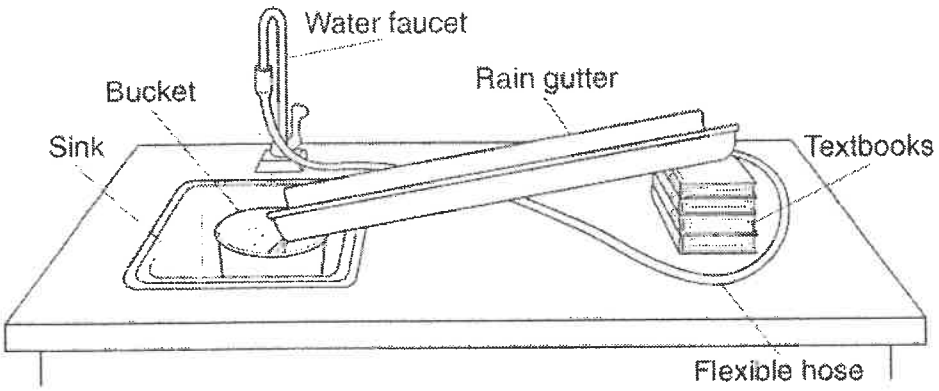
Name: Erosion Practice

Base your answers to questions 1 and 2 on the diagram and data table below. The diagram shows the equipment used to determine the factors affecting the rate of erosion in a stream. The data table shows the time it took a 10-gram sample of quartz sand to move 100 centimeters down the rain gutter under various conditions.



Data Table

Rain Gutter Slope	Water Velocity	Erosion Time (s)	
		Fine Sand	Coarse Sand
5°	slow	20	60
	fast	15	40
10°	slow	15	40
	fast	10	30
20°	slow	10	30
	fast	5	15

1. What is the relationship between the water velocity and the rate of erosion?

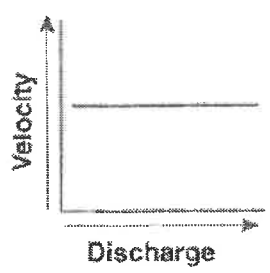
   A) If the water velocity decreases, the rate of erosion increases.
   B) If the water velocity increases, the rate of erosion increases.
   C) If the water velocity remains constant, the rate of erosion decreases.
   D) If the water velocity remains constant, the rate of erosion increases.

2. In this experiment, the water velocity could be increased by

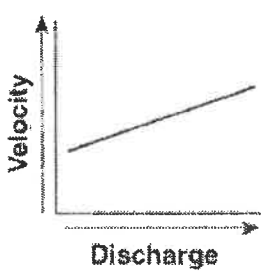
   A) decreasing the slope of the rain gutter
   B) increasing the amount of water from the faucet
   C) lowering the flexible hose
   D) widening the rain gutter

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

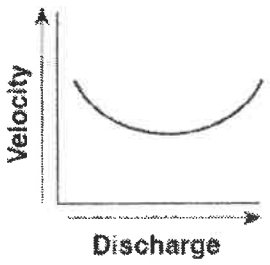
A)



B)



C)



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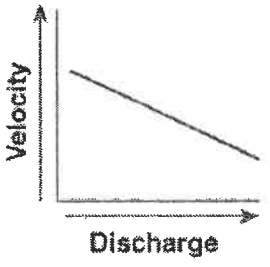


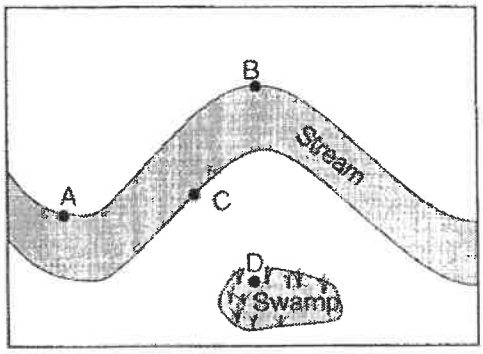
4. Which event is the best example of erosion?

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

5. 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°C, and the slower stream has a temperature of 20°C.

6. The map below shows the area surrounding a meandering stream.



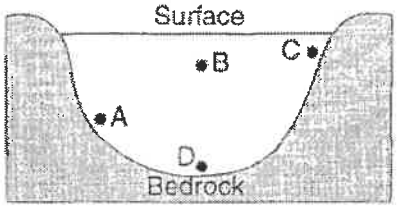
At which point is erosion greatest?

