

Name: _____

Geologic Time

Date: _____ Period: _____

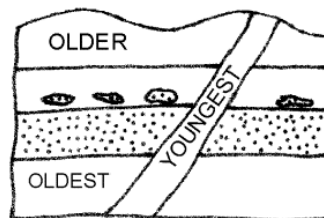
Earth Science

Packet: Relative Dating

CLASS NOTES

- Uniformitarianism - _____

- "The present is the key to the past"
- Relative Dating - determination of the age of a rock or event in relation to other rocks or events
- Principle of Superposition - _____



- Original Horizontality - _____

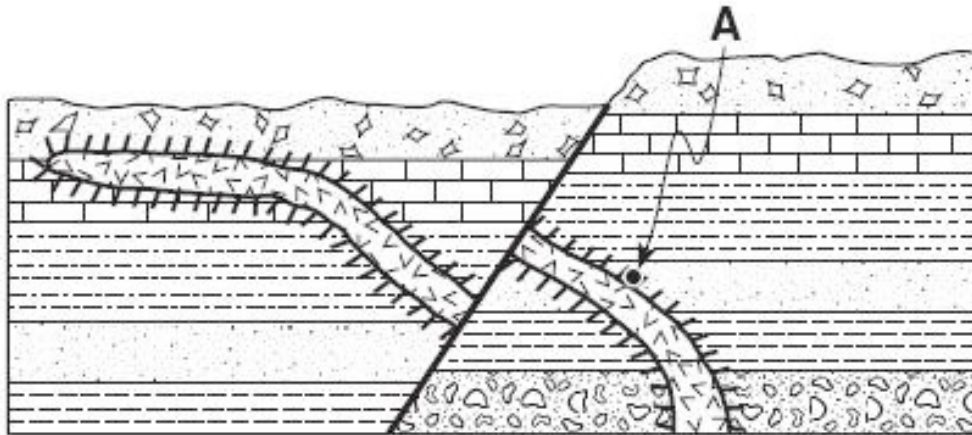
- Extrusions - _____

- Intrusions - _____

 - Younger than the rocks that they crosscut
 - Exception to the principle of superposition

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- Contact Metamorphism - _____
-



- Faults - _____
-

- Younger than the rocks that they crosscut

- Folds - _____
-

- Exception to the principle of superposition

- Correlation - the process of showing that _____ or _____ from different places are the same or similar age

- Correlation is the most effective method when using relative dating

- What to look for when correlating rocks:

- _____
- _____
- _____
- _____
- _____

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- Fossils - _____

 - Examples: bones, shells, footprints, and organic compounds (DNA)
- Index Fossils - _____

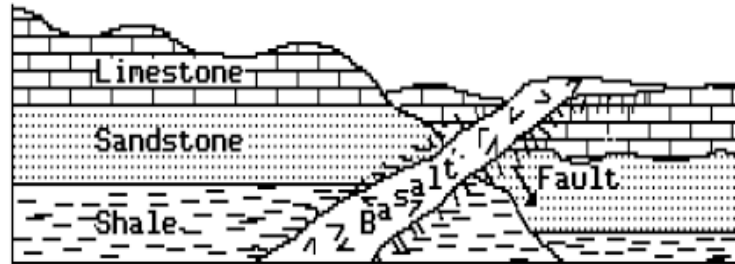
 - Best method for correlating rocks
 - To be considered a good index fossil it needs to meet two criteria:
 1. _____
 2. _____
- Geologic Time Markers - _____

 - Examples: volcanic ash deposits and meteorite impacts

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PART I QUESTIONS: MULTIPLE CHOICE

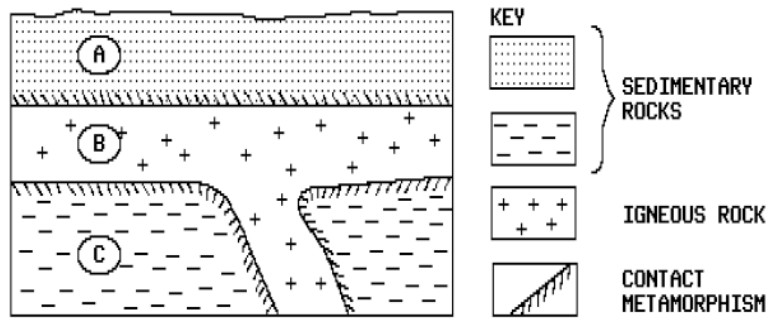
Use the diagram below and your knowledge of Earth Science to answer question 1 and 2. The rock layers represent a cross section of Earth's crust with a fault. The layers have not been overturned.



1. Which rock unit is the youngest?
 - a. shale
 - b. sandstone
 - c. limestone
 - d. basalt
2. Which rock unit is the oldest?
 - a. shale
 - b. sandstone
 - c. limestone
 - d. basalt
3. Which feature in a rock layer is older than the rock layer?
 - a. mineral veins
 - b. igneous intrusions
 - c. rock fragments
 - d. faults
4. Unless a series of sedimentary rock layers has been overturned, the bottom rock layer usually
 - a. is the oldest
 - b. contains the greatest variety of minerals
 - c. contains fossils
 - d. has the finest texture
5. Why are ancient volcanic ash deposits important to geologists?
 - a. They form resistant rock layers containing fossils.
 - b. They are easily dated using carbon-14.
 - c. They serve as good geological time makers.
 - d. They indicate major areas where earthquakes occurred.

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Use the diagram below and your knowledge of Earth Science to answer question 6 and 7. The rock layers represent a cross section of Earth's crust with an intrusion. The layers have not been overturned.



