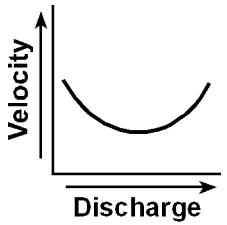
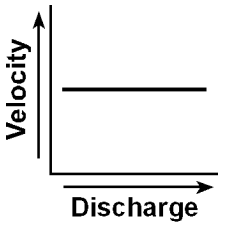
Name: _____

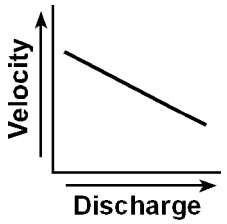
1) Which event is the *best* example of erosion?

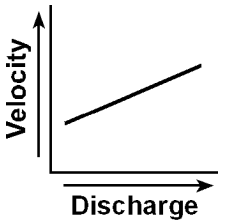
A) dissolving of rock particles on a limestone gravestone by acid rain
B) breaking apart of shale as a result of water freezing in a crack
C) rolling of a pebble along the bottom of a stream
D) crumbling of bedrock in one area to form soil

2) Which graph *best* represents the relationship between the discharge of a stream and the velocity of stream flow?

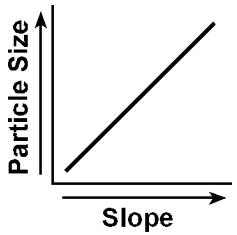
A) 

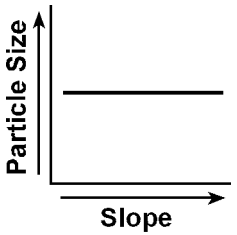
C) 

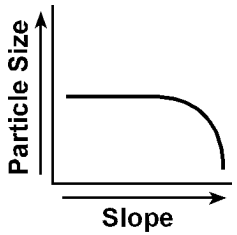
B) 

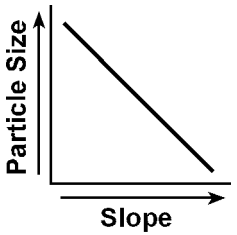
D) 

3) Which graph *best* represents the relationship between the slope of a river and the particle size that can be transported by that river?

A) 

C) 

B) 

D) 

4) The *largest* particles that a stream deposits as it enters a pond are 8 centimeters in diameter. The minimum velocity of the stream is approximately

A) 300 cm/sec
B) 200 cm/sec
C) 100 cm/sec
D) 400 cm/sec

5) What is the minimum water velocity needed in a stream to maintain the transportation of the *smallest* boulder?

A) 500 cm/sec
B) 200 cm/sec
C) 100 cm/sec
D) 300 cm/sec

6) A stream flowing at a velocity of 75 centimeters per second can transport

A) pebbles, only
B) pebbles, sand, silt, and clay, only
C) clay, only
D) boulders, cobbles, pebbles, sand, silt, and clay

7) The *largest* sediment particles that can be transported by a stream traveling at a velocity of 200 centimeters per second are

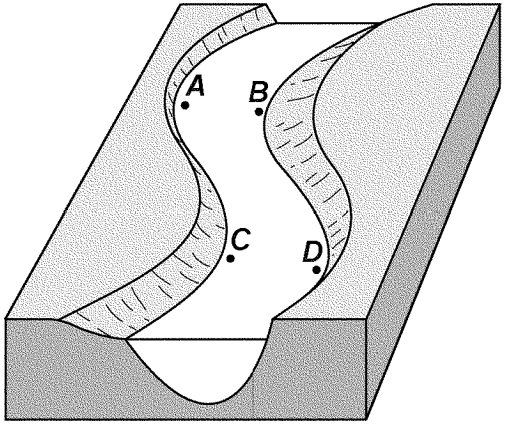
A) sand
B) pebbles
C) cobbles
D) boulders

8) What is the *largest* sediment that can be transported by a stream that has a velocity of 125 cm/sec?

A) pebbles
B) clay
C) cobbles
D) sand

Questions 9 through 11 refer to the following:

The diagram below shows a meandering stream. Letters *A*, *B*, *C*, and *D* indicate locations on the streambed.



9) What are the *largest* particles that the stream shown can transport when its velocity is 200 centimeters per second?

