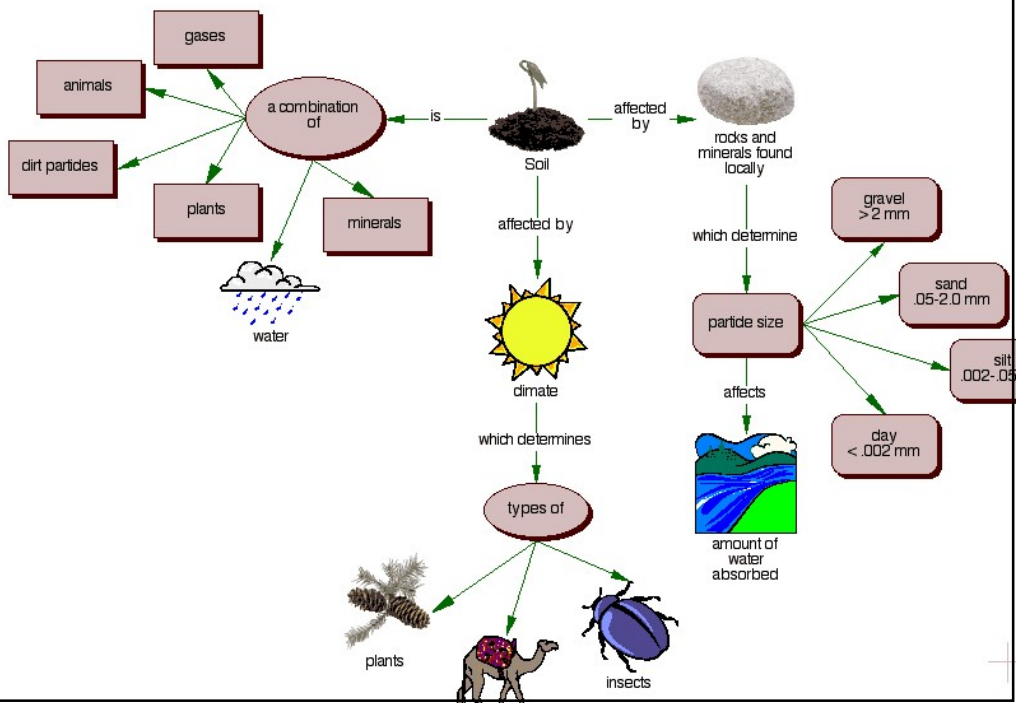
Title Notes: Soil Properties

- Copy all the notes in your notebook.
- Please do NOT take the notes out of the classroom.
- Hmk: Look over both sets of notes. Formative quiz tomorrow. I will put the notes on the website so if you don't finish, complete them for homework.
- I'm in the media center for a planning day. Hope y'all had a great weekend.

Soil Nutrients - The Big 13

- Come from the soil, are dissolved in water and absorbed through a plant's roots.
- There are not always enough of these nutrients in the soil for a plant to grow healthy.
- This is why many farmers and gardeners use fertilizers to add the nutrients to the soil.

Draw this in your notes



Macronutrients: Primary Nutrients

- Plants need large amounts
- Nitrogen (N)
- Phosphorus
- Potassium (K)
- Usually the first missing from the soil

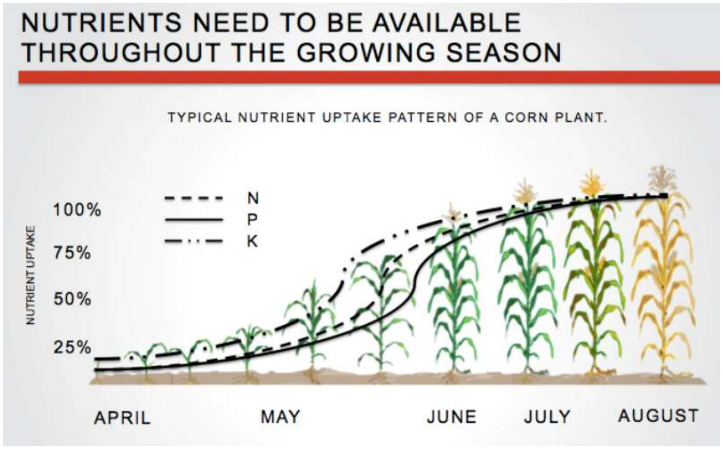
Macronutrients: Secondary Nutrients

- Calcium (Ca)
- Magnesium (Mg)
- Sulfur (S)
- There are usually enough of these nutrients in the soil so fertilization is not always needed.
  - Large amounts of Ca and Mg are added when lime is applied to soils.
  - In agricultural soils the calcium cation flocculates clay and organic matter particles which results in proper soil porosity. Proper soil porosity insures adequate soil aeration which guarantees proper soil drainage and allows correct root growth. (KNOW THIS)

Micronutrients

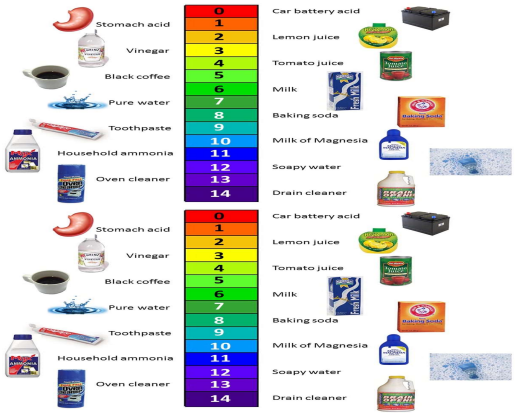
- Essential for growth but only in small amounts.
  - Boron (B)
  - copper (Cu)
  - iron (Fe),
  - chloride (Cl),
  - manganese (Mn),
  - molybdenum (Mo)
  - zinc (Zn).

Draw this in your notes!



Soil pH is a factor

- Soil pH (a measure of the acidity or alkalinity of the soil)
  - Macronutrients tend to be less available in soils with low pH (more acidic).
  - Micronutrients tend to be less available in soils with high pH (more basic).

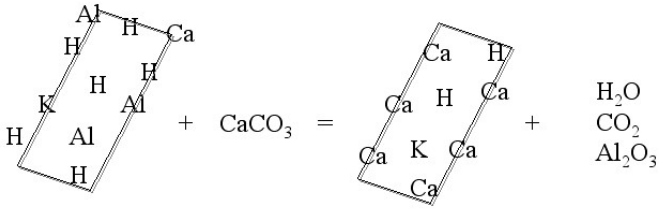


The pH can be changed

- Lime is crushed limestone and can be added to the soil to make it less acidic and also supplies calcium and magnesium for plants to use.

Figure 1. How lime neutralizes acidic soil

Acidic soil + Lime = Neutral Clay + Water + Carbon Dioxide + Aluminum Oxide



The pH can be changed

- Soil acidity can be <u>increased</u> by adding many different supplements or simply laying down pine straw.