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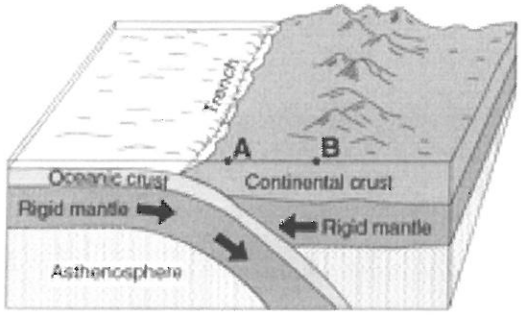
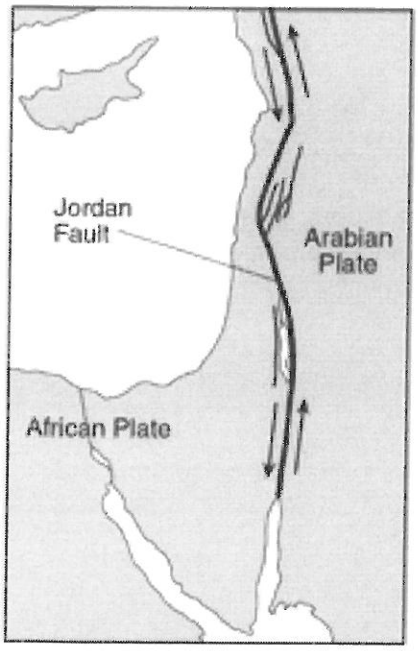
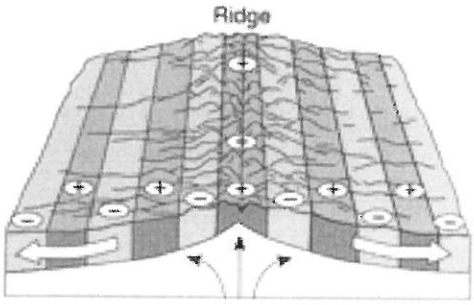
Plate Boundary Diagrams



A



B



C

1. Name the type of plate boundary for diagram A _____
2. Name the type of plate boundary for diagram B _____
3. Name the type of plate boundary for diagram C _____
4. Provide an example from your reference table where you would find diagram A.

   _____
5. Provide an example from your reference table where you would find diagram B.

   _____
6. Provide an example from your reference table where you would find diagram C.

   _____
7. What is convection and what layer of Earth would you find it?

   _____
8. Describe the geologic features that you would get with diagram A.

   _____
9. Describe what the + and - signs mean with diagram C.

   _____

Name_____ Regents and Mid Term Preparation

Earthquake Practice

A seismic station located at point *A* is 5400 kilometers away from the epicenter of the earthquake. If the arrival time for the *P*-wave at point *A* was 2:00 p.m., the arrival time for the *S*-wave at point *A* was approximately

(1) 1:53 p.m.
(2) 2:07 p.m.
(3) 2:09 p.m.
(4) 2:16 p.m.

The first *S*-wave arrived at a seismograph station 11 minutes after an earthquake occurred. How long after the arrival of the first *P*-wave did this first *S*-wave arrive?

(1) 3 min 15 s
(2) 4 min 55 s
(3) 6 min 05 s
(4) 9 min 00 s

A seismograph station recorded the arrival of the first *P*-wave at 7:32 p.m. from an earthquake that occurred 4000 kilometers away. What time was it at the station when the earthquake occurred?

(1) 7:20 p.m.
(2) 7:25 p.m.
(3) 7:32 p.m.
(4) 7:39 p.m.

A seismic station is recording the seismic waves produced by an earthquake that occurred 4200 kilometers away. Approximately how long after the arrival of the first *P*-wave will the first *S*-wave arrive?

(1) 1 min 05 sec
(2) 5 min 50 sec
(3) 7 min 20 sec
(4) 13 min 10 sec

A seismic station 4000 kilometers from the epicenter of an earthquake records the arrival time of the first *P*-wave at 10:00:00. At what time did the first *S*-wave arrive at this station?

(1) 9:55:00
(2) 10:05:40
(3) 10:07:05
(4) 10:12:40

An earthquake's first *P*-wave arrives at a seismic station at 12:00:00. This *P*-wave has traveled 6000 kilometers from the epicenter. At what time will the first *S*-wave from the same earthquake arrive at the seismic station?