A) silt
B) cobbles
C) sand
D) pebbles

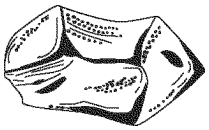
10) A decrease in the velocity of the stream shown will most likely cause an increase in

A) abrasion of the stream channel
B) the size of the particles carried by the stream
C) the amount of sediment carried by the stream
D) deposition within the stream channel

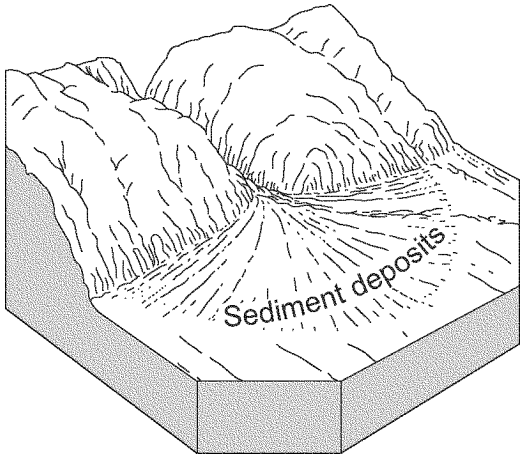
11) At which two locations in the diagram is the rate of erosion *greater* than the rate of deposition?

A) *A* and *B*
B) *C* and *D*
C) *D* and *A*
D) *B* and *C*

12) Four quartz samples of equal size and shape were placed in a stream. Which of the four quartz samples below has most likely been transported *farthest* in the stream?

A) 
C) 
B) 
D) 

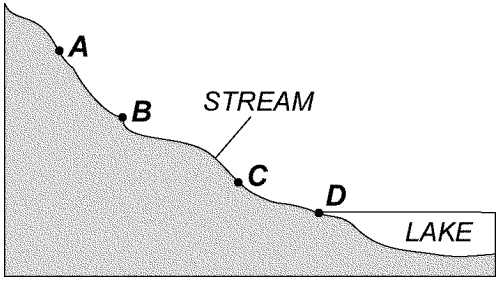
13) The landscape diagram below shows a fan-shaped pattern of sediment deposits.



The fan-shaped pattern of these sediments is most likely the result of deposition by

A) prevailing winds
B) ocean waves
C) running water
D) glacial ice

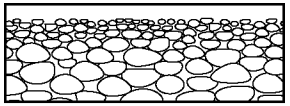
14) The cross section below shows a stream flowing downhill. Points *A* through *D* are locations in the stream.



At which point would *most* deposition occur?

A) *A* B) *B* C) *C* D) *D*

15) The cross section below shows a profile of a sediment deposit.



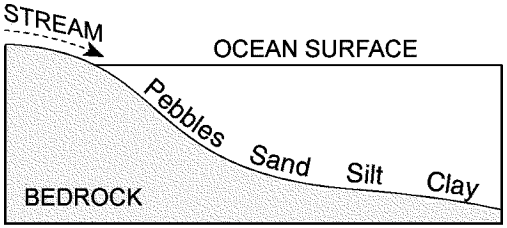
(drawn to scale)

The pattern of sediment size shown indicates that these sediments were most likely deposited within a

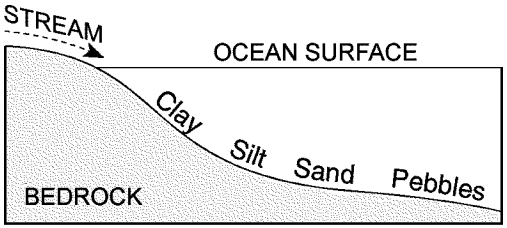
A) moraine
B) landslide
C) drumlin
D) delta

16) Which profile *best* shows the general depositional pattern that occurs when water from a stream enters the ocean?

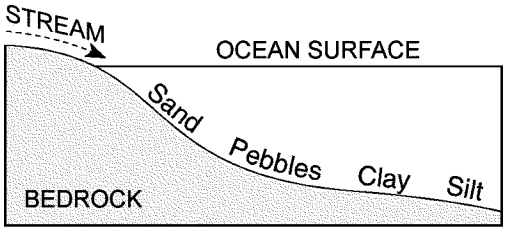
A)



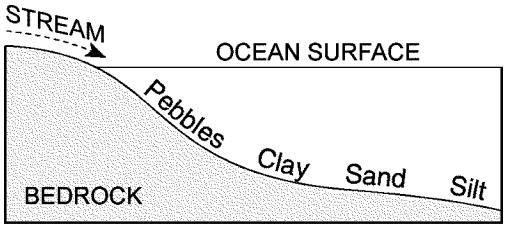
B)



C)



D)



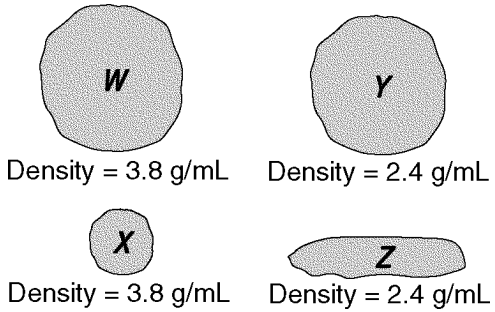
17) A river's velocity slows from 100 to 50 centimeters per second at a point in its channel. Which statement *best* describes the transport and deposition of particles at this point?

