Agenda 8/26

- Warm up & Intro Ms. Funk
- PPT: ATM & Soils
- Quiz
- Greenhouse & gardens when meet?
- Bring soil, sand, gravel, shoe boxes, hoola hoops, spoons, 2 – liter bottles

Percent Change

Percent change can be defined as the amount of change over time based on a starting point. The following formula can be used.

Percent change is looking at V = Value; T = Time

$$\frac{V2 - V1}{V1} \times 100 =$$

$$\frac{\text{Whole} - \text{part}}{\text{Original}} \times 100 =$$

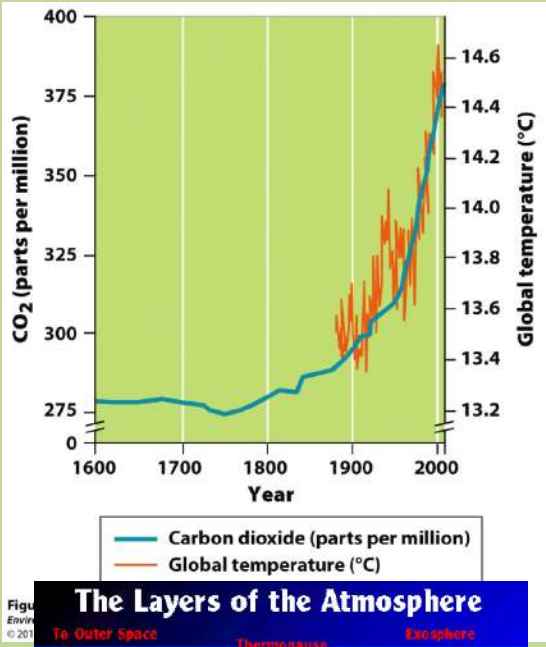
Doubling Time / Rule of 70

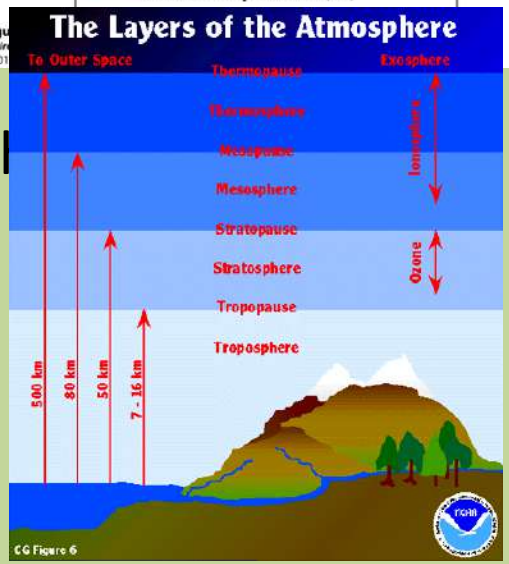
70/rate = years

Atmosphere & Soils 8/26

Obj. TSW review how to do math problems involving Env. Sci, take notes on Atm. & Soils ppt, then do well on the quiz. P. 12NB

1. Since the Industrial Revolution CO_2 has increase from 280 ppm to 380 ppm. What is the percent change?
2. Parts of an old growth forest were cleared, in vacant groves, seedlings were planted. If the seedlings double in size every fourteen years, what % growth can the Forest service expect to see each year?
3. List the Regions of the Earth's atmosphere. Whic region does global warming to occur?