(1) 11:52:20
(2) 12:07:40
(3) 12:09:20
(4) 12:17:00

The distance from Albany, New York, to the epicenter of this earthquake is 5600 km. Approximately how much longer did it take for the *S*-wave to arrive at Albany than the *P*-wave?

(1) 4 minutes and 20 seconds
(2) 7 minutes and 10 seconds
(3) 9 minutes and 0 seconds
(4) 16 minutes and 10 seconds

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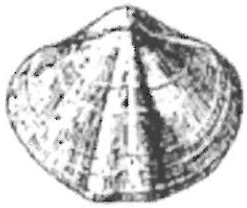
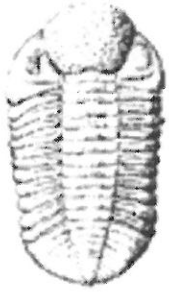
Index Fossils

Table of Index Fossils		
 Eospirifer	 Manticoceras	 Phacops

Identification	Eospirifer	Manticoceras	Phacops
Identification Letter			
Eon			
Era			
Period			
Epoch			
Important Geo Event			
Landscape Where They Lived			

1. Why are index fossils important in determining age of rocks?

_____

2. What are the 2 criteria that is special to an index fossil?

_____

_____

3. What was another method discussed in class (very similar to index fossils) that helps geologists determine age of rocks? _____

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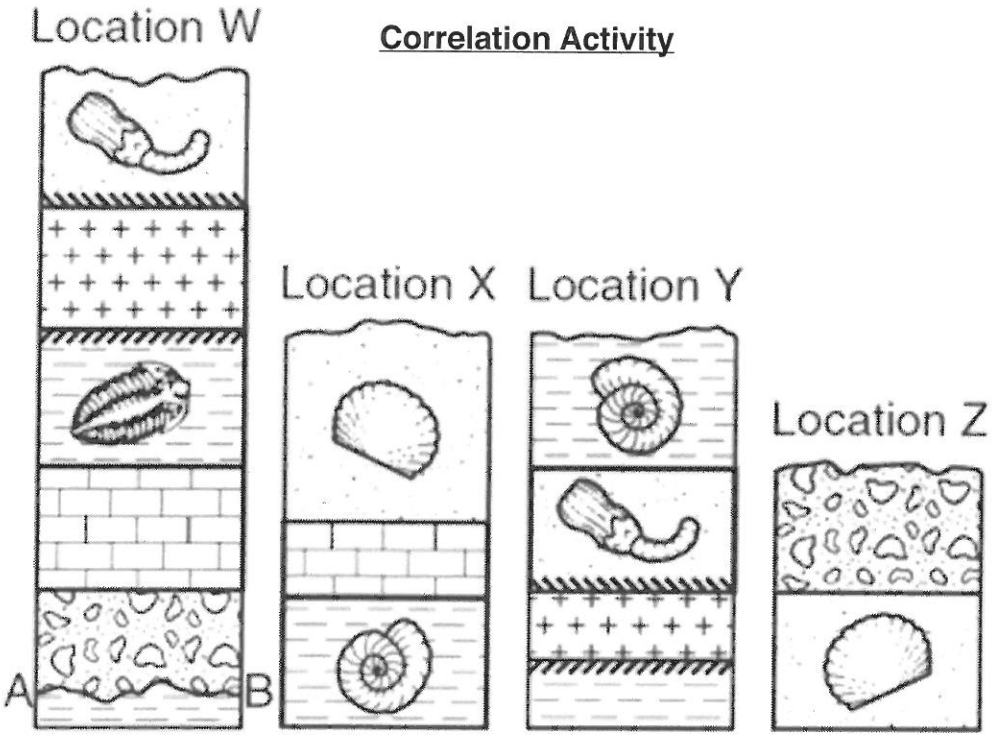
Correlation Activity



1. What rock layer is the oldest? _____
2. What rock layer is the youngest? _____
3. What are the steps in determining unconformity AB?