A) Clay and smaller silt stay in transport; some silt is deposited.
B) Clay, silt, sand, pebbles, and smaller cobbles stay in transport; some cobbles are deposited.
C) Clay, silt, sand, and smaller pebbles stay in transport; some pebbles are deposited.
D) Clay, silt, and smaller sand stay in transport; some sand is deposited.

18) 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?

A) cobbles and some pebbles, only
B) cobbles, only
C) cobbles, pebbles, and some sand, only
D) cobbles, pebbles, sand, silt, and clay

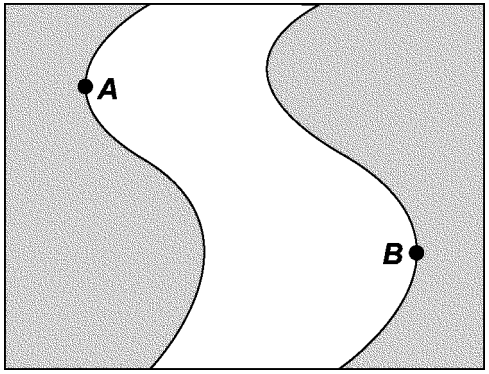
19) A stream is transporting the particles *W*, *X*, *Y*, and *Z*, shown below.



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

A) *W* B) *Y* C) *X* D) *Z*

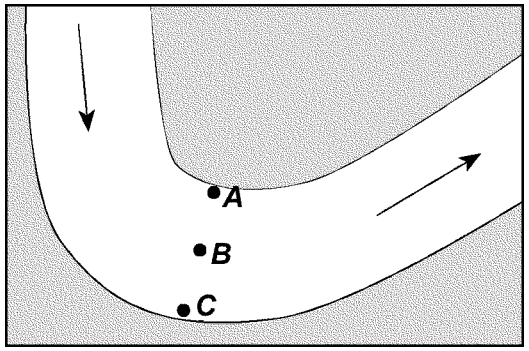
20) The map below shows a meandering river. Points *A* and *B* are locations on the banks of the river.



What are the dominant processes occurring at locations *A* and *B*?

A) deposition at both locations *A* and *B*
B) erosion at location *A*; deposition at location *B*
C) deposition at location *A*; erosion at location *B*
D) erosion at both locations *A* and *B*

21) 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.*]

A)

	Erosion	Equilibrium	Deposition
A		✓	
B			✓
C	✓		

B)

	Erosion	Equilibrium	Deposition
A			✓
B		✓	
C	✓		

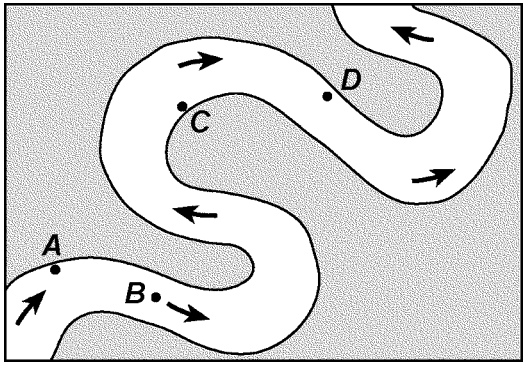
C)

	Erosion	Equilibrium	Deposition
A	✓		
B		✓	
C			✓

D)

	Erosion	Equilibrium	Deposition
A			✓
B	✓		
C		✓	

22) The map below shows a meandering stream. Points *A*, *B*, *C*, and *D* represent locations along the stream bottom.



At which location is the *greatest* amount of sediment most likely being deposited?

