RR#6 - Multiple Choice

1. Which agent of erosion is most likely responsible for the deposition of sandbars along ocean shorelines?

   1) glaciers
   2) mass movement
   3) wave action
   4) wind action

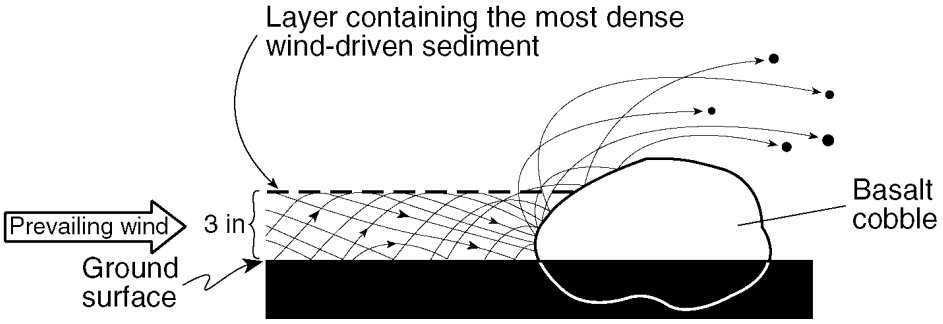
2. Why is the surface of Mercury covered with meteor impact craters, while Earth's surface has relatively few craters?

   1) Mercury is larger than Earth, so it gets hit with more meteors.
   2) Mercury is an older planet, so it has a longer history of meteor impacts.
   3) Earth's less dense water surface attracts fewer meteors.
   4) Earth's hydrosphere and atmosphere destroyed or buried most meteor impact sites.

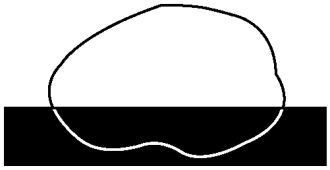
3. Which characteristic would most likely remain constant when a limestone cobble is subjected to extensive abrasion?

   1) shape
   2) mass
   3) volume
   4) composition

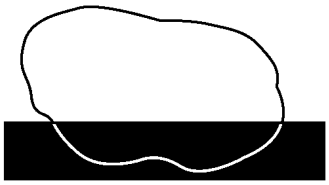
4. The cross section below shows the movement of wind-driven sand particles that strike a partly exposed basalt cobble located at the surface of a windy desert.

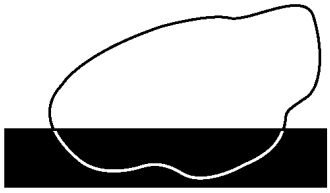


Which cross section best represents the appearance of this cobble after many years of exposure to the wind-driven sand?

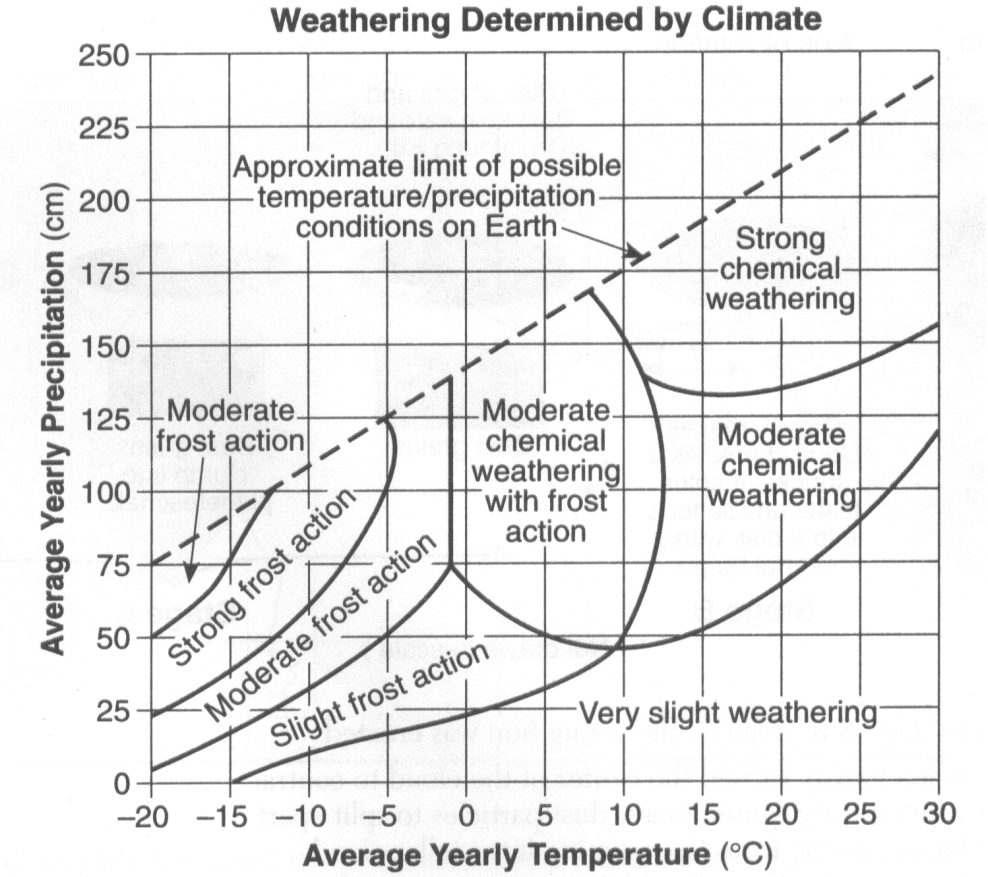
1)


2)


3)


4)


5. Base your answer to the following question on the graph below, which shows the effect that average yearly precipitation and temperature have on the type of weathering that will occur in a particular region.

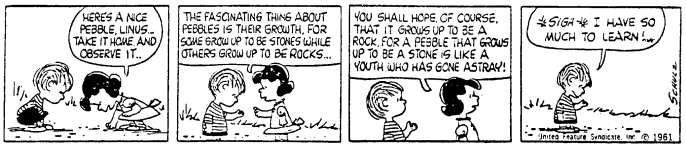


Which type of weathering is most common where the average yearly temperature is 5°C and the average yearly precipitation is 45 cm?

1) moderate chemical weathering
2) very slight weathering
3) moderate chemical weathering with frost action
4) slight frost action

RR#6 - Multiple Choice

6. In the cartoon below, Lucy gives Linus incorrect information about pebbles.



If Lucy wanted to give Linus correct information about pebbles, which statement would be most accurate?

1) Pebbles can become cemented together to form a rock called gabbro.
2) Pebble is the name given to the smallest-size sediment.
3) Any large rock that weathers could become a pebble.
4) Magma is composed of pebbles.

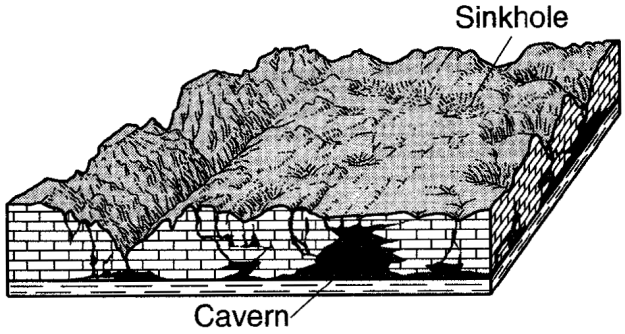
7. In which climate would the chemical weathering of limestone occur most rapidly?

1) cold and dry
2) cold and humid
3) warm and dry
4) warm and humid

8. Which property of water makes frost action a common and effective form of weathering?

1) Water dissolves many earth materials.
2) Water expands when it freezes.
3) Water cools the surroundings when it evaporates.
4) Water loses 334 Joules of heat per gram when it freezes.

9. The block diagram below represents a landscape where caverns and sinkholes have gradually developed over a long period of time.



Why did these caverns and sinkholes form?

1) The bedrock chemically reacted with acidic groundwater.
2) This type of bedrock contained large amounts of oxygen and silicon.
3) Glacial deposits altered the shape of the bedrock.
4) Crustal uplift formed gaps in the bedrock.

10. Which rock weathers most rapidly when exposed to acid rain?

1) quartzite
2) granite
3) basalt
4) limestone

Base your answers to questions **11** through **14** on the laboratory experiment described below.

The weathering of four different rock samples with different masses was studied. Each rock sample was placed in a separate beaker containing 500 milliliters of a dilute acid for 10 minutes. Bubbling was observed in some of the beakers. The data table below shows the mass of each sample, in grams, before placement in the acid and after removal from the acid.

Data Table

Rock	Mass Before (g)	Mass After (g)
limestone	19.72	19.64
granite	20.77	20.77
gneiss	26.83	26.83
marble	20.81	20.73

11. Which property of the gneiss sample prevented it from weathering?

1) crystalline texture
2) mineral composition
3) density
4) cleavage

12. Approximately what percentage of the marble sample remained after the experiment?

1) 0.4%
2) 8.0%
3) 20.7%
4) 99.6%

13. Which table correctly shows the classification of the rock samples based on the amount of weathering during this experiment?

1)

Group A	Group B
limestone marble	granite gneiss

2)

Group A	Group B
limestone granite gneiss	marble

3)

Group A	Group B
limestone	granite marble gneiss

4)

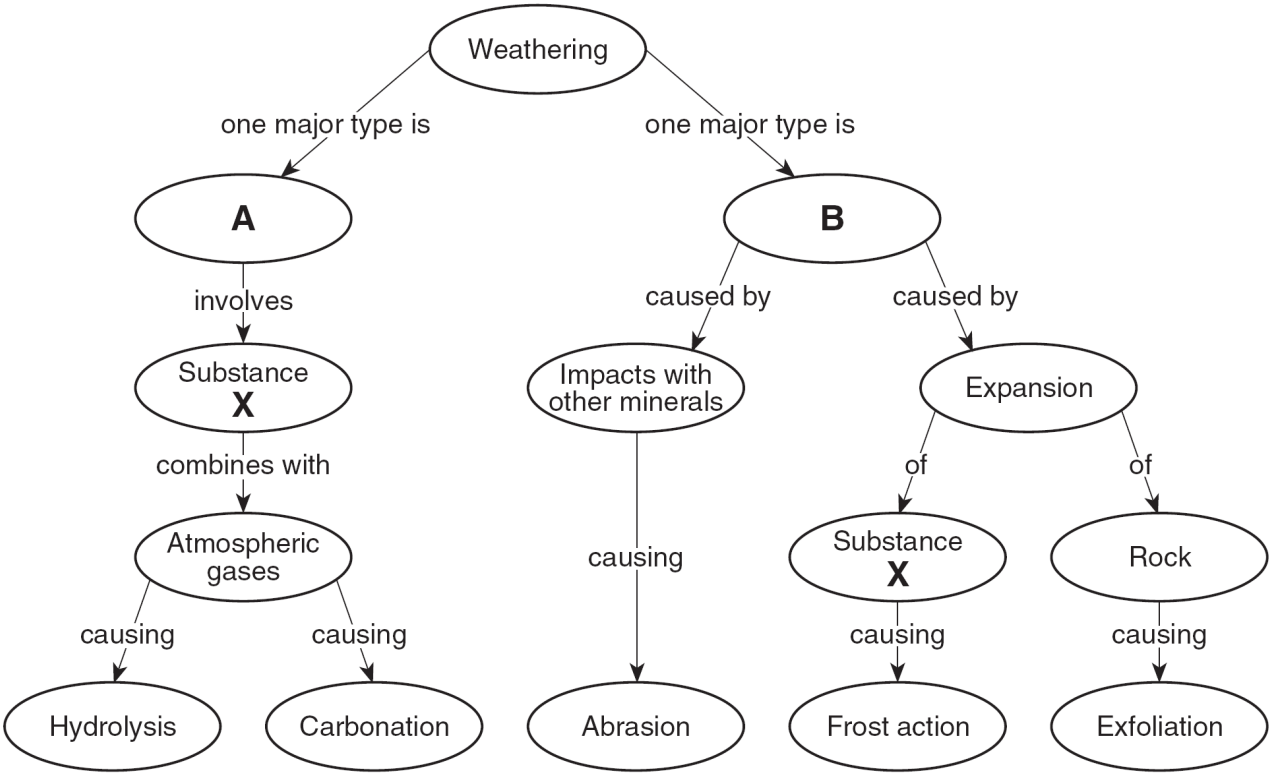
Group A	Group B
limestone granite	gneiss marble

14. Which Earth process is being modeled in this experiment?

1) physical weathering in the hydrosphere
2) physical weathering in the mesosphere
3) chemical weathering in the hydrosphere
4) chemical weathering in the mesosphere

RR#6 - Multiple Choice

Base your answers to questions **15** and **16** on flowchart below, which shows a general overview of the processes and substances involved in the weathering of rocks at Earth's surface. Letter *X* represents an important substance involved in both major types of weathering, labeled *A* and *B* on the flowchart. Some weathering processes are defined below the flowchart.



