-gray slate. That slate breaks down into the red clay you often see by the side of the road. This YouTube shows soil made by weathering: https://www.youtube.com/watch?v=kybPmB1zBUw.