A) *A* B) *B* C) *C* D) *D*

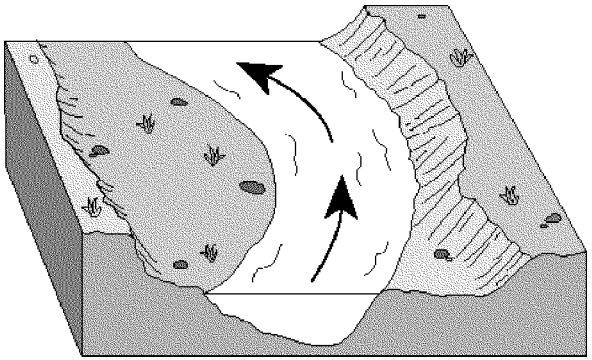
23) A meandering stream deposits *most* of its sediments on the

A) inside of meanders where the stream flows slower
B) outside of meanders where the stream flows faster
C) inside of meanders where the stream flows faster
D) outside of meanders where the stream flows slower

24) Deposition within a meandering stream usually occurs on the inside of the curves because the

A) stream gradient increases
B) water is deeper
C) stream is narrower
D) water velocity decreases

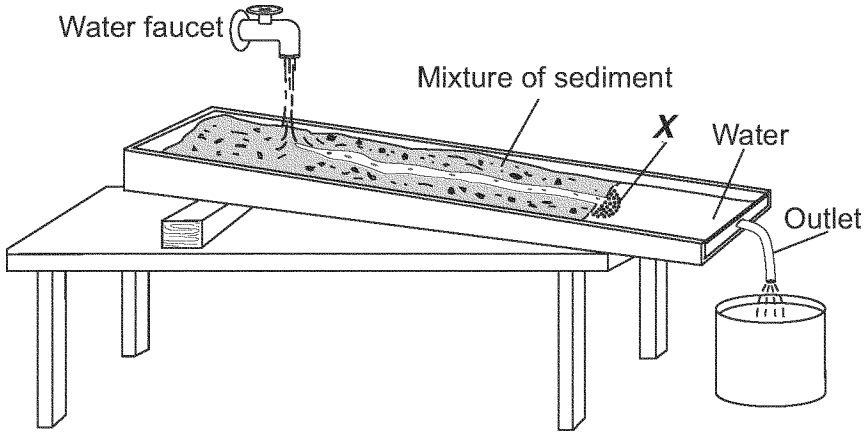
25) The diagram below shows a section of a meander in a stream. The arrows show the direction of stream flow.



The streambank on the outside of this meander is steeper than the streambank on the inside of this meander because the water on the outside of this meander is moving

A) slower, causing deposition
B) slower, causing erosion
C) faster, causing erosion
D) faster, causing deposition

26) 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.

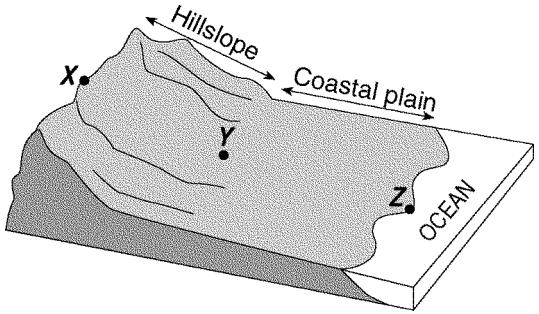


What is the name of the stream feature forming at location *X*?

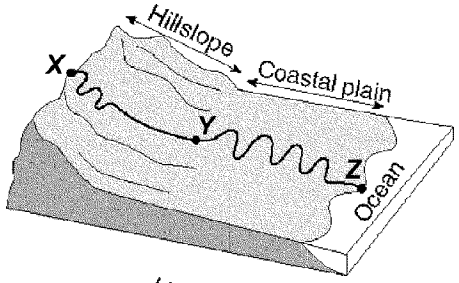
A) meander
B) delta
C) V-shaped valley
D) floodplain

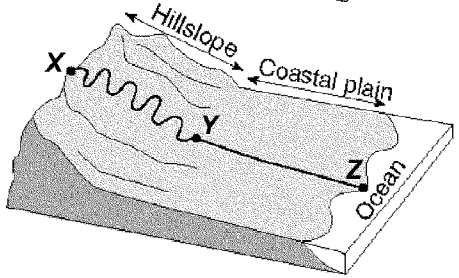
Questions 27 through 29 refer to the following:

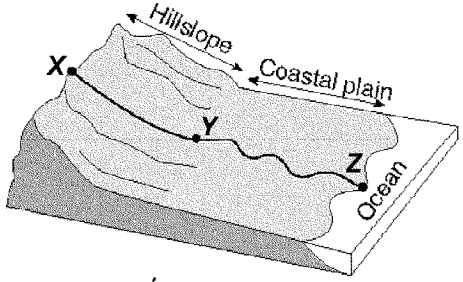
The diagram below shows a coastal region in which the land slopes toward the ocean. Point *X* is near the top of the hill, point *Y* is at the base of the hill, and point *Z* is a location at sea level. The same type of surface bedrock underlies this entire region. A stream flows from point *X* through point *Y* to point *Z*. This stream is *not* shown in the diagram.

