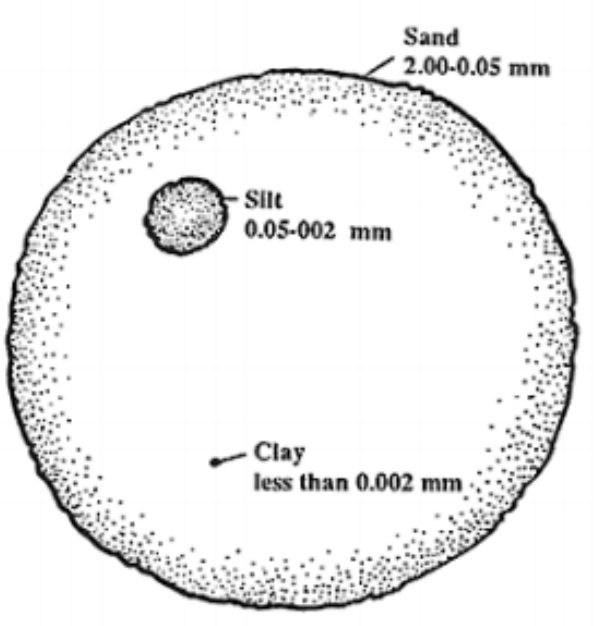
APPENDIX B: DETERMINING SOIL TEXTURE

Texture is an important characteristic of soil. It determines the surface area of soil, which in turn governs its nutrient and water holding capacity. Among other factors, nutrient and water availability in the soil determines what plants will thrive. For more information, watch this video on the Applications of Soils. Soil texture is also important for determining the size of void spaces in the soil, which can tell us how water moves through it and the risk of compaction or erosion.

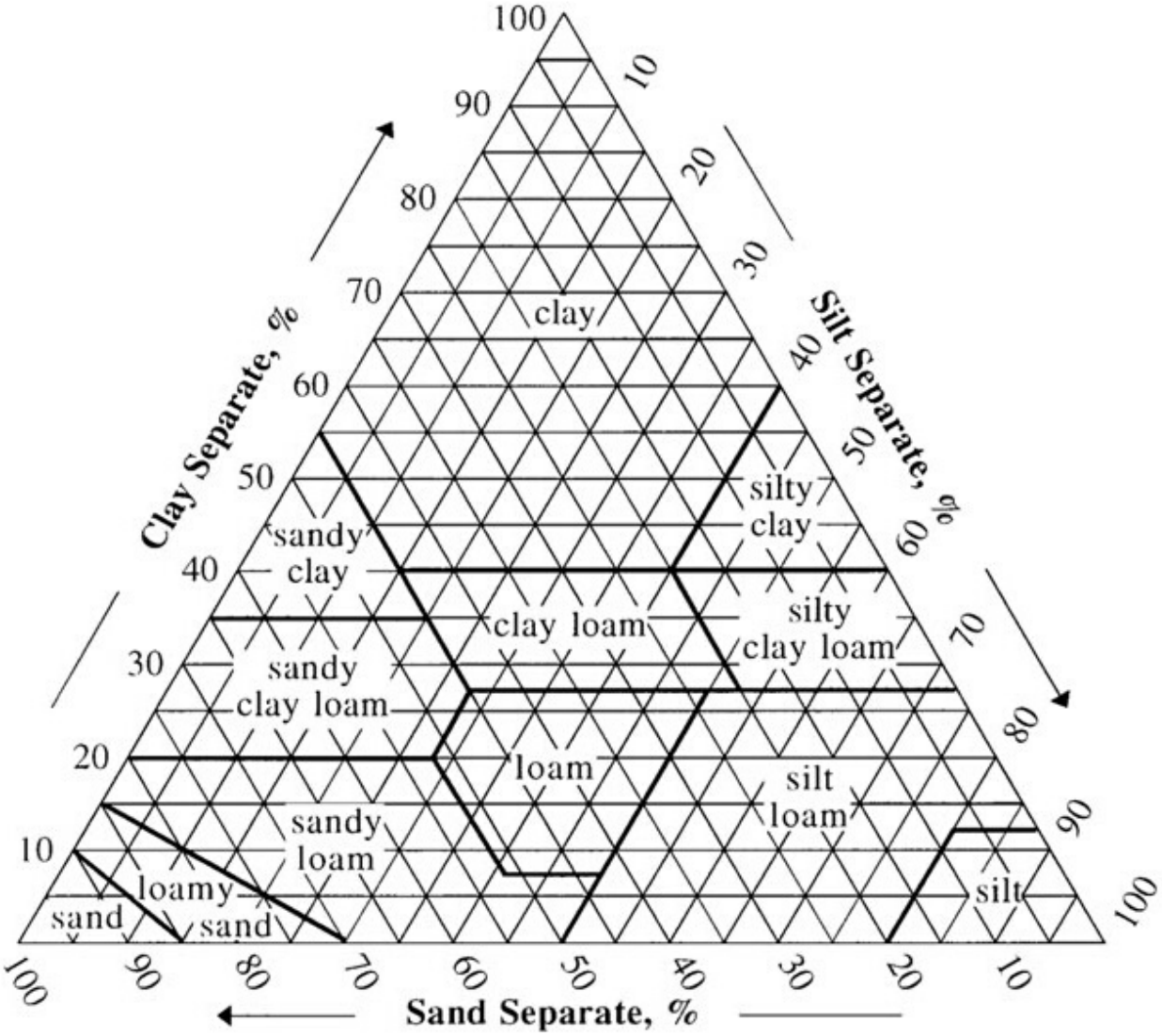
Mineral soils are composed of soil particles that differ in size. Anything smaller than 2 mm in diameter can be classified as a soil particle. Larger particles are considered coarse fragments. There are three soil particle size classes: sand, silt, and clay.

The texture of a soil is determined by the relative proportion of each of the three particle sizes that are found in a soil sample. Soils that are dominated by clays are termed fine-textured soils while those dominated by sands are referred to as coarse-textured soils. Texture is a basic property of soil; it is not easily subject to change.

A soil texture triangle (see next page) is used to visually display the different soil textural classes by the percentage of sand, silt, and clay. The different sides of the triangle represent the percentage of each soil particle size present in a sample of soil. The intersection of the three sizes inside the triangle represents the texture class.



The relative size of sand, silt, and clay.
Outside Pride (2015). What is Soil?



In this activity, you will use a technique called hand texturing to determine the textural class of a soil sample. Check out this handy tutorial from the Ontario Envirothon Virtual Lab to follow along at home.

Materials:

- Dried soil, either from a potted plant or lawn. This soil should be as dry as possible.
- A mixing bowl/container
- A cup of water
- A spoon

Process:

1. Collect a small sample of soil in your hand.
2. Discard any rocks, roots, or other debris in your sample
3. Spray your sample with water and gently massage it into the soil
4. Follow the steps in the soil texture key on the following page to determine the textural class of your soil sample.

(Source: Modified from S.J. Thien. 1979. A flow diagram for teaching texture by feel analysis. Journal of Agronomic Education. 8:54-55)