

Soil texture labtivity

What is soil composed of? How can you separate its components to find out?

Soil is composed of particles that are categorized into groups according to their size, as shown in the table below. One method of classifying soils is to measure the relative amounts of sand, silt, and clay in a soil sample, then use a soil triangle to determine the soil type. In this lab, the textural classification of a soil sample will be determined by measuring the relative amounts of sand, silt, and clay particles, then using a soil triangle to determine the soil type. The comparative volumes of sand, silt, and clay will be determined since the different sized particles will settle out of the soil/water mixture at different rates.

Clay	< .002 mm
Silt	.002 mm – .06 mm
Sand	.06 mm – 2.0 mm
Gravel	> 2.0 mm

The lines that divide the sand, silt, and clay columns will be visible. Sand will be on the bottom, silt in the middle, and clay on the top. Using the graphic on the right, measure and record the volume of the sand column, the volume of the silt column, the volume of the clay column, and the total volume of soil in the cylinder:

Total volume: _____ ml

Calculate and record the percent sand, silt, and clay in the soil sample.

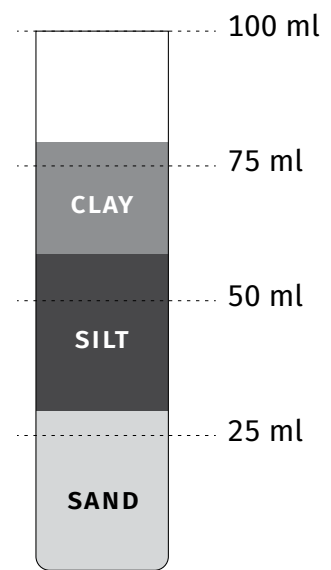
Sand: _____ ml

Silt: _____ ml

Clay: _____ ml

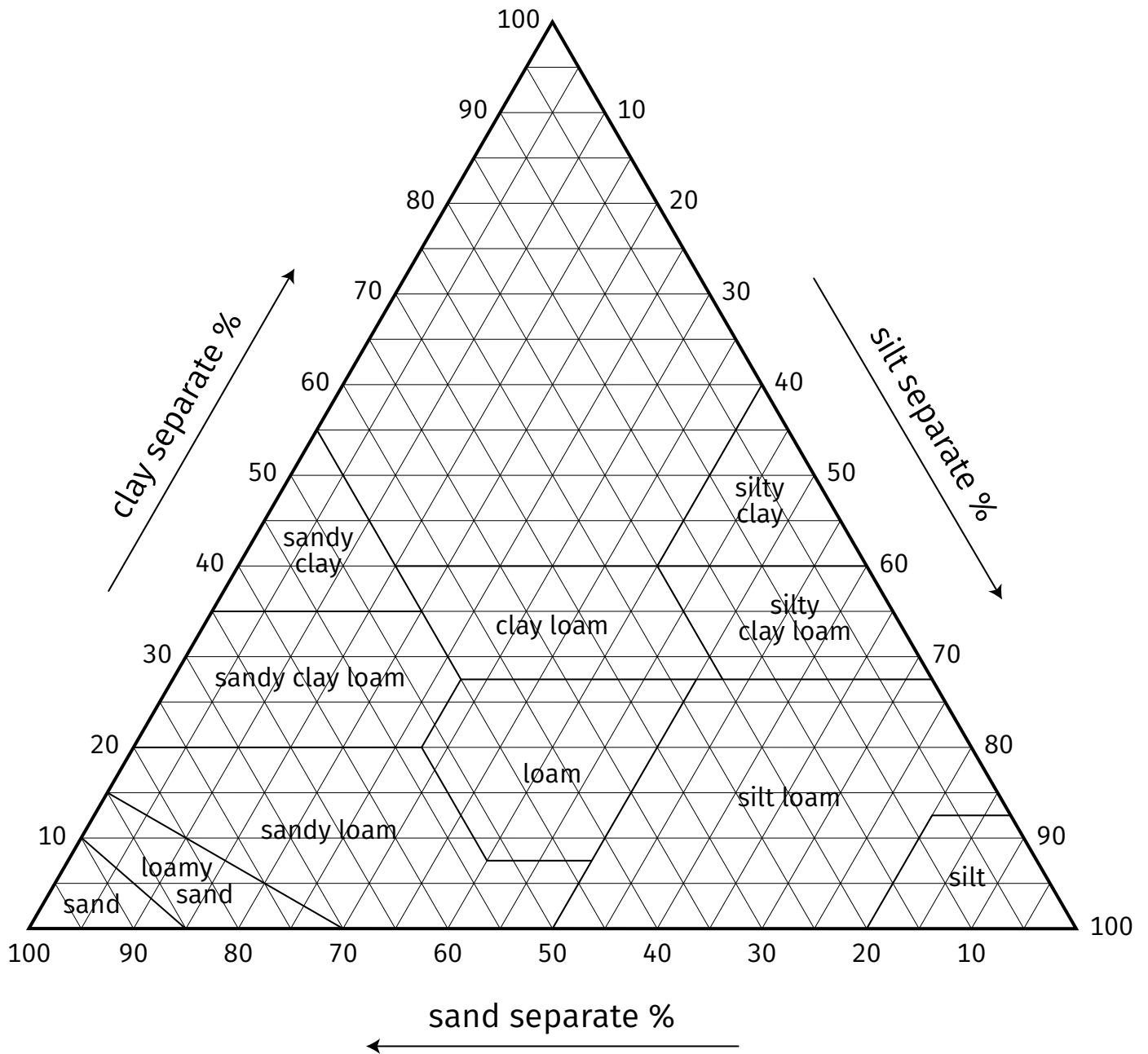
Use the soil textural triangle to determine the texture of the soil sample. See directions below.

Graduated cylinder



Procedure for use of the soil triangle

1. The soil triangle is used to determine textural classes of soil from the percentages of sand, silt, and clay in the soil.
2. To determine soil texture using the soil triangle, the lines from each side must be extended in the correct direction. Proceed as follows:
 - Clay: extend line horizontal from the percent clay (parallel with side labeled *sand*)
 - Silt: extend line downward from percent silt at 60° (parallel with side labeled *clay*)
 - Sand: extend line upward from percent sand at 120° (parallel with side labeled *silt*)



Soil triangle

For example, if a soil is 40% sand, 30% silt, and 30% clay, the texture is clay loam.