Geology 12
Unit 0 – Introduction
Day 3 – Intro to Geology

Name: _____

Date: _____

Block: _____

What is Geology?

soil erosion wind weathering water oceans glaciers underground surface sedimentary fossils earths histroy rocks volcanoes igneous metamorphic earths interior plate tectonics intrusions earthquakes mineral resources mining mountains other planets

Geology as it fits into the other sciences:

- **Physics:** geophysics seismology
- **Biology:** paleontology
- **Chemistry:** mineralogy petrology geochemistry
- **Astronomy:** planetray geology helioseismology
- **Geology:** economic geology hydroloy engineering geology mineing engineer historical geology geomorphology oceanography structural geology volcanology

What Geologists do:

- Locate Geologic Resources
- Geologic Hazard Mitigation
  -Geological and Mining Engineering
  -Site Study
  -Land-Use Planning
- Environmental Protection
  -Environmental Impact
  -Ground Water and Waste Management
- Research

Unique aspects of Geology:

- Importance of Relationships
  -Sequential
  -Spatial
- Importance of Time
- Distinctive Problems of Evidence
  -Slow Rates
  -Rare Events
  -Destruction of Evidence
  -Inaccessibility

The speed of Geology:

Cutting of Grand Canyon 2 km/3 m.y. = 1 cm/15 yr

Uplift of average Mountain 8 km/150 m.y. = 1 cm/190 yr.

Uplift of Alps 5 km/10 m.y. = 1 cm/20 yr.

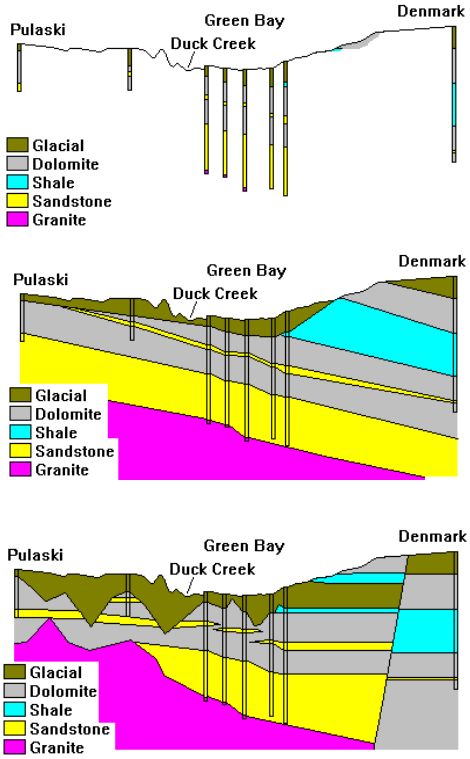
Movement of San Andreas Fault 5 cm/yr = 7 m/140 yr.

Opening of Atlantic 5000 km/180 m.y. = 2.8 cm/yr.

Growth of Mt. St. Helens 3 km/30,000 yr = 10 cm/yr.

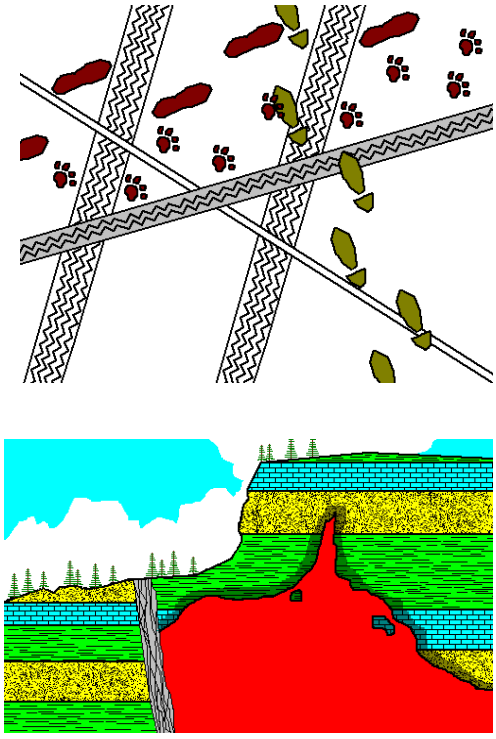
Scientific Principals in Geology:

Law of Parsimony



The simplest explanation that fits all the data is preferred
Doesn't guarantee that t hings must be simple!

Superposition



layers of rock are superimposed, or laid down one on top of another. The oldest rock strata will be on the bottom and the youngest at the top.

Uniformitarianism

the idea that Earth has always changed in uniform ways and that the present is the key to the past

Out to the farthest stars, everything seems to obey the same laws of nature
We find nothing in the rocks to suggest t he laws of nature were different in the past