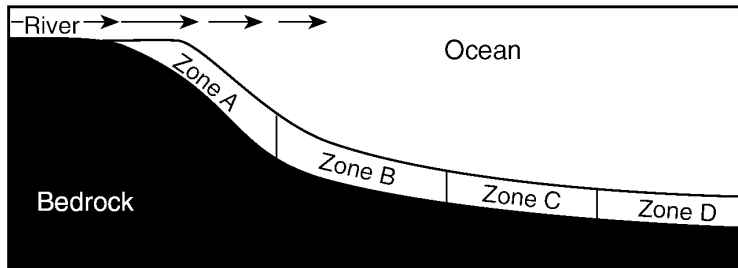


## W.E.D. Review Problems

1. Base your answer to the following question on the cross section and data table shown below. The cross section shows a sediment-laden river flowing into the ocean. The arrows show the direction of river flow. Different zones of sorted sediments, A, B, C, and D, have been labeled. Sediments have been taken from these zones and measured. The data table shows the range of sediment sizes in each zone.

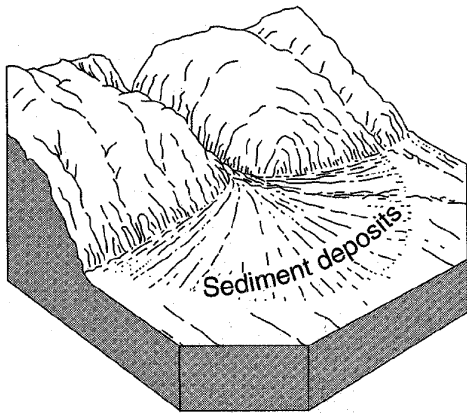


**Data Table**

Zone	Major Sediment Sizes
A	0.04 cm to 6 cm
B	0.006 cm to 0.1 cm
C	0.0004 cm to 0.006 cm
D	Less than 0.0004 cm

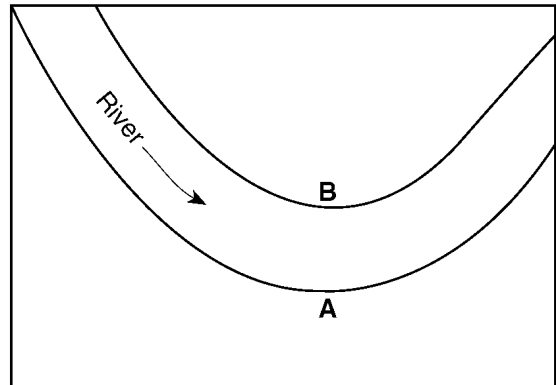
How is this pattern of horizontal sorting produced?

- A) High-density materials generally settle more slowly.  
 B) Rounded sediments generally settle more slowly.  
 C) Dissolved minerals are generally deposited first.  
 D) Bigger particles are generally deposited first.
2. 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) glacial ice                      B) ocean waves  
 C) running water                D) prevailing winds
3. What is the minimum rate of flow at which a stream of water can maintain the transportation of pebbles 1.0 centimeter in diameter?
- A) 50 cm/sec                      B) 100 cm/sec  
 C) 150 cm/sec                    D) 200 cm/sec
4. The map below shows the path of a river. The arrow shows the direction the river is flowing. Letters *A* and *B* identify the banks of the river.

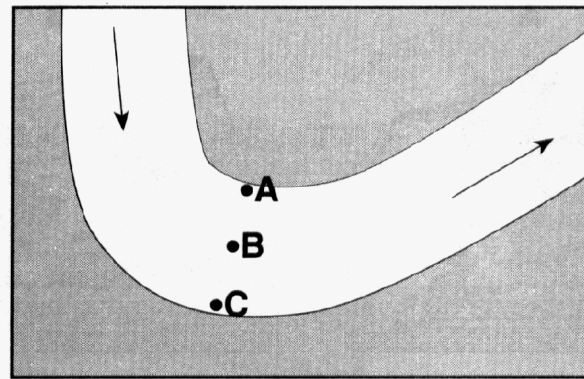


The water depth is greater near bank *A* than bank *B* because the water velocity near bank *A* is

- A) faster, causing deposition to occur  
 B) faster, causing erosion to occur  
 C) slower, causing deposition to occur  
 D) slower, causing erosion to occur
5. The occurrence of parallel scratches on bedrock in a U-shaped valley indicates that the area has most likely been eroded by
- A) a glacier                      B) a stream  
 C) waves                         D) wind

## W.E.D. Review Problems

6. 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
<b>A</b>		✓	
<b>B</b>			✓
<b>C</b>	✓		

B)

	Erosion	Equilibrium	Deposition
<b>A</b>			✓
<b>B</b>	✓		
<b>C</b>		✓	

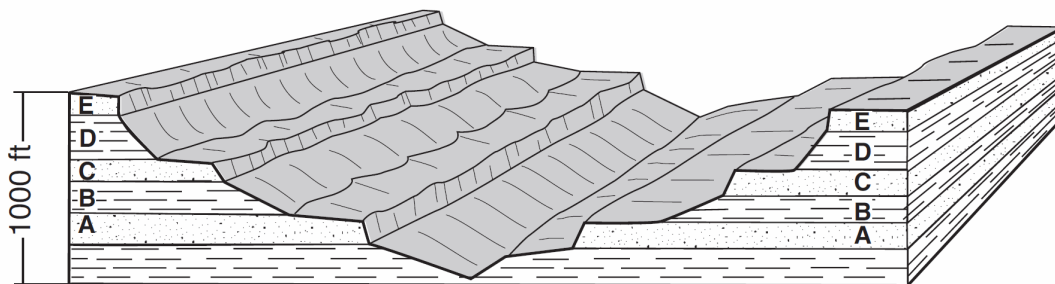
C)