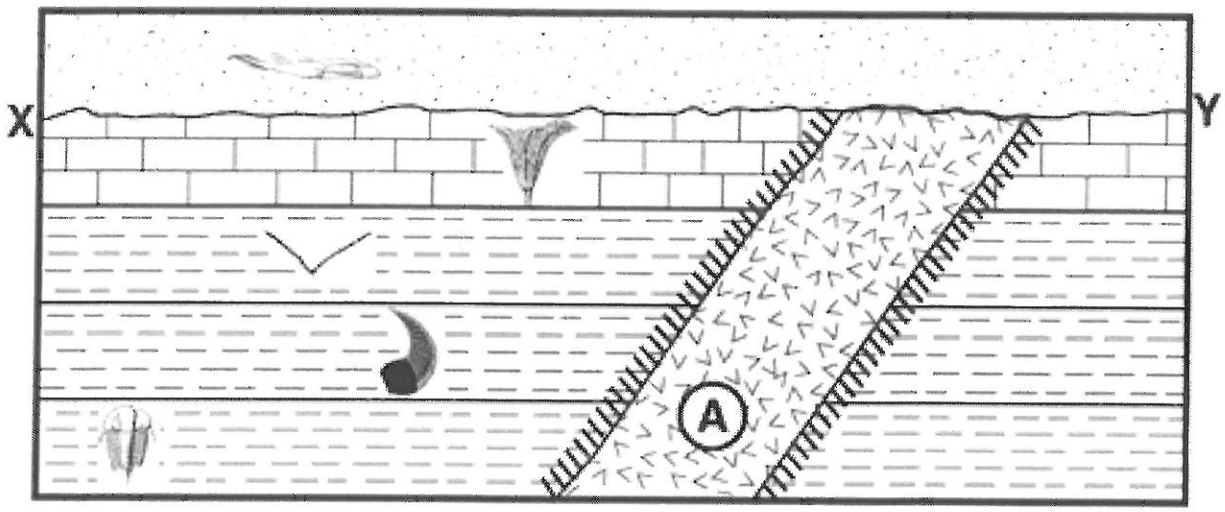
   _____

   _____
4. Describe which of the fossils above is the best index fossil (describe what it looks like) _____
5. What do the little lines coming off of the rock layers in locations W and Y represent?

   _____
6. What is younger in location W: Intrusion or shale? _____
7. What is older in location X: Limestone or sandstone? _____
8. What happened most recent: Intrusion or bottom layer of shale? _____
9. What happened first: Breccia or Sandstone? _____
10. In location Y, what rock would form at the contact point between the intrusion and the sandstone? _____

Name_____ Regents and Mid Term Preparation

Index Fossils and Correlation



1. What are the 2 criteria for a fossil to be considered an "index fossil"?

_____

2. What is line XY called? _____

3. What does line XY represent? _____

4. Provide the steps needed to create line XY

_____

5. What is rock layer A? _____

6. Why are these fossils useful in determining the relative age of these rocks?

_____

7. Put the sequence in order....

a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____

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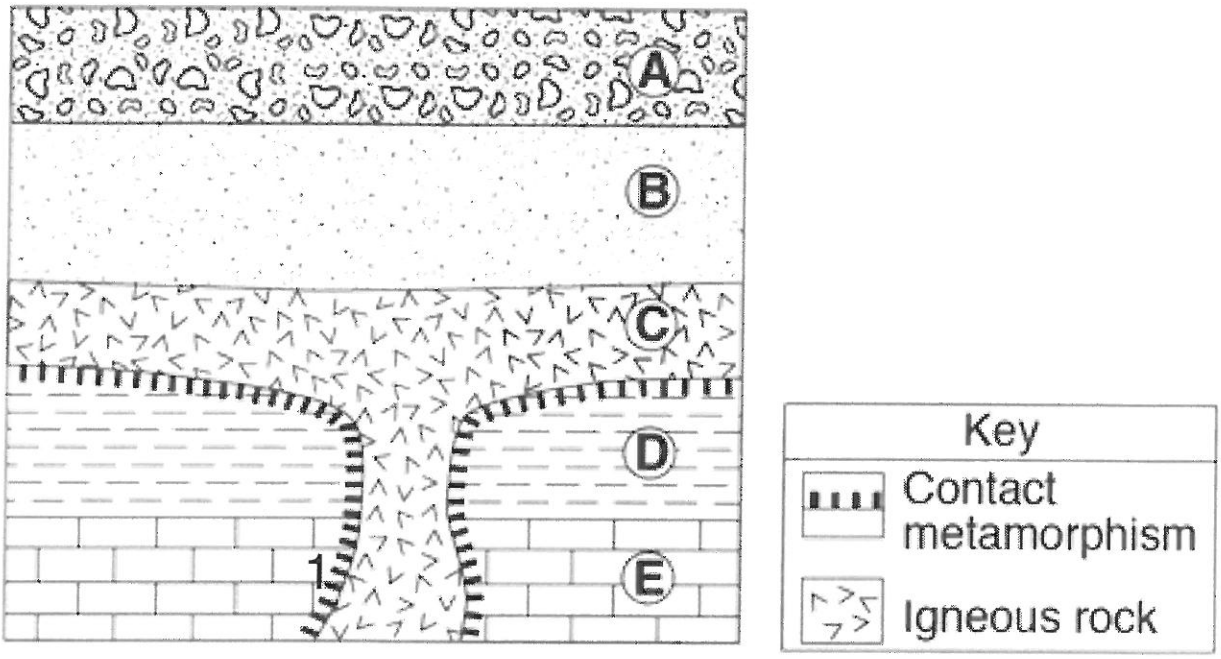
Sequence of Events