Definitions
Frost action – the breakup of rocks caused by the expansion of substance **X**
Abrasion – the wearing down of rocks or particles as they rub or bounce against other rocks
Exfoliation – the peeling away of large sheets of loosened material at the surface of a rock
Hydrolysis – the change in a material caused by contact with substance **X**
Carbonation – the change in a material caused by contact with carbonic acid

15. Which substance is represented by *X* on both sides of the flowchart?

    1) potassium feldspar
    2) air
    3) hydrochloric acid
    4) water

16. Which term best identifies the type of weathering represented by *A*?

    1) physical
    2) biological
    3) chemical
    4) glacial

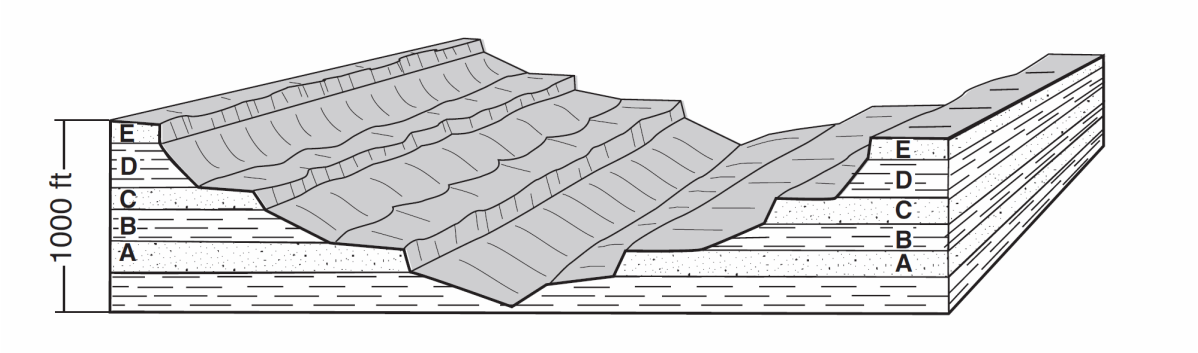
17. Chemical weathering will occur most rapidly when rocks are exposed to the

    1) hydrosphere and lithosphere
    2) mesosphere and thermosphere
    3) hydrosphere and atmosphere
    4) lithosphere and atmosphere

18. Water is a major agent of chemical weathering because water

    1) cools the surroundings when it evaporates
    2) dissolves many of the minerals that make up rocks
    3) has a density of about one gram per cubic centimeter
    4) has the highest specific heat of all common earth materials

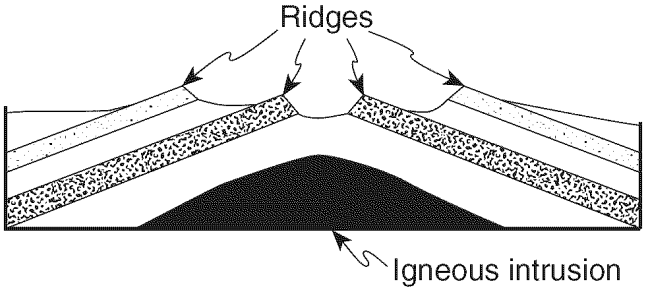
19. The block diagram below shows a cross section of a landscape. Letters *A*, *B*, *C*, *D*, and *E* represent different rock layers.



    Which rock layers appear to be most resistant to weathering?

    1) *A* and *B* 2) *B* and *D* 3) *C*, *D*, and *E* 4) *A*, *C*, and *E*

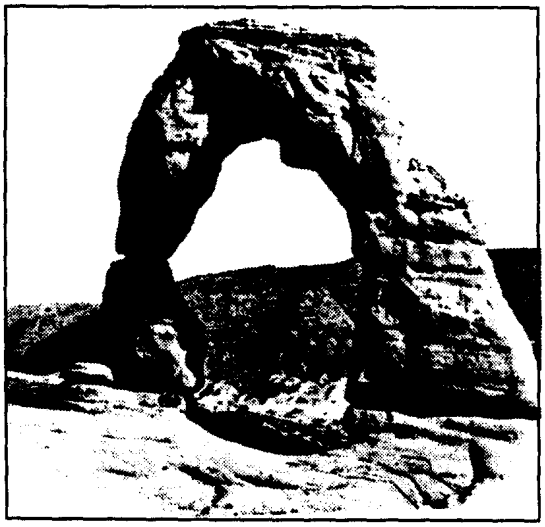
20. The cross section below shows rock layers that underwent crustal movement during an igneous intrusion in the Cretaceous Period.



    Which statement best describes the cause of the ridges shown?

    1) The rock layers were evenly weathered.
    2) Some rock layers were more resistant to weathering and erosion.
    3) The igneous intrusion flowed over the surface.
    4) More deposition occurred at the ridge sites after uplift.

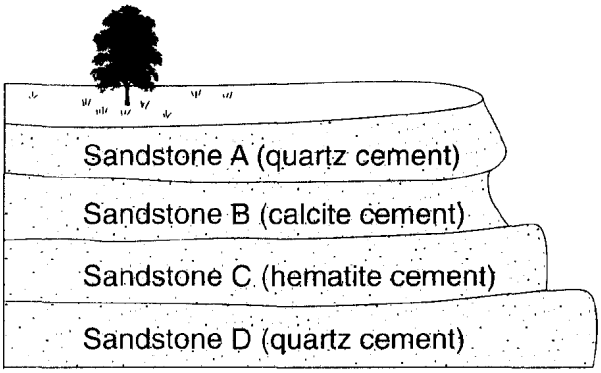
21. The photograph below shows an arch of rock located in the western United States.



How did the arch most likely form?

1) The bedrock in the arch was more resistant to weathering and erosion than the surrounding bedrock that was removed.
2) An earthquake forced bedrock upward into the shape of an arch.
3) Sand and gravel were deposited and compacted in the shape of an arch.
4) An underground glacier tunneled through the bedrock.

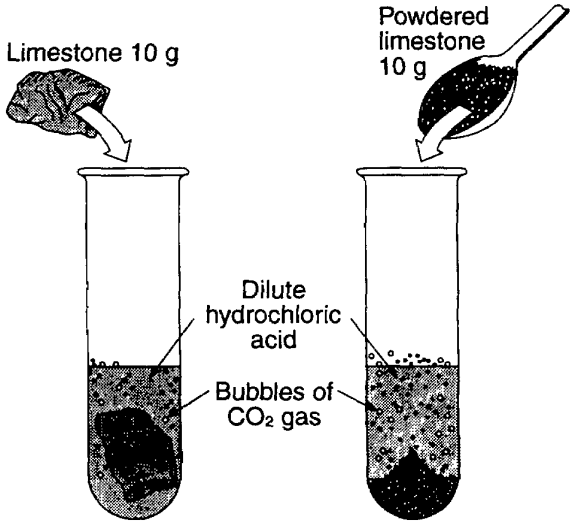
22. The diagram below shows an outcrop of different layers of sandstone in a region receiving heavy rainfall.



Which sandstone layer appears to be the *least* resistant to weathering?

1) *A* 2) *B* 3) *C* 4) *D*

23. The demonstration shown in the diagram below indicates that powdered limestone reacts faster than a single large piece of limestone of equal mass when both are placed in acid.



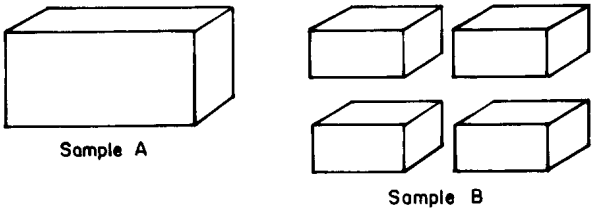
The most likely reason powdered limestone reacts faster is that it has

1) less total volume
2) more chemical bonds
3) more total surface area
4) lower density

24. Which long-term atmospheric changes would increase the rate of chemical weathering of surface bedrock?

1) decreasing temperature and decreasing precipitation
2) decreasing temperature and increasing precipitation
3) increasing temperature and decreasing precipitation
4) increasing temperature and increasing precipitation

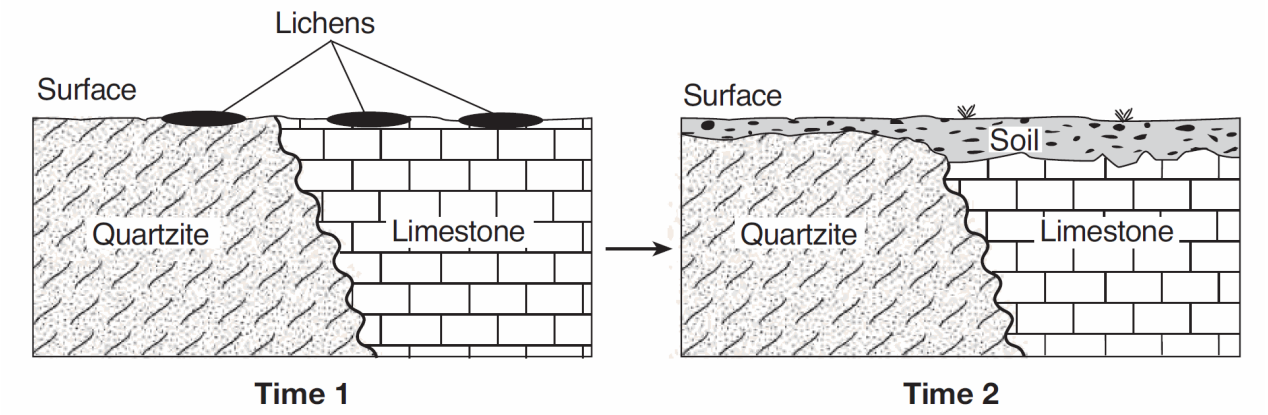
25. The diagram below represents equal masses of two identical rock samples. Sample *A* is one large block, while sample *B* was cut into four smaller blocks of equal size.



If subjected to the same environmental conditions, sample *B* will weather more quickly than sample *A*. The best explanation for this is that the

1) volume of sample *B* is greater than that of sample *A*
2) surface area of sample *B* is greater than that of sample *A*
3) density of sample *A* is greater than that of sample *B*
4) hardness of sample *A* is greater than that of sample *B*

26. Lichens are usually the first organisms that appear in barren, rocky areas. They use rootlike structures to split bedrock into small fragments. Lichens also secrete acidic solutions that help break down rock. The cross sections below represent an area when lichens first appeared (time 1) and that same area hundreds of years later, after it was changed by lichens and exposed to air and water (time 2).



The soil shown in time 2 was formed mainly by

1) compaction and cementing
2) weathering and biological activity
3) faulting and tilting of rock strata
4) mass movement and deposition of particles

27. Which factors most directly control the development of soils?

    1) soil particle sizes and method of deposition
    2) bedrock composition and climate characteristics
    3) direction of prevailing winds and storm tracks
    4) earthquake intensity and volcanic activity

28. Sandstone, limestone, and conglomerate cobbles are found in a streambed in New York State where the surrounding bedrock is composed of shales and siltstones. The most likely explanation for the presence of these cobbles is that they were

    1) weathered from the surrounding bedrock
    2) formed when shale and siltstone bedrock were eroded
    3) transported to this area from another region
    4) metamorphosed from shale and siltstone

29. Sediments found in glacial moraines are best described as

    1) sorted and layered
    2) sorted and not layered
    3) unsorted and layered
    4) unsorted and not layered

30. Unsorted, angular, rough-surfaced cobbles and boulders are found at the base of a cliff. What most likely transported these cobbles and boulders?

    1) running water
    2) wind
    3) gravity
    4) ocean currents

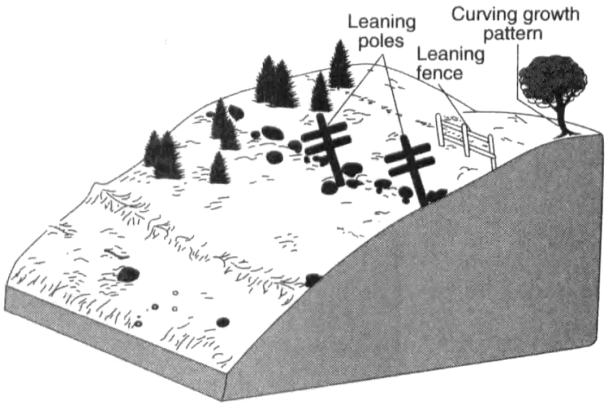
31. A sediment particle transported by a stream over a long period of time will most likely show

    1) a decrease in mass and number of angular edges
    2) a decrease in density and size
    3) an increase in weight and hardness
    4) an increase in volume and number of cleavage planes

32. Which statement identifies a result of glaciation that has had a positive effect on the economy of Connecticut?

    1) Large amounts of oil and natural gas were formed.
    2) The number of usable water reservoirs was reduced.
    3) Many deposits of sand and gravel were formed.
    4) Deposits of fertile soil were removed.

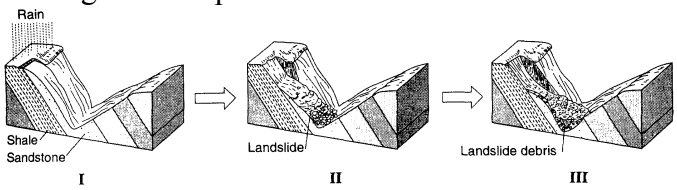
33. The diagram below shows the surface features of a landscape.