	Erosion	Equilibrium	Deposition
<b>A</b>	✓		
<b>B</b>		✓	
<b>C</b>			✓

D)

	Erosion	Equilibrium	Deposition
<b>A</b>			✓
<b>B</b>		✓	
<b>C</b>	✓		

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

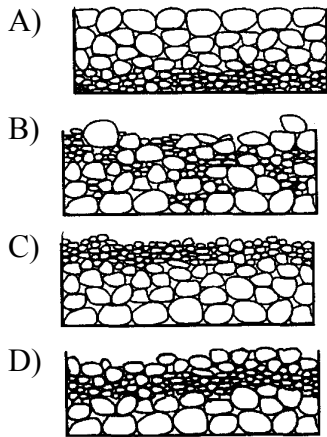


Which rock layers appear to be most resistant to weathering?

- A) *A* and *B*      B) *B* and *D*      C) *C*, *D*, and *E*      D) *A*, *C*, and *E*

## W.E.D. Review Problems

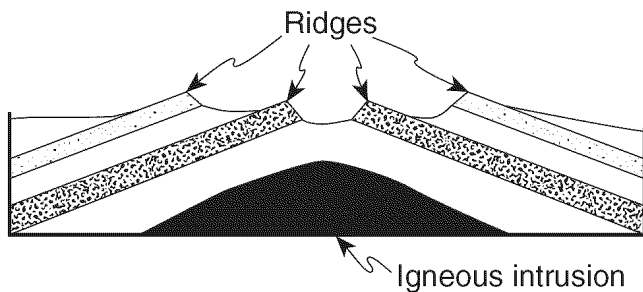
8. Quartz particles of varying sizes are dropped at the same time into deep, calm water. Which cross section best represents the settling pattern of these particles?



9. What will be the most probable arrangement of rock particles deposited directly by a glacier?

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

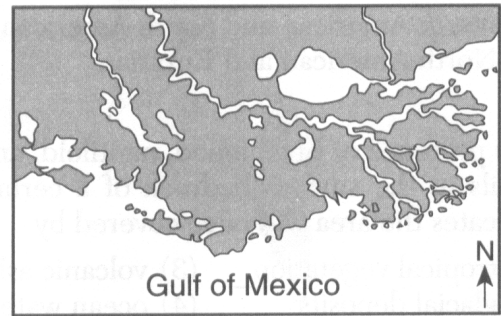
10. The cross section below shows rock layers that underwent crustal movement during an igneous intrusion in the Cretaceous Period.



Which statement best describes the cause of the ridges shown?

- A) The rock layers were evenly weathered.
- B) Some rock layers were more resistant to weathering and erosion.
- C) The igneous intrusion flowed over the surface.
- D) More deposition occurred at the ridge sites after uplift.

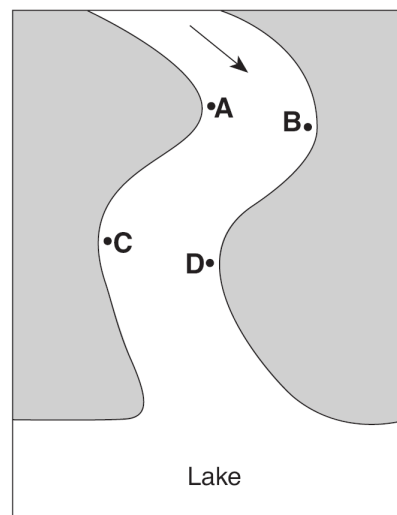
11. The map below shows the large delta that formed as the Mississippi River emptied into the Gulf of Mexico.



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

- A) glacial erosion
- B) cementation of sediment
- C) deposition of sediment
- D) mass movement

12. The map below shows a meandering stream as it enters a lake. The arrow shows the direction of stream flow. Points *A* through *D* represent locations on the surface of the stream.

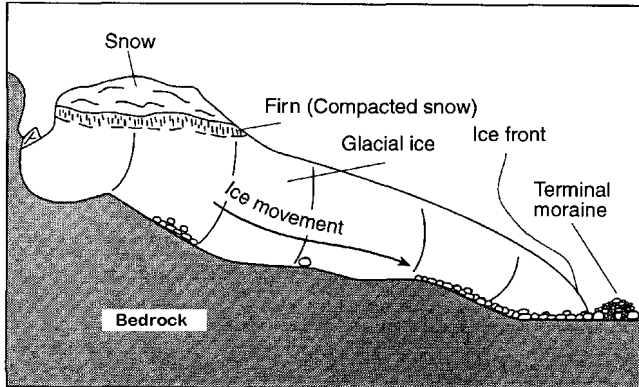


The greatest stream velocities are found closest to points

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

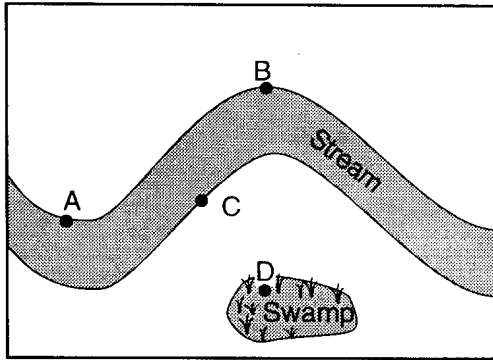
## W.E.D. Review Problems

13. Base your answer to the following question on the diagram which represents a profile of a mountain glacier in the northern United States.



