Sand and Soil Activity

Objectives: 1) Explain how Oolitic Sand is formed.

2) Name three types of soil.

Introduction

All soil or dirt has a mixture of sand, silt and/or clay. Sand, silt and clay are very different from each other in size, texture and shape. Most soil is made by breaking down of rocks, called weathering.

Sand is made up of small fragments of rock in sizes from 1/16mm to 2mm. It ranges from very fine to very coarse. Sand consists mostly of the mineral quartz.

Silt is similar to sand but smaller. Ranging in sizes from .0039 mm to 1/16mm. This type of soil can be moved very easily by water and wind.

Clay is a very fine soil. It is more resistant to wind and water erosion. Because the clay particles are chemically bonded.

Antelope Island has a special soil, called **Oolitic Sand**. Most sand is formed by weathering and erosion from wind and water. Oolitic sand is grown in the Great Salt Lake. The mountains surrounding the Great Salt Lake are made mostly of limestone. Limestone was formed from ancient shelled animals. The limestone has a mineral called calcium-carbonate, which will form a round shell around a small particle in the water, just like a pearl forms in an oyster. These particles can be Brine Shrimp fecal pellets or any mineral. Over time the many layers of calcium-carbonate will create a small round pebble sand particle. This is what we have on Antelope Island's beaches!

Inventory Items

Soil Samples (3)
Petri Dishes
Vinegar (1)
Photo Oolitic Sand (1)
Hand lenses

Activity

1. Pass out soil samples and discuss the differences between them. Let the kids feel and touch the soil and make observations. Talk about weathering and erosion. Pull out microscopes to see the samples up close.

2. At the beach, collect some dry oolitic sand and then have the class make more observations. Explain how oolitic sand is formed, show pictures of oolitic sand. Make a slide for the microscope.

3. Now it is time for an experiment. Pull out the vinegar and explain the composition of oolitic sand (made of calcium carbonate). Have kids hypothesize on what might happen when you pour the vinegar on it. Vinegar is a weak acid. Try another acid (lemon juice) and see what will happens.

   The bubbles that are formed is the gas carbon dioxide being released. Acid in the vinegar is breaking down particles of calcium carbonate into Carbon Dioxide, Hydrogen Dioxide (water) and Calcium Acetate (a calcium salt)