    Based on the features shown, which erosional agent had the greatest effect on tree growth and the structures that humans have built on this landscape?

    1) running water
    2) moving ice
    3) prevailing wind
    4) mass movement

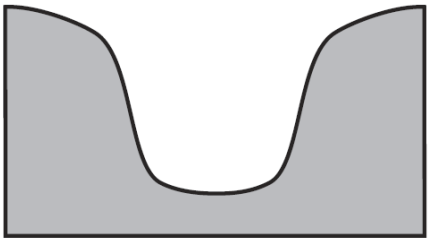
34. The diagram below shows the sequence of events leading to the deposition of landslide debris.

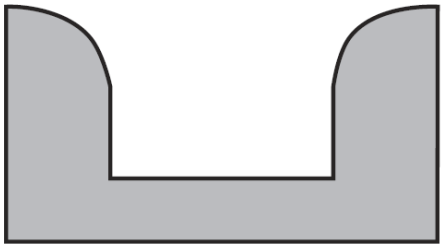


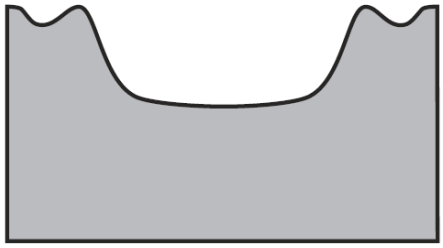
    What was the primary force that caused this landslide?

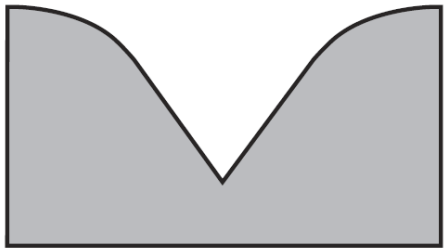
    1) gravity
    2) moving ice
    3) prevailing winds
    4) stream discharge

35. Which cross section best represents the valley shape where a rapidly flowing stream is cutting into the bedrock in a mountainous area?

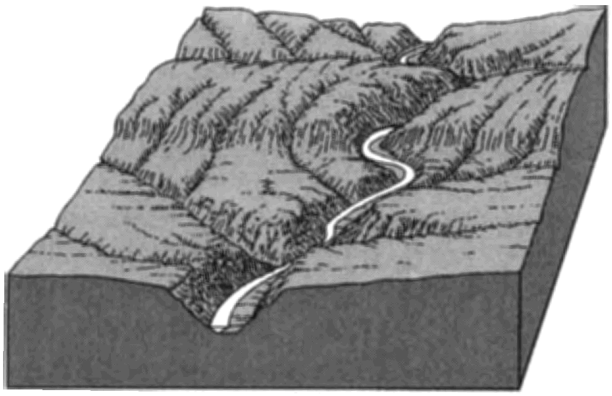
1) 

2) 

3) 

4) 

36. The block diagram below represents a stream flowing from a mountain region.



A brief, heavy rainstorm occurs in the mountains. How will the volume of water and the rate of erosion in the stream change shortly after the rainstorm?

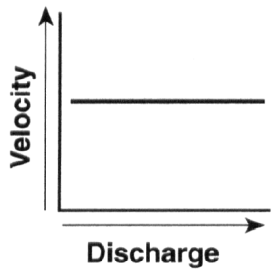
1) The volume of water will decrease and the rate of erosion will increase.
2) The volume of water will increase and the rate of erosion will decrease.
3) Both the volume of water and the rate of erosion will decrease.
4) Both the volume of water and the rate of erosion will increase.

37. Trees growing on the edge of a river's meander are most likely to fall into the river due to

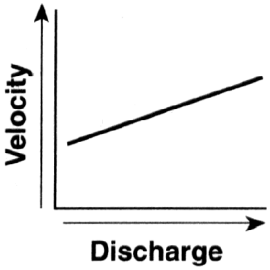
1) deposition on the inside of the meander
2) deposition on the outside of the meander
3) erosion on the inside of the meander
4) erosion on the outside of the meander

38. Which graph best represents the relationship between the discharge of a stream and the velocity of stream flow?

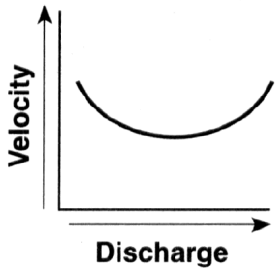
1)



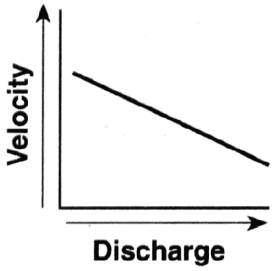
2)



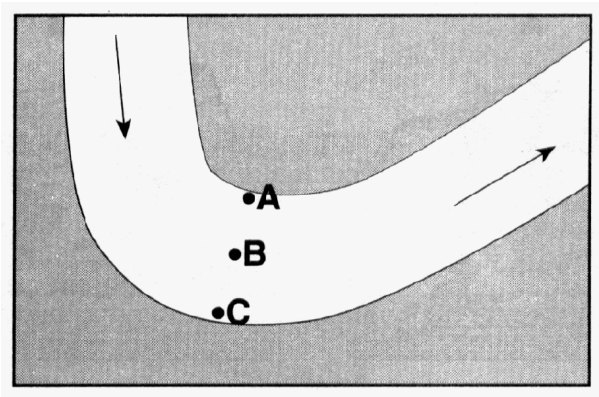
3)



4)



39. The map below shows the bend of a large meandering stream. The arrows show the direction of stream flow, Letters *A, B,* and *C* are positions on the streambed where erosion and deposition data were collected.



Which table best represents the locations where erosion and deposition are dominant and where an equilibrium exists between the two processes? [A check mark represents the dominant process for each lettered location.]

1)

	Erosion	Equilibrium	Deposition
A		✓	
B			✓
C	✓		

2)

	Erosion	Equilibrium	Deposition
A			✓
B	✓		
C		✓	

3)

	Erosion	Equilibrium	Deposition
A	✓		
B		✓	
C			✓

4)

	Erosion	Equilibrium	Deposition
A			✓
B		✓	
C	✓		

40. Base your answer to the following question on the diagrams below. Diagrams *A, B,* and *C* represent three different river valleys.

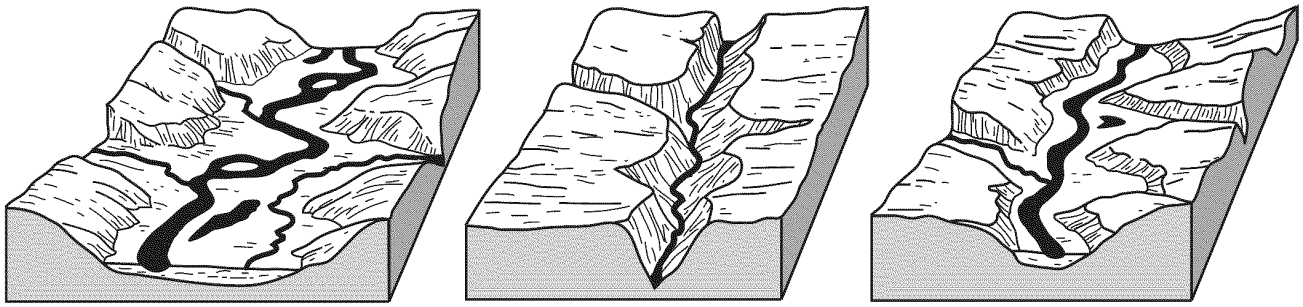
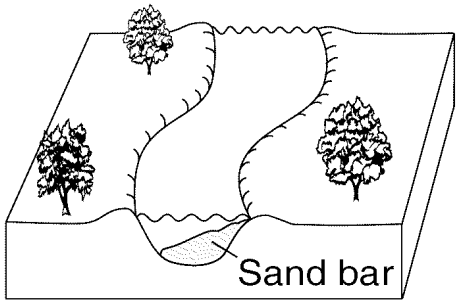


Diagram A Diagram B Diagram C

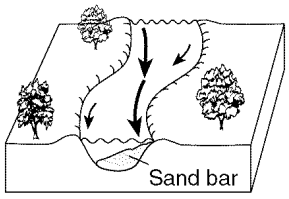
Most sediments found on the floodplain shown in diagram *A* are likely to be

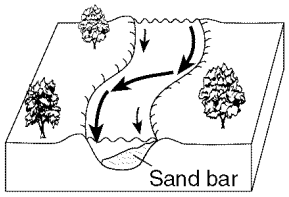
1) angular and weathered from underlying bedrock
2) angular and weathered from bedrock upstream
3) rounded and weathered from underlying bedrock
4) rounded and weathered from bedrock upstream

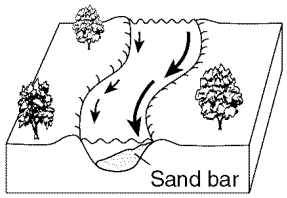
41. The diagram below shows a meandering stream flowing across nearly flat topography and over loose sediments.

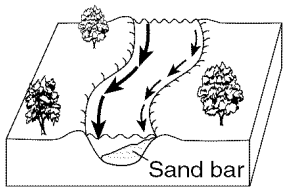


If arrow length represents stream velocity, which diagram best shows the relative stream velocities in this section of the stream?

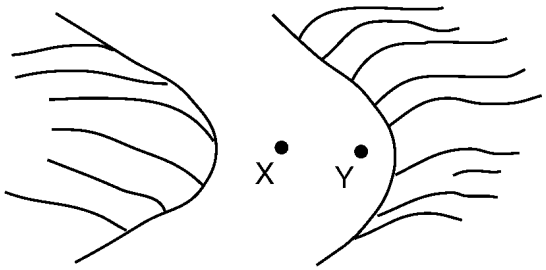
1)


2)


3)


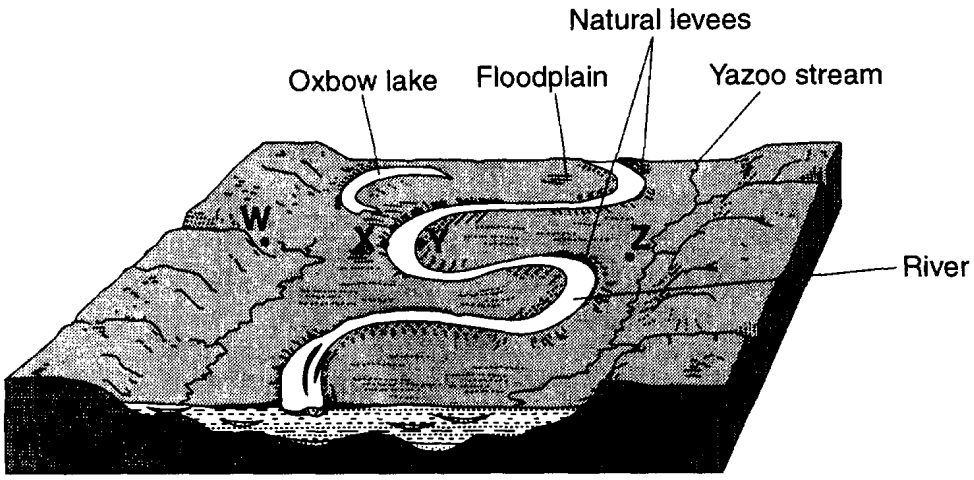
4)


42. The diagram below shows a stream flowing past points *X* and *Y*. If the velocity of the stream at point *X* is 100 centimeters per second, which statement best describes the sediments being transported past these points?

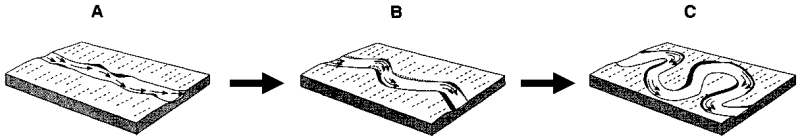


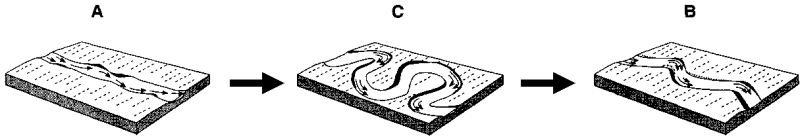
1) At points *X* and *Y,* only clay is being transported.
2) At points *X* and *Y,* only sand, silt, and clay are being transported.
3) Some pebbles being transported at point *Y* are bigger than those being transported at point *X*.
4) Some pebbles and cobbles are being transported at points *X* and *Y,* but not sand, silt, or clay.

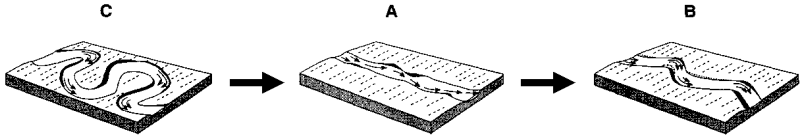
43. Base your answer to the following question on the diagram below, which represents the landscape features associated with a meandering river. Letters *W*, *X*, *Y*, and *Z* represent locations on the floodplain.

