

Jar Soil Texture Activity

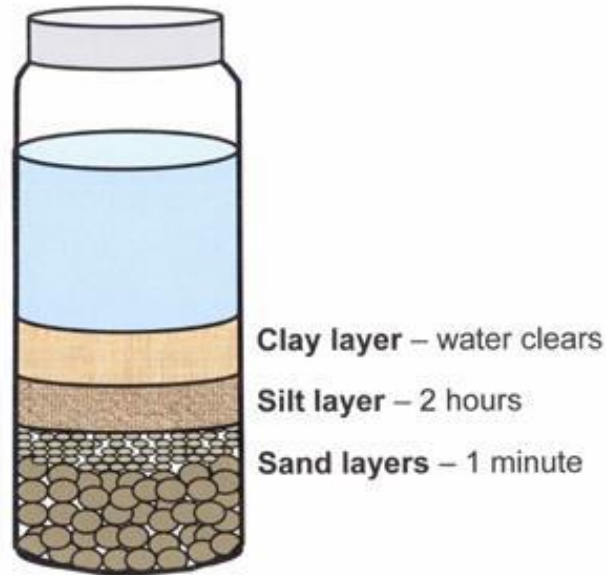


Figure 1 Drawing of a jar with soil and sediments

Photo: Colorado State University Extension, Colorado Master Gardener Program

Time: Set up – 5-10 minutes
At home – 1-2 days (to let the particles settle)

Supplies:

- Soil from your yard (dried and free of stones, roots, etc.)
- Measuring cups for soil and water
- Mason jar or another clear container with lid (pint size or larger)
- Water
- Permanent marker or masking tape
- Blue or red pen or pencil
- Paper towels or a rag

Background:

Soil composition is based on how much and what types of minerals are present. Generally, knowing the amount of sand, silt, and clay will give you a good estimate of your soil's texture and type. Sandy soil has large particles that allow plenty of space for air and water to disperse. Consequently, it cannot hold water and valuable nutrients for very long and drains quickly. Plants, like many wildflowers, that have adapted to dry, well-drained soils will work best in this type. Clay is much denser and has tiny particles which allow it to hold water and nutrients well. It releases water very slowly. Plants that like 'wet-feet' or having their roots regularly flooded will prefer this type of soil. Silt falls somewhere in

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between sand and clay. It holds water better than sand but not as well as clay. Most soils have some mix of all three types; a “loamy” soil has approximately equal amounts of silt, sand, and clay.

Methods:

1. Measure out ½ cup (for a pint jar) or 1 cup (for a quart jar) of soil. (Don’t forget to remove plant material and rocks so you can achieve accurate results!)
2. Put the soil into the jar.
3. Fill to the top with water.
4. Close the lid tightly and shake the jar for about 1-2 minutes or until everything is well mixed.
5. Set the jar in a safe place and leave it for 1-3 days or until the particles have all settled. Do not mix again.
6. After the sediment has settled, you should see three distinct layers in your jar. The top will be clay, the middle will be silt, and the bottom will be sand. Use a permanent marker or masking tape to mark the heights of the different levels.
7. Measure the total height of the soil in centimeters (all layers combined) and write it down.

Total soil height = _____

8. Measure the heights of each individual layer in centimeters and write those down.

Height of sand layer (bottom) = _____

Height of silt layer (middle) = _____

Height of clay layer (top) = _____

9. Divide the height of each layer by the total soil height and multiply the result by 100. Note the results below.

(sand height/total height) x 100 = _____%

(silt height/total height) x 100 = _____%

(clay height/total height) x 100 = _____%

10. Find the attached soil texture triangle chart (see below). Start by finding the percentage of clay from your soil on the chart. Draw a line across the triangle at that level.
11. Look for the percentage of sand on the chart. Draw a line across the triangle at that level.
12. Repeat for the silt percentage.
13. Look for the intersection of your three lines. The colored area it falls in will be your soil’s texture type.

Texture type = _____

Soil Texture Triangle Chart

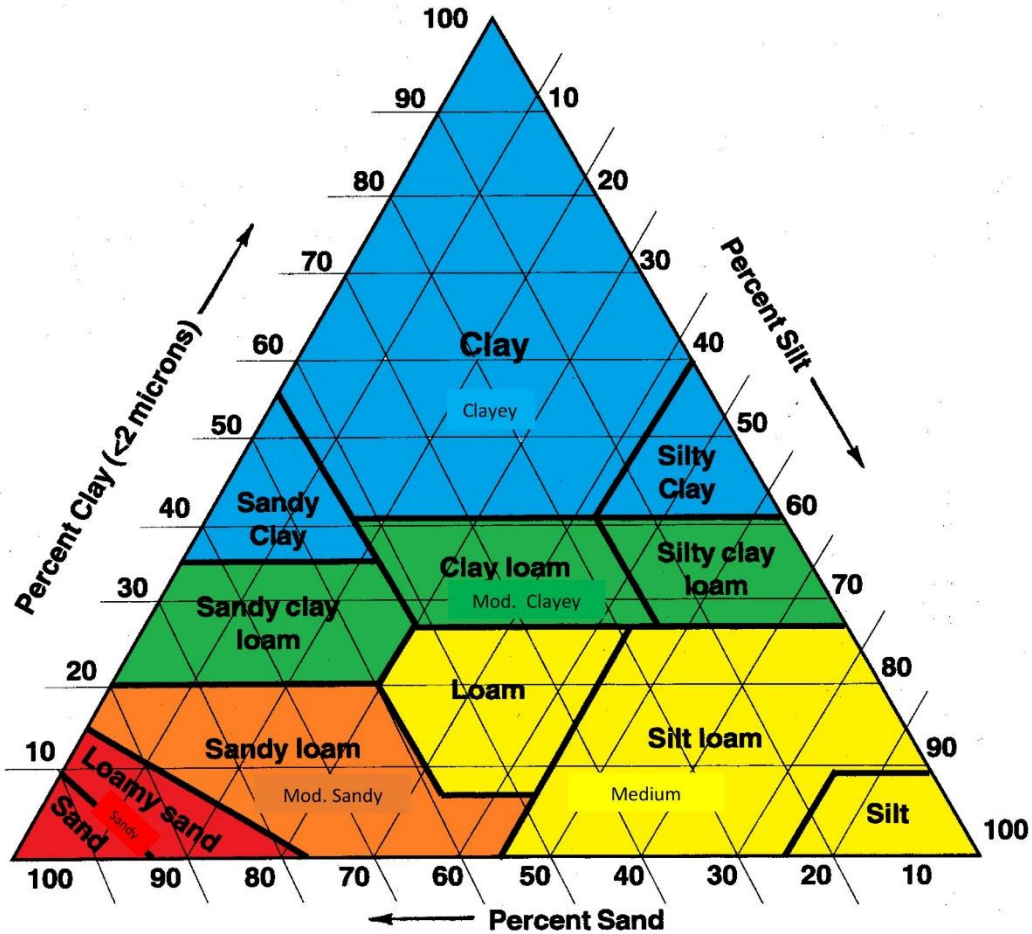


Figure 2 Soil Texture Triangle Chart showing the percentage of clay, silt, and sand.

Source: This activity has been adapted from Colorado State University Extension.