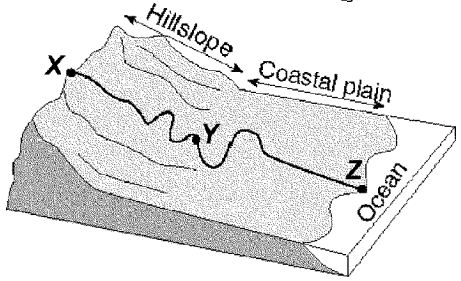


27) Which of the following diagrams *best* shows the *most* probable path of the stream flowing from point *X* to point *Z*?

A)


B)


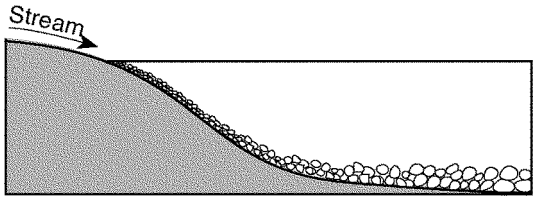
C)


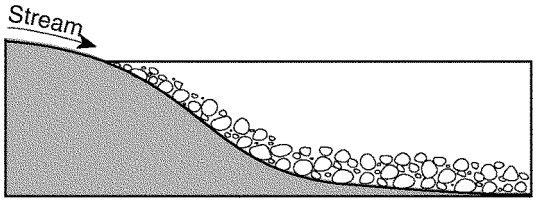
D)


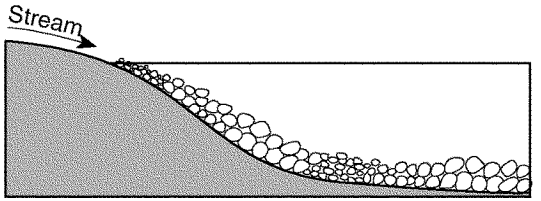
28) Compared to the stream velocity between point *X* and point *Y* on the diagram shown, the stream velocity between point *Y* and point *Z* is most likely

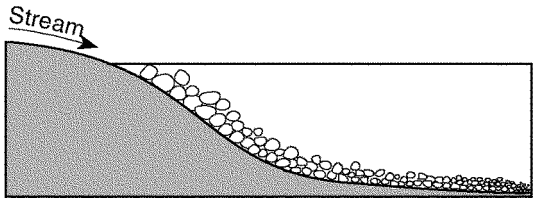
A) greater, since the slope of the land decreases
B) less, since the slope of the land decreases
C) greater, since the slope of the land increases
D) less, since the slope of the land increases

29) Which cross section *best* shows the pattern of sediments deposited by the stream as it enters the ocean near point *Z* on the diagram shown?

A)


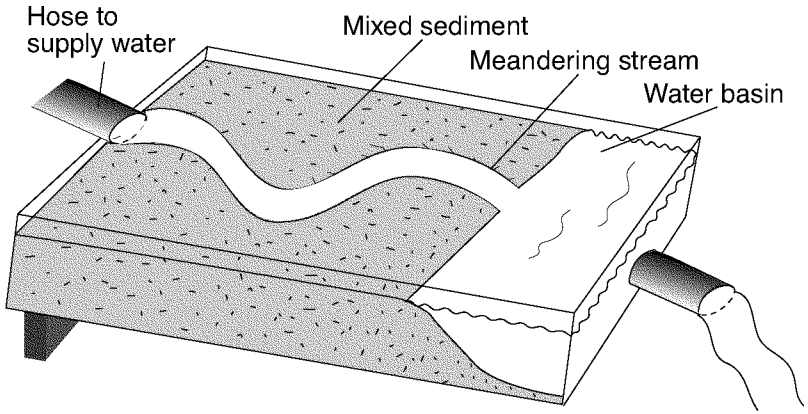
B)


C)


D)


Questions 30 through 32 refer to the following:

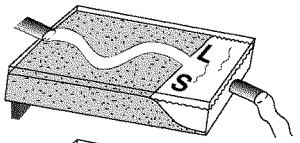
The diagram below shows a model used to investigate the erosional-depositional system of a stream. The model was tilted to create a gentle slope, and a hose supplied water to form the meandering stream shown.