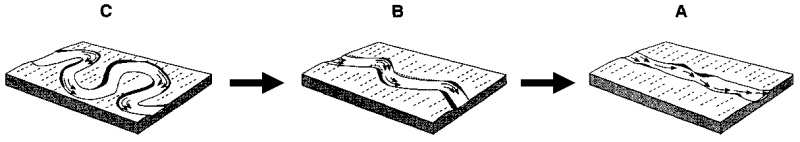


The choices below represent stages in the formation of a meandering river. Which sequence ***best*** represents the usual changes over time?

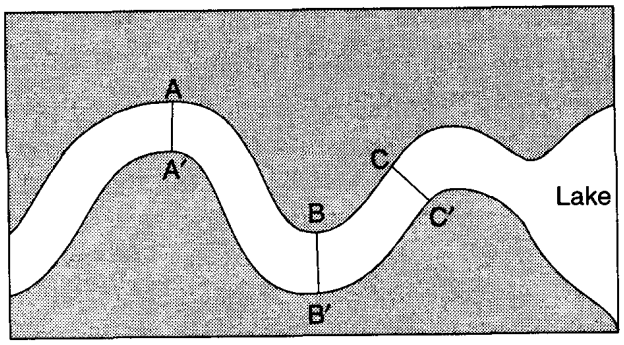
1)


2)


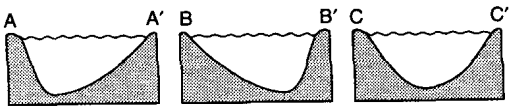
3)


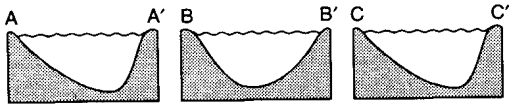
4)


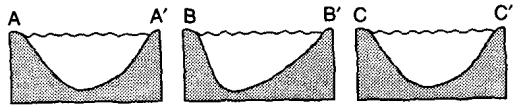
44. The map below represents a meandering stream flowing into a lake. A student measured water depths in the stream at three locations: *A–A′*, *B–B′*, and *C–C′*.

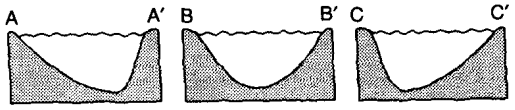


Which set of cross sections best represents the stream bed at the three locations?

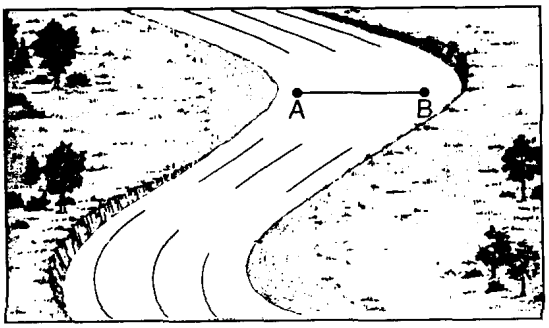
1) 

2) 

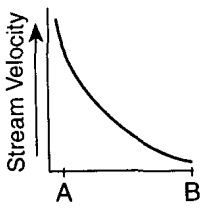
3) 

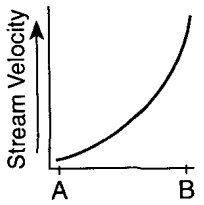
4) 

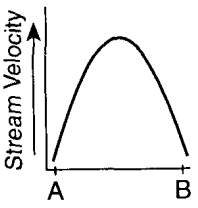
45. The diagram below shows a meandering stream. Measurements of stream velocity were taken along straight line *AB*.

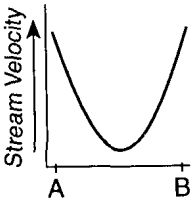


Which graph best shows the relative stream velocities across the stream from *A* to *B*?

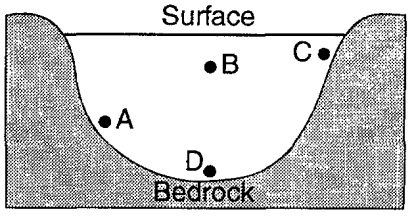
1) 

2) 

3) 

4) 

46. The diagram below shows a cross section of a river. Letters *A*, *B*, *C*, and *D* represent points in the river.



At which point is the water most likely to have the greatest velocity?

1) *A* 2) *B* 3) *C* 4) *D*

47. An increase in the velocity of a stream is most likely due to

1) an increase in stream discharge
2) an increase in the width of the riverbed
3) a decrease in the slope of the stream channel
4) a decrease in the amount of material held in suspension

RR#6 - Multiple Choice

48. The photograph below shows scratched and grooved bedrock with boulders on its surface.

Source: www.nr.gov.nl.ca

The scratches and grooves were most likely created when

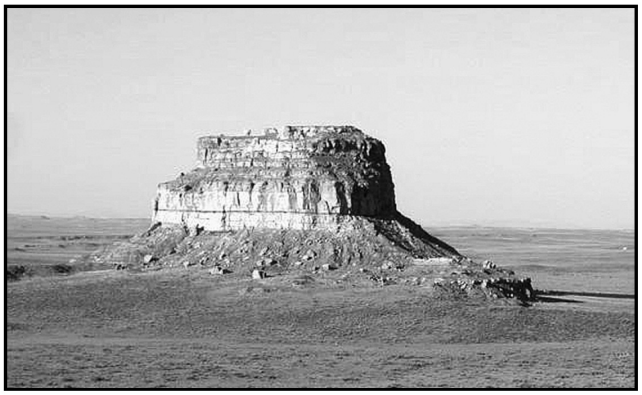
1) alternating thawing and freezing of water cracked the bedrock
2) flooding from a nearby lake covered the bedrock
3) a glacier dragged rocks over the bedrock
4) rocks from a landslide slid along the bedrock

49. The photograph below shows scratched and polished bedrock produced by weathering and erosion.

Which agent of eosion most likely carried sediment that scratched and polished this bedrock surface?

1) a moving glacier
2) running water
3) wave action
4) wind

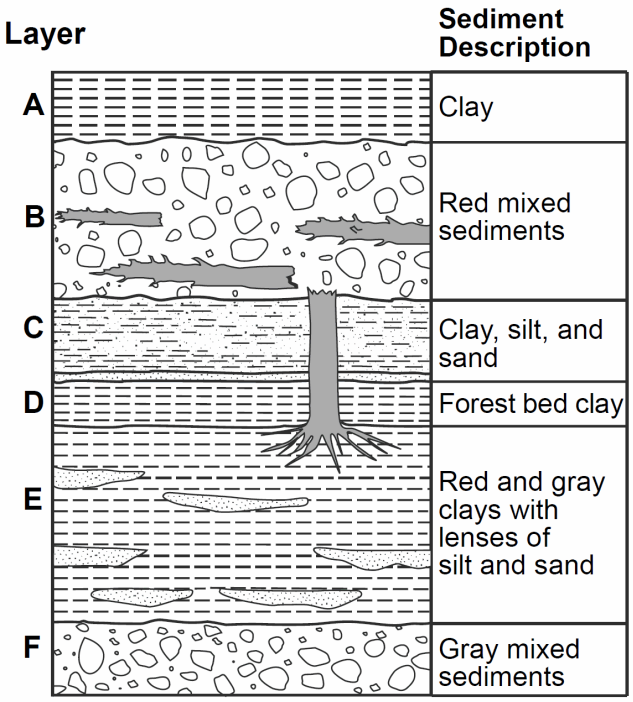
50. The photography below shows a sandstone butte in an arid region.



Which agents of erosion are currently changing the appearance of this butte?

1) glaciers and mass movement
2) wave action and running water
3) wind and mass movement
4) running water and glacier

51. The cross section below shows layers of sediments deposited in a region of Wisconsin that has experienced several periods of glaciation. Descriptions of the sediments in layers *A* through *F* are included.



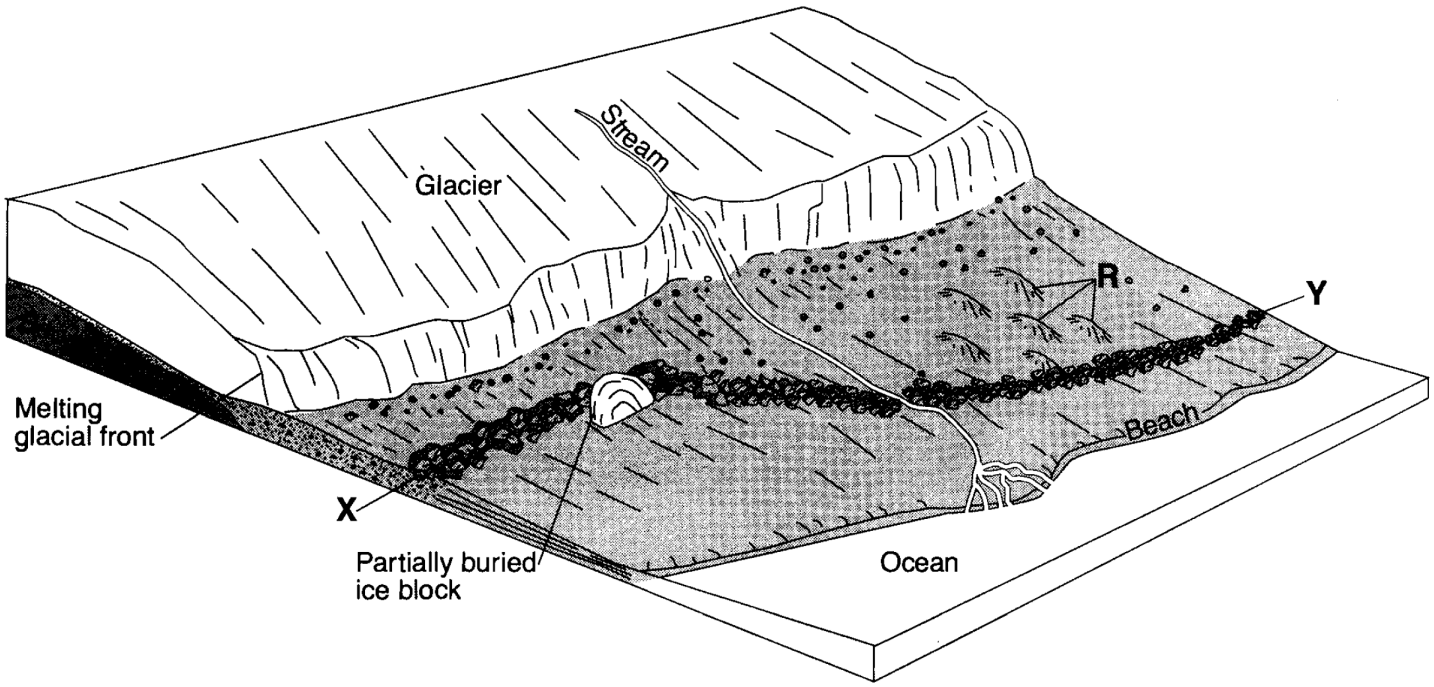
Source: A. N. Strahler, *The Earth Sciences*, 2nd Edition, 1971 (adapted)

Which two layers of sediments were probably deposited directly by glaciers?

1) *A* and *D*
2) *B* and *F*
3) *C* and *E*
4) *D* and *E*

RR#6 - Multiple Choice

Base your answers to questions **52** through **54** on the diagram below, which shows the edge of a continental glacier that is receding. *R* indicates elongated hills. The ridge of sediments from *X* to *Y* represents a landscape feature.



52. The ridge of sediments from *X* to *Y* can best be described as

    1) sorted and deposited by ice
    2) sorted and deposited by meltwater
    3) unsorted and deposited by ice
    4) unsorted and deposited by meltwater

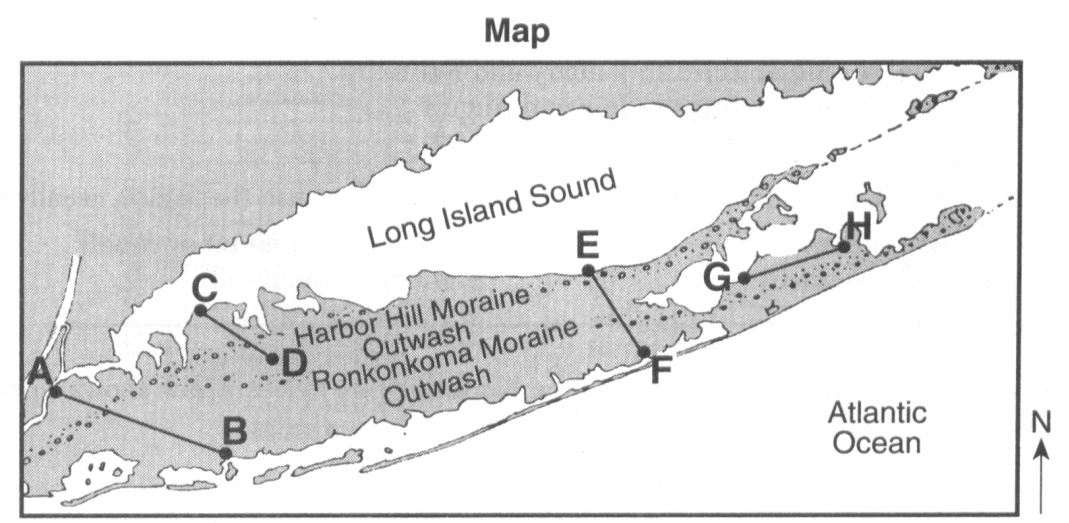
53. The elongated hills labeled *R* are most useful in determining the

    1) age of the glacier
    2) direction the glacier has moved
    3) thickness of the glacier
    4) rate at which the glacier is melting

54. Which feature will most likely form when the partially buried ice block melts?

    1) drumlin
    2) moraine
    3) kettle lake
    4) finger lake

Base your answers to questions **55** and **56** on the map of Long Island, New York. *AB, CD, EF* and *GH* are reference lines on the map.



