Soil Texture Triangle Activity

Using the soil texture triangle, scientists have created classes which break the distribution of particle sizes (soil textures) into 12 categories: clay, sandy clay, silty clay, sandy clay loam, clay loam, silty clay loam, sand, loamy sand, sandy loam, loam, silt loam, silt.

The soil texture triangle is one of the tools that soil scientists use to visualize and understand the meaning of soil texture names. The textural triangle is a diagram which shows how each of these 12 textures is classified based on the percent of sand, silt, and clay in each. Note: these percentages are based on the USDA definition of sand and silt only.

Follow these steps to determine the textural class name of your soil sample:
1) Determine the percent sand of your sample and find that number on the bottom of the triangle. Note that the numbers read from right to left, not left to right. For example, if your sample is 65% sand, then you need to pick a point to the LEFT of the 60 mark.
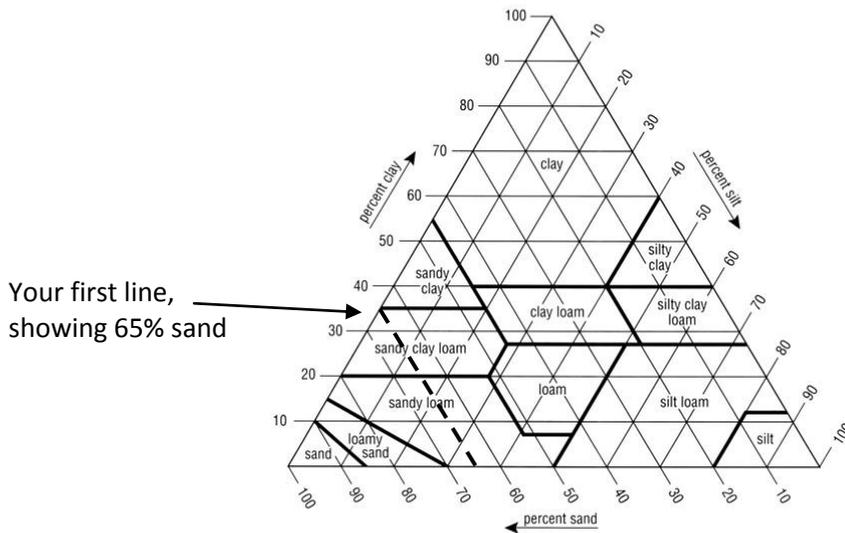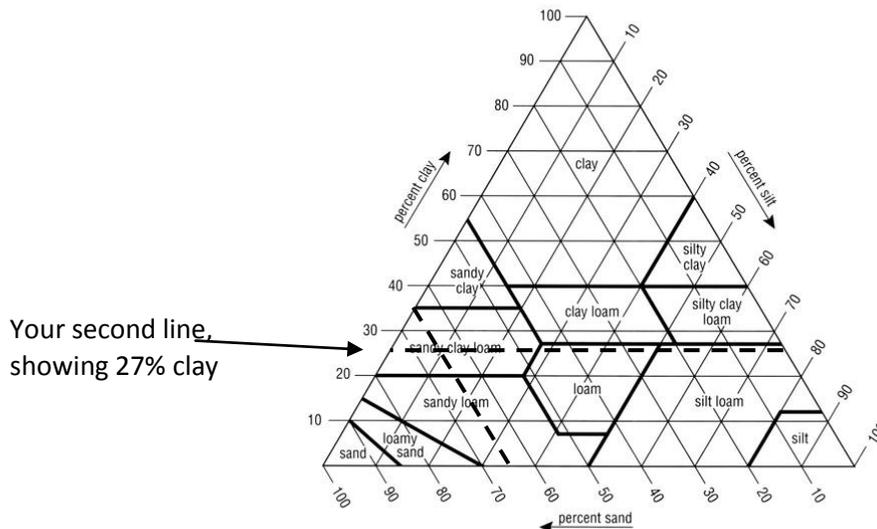

FIGURE 3-16

Your first line, showing 65% sand

Chart showing the percentages of clay, silt, and sand in the basic textural classes.

2) Draw another line to correspond to the percent clay. Let's say you had 27% clay.

FIGURE 3-16

Your second line, showing 27% clay

Chart showing the percentages of clay, silt, and sand in the basic textural classes.

3)

4) Where the lines intersect should also indicate percent silt. On the graph above, you can see that it is about 8% silt.
5) Wherever your lines intersect indicates the soil type you have. In this situation, with 65% sand, 27% clay, and 8% silt, it is sandy clay loam.

Soil Texture Practice

Part 1:
Use the following numbers to determine the soil texture name using the textural triangle. When a number is missing, fill in the blanks. Note: the sum of percents and, silt and clay should always add up to 100 percent.

	% Sand	% Silt	% Clay	Texture name	Properties
a.	75	10	15	Sandy loam	Water infiltration, aeration, workability
b.	10	83	7		
c.	42		37		
d.		52	27		
e.		35	50		
f.	30		21		
g.	5	70			
h.	55		40		
i.		45	10		

Part 2: Soil texture properties
Using the table below, determine the properties of each of the soil samples analyzed above.

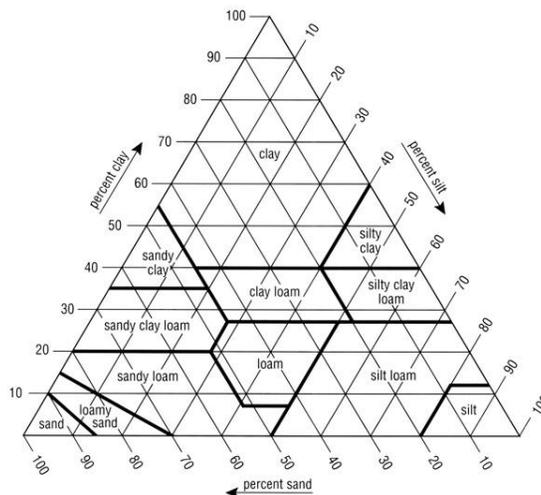| Soil texture	Nutrient-holding capacity	Water-infiltration capacity	Water-holding capacity	Aeration	Workability
Clay	Good	Poor	Good	Poor	Poor
Silt	Medium	Medium	Medium	Medium	Medium
Sand	Poor	Good	Poor	Good	Good
Loam	Medium	Medium	Medium	Medium	Medium

FIGURE 3-16

Chart showing the percentages of clay, silt, and sand in the basic textural classes.