

Name: _____

SEDIMENTATION TEST OF SOIL TEXTURE

Purpose:

Measure the relative amounts of sand, silt and clay in a soil sample based on the fact that large, heavy particles will settle most rapidly in water; while small, light particles will settle most slowly. The laundry detergent is used to dissolve the soil aggregates and keep the individual soil particles separated.

Objective:

1. Determine and calculate the amount of sand, silt and clay in a given soil sample.
2. Determine the textural class by using a textural soil triangle.
3. Recognize the differences in soil textures.

Materials:

- ✓ Soil sample
- ✓ One-pint fruit jar with lid
- ✓ Distilled water
- ✓ Metric ruler
- ✓ Measuring cup
- ✓ Tablespoon

Procedure:

1. Place a 1/2 cup of soil sample in the jar. Add 1.5 cups of distilled water.
2. Cap the jar, and shake for 5 minutes. Leave the jar on the desk. Allow to settle for 24 hours.
3. After 24 hours, measure the depth of the settled soil using the metric system. All soil particles have settled. This is known as the TOTAL DEPTH. Record and label the total depth of soil.
4. Shake the jar for another 5 minutes. Allow it to stand 30 seconds. This enables the sand to settle. Measure the depth of the settled soil using the metric system, and record as SAND DEPTH.
5. Do not shake the jar again. Let it stand for another 30 minutes. Measure the depth by subtracting the sand depth to determine the SILT DEPTH. Record and label the data.
6. Shake the jar for another 5 minutes. After three hours, the remaining unsettled particles are clay. Calculate the CLAY DEPTH by subtracting the silt and sand depth from total depth.
7. **Note the thin Film of matter floating at the top of the soil-water solution. What is that? WAIT! Don't say what you think it is yet!!!!**

8. Now calculate the percentage of each soil texture using these formulas:

$$\% \text{ SAND} = \frac{\text{Sand Depth}}{\text{Total Depth}} \times 100$$

$$\% \text{ SILT} = \frac{\text{Silt Depth}}{\text{Total Depth}} \times 100$$

$$\% \text{ CLAY} = \frac{\text{Clay Depth}}{\text{Total Depth}} \times 100$$

Record data in box.

9. Locate the number that represents the percentage of sand in the soil sample along the bottom of the soil texture triangle. At each number, two lines enter the triangle; hold a ruler, pencil or finger along the left line.
10. Find the number that represents the percentage of silt in the soil along the right side of the texture triangle. Follow with a finger or a lay a ruler or pencil down on the diagonal line that emerges from the silt percentage number.
11. Find the point where the two lines intersect. Follow the line that emerges to the left of the intersection point back to the left side of the triangle, where it reaches the percentage of clay, and make sure that the percent clay on the chart is the same as the percentage calculated from the soil sample.
12. Read the textural class that the point of intersection falls into. For example, a soil sample that is 40 percent sand, 40 percent silt and 20 percent clay is a loam, whereas a sample that is 10 percent sand, 45 percent silt and 45 percent clay is a silty clay.

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13. Read more : http://www.ehow.com/how_5735575_read-soil-texture-triangle-chart.html