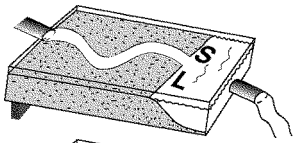


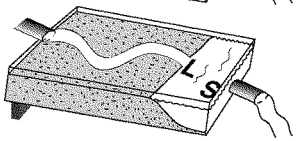
30) How can the given model be changed to increase the amount of sediment transported by the stream?

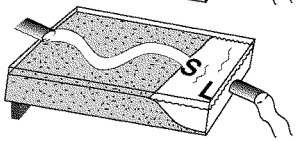
A) decrease the temperature of the sediment
B) increase the rate of the water flow
C) decrease the slope
D) increase the size of the sediment

31) Which diagram *best* represents the arrangement of large, *L*, and small, *S*, sediment deposited as the stream created in the given model enters the water basin?

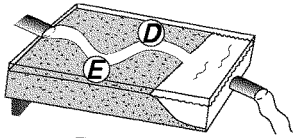
A) 

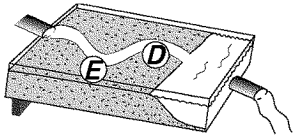
C) 

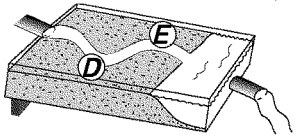
B) 

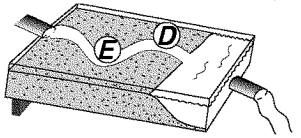
D) 

32) Which diagram *best* represents where erosion, *E*, and deposition, *D*, are most likely occurring along the curves of the meandering stream created in the model shown?

A) 

C) 

B) 

D) 

Questions 33 and 34 refer to the following:

Diagrams *A*, *B*, and *C* below represent three different river valleys.

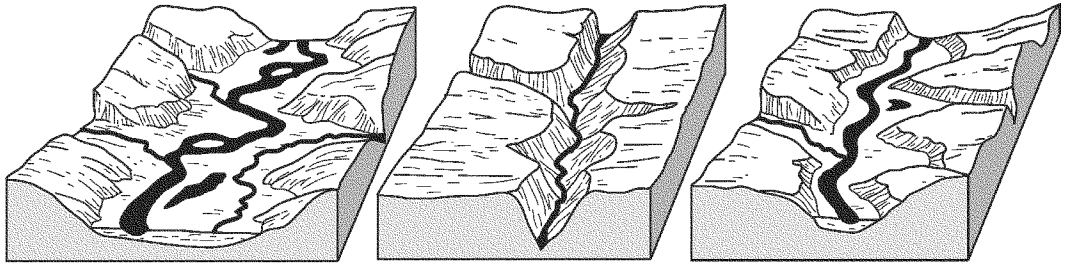
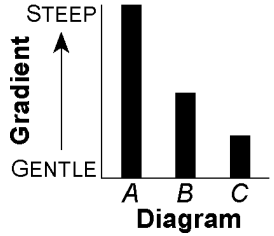


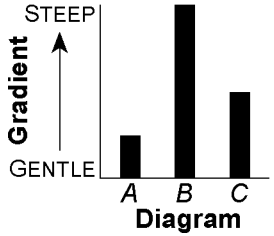
Diagram *A* Diagram *B* Diagram *C*

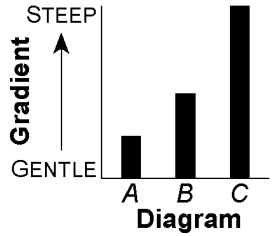
33) Most sediments found on the floodplain shown in diagram *A* are likely to be

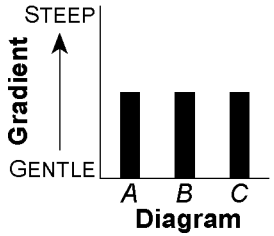
A) rounded and weathered from bedrock upstream
B) angular and weathered from bedrock upstream
C) angular and weathered from underlying bedrock
D) rounded and weathered from underlying bedrock

34) Which bar graph *best* represents the relative gradients of the main rivers shown in diagrams *A*, *B*, and *C*?