55. A major difference between sediments in the outwash and sediments in the moraines is that the sediments deposited in the outwash are

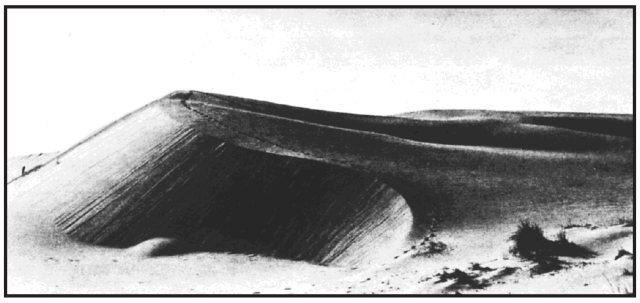
    1) larger 2) sorted 3) more angular 4) older

56. The cross section below represents the sediments beneath the land surface along one of the reference lines shown on the map.

Along which reference line was the cross section taken?

1) *AB* 2) *CD* 3) *EF* 4) *GH*

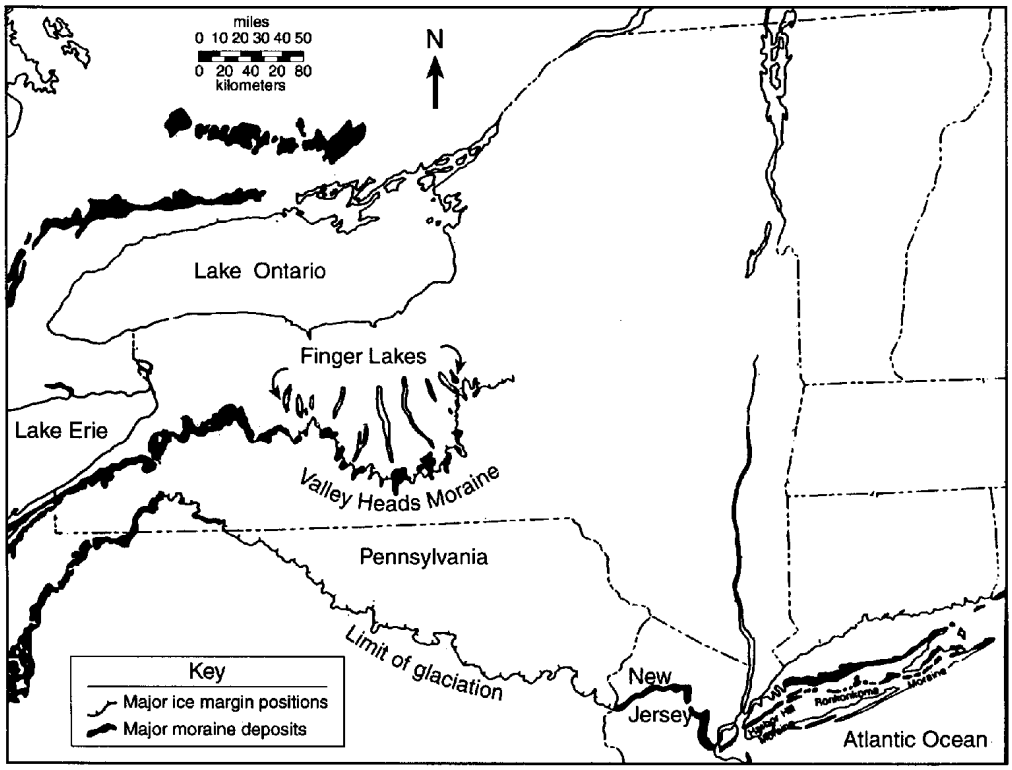
57. The photograph below shows a sand dune that formed in a coastal area.

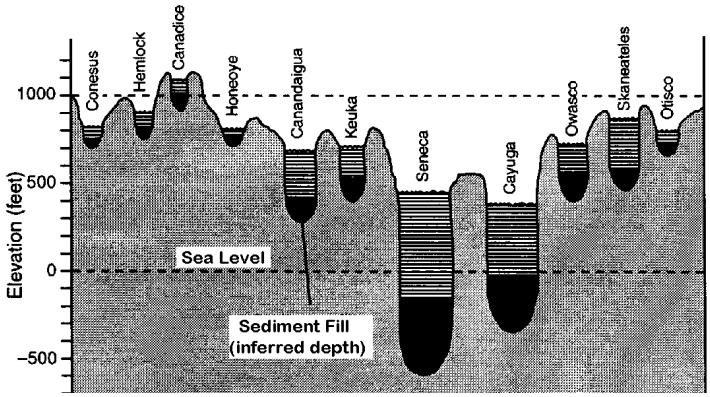


This sand dune was most likely formed by

1) water flowing from the left
2) water flowing from the right
3) wind blowing from the left
4) wind blowing from the right

Base your answers to questions **58** through **60** on the map and cross section below. The map shows the shapes and locations of New York State's 11 Finger Lakes and the locations of some major glacial deposits (moraines) left behind by the last ice age. The cross section shows surface elevations, valley depths, and water depths of the Finger Lakes.





58. In which New York State landscape region are the Finger Lakes located?

    1) Hudson-Mohawk Lowlands
    2) Erie-Ontario Lowlands
    3) Allegheny Plateau
    4) the Catskills

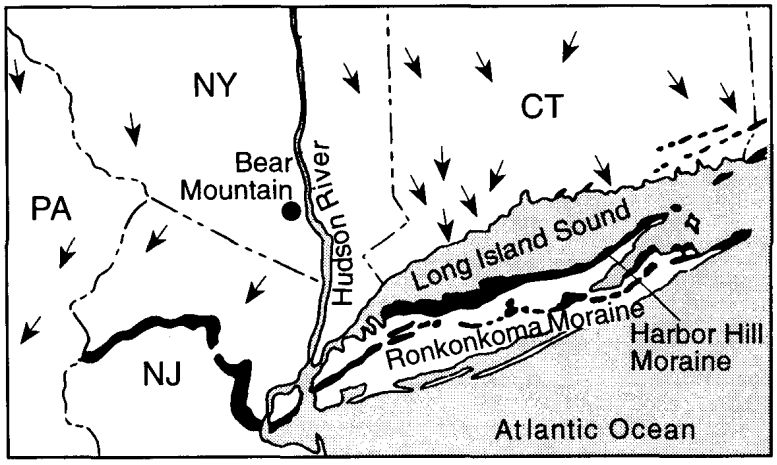
59. The general shape of the Finger Lakes and the pattern of moraine deposits found across Pennsylvania, New Jersey, and New York are evidence that the continental glacier was advancing from

    1) south to north 2) north to south 3) east to west 4) west to east

60. Which statement provides the best evidence that New York State's Finger Lakes formed as a result of continental glaciation?

    1) The lake surfaces are above sea level.
    2) The lakes fill long, narrow, U-shaped valleys.
    3) The lakes are partially filled with sorted beds of sediment.
    4) The lakes are surrounded by sharp, jagged peaks and ridges.

Base your answers to questions **61** and **62** on the map below. Arrows on the map show the location and orientation of glacial striations on the surface bedrock. Dark shading shows the location of large moraines (glacial deposits).



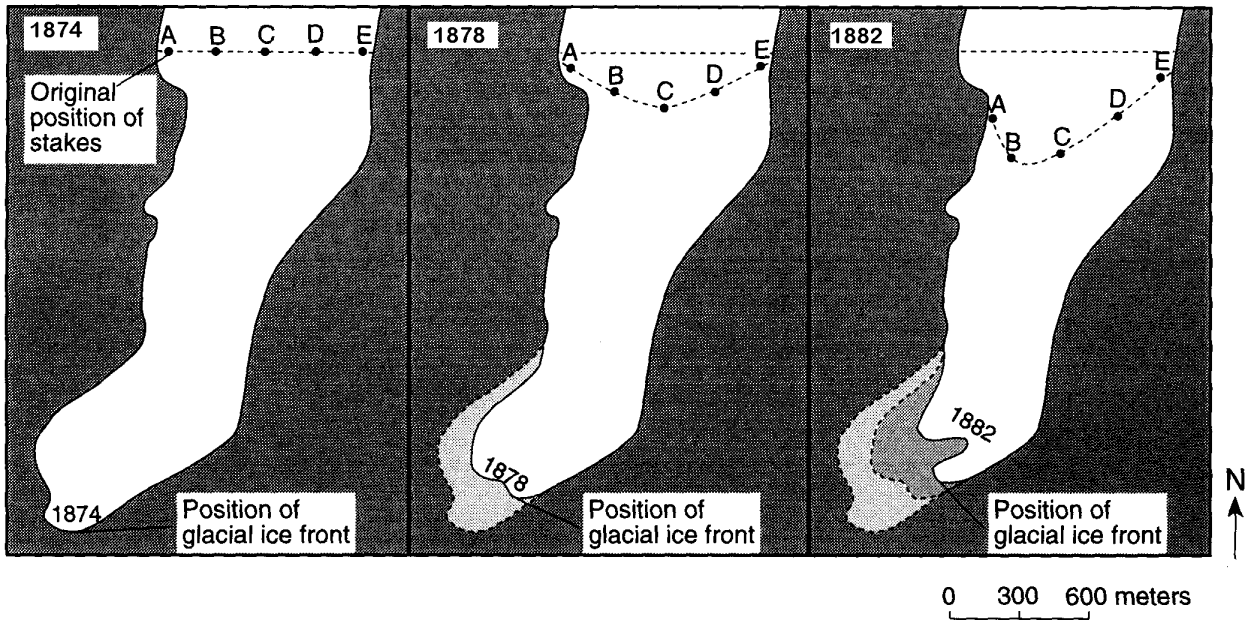
61. Observations of which feature would be most useful in determining the thickness of the ice sheet?

    1) grooved bedrock near the top of Bear Mountain
    2) glacial soils in southern Connecticut
    3) glacial boulders at the bottom of Long Island Sound
    4) scratches on loose rock at the mouth of the Hudson River

62. How were the striations made?

    1) Frost action cracked the bedrock during the ice age.
    2) Rocks at the bottom of the glaciers were dragged over the bedrock.
    3) Particles carried by winds scratched the bedrock during the ice age.
    4) Particles carried by glacial meltwater eroded the bedrock.

63. Base your answer to the following question on the three maps below, which show the ice movement and changes at the ice front of an alpine glacier from the years 1874 to 1882. Points A, B. C, D, and E represent the positions of large markers placed on the glacial ice and left there for a period of eight years.



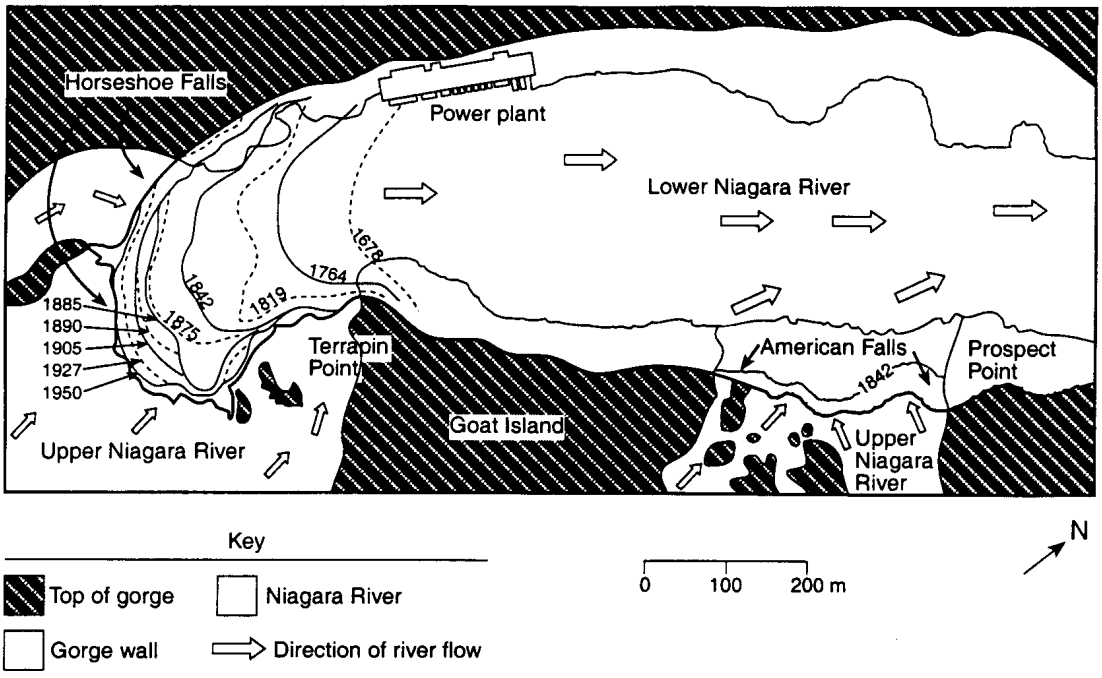
Which statement best describes the changes happening to this glacier between 1874 and 1882?

