

WHAT IS IN YOUR SOIL?

Healthy soils contain a mix of air, water, and different materials—rocks, sand, silt, clay, and organic matter. The proportion of these different sized materials affects the amount of air, water, and nutrients available for plants. Students can create a “mudshake” to explore soil composition and texture.

Materials needed: Clear plastic or glass containers with lids, A scoop of soil, Ruler

1. Fill a clear container about two-thirds full of water, then add enough soil so that the water level reaches near the top of the jar.
2. Shake the jar vigorously, then observe the next couple of days as the particles begin to settle into layers.

*After a couple days, students should expect to see 4 layers of materials in the “mudshake” (Some clay particles may stay suspended in the water.)

- (a) large particles, the rocks and sand, will settle to the bottom;
- (b) smaller particles, called silt, will settle above;
- (c) clay, the smallest particles, will settle on top; and
- (d) organic matter will float on or near the surface of the water.

3. Use a ruler to measure the layers, then calculate the percentage (proportion) of each particle type. Proportion is calculated by dividing the height of each layer by the height of the whole sample.

Students can gather and compare soil samples from other places—in the mountains, near the ocean, under a tree, or near a house. Which place has the most sand? Silt? Clay? Organic matter? Students work in small groups to figure out if there might be a connection between the sample origin and the types of particles found in the sample.