The downhill movement of mountain glaciers such as the one shown in the diagram is primarily caused by

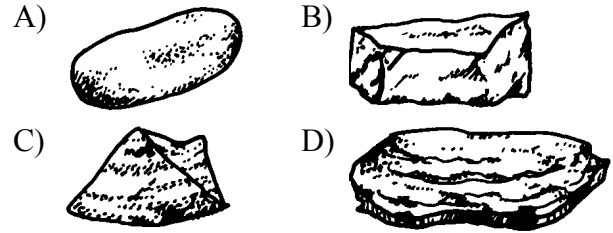
- A) evaporation of ice directly from the glacier  
 B) snow blowing across the top of the glacier  
 C) the force of gravity pulling on the glacier  
 D) water flowing over the glacier
14. The map below shows the area surrounding a meandering stream.



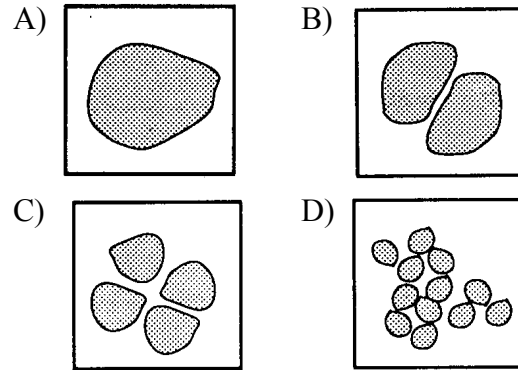
At which point is erosion greatest?

- A) A    B) B    C) C    D) D
15. Which characteristics of a particle would usually result in the longest settling time for the particle in calm water?
- A) low density and round shape  
 B) low density and flat shape  
 C) high density and round shape  
 D) high density and flat shape

16. Which quartz sample has probably undergone abrasion in a stream for the longest period of time?



17. The four limestone samples illustrated below have the same composition, mass, and volume. Under the same climatic conditions, which sample will weather fastest?



18. The table below shows the density of four mineral samples.

Mineral	Density (g/cm <sup>3</sup> )
Cinnabar	8.2
Magnetite	5.2
Quartz	2.7
Siderite	3.9

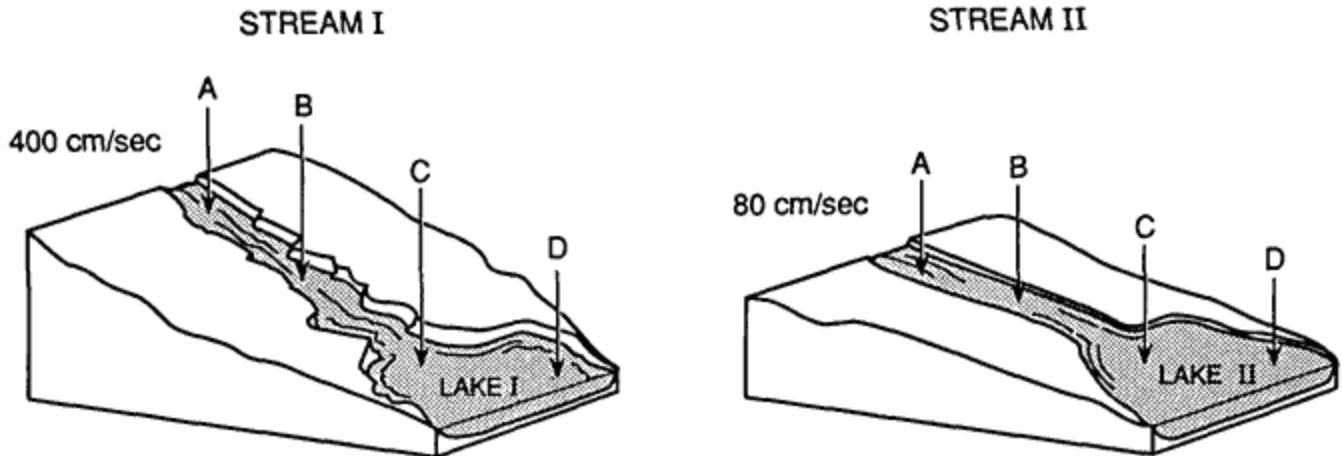
If the shape and size of the four mineral samples are the same, which mineral will settle most *slowly* in water?

- A) cinnabar                      B) magnetite  
 C) quartz                         D) siderite
19. Landscapes will undergo the most chemical weathering if the climate is
- A) cool and dry                 B) cool and wet  
 C) warm and dry                D) warm and wet

## W.E.D. Review Problems

Base your answers to questions 20 through 22 on the information and diagrams below.

