CASE

Curriculum for Agricultural Science Education

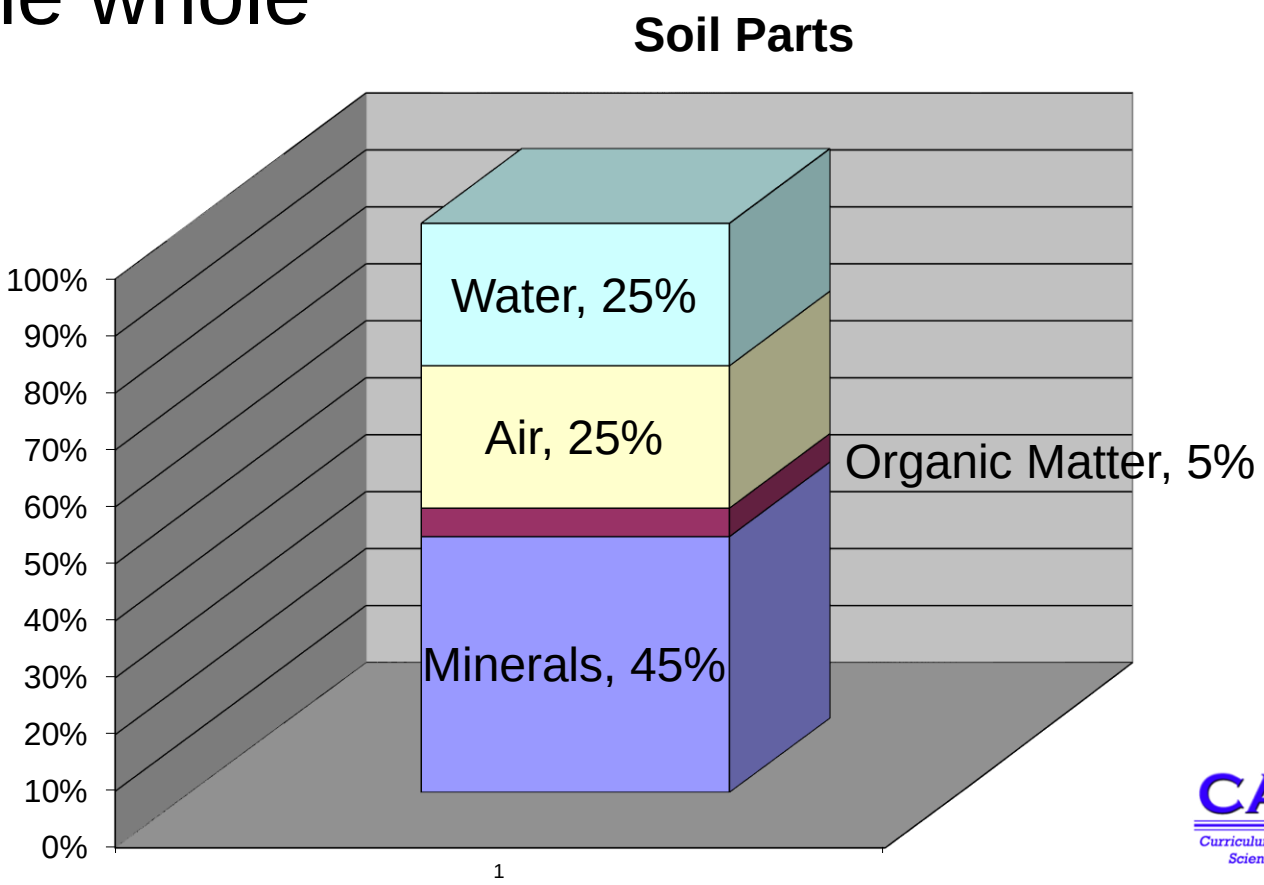
Principles of Agricultural Science – Plant

The Size of the Matter

Unit 2 – Mineral Soils
Lesson 2.1 Understanding Soil Properties

The Components

Soils have four main components that make up the whole



Soil Mineral Particles

Sand **Silt** **Clay**

Sand

- .05 – 2 mm
- Round shape
- Feels gritty

Attributes to Soil

- Adds porosity
- Reduces water holding capacity

Silt

- .002 - .05 mm
- Round shape – but very small to detect
- Feel smooth but does not stick together very well

