

III. GEOLOGIC STRATA.

Wherever we dig underground, the type of rock that we find changes with depth. The Grand Canyon is a good example of this, but any hill or mountain that has been cut through for a roadway shows different layers of rock. To analyze these layers, geologists construct cross-sections that record how the rock varies.

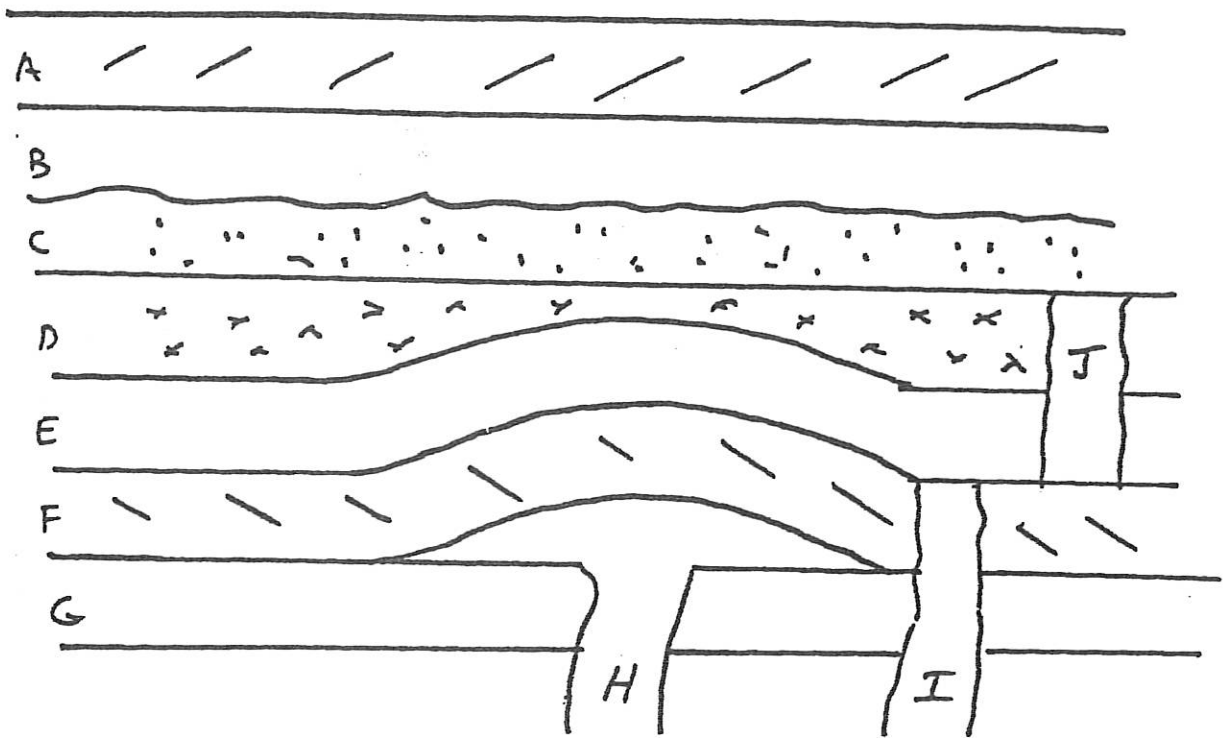
Principles used in the interpretation of a geologic cross section:

1. The principle of uniformity: The earth has changed in the past by the same processes by which it is changing now, such as crustal movement, erosion, and deposition.
2. Principle of original horizontality: In oceans and lakes, the large scale deposition of sediments that form into sedimentary rocks are originally deposited in horizontal layers. Sedimentary rocks that are not horizontal have been subjected to forces that have deformed them.
3. Principle of superposition: In an undisturbed sequence of sedimentary rock layers, the layers are arranged in chronological order with the oldest layers at the bottom.
4. Principle of crosscutting relations: Any geological feature that cuts across or intrudes into a rock mass must be younger than the rock mass.
5. Unconformity: An unconformity is a break in the rock record where part of a rock layer or several layers have been eroded away before new rocks were laid down.
6. Principle of faunal succession: Faunal succession recognizes that life forms have changed through time. Certain index fossils lived for only a brief period of time and were widely distributed on the earth, thus should occur only in rock of the same age — even if the rocks are very different in composition.
7. Age correlation: Age correlation is the process of determining rocks of the same age from studying the fossils they contain.