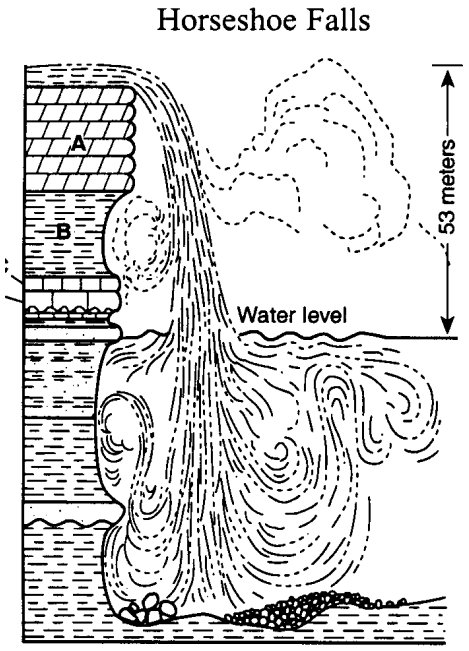
1) The ice front was advancing, and the ice within the glacier was advancing.
2) The ice front was advancing, and the ice within the glacier was retreating.
3) The ice front was retreating, and the ice within the glacier was advancing.
4) The ice front was retreating, and the ice within the glacier was retreating.

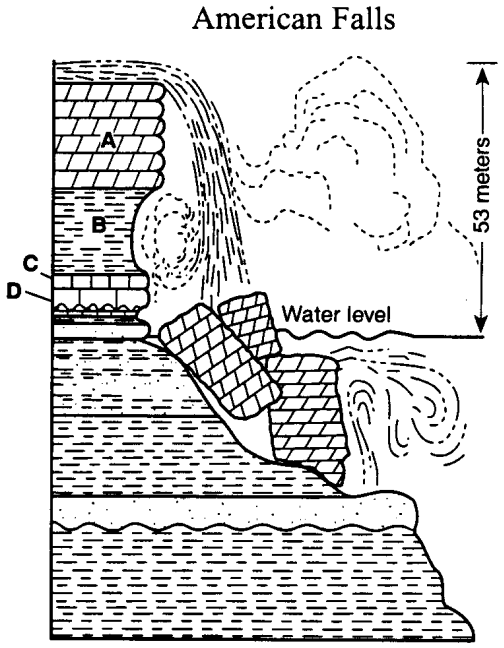
64. Which landscape feature was most likely formed by glacial activity?

1) an eroded plateau
2) a flat floodplain
3) a U-shaped valley
4) a V-shaped valley

Base your answers to questions **65** and **66** on the map and cross sections below. The map shows measured changes in the position of Niagara Falls since 1678. The cross sections show the two parts of Niagara Falls: Horseshoe Falls and American Falls. Letters *A* through *D* represent the same rock layers at both locations.







65. Which rock layer shows the most resistance to weathering and erosion at Horseshoe Falls?

1) *A* 2) *B* 3) *C* 4) *D*

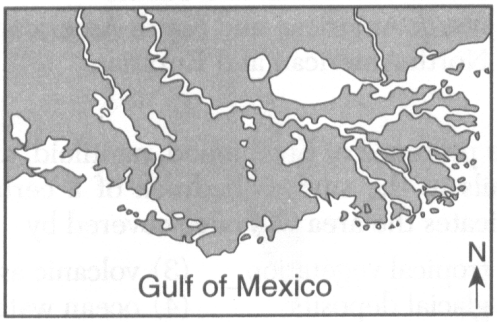
66. Which statement best explains why Horseshoe Falls has eroded back more than American Falls since 1842?

    1) Dolostone is the top rock layer at Horseshoe Falls.
    2) Dolostone is the top rock layer at American Falls.
    3) More water flows over Horseshoe Falls.
    4) More water flows over American Falls.

67. Which natural agent of erosion is mainly responsible for the formation of the barrier islands along the southern coast of Long Island, New York?

    1) mass movement
    2) running water
    3) prevailing winds
    4) ocean waves

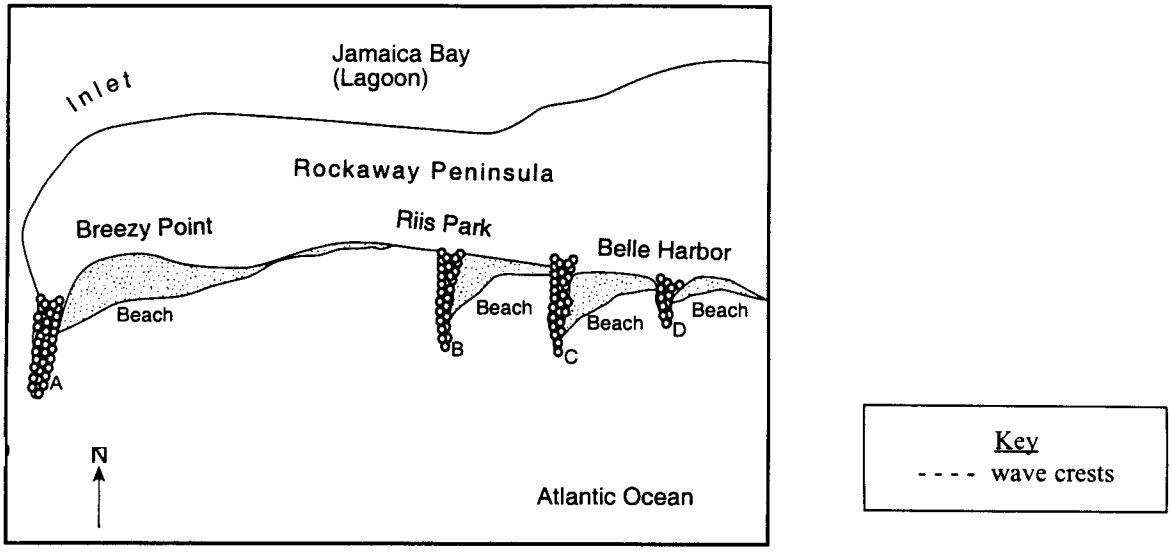
68. The map below shows the large delta that formed as the Mississippi River emptied into the Gulf of Mexico.



    Which process was primarily responsible for the formation of the delta?

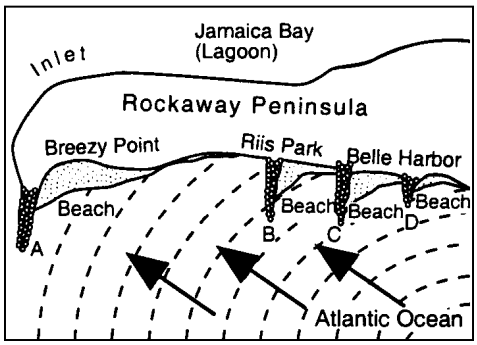
    1) glacial erosion
    2) cementation of sediment
    3) deposition of sediment
    4) mass movement

69. The map below shows Rockaway Peninsula, part of Long Island's south shore, and the location of several stone barriers, *A*, *B*, *C*, and *D*, that were built to trap sand being transported along the coast by wave action.

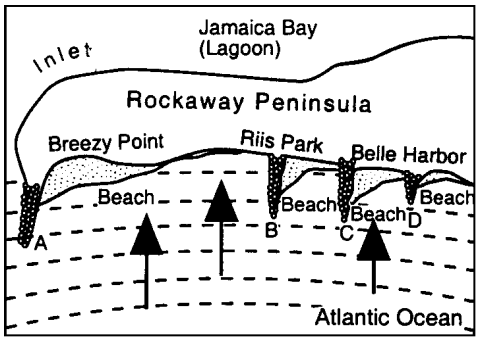


On which map do the arrows best show the direction of wave movement that created the beaches in this area?

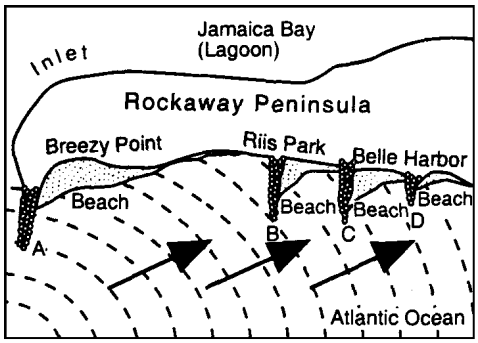
1)



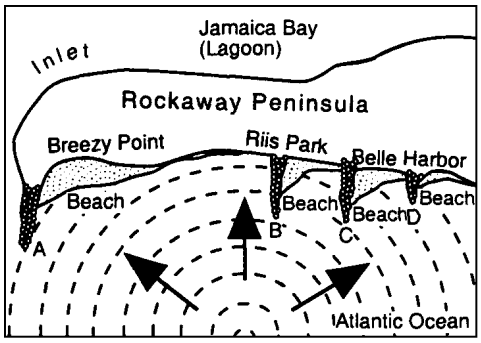
2)



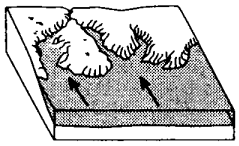
3)

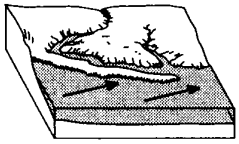


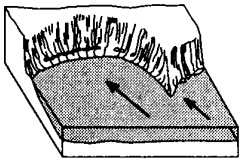
4)

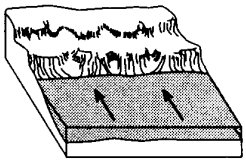


70. The diagrams below represent landscape features found along the seacoast. The arrows show ocean-wave direction. Which shoreline has been shaped more by deposition than by erosion?

1) 

2) 

3) 

4) 

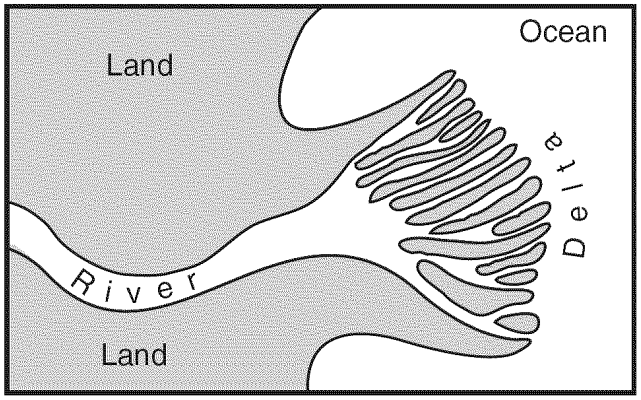
71. Sediment samples *A* through *D* below have the same volume and packing, but contain different percentages of various particle sizes.

Sample *A*: 75% clay and 25% silt
Sample *B:* 25% clay and 75% sand
Sample *C*: 50% pebbles and 50% sand
Sample *D*: 50% pebbles and 50% cobbles

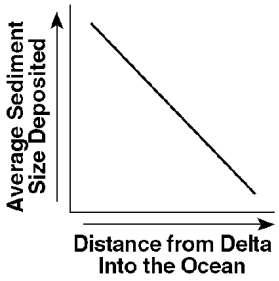
Which sample most likely has the greatest permeability?

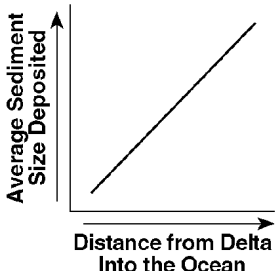
1) *A* 2) *B* 3) *C* 4) *D*

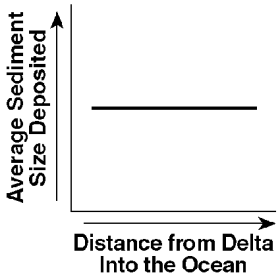
72. The map below shows a river emptying into an ocean, producing a delta.

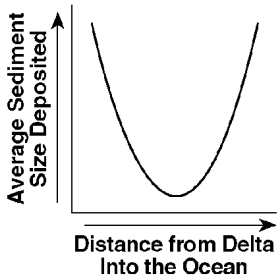


Which graph best represents the relationship between the distance from the river delta into the ocean and the average size of sediments deposited on the ocean floor?