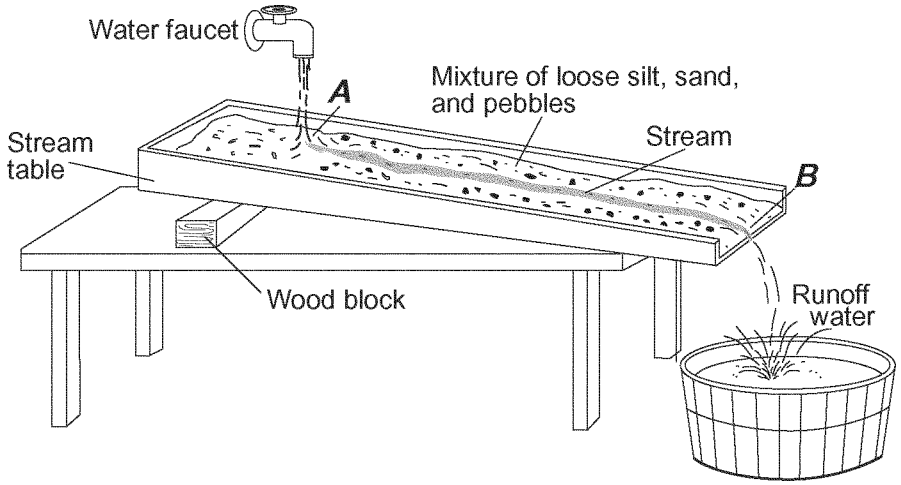
A)


C)


B)


D)


35) The model shown below illustrates stream erosion between locations *A* and *B* in the stream.

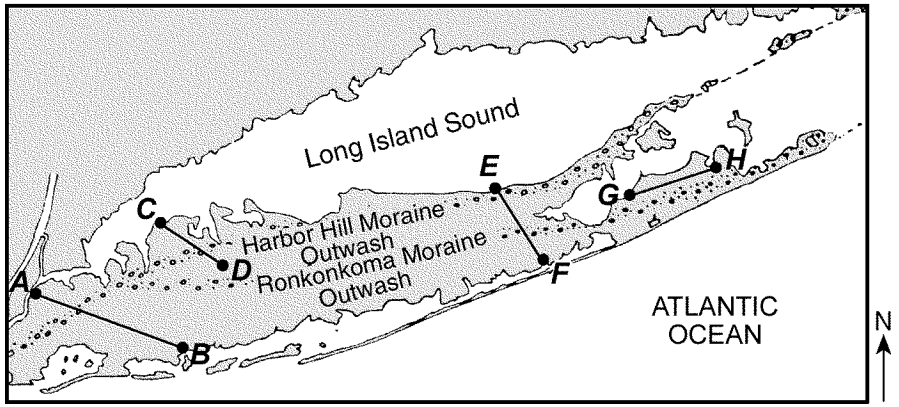


Placing a second block under location *A* will cause the stream's velocity to

A) increase and the rate of erosion to increase
B) decrease and the rate of erosion to increase
C) decrease and the rate of erosion to decrease
D) increase and the rate of erosion to decrease

36) The map below represents Long Island, New York. $\overline{AB}$, $\overline{CD}$, $\overline{EF}$, and $\overline{GH}$ are reference lines on the map.

MAP:

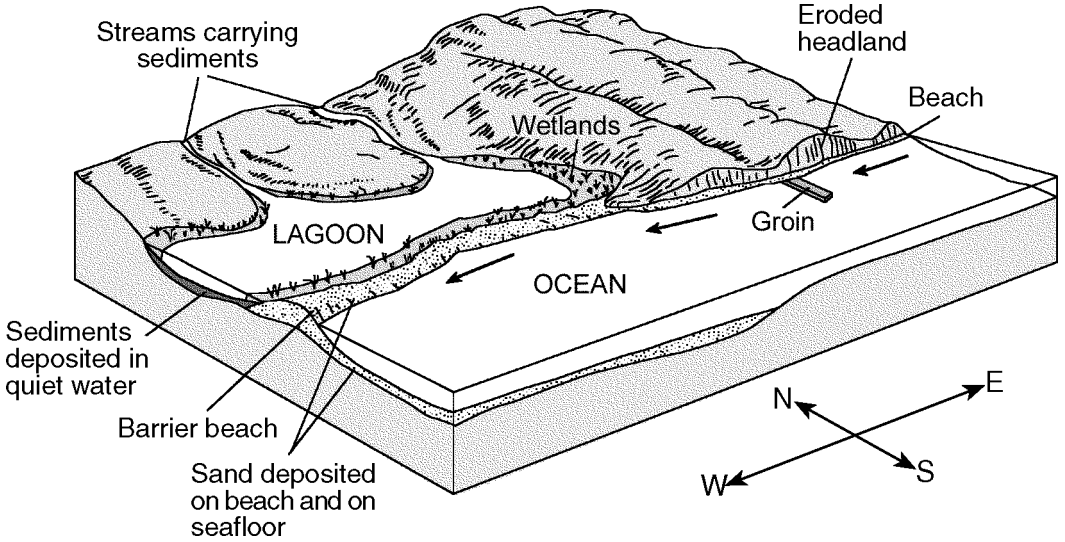


A major difference between sediments in the outwash and sediments in the moraines shown on the given map is that the sediments deposited in the outwash are

A) larger B) more angular C) older D) sorted

Questions 37 through 39 refer to the following:

On the diagram below, the arrows show the direction in which sediment is being transported along the shoreline. A barrier beach has formed, creating a lagoon (a shallow body of water in which sediments are being deposited). The eroded headlands are composed of diorite bedrock. A groin has recently been constructed. Groins are wall-like structures built into the water perpendicular to the shoreline to trap beach sand.