Layers of the Atmosphere

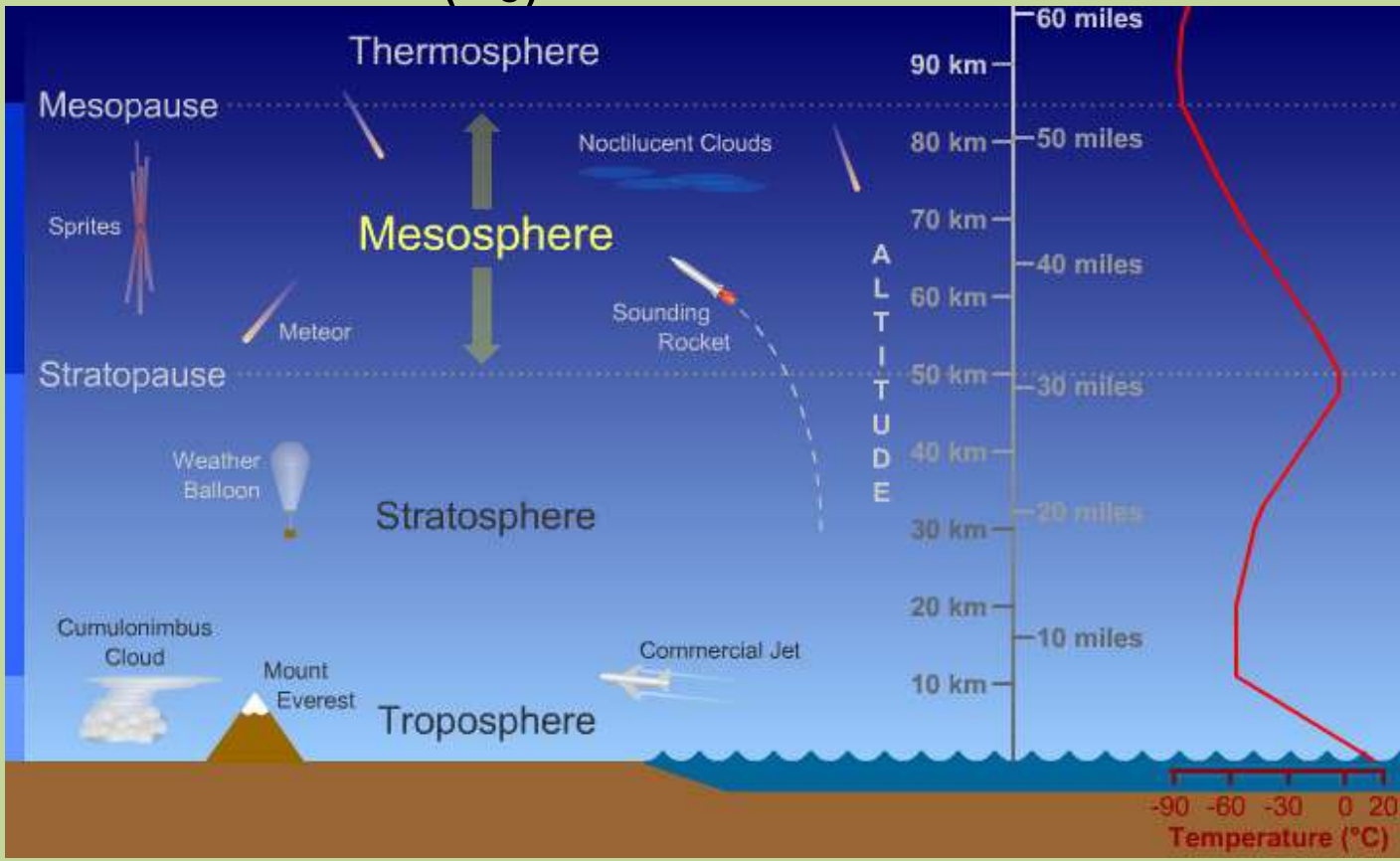
- Exosphere in the highest & is above the thermosphere.
- Stratosphere & Thermosphere increase in temperature.
- Trophosphere is lowest & where global warming occurs & where the most oxygen is found.
- Stratosphere is where the Ozone (O_3) is.
- Composition

of the Atm:

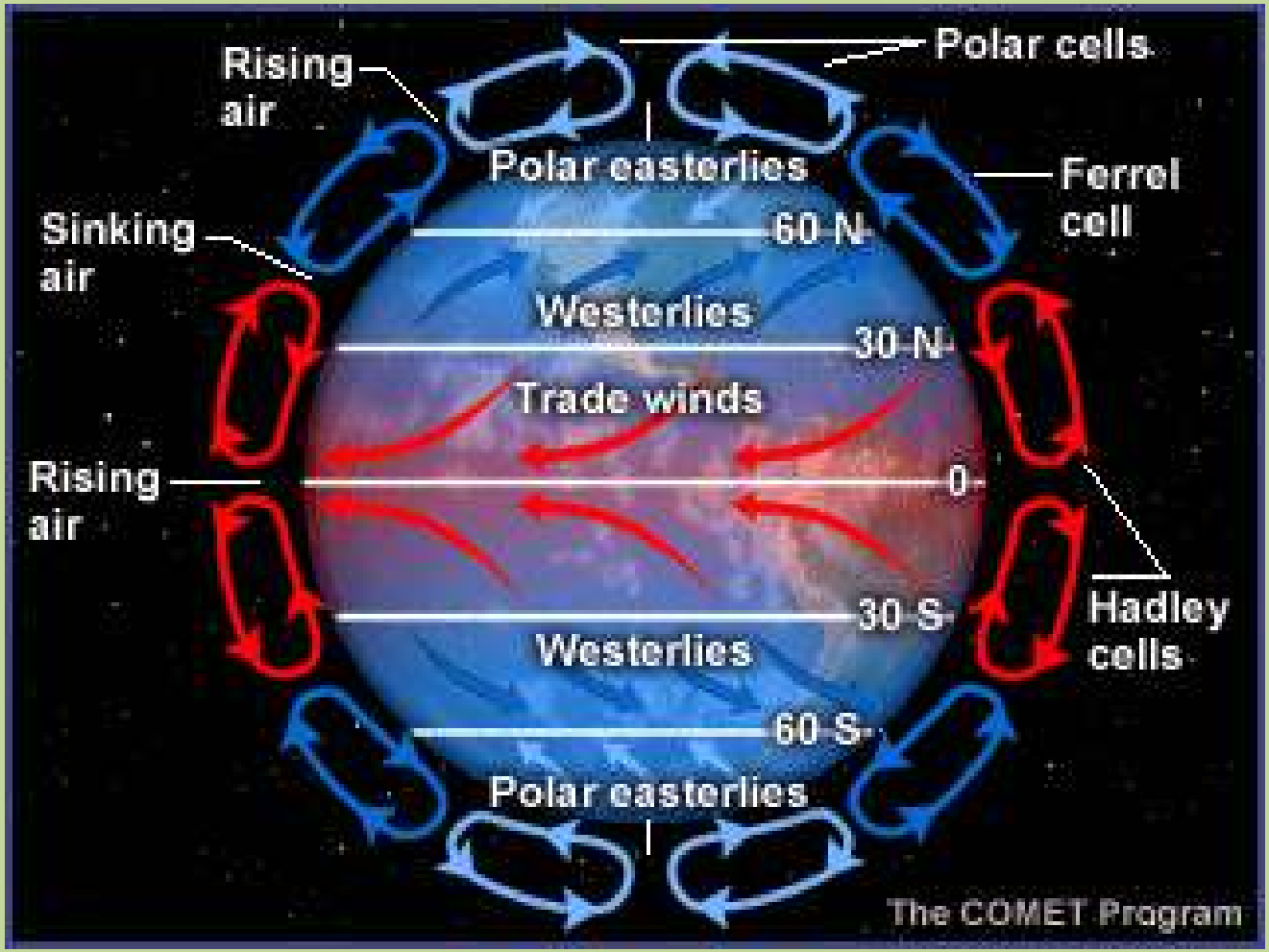
21% O_2

78% N_2

1% CO_2



Atmosphere Circulation

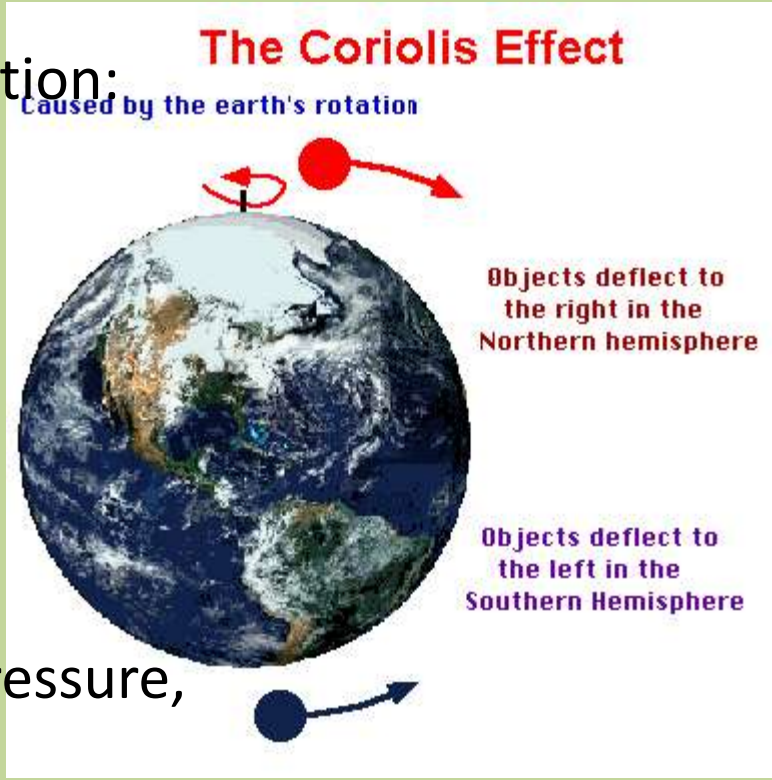


Coriolis Effect & Global Air Circulation

- Effects wind patterns and air currents.
- Three important properties of Air Circulation:
  - Cold air sinks, due to its density
  - Warm air rises, it expands & cools
  - Warm air can hold more water vapor
    - When it cools the vapor phase changes

    To liquid water in the form of rain,

    snow, or fog.
- Air moves from high pressure to low pressure, WIND.