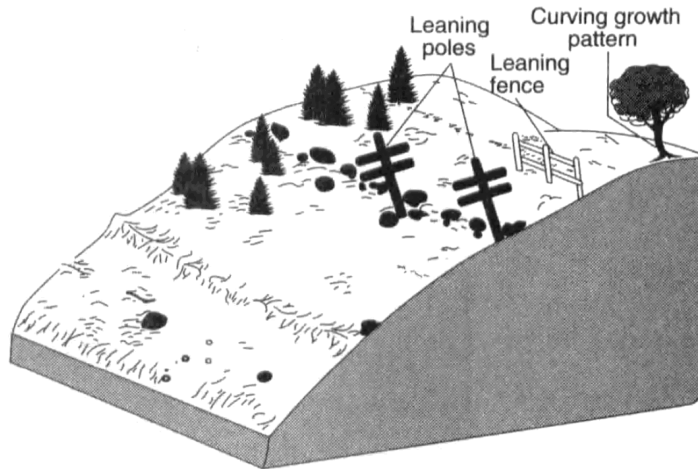
A mixture of colloids, clay, silt, sand, pebbles, and cobbles is put into stream I at point *A*. The water velocity at point *A* is 400 centimeters per second. A similar mixture of particles is put into stream II at point *A*. The water velocity in stream II at point *A* is 80 centimeters per second.



20. Which statement best describes what happens when the particles are placed in the streams?
- A) Stream I will move all particles that are added at point *A*.
  - B) Stream II will move all particles that are added at point *A*.
  - C) Stream I cannot move sand.
  - D) Stream II cannot move sand.
21. If a sudden rainstorm occurs at both streams above point *A*, the erosion rate will
- A) increase for stream I, but not for stream II
  - B) increase for stream II, but not for stream I
  - C) increase for both streams
  - D) not change for either stream
22. Which statement is the most accurate description of conditions in both streams?
- A) The greatest deposition occurs at point *B*.
  - B) Particles are carried in suspension and by bouncing along the bottom.
  - C) The particles will have a greater velocity than the water in the stream.
  - D) The velocity of the stream is the same at point *B* as at point *C*.
- 
23. By which processes are rocks broken up and moved to different locations?
- A) evaporation and condensation
  - B) weathering and erosion
  - C) burial and cementation
  - D) compaction and transportation
24. When the velocity of a stream suddenly *decreases*, the sediment being transported undergoes an increase in
- A) particle density
  - B) erosion
  - C) deposition
  - D) mass movement

## W.E.D. Review Problems

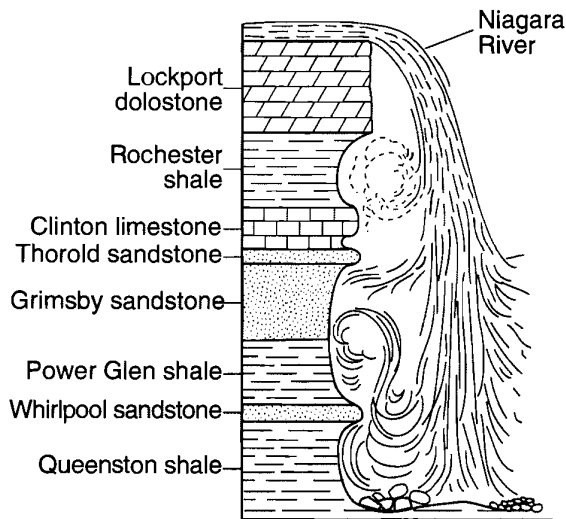
25. The diagram below shows the surface features of a landscape.



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?

- A) running water
- B) moving ice
- C) prevailing wind
- D) mass movement

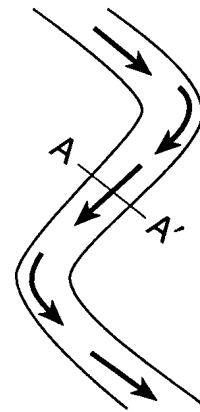
26. The generalized cross section below shows the sedimentary rock layers at Niagara Falls in western New York State.



Which rock layer appears to be most resistant to weathering and erosion?

- A) Lockport dolostone
- B) Rochester shale
- C) Grimsby sandstone
- D) Queenston shale

27. The diagram below is a map view of a stream flowing through an area of loose sediments. Arrows show the location of the strongest current.

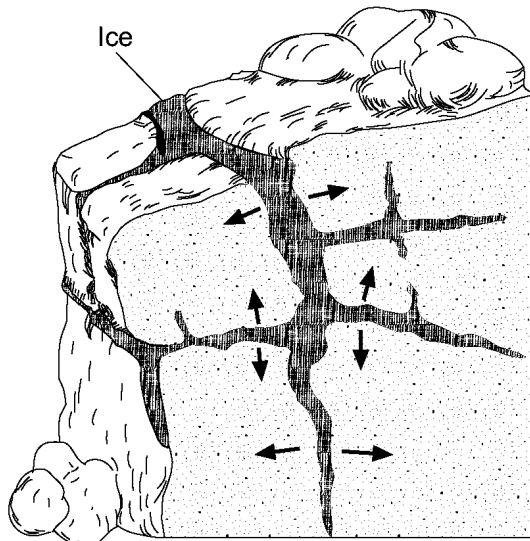


Which stream profile best represents the cross section from A to A'?