1. What layer of rock is the youngest? _____
2. What layer of rock happened most recently? _____
3. What layer of rock is the oldest? _____
4. Which is older...Shale or the Intrusion? _____
5. Name the rock found at point 1? _____
6. Put the above sequence in order from oldest to youngest
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
   f. _____

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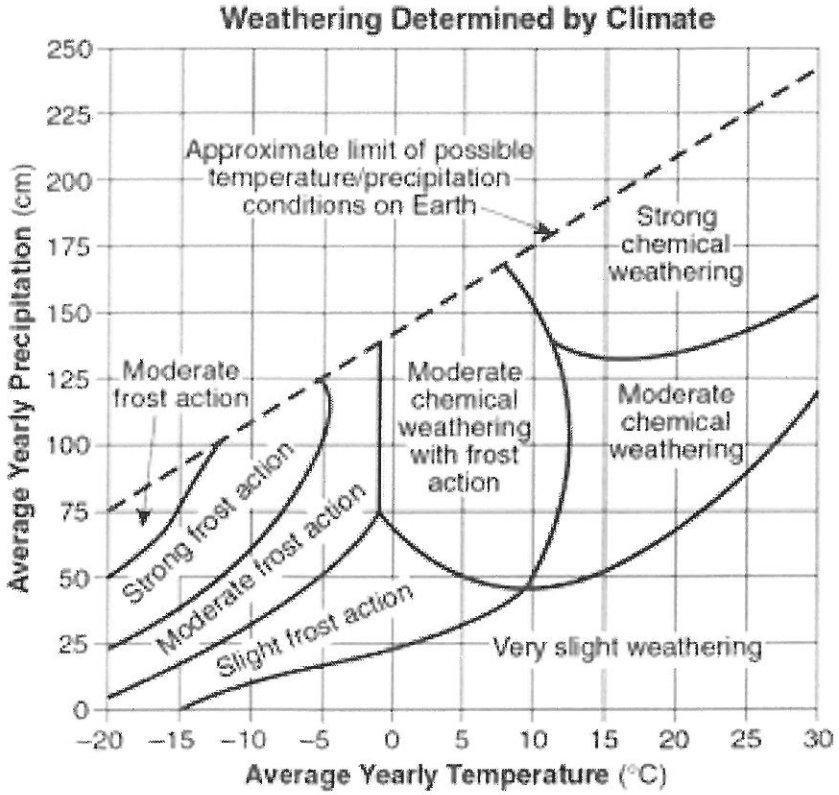
Weathering Conditions