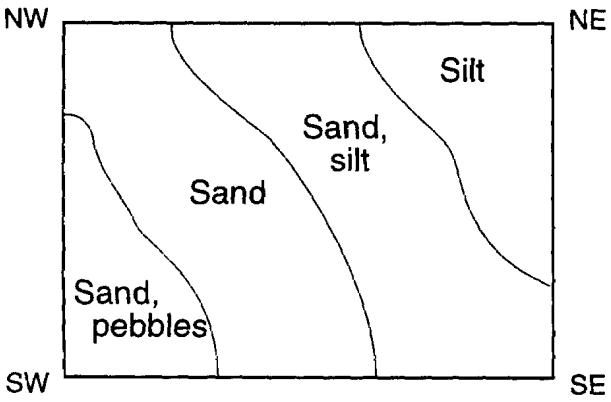
1) 

2) 

3) 

4) 

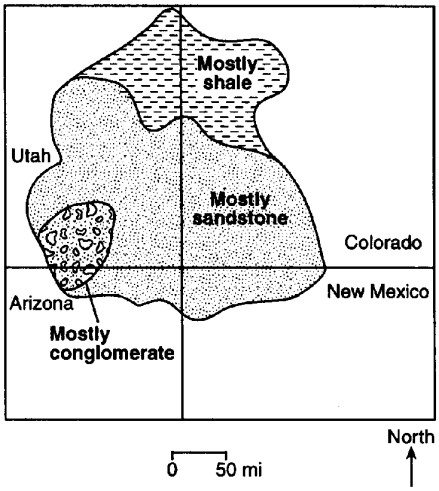
73. A stream entering a lake deposits sediments on the lake bottom in the pattern shown on the map below.



Which corner of the map is nearest to the point where the stream flows into the lake?

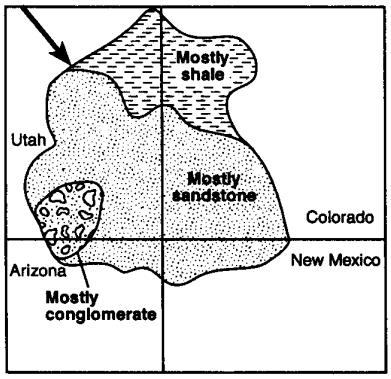
1) northeast (NE)
2) northwest (NW)
3) southeast (SE)
4) southwest (SW)

74. The map below shows the surface bedrock in an area of the southwestern United States that formed from sediments deposited in a shallow sea that formerly existed in that area. These sediments were transported by a river that flowed into the sea.

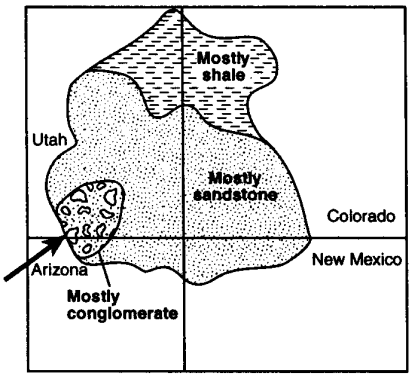


In which diagram does the arrow best show the direction of flow of the river that deposited these sediments and the point at which the river emptied into the sea?

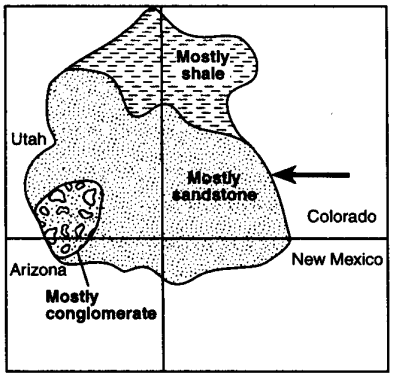
1)



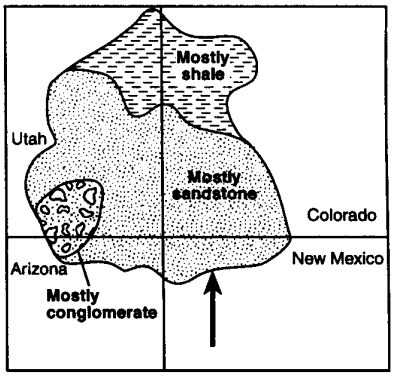
2)



3)



4)



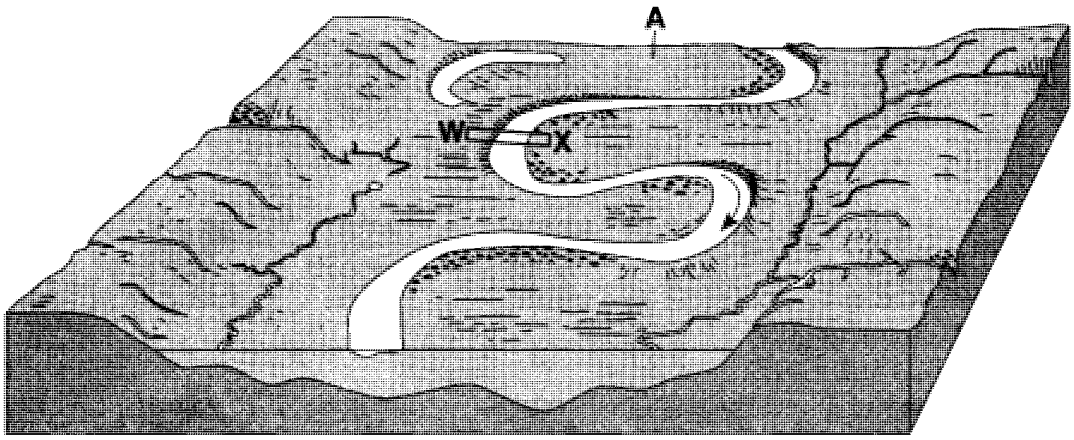
75. When particles of uniform shape and density are dropped into a calm lake, silt will settle faster than

1) sand
2) clay
3) cobbles
4) pebbles

76. How are dissolved materials carried in a river?

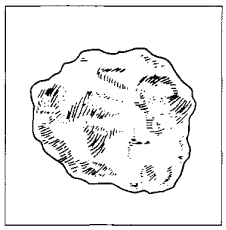
1) in solution
2) in suspension
3) by precipitation
4) by bouncing and rolling

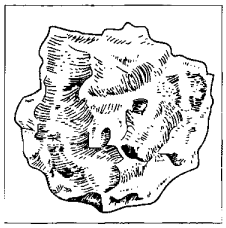
77. Base your answer to the following question on the block diagram below, which represents the landscape features associated with a meandering stream. *WX* is the location of a cross section. Location *A* indicates a landscape feature.

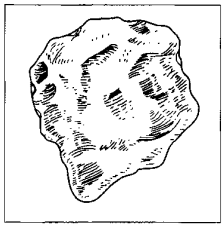


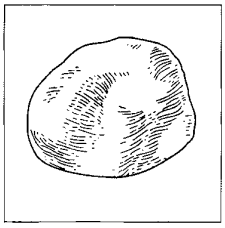
(Not drawn to scale)

Which particle of quartz shows evidence of being transported the farthest distance by the stream?

1) 

2) 

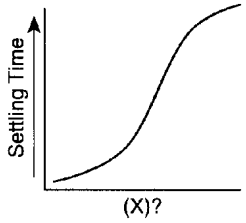
3) 

4) 

78. Which characteristics of a particle would usually result in the longest settling time for the particle in calm water?

1) low density and round shape
2) low density and flat shape
3) high density and round shape
4) high density and flat shape

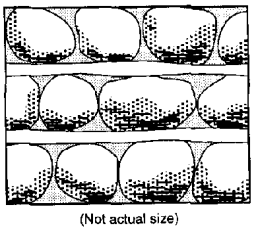
79. The graph below is incomplete because it does not identify the sediment characteristic (X) that would produce the line plotted on the graph.



Which label should be placed on the horizontal axis to accurately complete the graph?

1) Low ⟶ High
Particle Density
2) Small ⟶ Large
Particle Size
3) Light ⟶ Heavy
Particle Mass
4) Round ⟶ Flat
Particle Shape

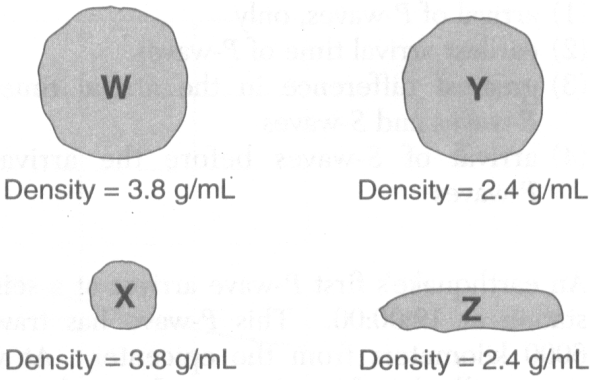
80. The diagram below shows cobbles used in the construction of the walls of a cobblestone building.


(Not actual size)

The shape and size of the cobbles suggest that they were collected from

1) the channel of a fast-flowing stream
2) volcanic ash deposits
3) a desert sand dune
4) the base of a cliff from which they had weathered

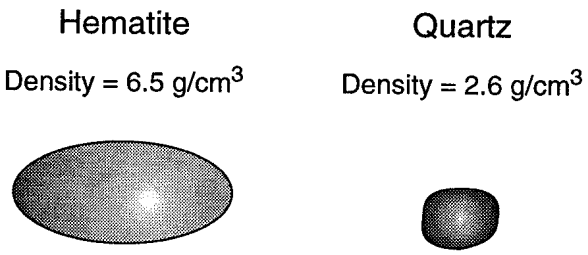
81. A stream is transporting the particles *W*, *X*, *Y,* and *Z*, shown below.



Which particle will most likely settle to the bottom first as the velocity of this stream decreases?

1) *W* 2) *X* 3) *Y* 4) *Z*

82. The two pebbles shown below are dropped into a tank of water 1 meter deep.



Why does the hematite pebble settle faster than the quartz pebble?

1) Smaller objects settle faster than larger objects.
2) Flat objects settle faster than round objects.
3) Spherical objects have less gravitational attraction than flat objects.
4) Objects with higher density settle faster than objects with lower density.

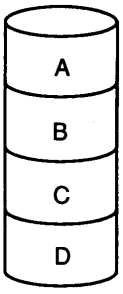
83. A sedimentary particle is dropped into a cylinder of water. The particle will take the longest time to settle if the particle has

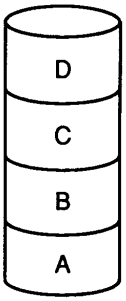
1) low density, small size, and spherical shape
2) low density, small size, and flattened shape
3) high density, large size, and spherical shape
4) high density, large size, and flattened shape

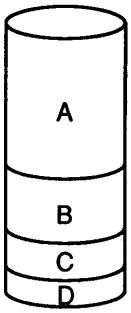
84. Four different kinds of particles (*A*, *B*, *C*, and *D*) with the same shape and diameter were mixed and poured into a column of water. The mass, volume, and density of the particles are shown below.

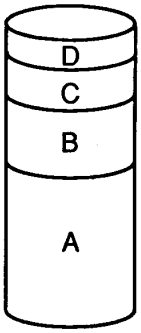
Particle	Mass (g)	Volume (cm^3)	Density (g/cm^3)
A	100	67	1.5
B	100	33	3.0
C	100	22	4.5
D	100	17	6.0

Which diagram best shows how the particle beds would be arranged in the column of water after settling?

1) 

2) 

3) 

4) 

85. Sediment is deposited in a river delta because the

1) velocity of the river decreases
2) force of gravity decreases
3) volume of the river increases
4) gradient of the river increases

86. What is the approximate minimum stream velocity needed to keep a particle in motion that has a diameter of 10 centimeters?

1) 110 cm/s
2) 190 cm/s
3) 325 cm/s
4) 425 cm/s

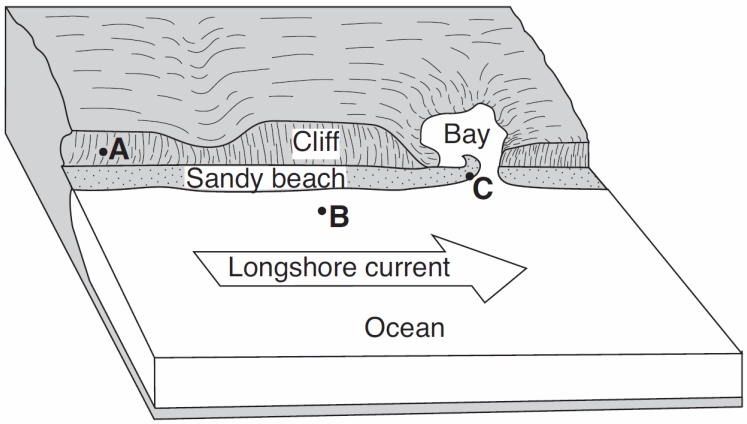
87. A stream's velocity decreases from 100 cm/s to 5cm/s. Which size sediment particles will still be transported by the stream?