6. Which rock unit is the oldest?
 - a. rock layer A
 - b. rock layer B
 - c. rock layer C

7. Rock layer A is inferred to be older than intrusion B because
 - a. layer B is located between layer A and layer C
 - b. parts of layer A were altered by intrusion B
 - c. parts of layer C were altered by intrusion B
 - d. layer A is composed of sedimentary rocks

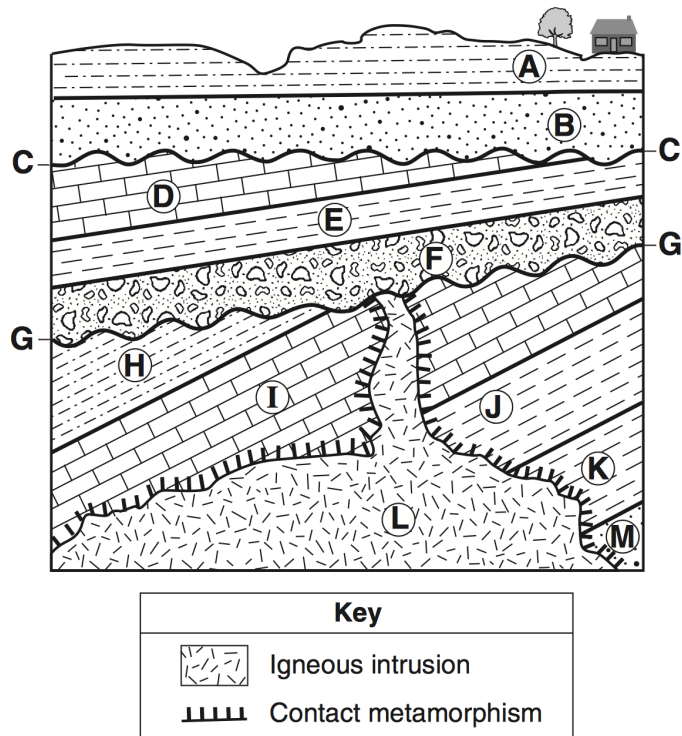
8. What characteristics of fossils are most useful in correlating sedimentary rock layers?
 - a. limited geographic distribution and limited to a particular rock formation
 - b. wide geographic distribution but limited to a particular rock formation
 - c. wide geographic distribution and found in many rock formations
 - d. limited geographic distribution but limited to a particular rock formation

9. Index fossils have usually formed from organisms which had a
 - a. narrow geographic distribution and existed for a long time
 - b. wide geographic distribution and existed for a long time
 - c. wide geographic distribution and existed for only a short time
 - d. narrow geographic distribution and existed for only a short time

10. Living corals are found in warm shallow seas. Coral fossils have been found in the sedimentary rocks of Alaska. These findings suggest that
 - a. ocean currents carried the coral to Alaska
 - b. coral usually develops in cold climates
 - c. Alaska's cold climate fossilized the coral
 - d. Alaska once had a tropical marine environment

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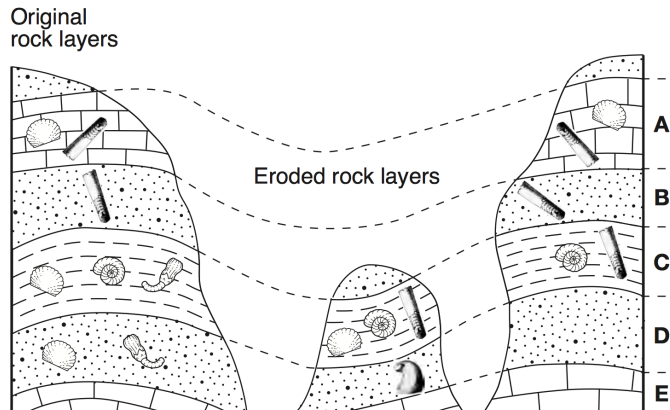
Base your answers to questions 11 through 12 on the cross section below and on your knowledge of Earth science. The cross section represents rock units that have not been overturned. Lines CC' and GG' represent unconformities.



11. Which rock unit was formed most recently?
- A
 - F
 - L
 - M
12. Why is there no contact metamorphism indicated between rock unit L and rock unit F?
- Conglomerate does not metamorphose.
 - The intrusion was not hot enough to metamorphose rock unit F.
 - The contact metamorphism within rock unit F eroded away.
 - Rock unit F was deposited after the intrusion of rock unit L.
13. Which principle states that younger rock layers are generally deposited on top of older rock layers?
- superposition
 - evolution
 - original horizontality
 - inclusion

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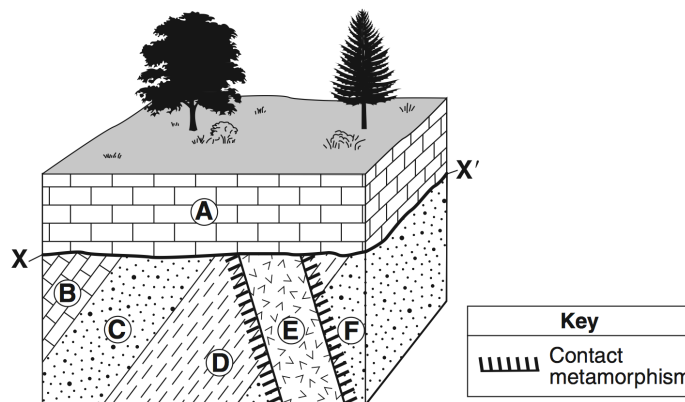
The diagram below represents three bedrock outcrops. The layers have not been overturned. Letters A through E identify different rock layers. Fossils found in the rock layers are shown.



14. Which fossil could be classified as an index fossil?

- a.  b.  c.  d. 

Base your answers to questions below on the following diagram.



15. Which rock layer is the youngest layer?

- a. A
b. F
c. C
d. E