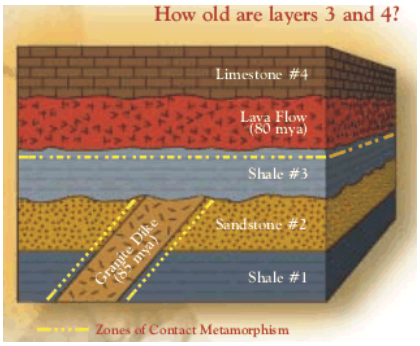
Earth Science 11

Name: _____
Date: _____

GEOLOGIC TIME UNIT - Notes 1

***Question**: How do we tell time?*

A. ORGANIZING TIME IN GEOLOGY



•Each layer represents rocks laid down at a

_____ _____.

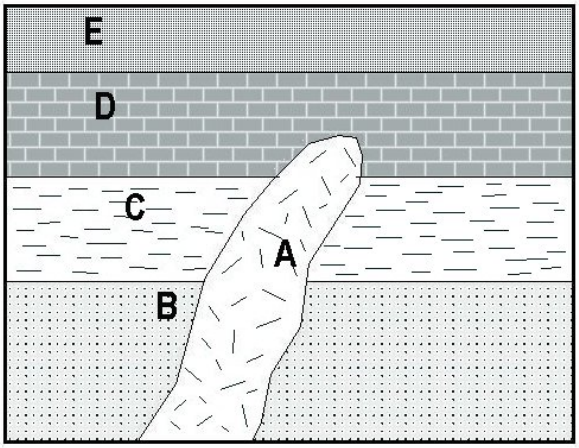
•Which rocks are the oldest? Youngest?

Geologic LAW	*Description*	*Diagram*
Superposition		
Original Horizontality		
Cross-Cutting Relationships		
Unconformity		

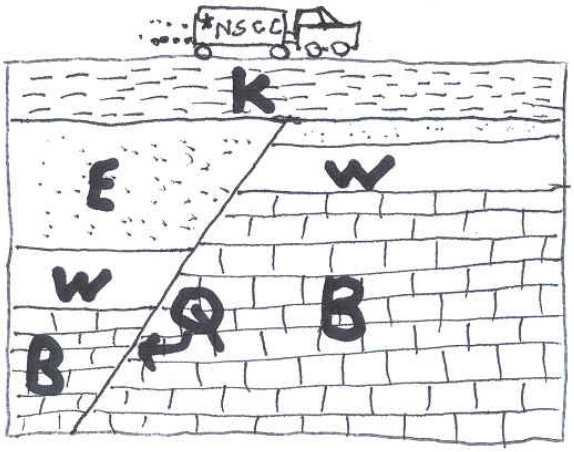
- These laws are used when describing _____ _____.
    - Definition: _____

<u>Examples</u> - use absolute dating to order the rock layers from OLDEST to YOUNGEST:

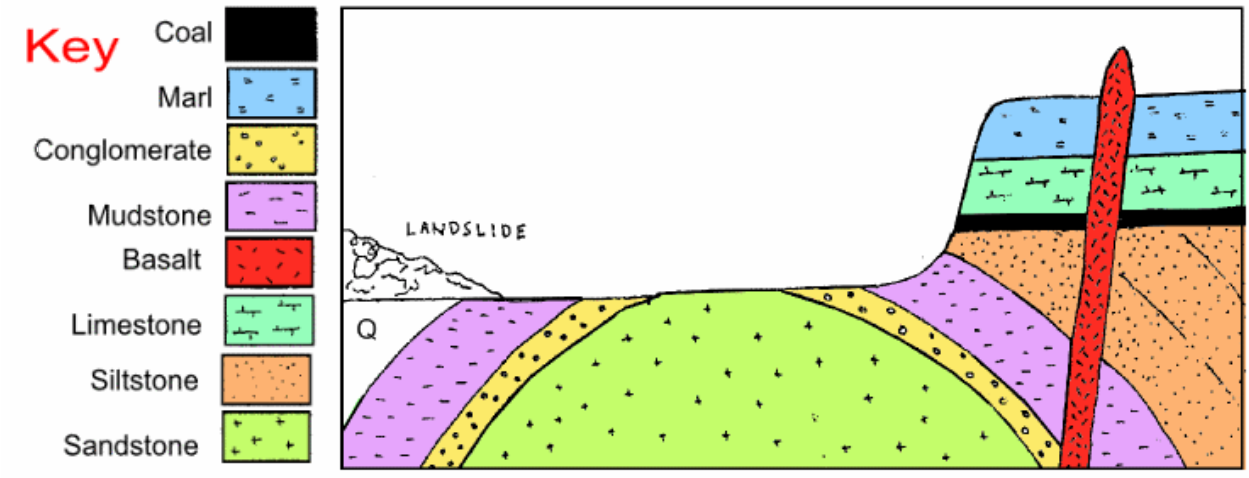
Example 1:



