Soil Texture

USDA-Natural Resources Conservation Service

Introduction:
The USDA classifies soils into twelve types which it calls soil textures. This classification is based on the relative percentages of sand, silt and clay. This can be visualized by the use of the USDA Soil Textures Triangle (see picture below). Soil texture may impact soil functions, including water and gas movement.

Materials:
- Shovel
- Mason jar or other leak-proof jar with a lid
- Dish soap
- Water
- Ruler
- Calculator

Method:
1. Collect 2 shovels full of soil to a depth of 0-6 or 0-12 inches in a large bucket at the desired location. Remove all large rocks and loose vegetative matter-twigs, etc. Mix up the remainder thoroughly.
2. Place 2-4 cups of this material into a jar (i.e. about 1/3 of the jar.
3. Add water to completely cover and fill the jar to about ¼ or 1/8 from the top.
4. Add 3-5 drops of a non-foaming detergent (dish soap).
5. Shake vigorously until the material has gone into solution.
6. Set jar aside and allow the material to settle into distinct layers, usually overnight
7. To determine the soil type or textural class, use a ruler to measure the depth of each layer – starting with sand at the bottom and clay at the top. Divide each depth by the total height of all three classes of particles (i.e. sand, silt, and clay) and multiply by 100 to get the percentages. Enter the percentage of sand and silt into the table below and click on 'Get Type' at this website:

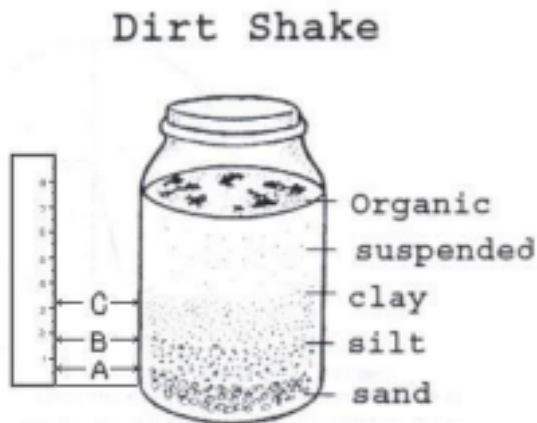http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/tools/?cid=nrcs142p2_054167

Dirt Shake

Figure 1:
Sediment Measurement

USDA classification:

Sand
Soil particles between 0.05 and 2.0 mm in size
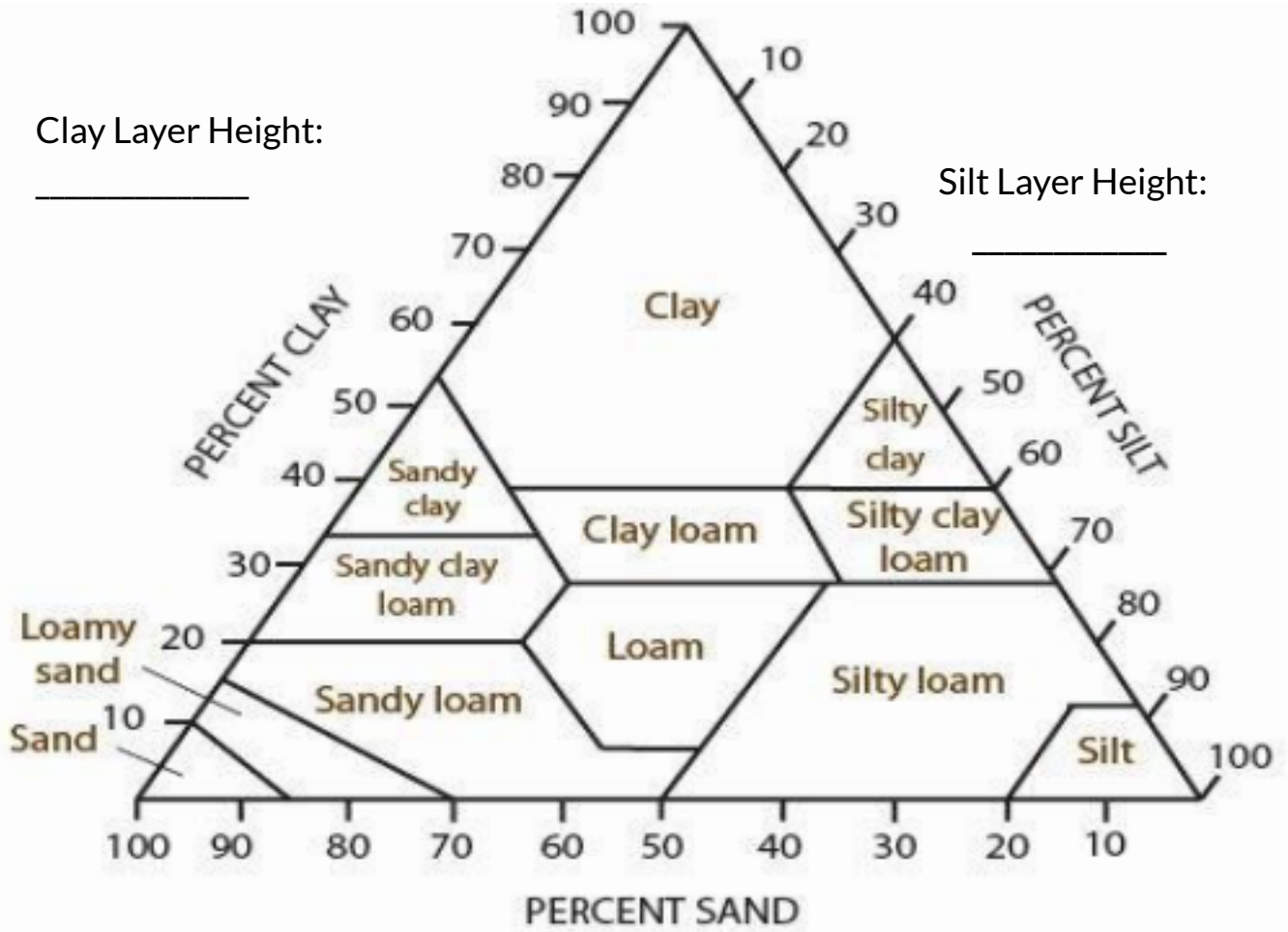Can be further divided into coarse, medium, and fine sand with a sieve test

Silt
Soil particles between 0.002 mm and 0.05 mm

Clay
Soil particles smaller than 0.002 mm (2 microns) in size

Clay Layer Height:

_____

Silt Layer Height:

_____

Sand Layer Height: _____

Total Soil Height: _____

Percent Sand [(Sand Height ÷ Total Height) x 100]:

_____

Percent Silt [(Silt Height ÷ Total Height) x 100]:

_____

Percent Clay [(Clay Height ÷ Total Height) x 100]:

_____

Soil Texture: _____