1. Describe the climate needed for chemical weathering to be dominant.

_____

2. Describe the climate needed for physical weathering to be dominant.

_____

3. Provide a few examples of physical weathering. _____

4. Provide a few examples of chemical weathering. _____

5. Describe what a chemical weathering landscape would look like.

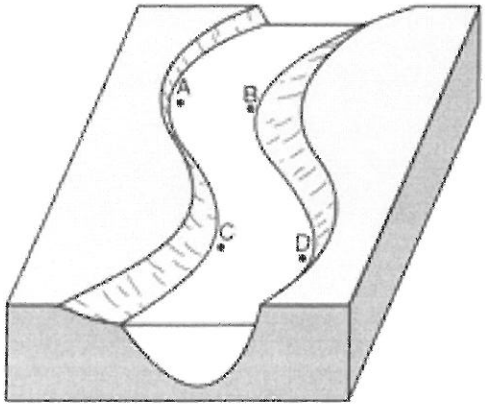
_____

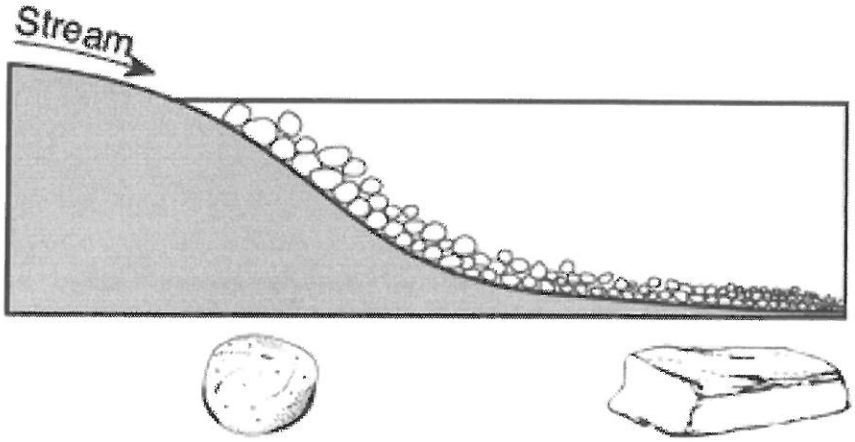
6. Describe what a physical weathering landscape would look like.

_____

Name_____ Regents and Mid Term Preparation

Deposition





1. What is deposition? _____
2. What is erosion? _____
3. The diagram at the left, which positions will show erosion? _____
4. The diagram at the left, which positions will show deposition? _____
5. What is carrying power? _____
6. What is discharge? _____
7. What is velocity? _____
8. What are meanders? _____
9. The diagram on the right shows horizontal sorting...what are some of the factors that effect deposition? _____
10. What is the relationship between velocity and slope?

    _____

11. In a straight channel stream, where does water travel the fastest?_____
12. Why does water erode more on the outside of a meander? _____
13. Why does water deposit more on the inside of a meander? _____