- A)
- B)
- C)
- D)

## W.E.D. Review Problems

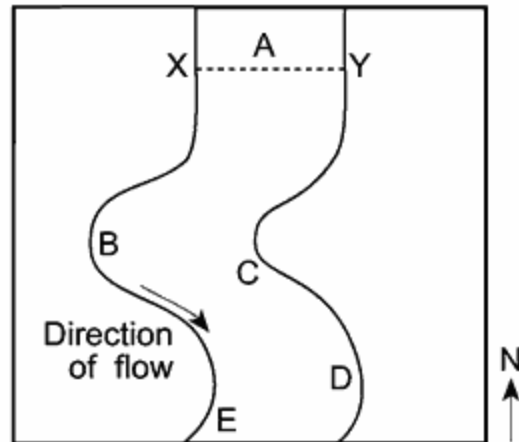
28. The diagram below shows granite bedrock with cracks. Water has seeped into the cracks and frozen. The arrows represent the directions in which the cracks have widened due to weathering.



Which statement best describes the physical weathering shown by the diagram?

- A) Enlargement of the cracks occurs because water expands when it freezes.
- B) This type of weathering occurs only in bedrock composed of granite.
- C) The cracks become wider because of chemical reactions between water and the rock.
- D) This type of weathering is common in regions of primarily warm and humid climates.
29. A stream flowing at a velocity of 75 centimeters per second can transport
- A) clay, only
- B) pebbles, only
- C) pebbles, sand, silt, and clay, only
- D) boulders, cobbles, pebbles, sand, silt, and clay
30. In which climate would the chemical weathering of limestone occur most rapidly?
- A) cold and dry      B) cold and humid
- C) warm and dry      D) warm and humid

31. Base your answer to the following question on the map below, which shows a portion of a stream that flows southward. Letters *A* through *E* represent locations in the stream. Line *XY* is the location of a cross section.



Which cross section along line *XY* best represents the shape of the stream bottom?

- A) X Surface Y
- B) X Surface Y
- C) X Surface Y
- D) X Surface Y

## W.E.D. Review Problems

32. Two streams begin at the same elevation and have equal volumes. Which statement best explains why one stream could be flowing faster than the other stream?

- A) The faster stream contains more dissolved minerals.
- B) The faster stream has a much steeper gradient.
- C) The streams are flowing in different directions.
- D) The faster stream has a temperature of  $10^{\circ}\text{C}$ , and the slower stream has a temperature of  $20^{\circ}\text{C}$ .

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

- A) Water dissolves many earth materials.
- B) Water expands when it freezes.
- C) Water cools the surroundings when it evaporates.
- D) Water loses 334 Joules of heat per gram when it freezes.

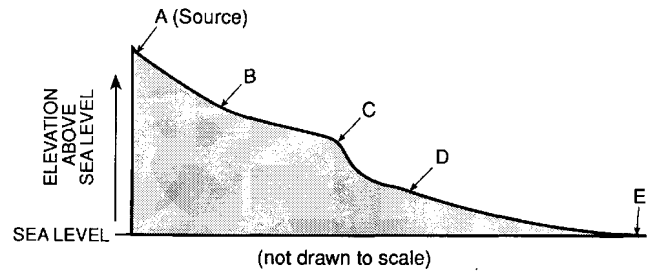
34. Which statement best describes sediments deposited by glaciers and rivers?

- A) Glacial deposits and river deposits are both sorted.
- B) Glacial deposits are sorted, and river deposits are unsorted.
- C) Glacial deposits are unsorted, and river deposits are sorted.
- D) Glacial deposits and river deposits are both unsorted.

35. Which activity demonstrates chemical weathering?

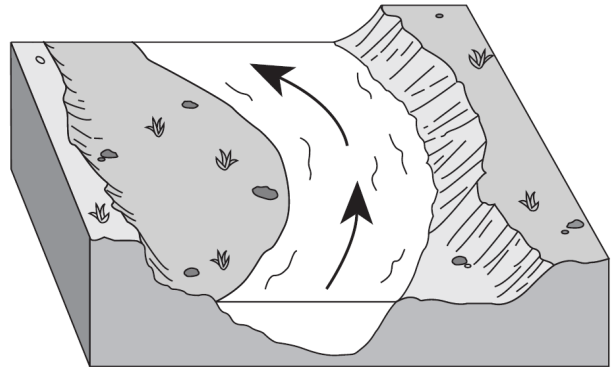
- A) freezing of water in the cracks of a sandstone sidewalk
- B) abrasion of a streambed by tumbling rocks
- C) grinding of talc into a powder
- D) dissolving of limestone by acid rain

36. Base your answer to the following question on the diagram below, which represents a profile of a stream. Points A through E are locations along the stream.



The primary force responsible for the flow of water in this stream is

- A) solar energy
  - B) magnetic fields
  - C) wind
  - D) gravity
37. The diagram below shows a section of a meander in a stream. The arrows show the direction of stream flow.