Example 2:



Example 3:



B. **ABSOLUTE DATING**

Definition: _____

Techniques to find exact dates:

1. Radioactive decay

- Isotopes break down over time at a _____ rate.
- The "clock" starts when igneous rock crystallizes out of _____.
- **Draw the decay of Uranium 238 isotope:**

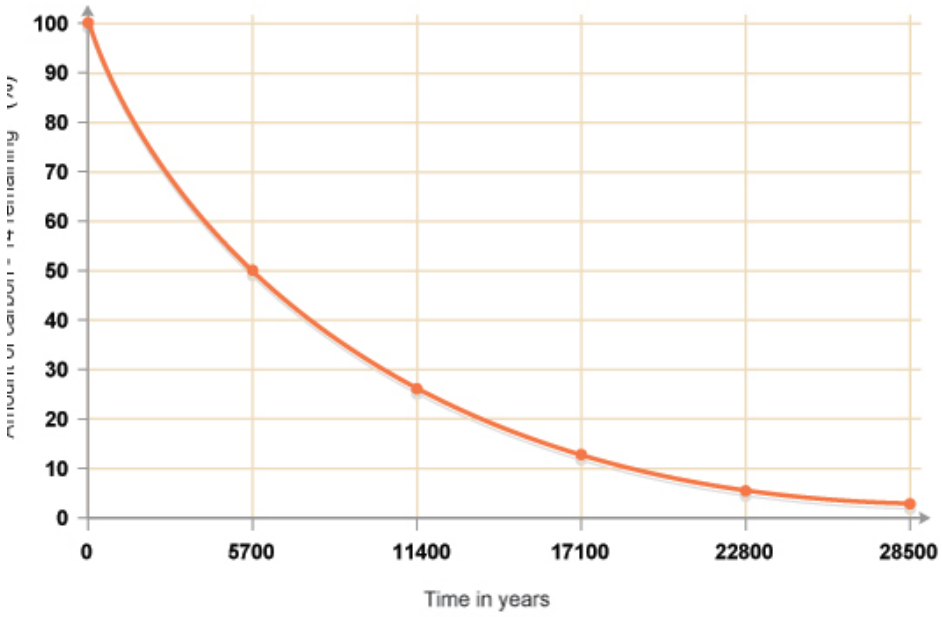
Parent _____ *Daughter* _____

Half-Life Decay Graph

Draw a graph showing the decay of parent isotopes into the more stable daughter products:

<u>Questions</u>:

Carbon Dating Graph



1. What is the half-life of carbon-14?

_____

2. How old is the sample if there is 25% of the parent carbon-14 left in it?

_____

3. How old is the sample if there is 95% of the daughter isotope left?

_____

Other Examples of Radioactive Decay:

	Parent/Daughter isotopes.	*Half-Life.*
Carbon-Nitrogen		
Potassium-Argon		
Rubidium-Strontium		
Uranium-Lead		
Uranium-Lead		

Other Methods of Absolute Dating:

- Tree rings - Dendrochronology = _____
- Valves = _____
- Ice Cores = _____es

C. **FOSSILS**

- Fossils are _____ _____ of once-living organisms.

_____ in a _____ over _____ = EVOLUTION.

- Evolution is seen in the diverse _____ _____.

Types of Fossilization:

Type of Fossilization	Description	Drawing
	Actual, unchanged remains of plants or animals are preserved, in amber of permafrost.	
	Soft parts disappear, while hard parts are replaced by minerals in seeping groundwater.	
	Minerals that make the actual hard parts of the remains change and recrystalize, filling gaps.	
	Molds - an imprint of the remains in rock. Cast - when new material fill the mold and hardens into a cast.	
	Evidence of life other than actual remains. Eg. Footprints, tracks, burrows and coprolites.	