1) pebbles, sand, silt, and clay
2) sand, silt, and clay, only
3) silt and clay, only
4) clay, only

88. A stream flowing at a velocity of 250 centimeters per second is transporting sediment particles ranging in size from clay to cobbles. Which transported particles will be deposited by the stream if its velocity decreases to 100 centimeters per second?

1) cobbles, only
2) cobbles and some pebbles, only
3) cobbles, pebbles, and some sand, only
4) cobbles, pebbles, sand, slit, and clay

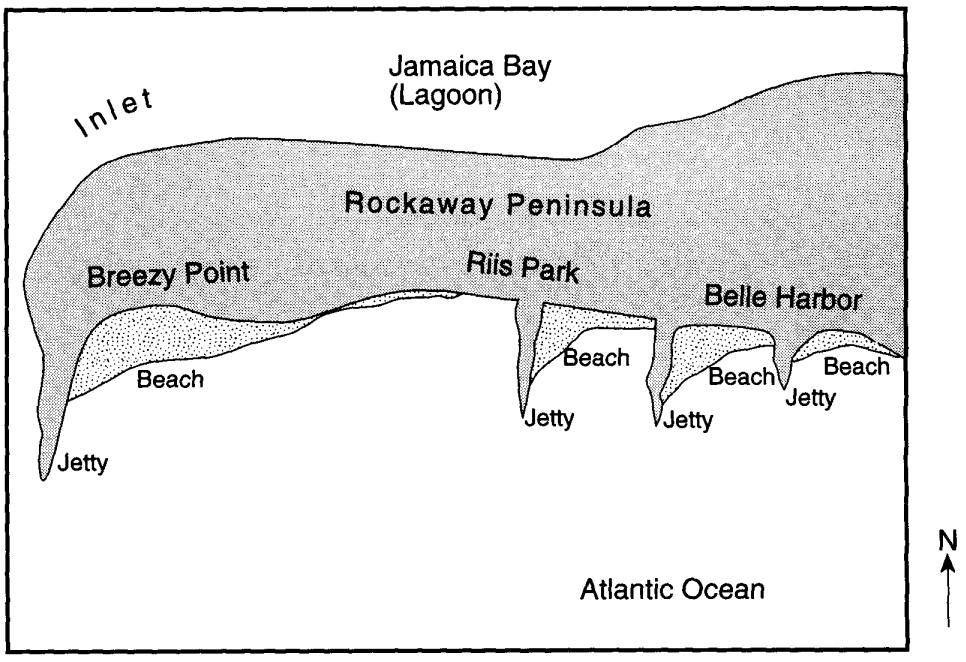
89. The block diagram below shows a part of the eastern coastline of North America. Points *A*, *B*, and *C* are reference points along the coast.



Which list best represents the primary processes occurring along the coastline at points *A*, *B*, and *C*?

1) *A* — folding; *B* — subduction; *C* — crosscutting
2) *A* — weathering; *B* — erosion; *C* — deposition
3) *A* — faulting; *B* — conduction; *C* — mass movement
4) *A* — precipitation; *B* — infiltration; *C* — evaporation

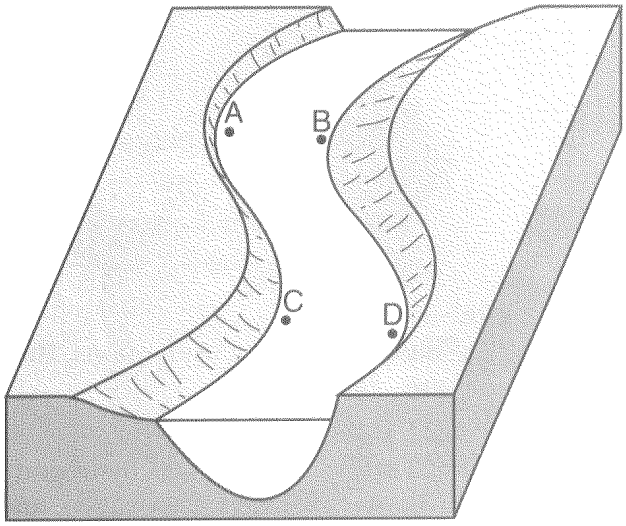
90. Base your answer to the following question on the map below.



Toward which direction is sand being transported along the shoreline within the zone of breaking waves?

1) northeast 2) south 3) southeast 4) west

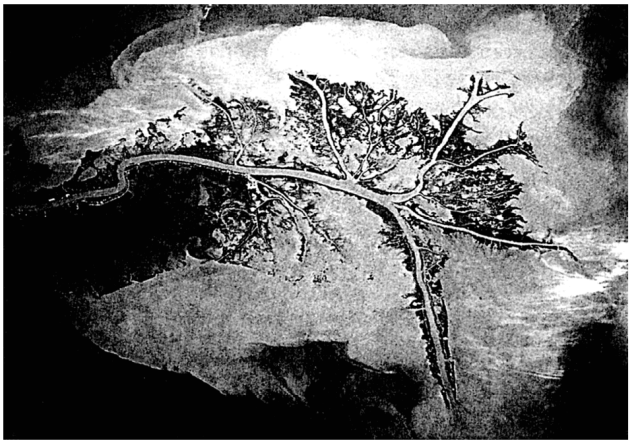
91. Base your answer to the following question on the diagram below, which shows a meandering stream. Letters A, *B,* C, and *D* indicate locations on the streambed.



At which two locations is the rate of erosion greater than the rate of deposition?

1) A and B
2) *B* and *C*
3) C and D
4) *D* and A

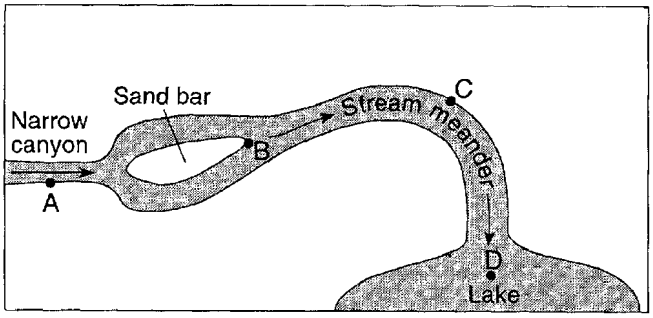
92. The satellite photograph below shows a geologic feature composed of silt, sand, and clay.



The geologic feature shown in the photograph was primarily deposited by which agent of erosion?

1) glaciers
2) wind
3) wave action
4) running water

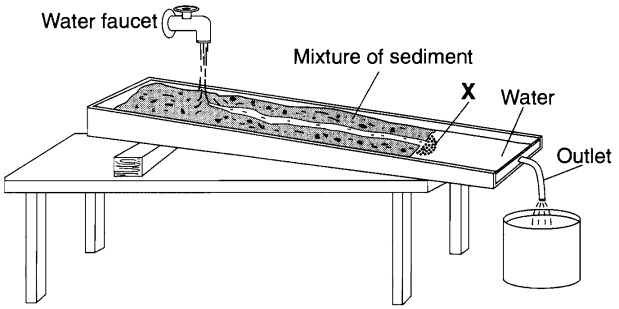
93. The map below shows a stream flowing into a lake. Locations *A*, *B,* and *C* are at the water's edge, and location *D* is on the lake bottom.



Which statement best describes erosion and deposition in this stream area

1) Erosion is dominant at *A* and *C*; deposition is dominant at *B* and *D*.
2) Erosion is dominant at *B* and *C*; deposition is dominant at *A* and *D*.
3) Erosion is dominant at *A* and *D*; deposition is dominant at *B* and *C*.
4) Erosion is dominant at *B* and *D*; deposition is dominant at *A* and *C*.

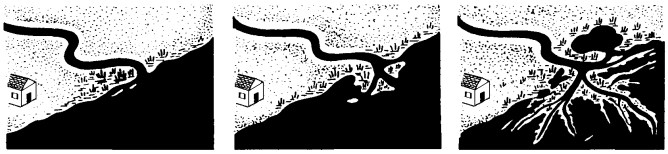
94. The diagram below shows a laboratory stream table. A mixture of sediment was placed on the stream table. A short time after the faucet was turned on, a deposit of sediment began forming at location *X* at the lower end of the stream table.



What is the name of the stream feature forming at location X?

1) V-shaped valley
2) meander
3) delta
4) floodplain

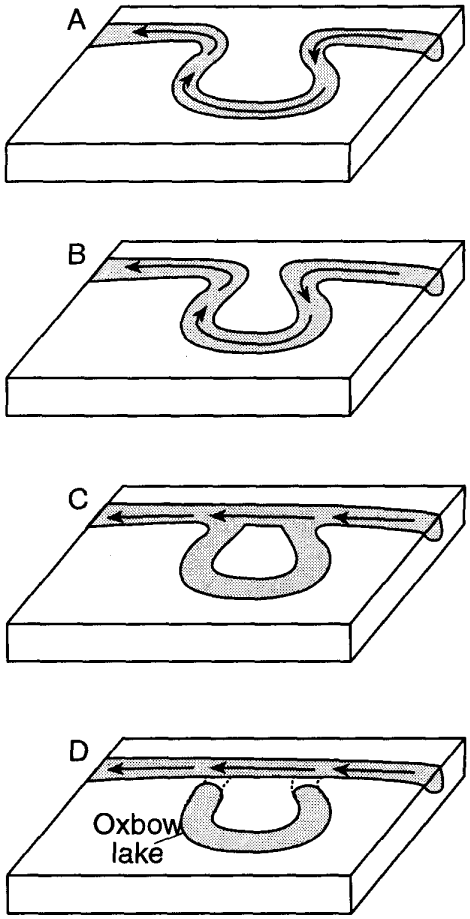
95. The diagrams below show gradual stages 1, 2, and 3 in the development of a river delta where a river enters an ocean.



Which statement best explains why the river delta is developing at this site?

1) The rate of deposition is less than the rate of erosion.
2) The rate of deposition is greater than the rate of erosion.
3) Sea level is slowly falling.
4) Sea level is slowly rising.

96. The diagrams below show the stages, *A* through *D*, in the formation of an oxbow lake over a period of time. [The arrows indicate the direction of streamflow.]



Oxbow lakes are generally formed by

1) erosion, resulting in a sudden increase in the stream's gradient
2) deposition, resulting in a sudden increase in the stream's gradient
3) erosion along the outside banks of the curve in a meandering stream
4) deposition along the outside banks of the curve in a meandering stream

97. The table below shows the rate of erosion and the rate of deposition at four stream locations.

Location	Rate of Erosion (tons/year)	Rate of Deposition (tons/year)
A	3.00	3.25
B	4.00	4.00
C	4.50	4.65
D	5.60	5.20

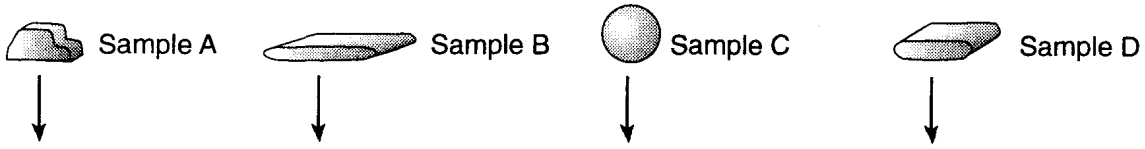
A state of dynamic equilibrium exists at location

1) *A* 2) *B* 3) *C* 4) *D*

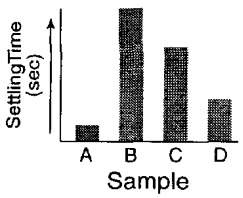
98. Which statement best describes the conditions existing at a stream location where the erosional-depositional system is in dynamic equilibrium?

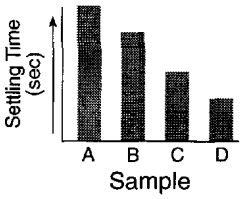
1) More erosion than deposition takes place.
2) More deposition than erosion takes place.
3) Equal amounts of erosion and deposition take place.
4) No erosion or deposition takes place.

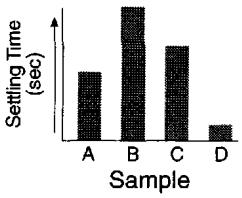
99. Four differently shaped samples of equal mass and density are dropped into still water. The diagrams below indicate the position of each sample as it settles.

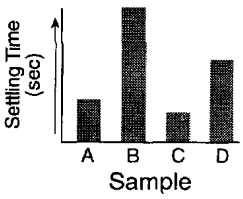


Which graph best shows the relationship of the settling time of the four samples?

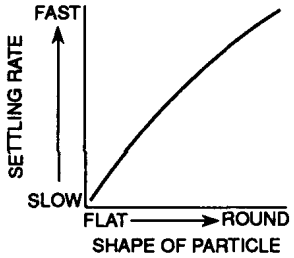
1)


2)


3)


4)


100. The graph below shows the relationship between particle shape and settling rate.



Which statement best describes the relationship shown?

1) Flatter particles settle more slowly than rounder particles.
2) Flatter particles settle faster than rounder particles.
3) All particles settle at the same speed.
4) Particle shape does not affect settling rate.