Weather & Climate

- Factors that determine climate: latitude (distance from the equator), global air circulation patterns oceanic circulation patterns, topography, solar activity & volcanic activity ($SO_2 + H_2O$ + dust = ↓Temp.). Equator 0° Latitude, North Pole 90° North, South Pole 90° South
- Low latitudes receive more solar energy
- High latitudes receive the least and have the greatest fluctuation in solar energy with respect to temperature.

Composition of Soils

- Soils are generally classified according to the percentage of SAND, SILT, and CLAY is in the sample.
- SAND is generally classified as particles that range from 1/16 to 2 mm in size
- SILT is generally classified as particles that range from 1/256 to1/16 mm in size
- CLAY is generally classified as particles that are smaller than 1/256 mm in size

Types of Soils

- Soils are named by their composition. Some are easy:
- Silty Clay…
- Sandy Clay…
- Loam: Soil that is composed of a relatively even conc. of sand, silt, and clay, usually about 40-40-20%.

The Soil Triangle

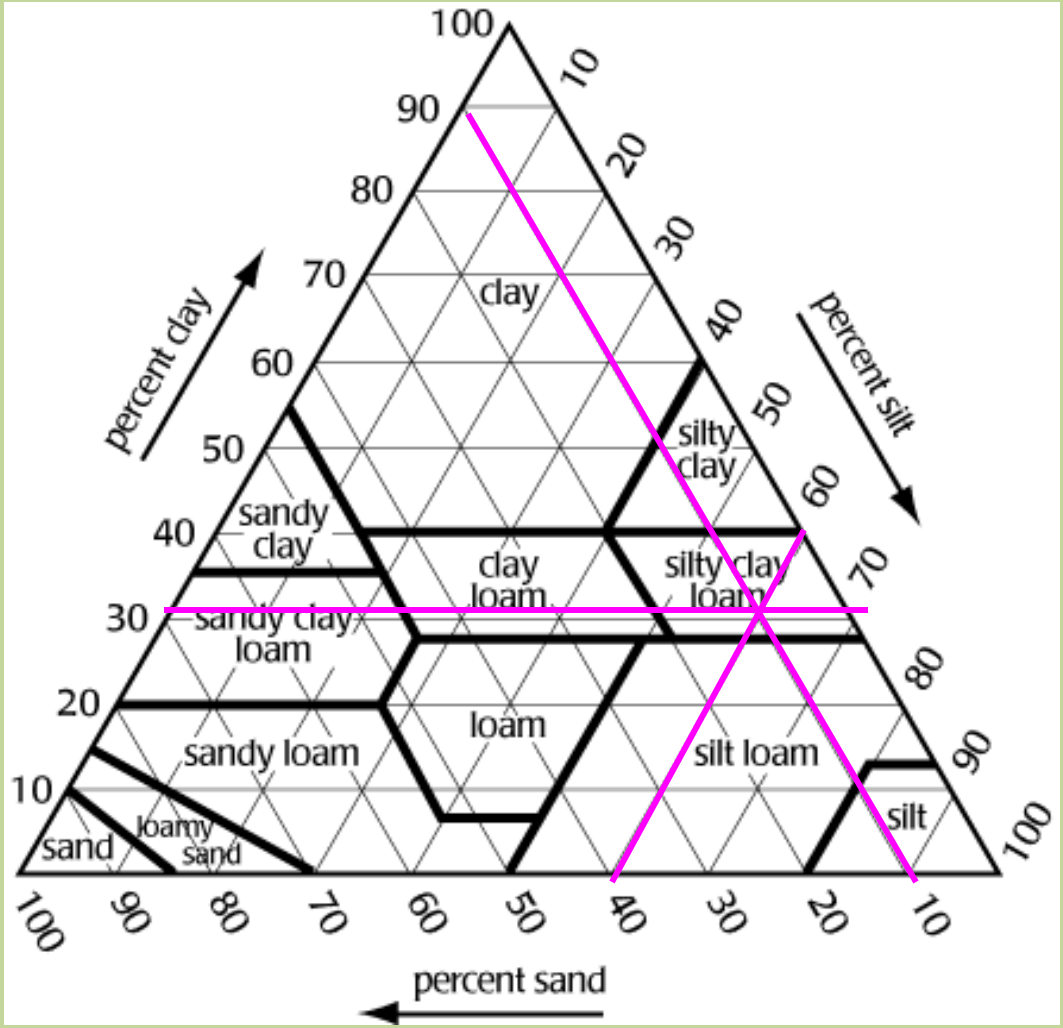
- Use Soil Triangle to triangulate and pinpoint type of soil based on the (separated) sand, silt, and clay %.
- Determine first the clay percent
- Then the silt…
- Then the sand