Attributes to Soil

- Moderately good for porosity
- Helps water holding capacity

Clay

- Less than .002 mm
- Flat or platy
- Sticky when wet – ribbon test

- Bad for porosity
- Ties up water so plants can’t use it

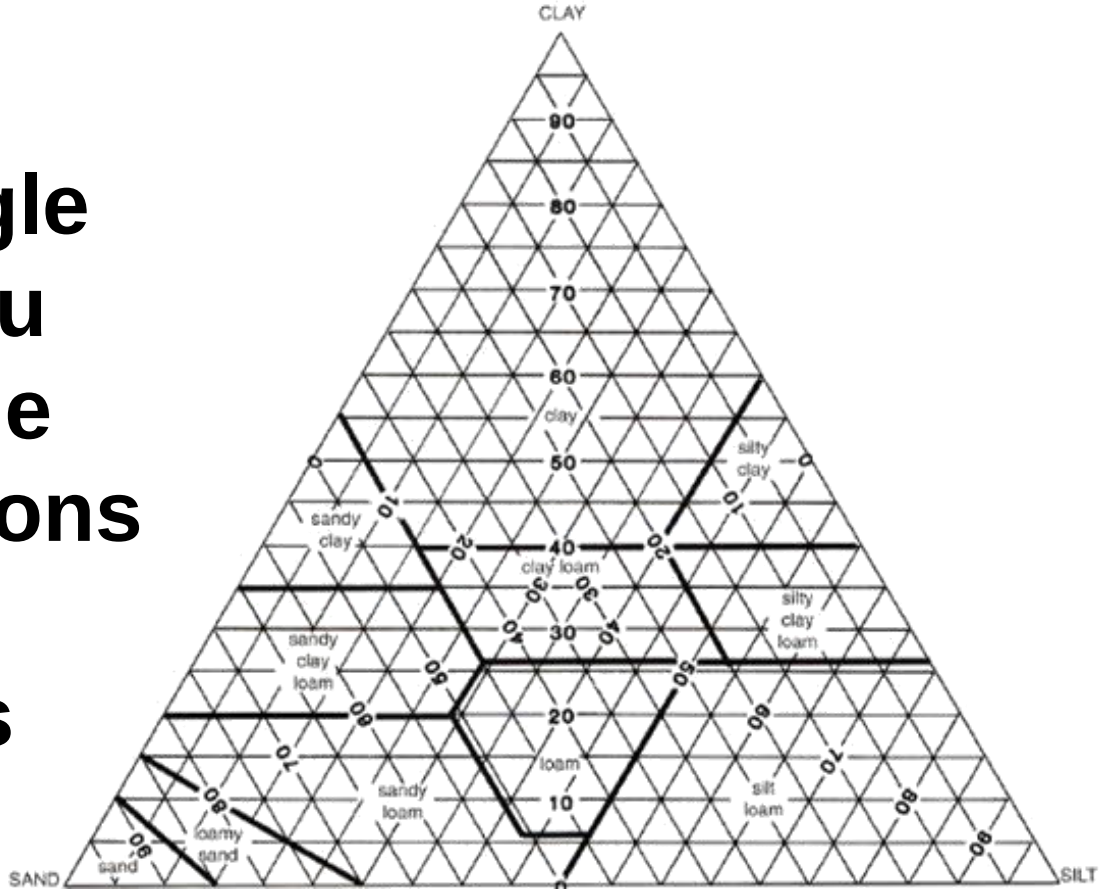
Testing for Particles

- A simple field test allows you to determine if the three particles are present.

- If you detect clay, you can perform a ribbon test to determine the approximate amount of clay in the soil sample.

The Textural Triangle

The triangle helps you determine classifications for soil textures



Huddleston & Kling, 1996

Loams

A soil that is a mixture of sand, silt, and clay is called “Loam.”

Loam soils are optimal soils for growing plants.

References

Huddleston, J. H., & Kling, G. F. (1996). *Manual for judging Oregon soils*. Corvallis, OR: Oregon State University.

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Plaster, E. J. (2003). *Soil science & management* (4th ed.). Clifton Park, NY: Delmar.