37) Which of the following events will most likely occur in the given environment during a heavy rainfall?

A) The discharge from the streams into the lagoon will increase.
B) An increase in sea level will cause more sediments to be deposited along the shoreline.
C) Less sediment will be carried by the streams.
D) The shoreline will experience a greater range in tides.

38) The sediments that have been deposited by streams flowing into the lagoon shown in the diagram are most likely

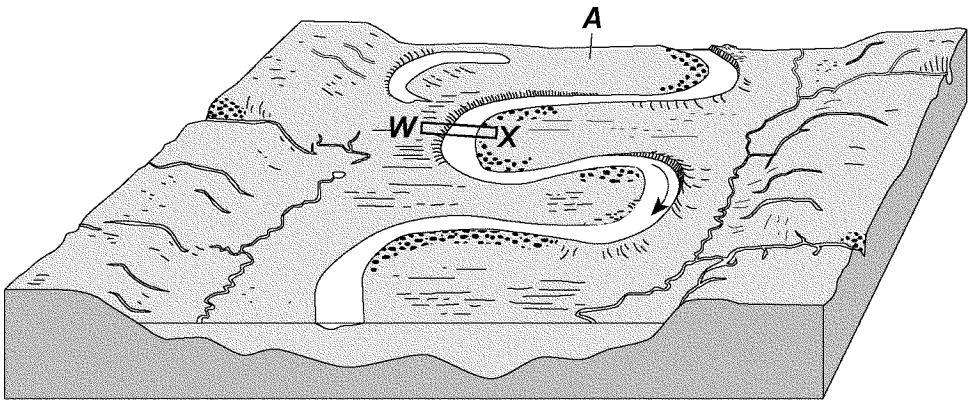
A) sorted and not layered
B) unsorted and not layered
C) sorted and layered
D) unsorted and layered

39) The groin structure in the given diagram will change the pattern of deposition along the shoreline, initially causing the beach to become

A) wider on the eastern side of the groin
B) wider on both sides of the groin
C) wider on the western side of the groin
D) narrower on both sides of the groin

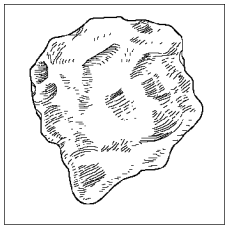
Questions 40 and 41 refer to the following:

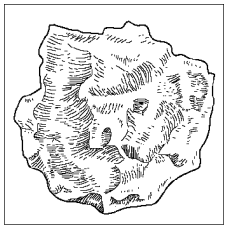
The block diagram below represents the landscape features associated with a meandering stream. *WX* is the location of a cross section. Location *A* indicates a landscape feature.

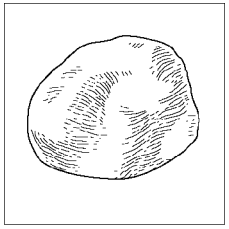


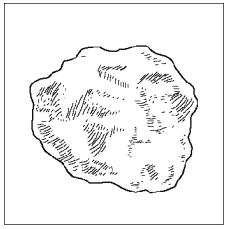
(not drawn to scale)

40) Which particle of quartz shows evidence of being transported the *farthest* distance by the stream shown on the given block diagram?

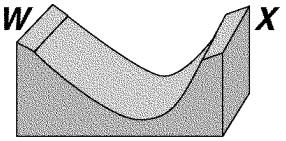
A) 

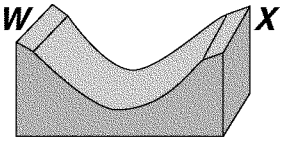
C) 

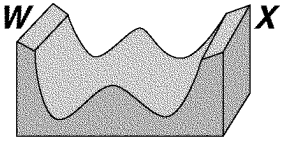
B) 

D) 

41) Which cross section *best* represents the shape of the stream bottom at *WX* on the given block diagram?

A) 

C) 

B) 

D)