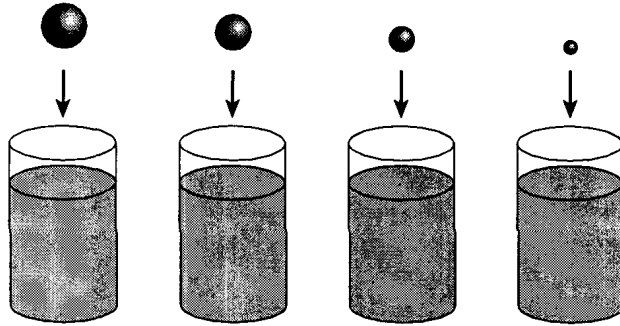
The streambank on the outside of this meander is steeper than the streambank on the inside of this meander because the water on the outside of this meander is moving

- A) slower, causing deposition
  - B) faster, causing deposition
  - C) slower, causing erosion
  - D) faster, causing erosion
38. As water velocity of a stream increases from 25 to 225 centimeters per second, in which order will particles of different sizes begin to move?
- A) sand → pebbles → cobbles → boulders
  - B) silt → sand → pebbles → cobbles
  - C) cobbles → pebbles → sand → silt
  - D) silt → pebbles → sand → cobbles

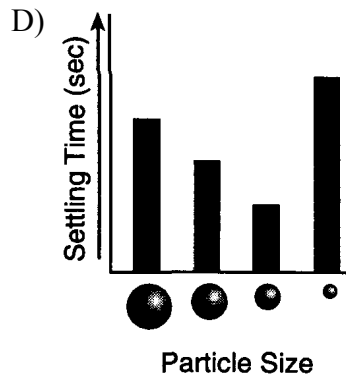
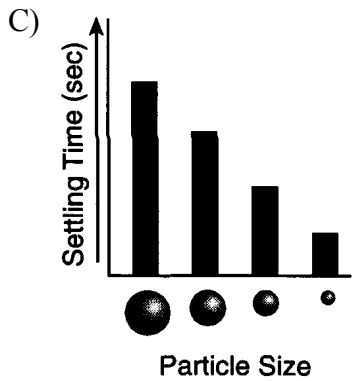
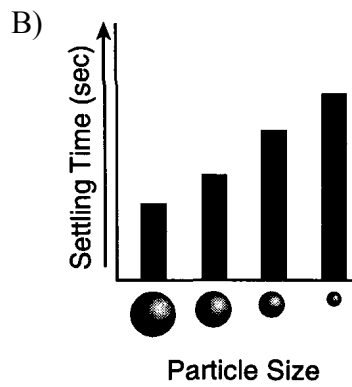
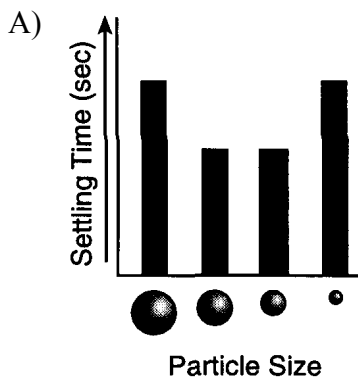


## W.E.D. Review Problems

39. The diagram below shows four identical columns containing the same amount of water. Four different-sized spherical particles, made of the same uniform material, are dropped into the columns and settle to the bottom.

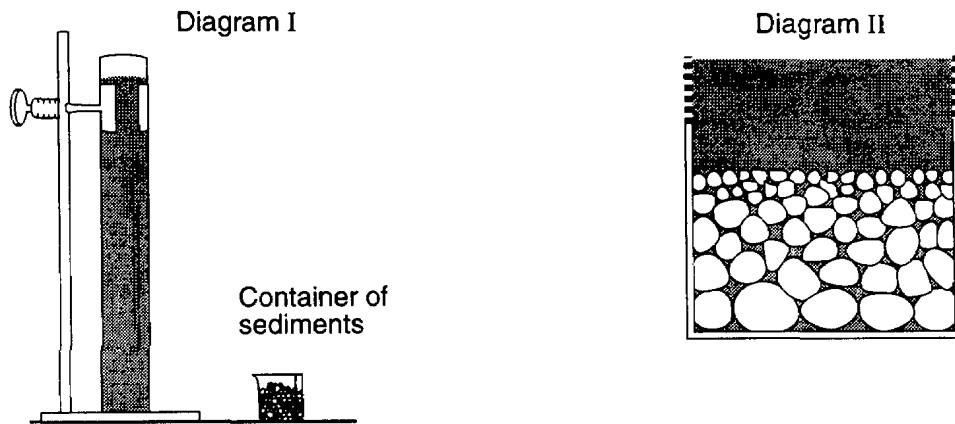


Which graph best shows the relative settling times of the four particles?