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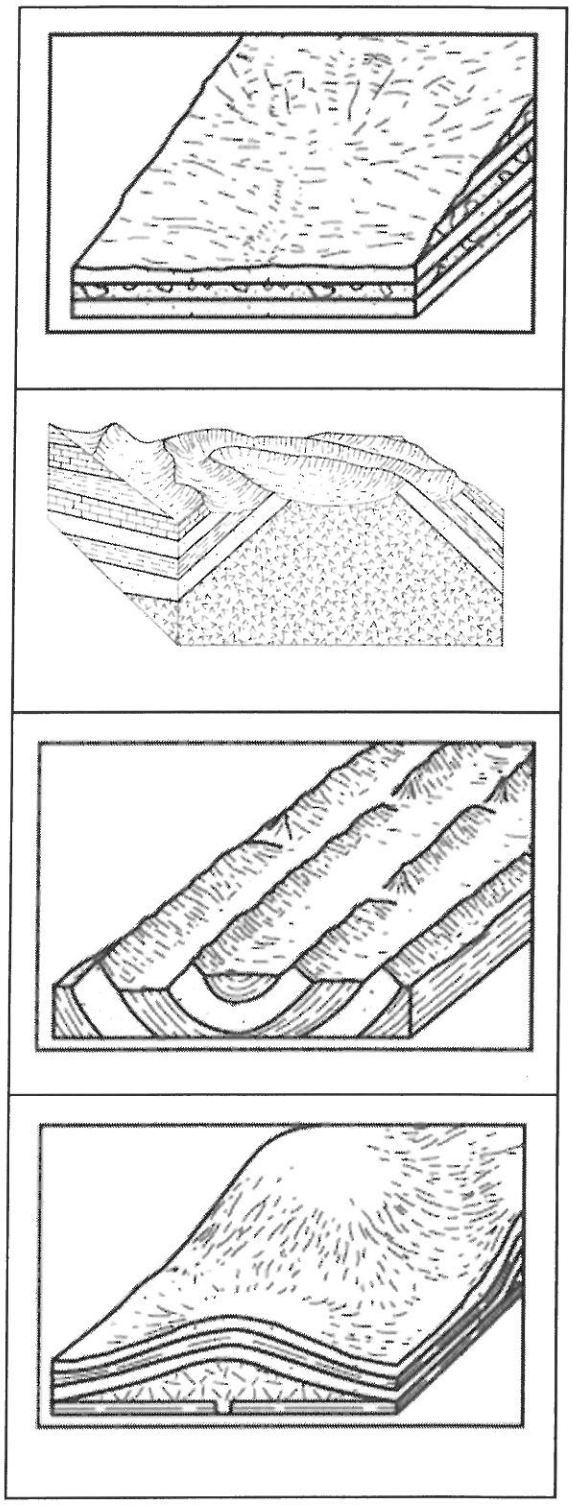
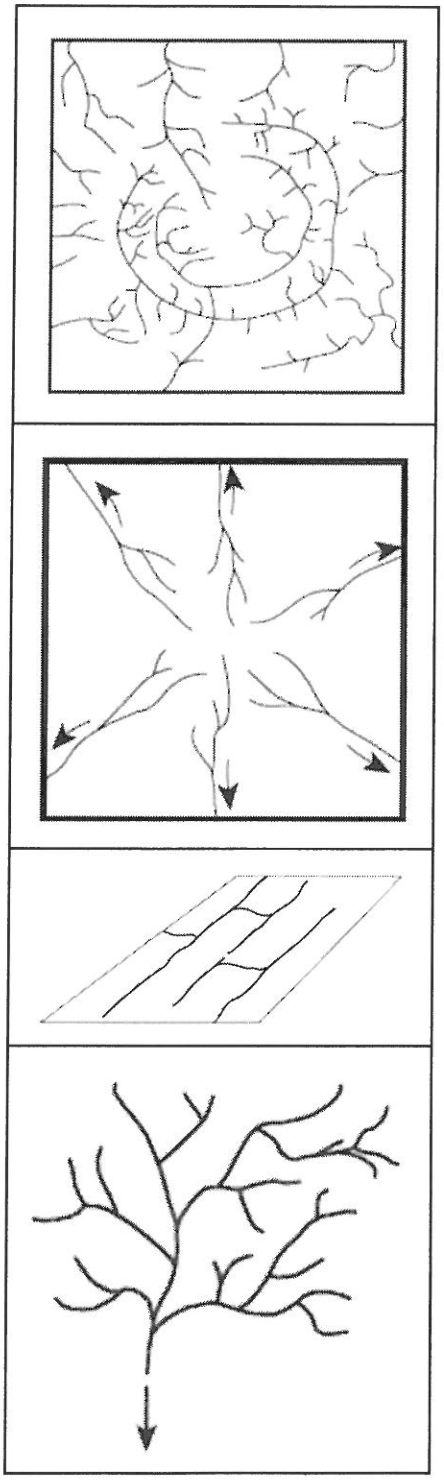
Landscapes