The following two pages will give you some practice in applying these principles.

Data Sheet:
Interpretation of a geological cross section.

Name _____



1. Label the geologic bodies from newest (#1) to the oldest (#10).
2. Support your answers using such laws as the law of superposition, the law of cross-cutting relationships, the law of continuity, etc. in your reasoning.
3. Describe the probable geologic events after C was formed and B was laid down.
4. What might have separated J from I?

Name: .

Date:..

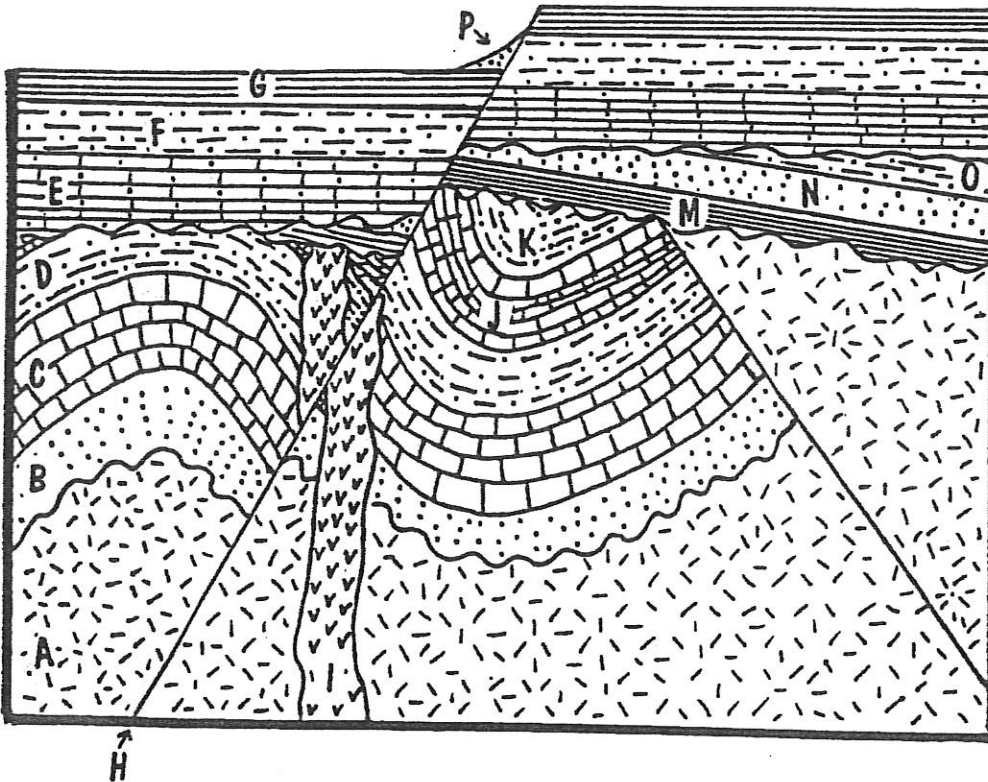
CONCEPTUAL **Physical Science** PRACTICE SHEET

Chapter 25: Geologic Time

Relative Time — What Came First?

The cross section below depicts many geologic events. List to the right the sequences of geologic history starting with the oldest event to the youngest event — and where appropriate include tectonic events (such as folding, deposition of beds, subsidence, uplift, erosion, intrusion).

Youngest _____



Examine the rings in the cross section of a tree and you do more than determine the age of the tree. Relative thicknesses of the rings tells a lot about the climate conditions throughout the tree's history. A geologist similarly learns much about the earth's history by examination of rock layers in cross sections of the earth's crust.



Oldest

thanks to Bob Abrams

Leslie