Soil Texture

Directions: Read, highlight, and answer the Schoology questions.

Until now, we have spent our time defining soil. We know that soil comes from broken down rocks and minerals that have been weathered both mechanically and chemically. We also know that soil contains a variety of parts consisting of sand, soil, clay, and humus. But what is the best soil? I’m sure you are saying loam is the best. You are right, but what exactly is loam? To understand loam, we need to understand how three parts of soil come together.

If I were to ask you to draw soil, it would probably look like the image to the right. Most would just draw a pile of dirt. As we are learning though, soil is much more complex than that.

Sand, Silt and Clay

One of the key ways that we characterize rocks is by texture. Remember that texture refers to how something feels. It can feel grainy, rough, or smooth. Larger particles feel rough while smaller particles feel smooth.

For soil, we also use texture to help characterize the type. The texture of soil, just like rocks, refers to the size of the particles that make up the soil. The terms sand, silt, and clay refer to different sizes of the soil particles. Sand, being the larger size of particles, feels gritty. Silt, being moderate in size, has a smooth or floury texture. Clay, being the smaller size of particles, feels sticky.

Look at the figure to the right. The size of the circle is relative to each size particle. Obviously, sand is not that big otherwise your time at the beach wouldn't be so enjoyable 😊. But we can use this graphic to understand the difference in size between each of the three ingredients of soil. As you can see (barely), clay is an extremely tiny dot on the page. Silt is a little bigger, but sand is considerably larger compared to the other two especially clay.

A Soil Texture Chart

The Soil Texture Chart gives names associated with various combinations of sand, silt, and clay and is used to classify the texture of a soil. A coarse-textured or sandy soil is one comprised primarily of medium to coarse size sand particles. A fine-textured or clayey soil is one dominated by tiny clay particles. Due to the strong physical properties of clay, a soil with only 20% clay particles behaves as sticky, gummy clayey soil.
Reading a Soil Texture Chart

The sides of the soil texture triangle are scaled for the percentages of sand, silt, and clay. Clay percentages are read from left to right across the triangle. Silt is read from the upper right to lower left. Sand is read from lower right towards the upper left portion of the triangle.

The boundaries of the soil texture classes are highlighted with a bolder line. The intersection of the three sizes on the triangle gives the texture class.

Let’s walk through this in more detail trying to identify a loam soil. The black dot highlights a spot inside this area that would be classified as this type of soil.

So loam, our best growing soil, would have a soil texture of 20% clay, 40% silt, and 40% sand. One great thing about using this chart is the ease of checking your work. All three parts have to add to 100%. If your numbers don’t equal 100%, you’ve made a mistake.

Now go to schoology and answer the questions!