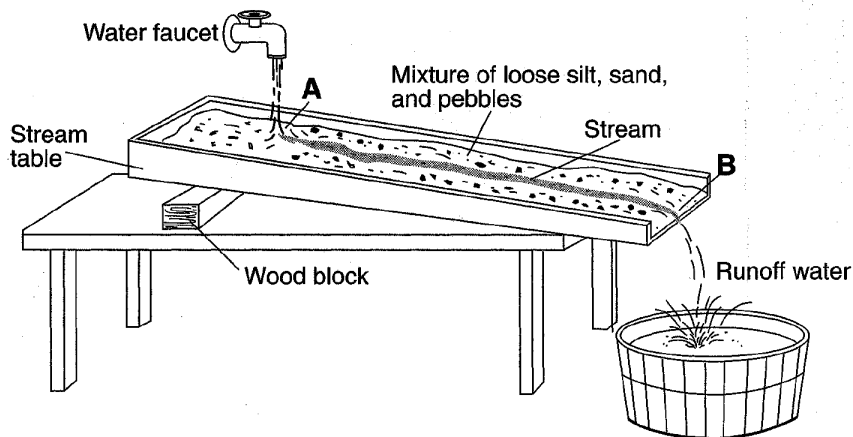
## W.E.D. Review Problems

40. Diagram I below shows a laboratory setup for observing the settling pattern in water of sediments composed of the same mineral. When the sediments in the container were poured into the tube of water, they settled to the bottom in the pattern shown in diagram II below. [Diagram II is enlarged to show the sedimentary particles.]



Which characteristic of the sedimentary particles most likely caused the pattern of deposition shown in diagram II?

- A) particle shape  
B) particle size  
C) particle composition  
D) particle density
41. 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) decrease and the rate of erosion to decrease  
B) decrease and the rate of erosion to increase  
C) increase and the rate of erosion to decrease  
D) increase and the rate of erosion to increase

## W.E.D. Review Problems

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

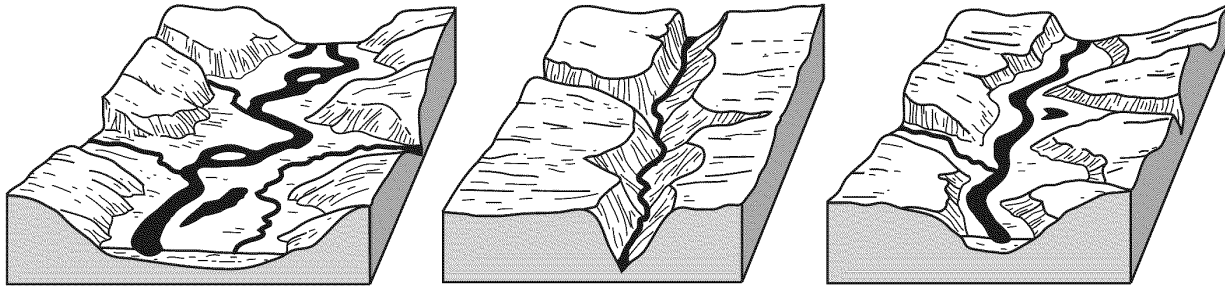


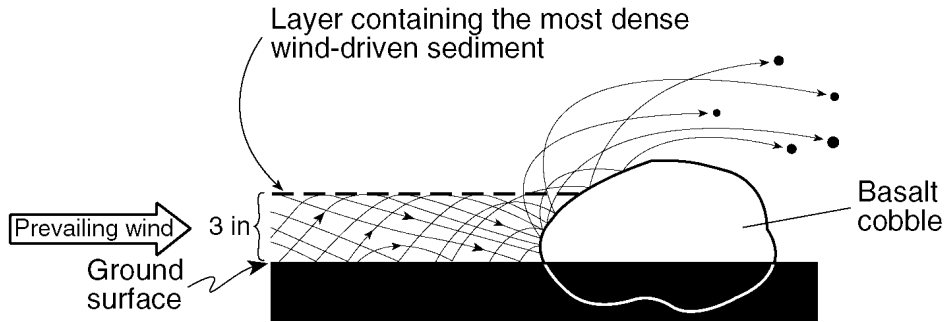
Diagram A

Diagram B

Diagram C

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

- A) angular and weathered from underlying bedrock
  - B) angular and weathered from bedrock upstream
  - C) rounded and weathered from underlying bedrock
  - D) rounded and weathered from bedrock upstream
43. 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.

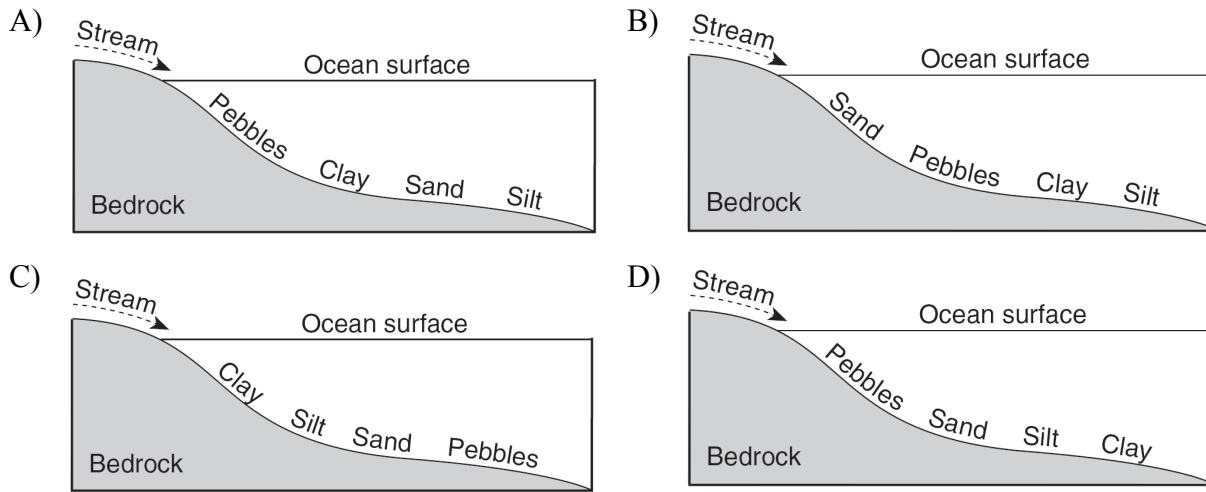


Which cross section best represents the appearance of this cobble after many years of exposure to the wind-driven sand?

