



Soil Sedimentation Jar

Materials: clear jar or container with lid, soil, spoon or shovel, water

Background Information: Rock is the parent material of soil. Rock is the source of the inorganic (nonliving) materials found in soils. The rock is broken down into sediments (small pieces of rock and minerals) through the process of weathering. These sediments are the base material of soil. Different types of sediment make different types of soil. Most common soils are a mixture of three types of sediment. Sand particles are large, gritty particles (feels like sugar). Silt particles are smaller, smooth particles (feels like flour). Clay are tiny particles that are sticky when wet and form hard clumps when it dries (feels like modeling clay). Soil also contains organic material, or living, dead, or decaying plant and animal matter.



STEM Career Connection: Soil Health Specialists observe, test, and monitor soil to ensure that it is healthy for the living things that live in and grow in the soil. They also work to ensure that soil stays in place and does not get eroded away.

Literature Links: *Jump Into Science: Dirt* by Steve Tomecek, *Soil Basics* by Mari Schuh, *Dirt: The Scoop on Soil* (Amazing Science) by Natalie M. Rosinsky

Directions:

1. Collect soil samples from a couple of different locations.
2. Observe the soil sample using sight, touch, and smell.
3. Notice that soil usually contains both biotic (living) and abiotic (nonliving) components. Rocks and sediment are abiotic. Organic materials from plants and animals are biotic.
4. Soil can contain different types of sediments, commonly sand, silt, and clay. Sand particles are the largest sediment, silt particles are smaller than sand, and clay particles are the smallest. Soil scientists can separate a soil sample into layers of particles using a soil sedimentation jar. Set up your own soil sedimentation jar as follows.
 - a. Fill a jar $\frac{1}{2}$ full of soil. Add water until the jar is about $\frac{2}{3}$ full.
 - b. Close the jar and shake it vigorously for 1-2 minutes.
 - c. Let the jar sit for a couple of hours or overnight.
5. Observe the contents of the jar. Soil particles will settle by size, sand at the bottom, silt on top of sand, and clay on top of silt. Most organic material will float at the top.





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