The Soil Triangle

OK, let's try it:

Determine the type of soil if it has 30% clay
60% silt
and 10% sand

Silty Clay Loam

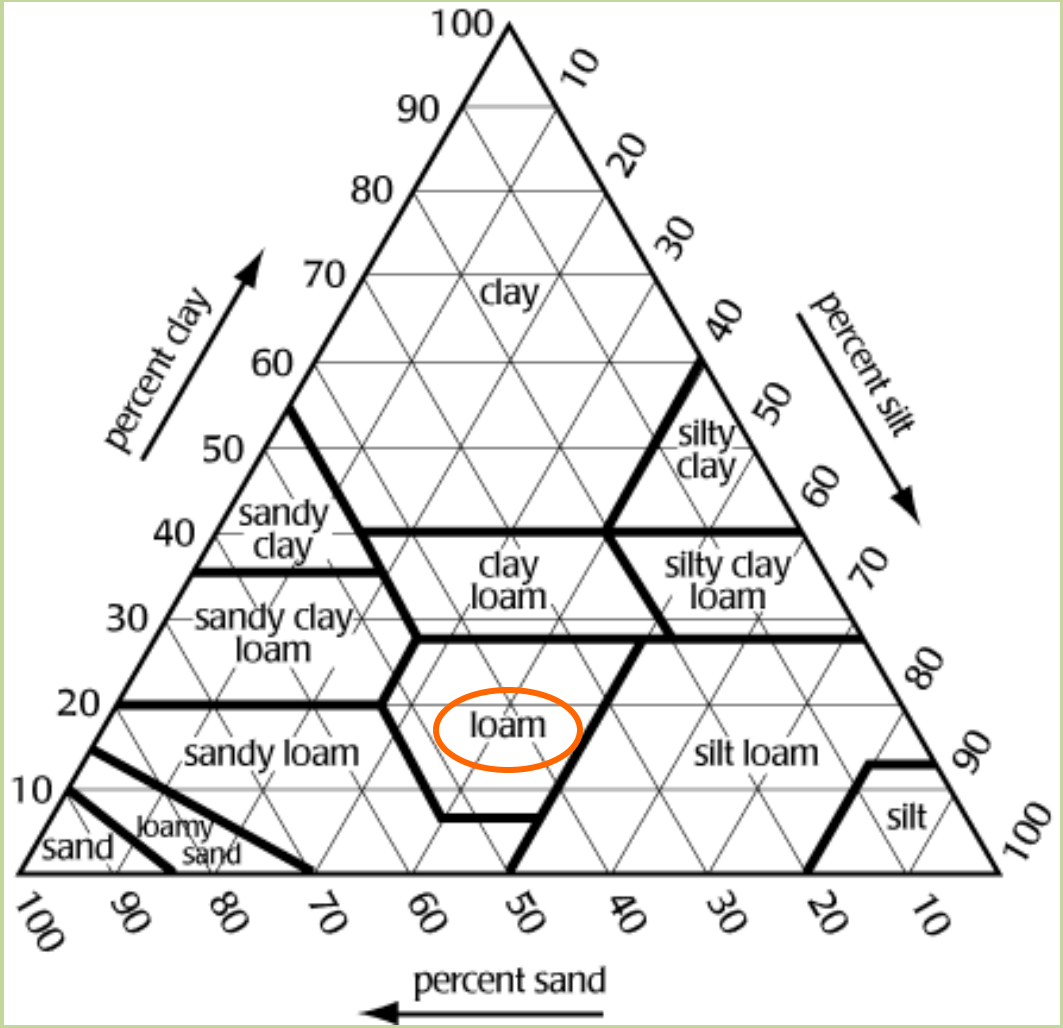


The Soil Triangle

OK, you try it:

Determine the type of soil if it has 25% clay, 35% silt, and 40% sand.

What is it?



ENSO

El Niño –Southern Oscillation

- Conditions where the water near the equator in the Pacific Ocean are warmer than normal
- Increased rainfall in the southern US.
- La Niña is the colder phase along the equator of the Pacific Ocean, with less rainfall.