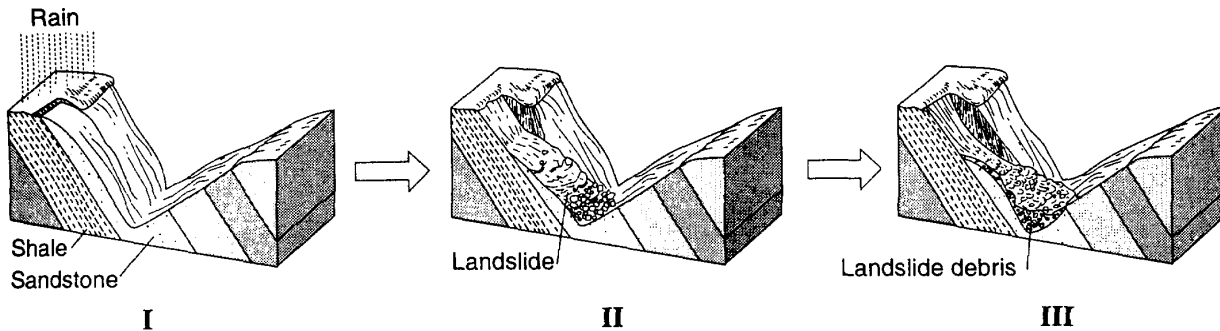
- A)
- B)
- C)
- D)

## W.E.D. Review Problems

44. Which profile best shows the general depositional pattern that occurs when water from a stream enters the ocean?



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



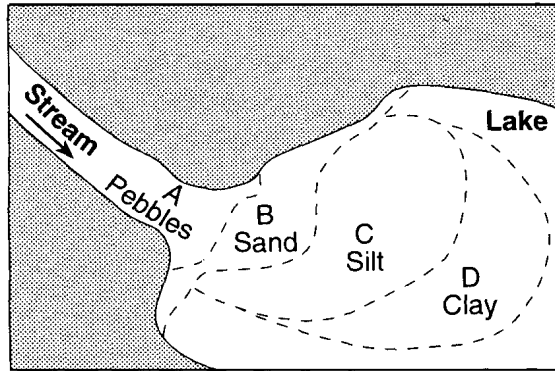
What was the primary force that caused this landslide?

- A) gravity
- B) moving ice
- C) prevailing winds
- D) stream discharge

## W.E.D. Review Problems

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46. The map below shows the sizes of sediments deposited in different locations within a stream and lake. A sample of sediments taken from one location consists mostly of particles that are approximately 0.4 centimeter in diameter. From which location was the sample most likely collected?



From which location was the sample most likely collected?

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

**Answer Key**  
**W.E.D. Review problems**

- |     |          |     |          |
|-----|----------|-----|----------|
| 1.  | <u>D</u> | 34. | <u>C</u> |
| 2.  | <u>C</u> | 35. | <u>D</u> |
| 3.  | <u>A</u> | 36. | <u>D</u> |
| 4.  | <u>B</u> | 37. | <u>D</u> |
| 5.  | <u>A</u> | 38. | <u>B</u> |
| 6.  | <u>D</u> | 39. | <u>B</u> |
| 7.  | <u>D</u> | 40. | <u>B</u> |
| 8.  | <u>C</u> | 41. | <u>D</u> |
| 9.  | <u>D</u> | 42. | <u>D</u> |
| 10. | <u>B</u> | 43. | <u>B</u> |
| 11. | <u>C</u> | 44. | <u>D</u> |
| 12. | <u>B</u> | 45. | <u>A</u> |
| 13. | <u>C</u> | 46. | <u>A</u> |
| 14. | <u>B</u> |     |          |
| 15. | <u>B</u> |     |          |
| 16. | <u>A</u> |     |          |
| 17. | <u>D</u> |     |          |
| 18. | <u>C</u> |     |          |
| 19. | <u>D</u> |     |          |
| 20. | <u>A</u> |     |          |
| 21. | <u>C</u> |     |          |
| 22. | <u>B</u> |     |          |
| 23. | <u>B</u> |     |          |
| 24. | <u>C</u> |     |          |
| 25. | <u>D</u> |     |          |
| 26. | <u>A</u> |     |          |
| 27. | <u>B</u> |     |          |
| 28. | <u>A</u> |     |          |
| 29. | <u>C</u> |     |          |
| 30. | <u>D</u> |     |          |
| 31. | <u>B</u> |     |          |
| 32. | <u>B</u> |     |          |
| 33. | <u>B</u> |     |          |
-