Match the landscapes on the left with the drainage patterns to the right





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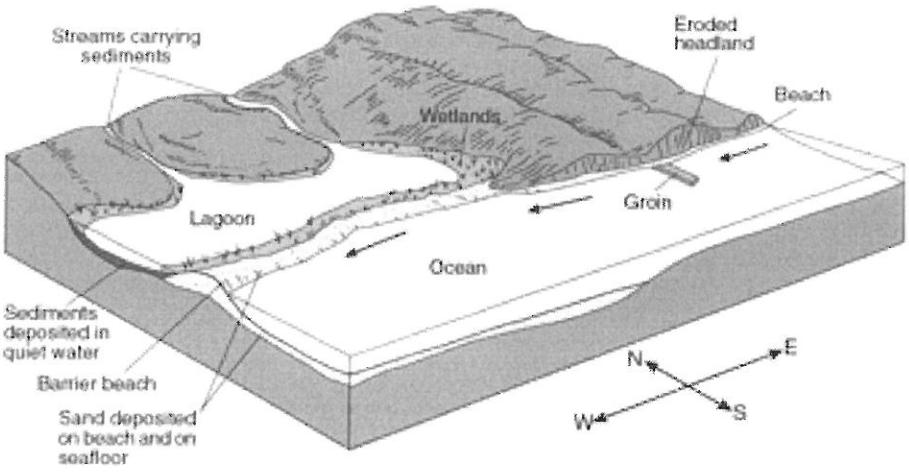
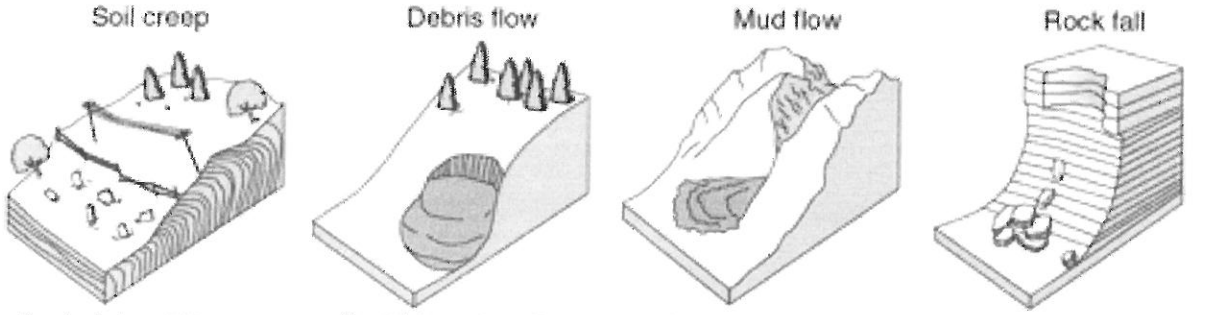
Oceans



1. When looking at the groin, what compass direction will the largest beach? _____
2. Sediment is carried parallel to the shoreline by _____
3. Ocean currents follow the same path as _____
4. What direction is the current flowing? _____

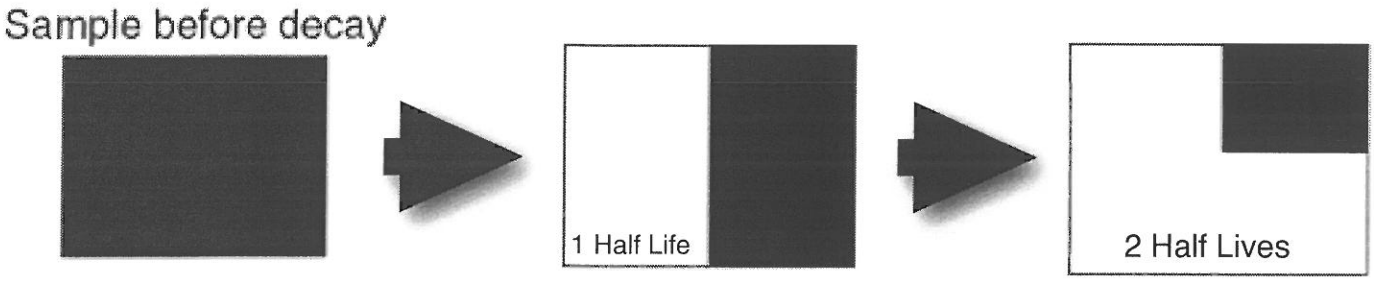
Mass Wasting



1. What is the major force behind all 4 types of erosion shown above? _____
2. Mass wasting produces what type of sediment? _____
3. Glaciers and gravity produce unsorted sediment, wind and water produce _____
4. Which one of the 4 diagrams above has the greatest velocity? _____

Name_____ Regents and Mid Term Preparation

Radioactive Decay



1. If the half life above is 5700 years, how many years have gone by? _____
2. In the example above, what percentage of original sample is left? _____
3. What isotope is used to date young, organic material? _____
4. Name an isotope used to date a trilobite fossil? _____
5. In the above example, if you start out with 1000 g of K40, how much Ar40 is left after 2 half lives?_____
6. In the previous example, how many years have passed over 2 half lives? _____