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

7. The greater the time that stream sediment is transported, the greater the probability that the sediment will become more

A) angular and smaller B) angular and larger
C) rounded and smaller D) rounded and larger

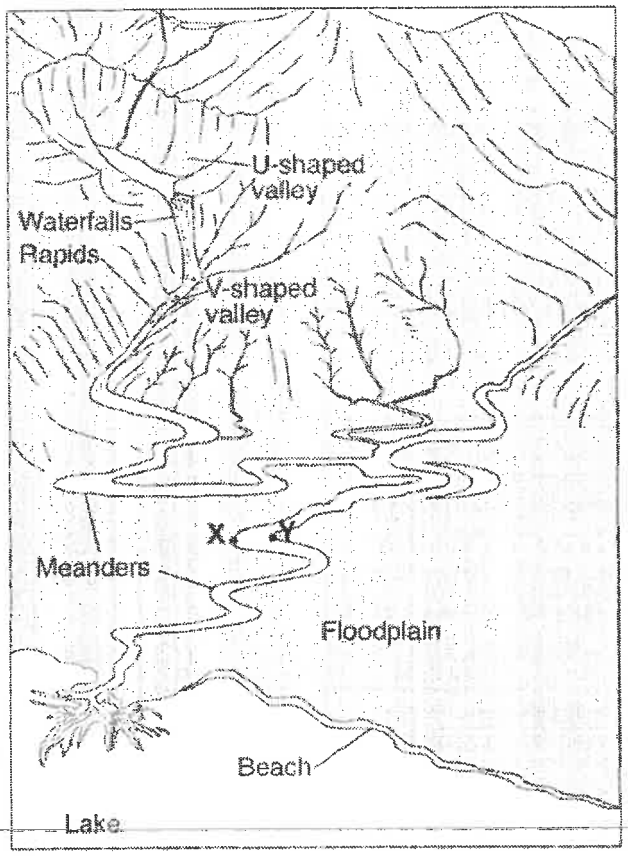
8. The diagram below shows a cross section of a river. Letters *A*, *B*, *C*, and *D* represent points in the river.



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

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

Base your answers to questions **9** through **11** on the diagram below, which shows several different landscape features. Points *X* and *Y* indicate locations on the streambank.

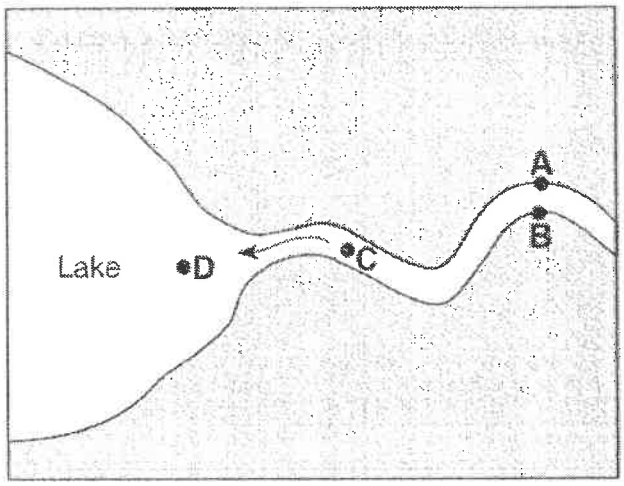


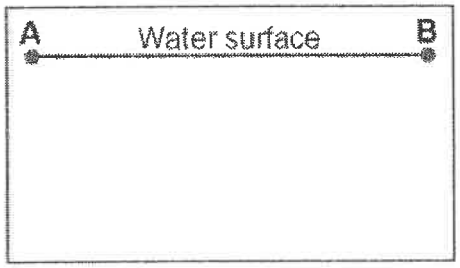
9. Identify which point, *X* or *Y*, has more stream erosion and explain why the amounts of erosion are different.

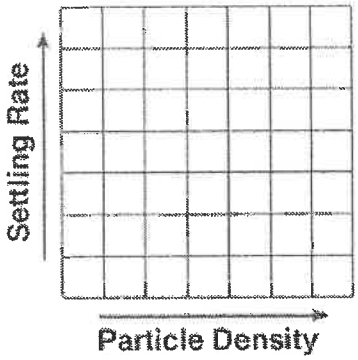
10. Explain why the upper valley in the mountains is U-shaped and the lower valley is V-shaped.

11. Explain why the stream meanders on the floodplain, but *not* in the mountains.

Base your answers to questions **12** through **16** on the map below, which shows a meandering stream as it enters a lake. Points *A* through *D* represent locations in the stream.







12. Deposition is affected by particle density. On the grid, draw a line to show the relationship between particle density and settling rate.

13. The stream velocity at point *C* is 100 centimeters per second and the stream velocity at point *D* is 40 centimeters per second. Identify *one* sediment particle most likely being deposited between points *C* and *D*.

14. Describe how the size and shape of most pebbles change when the pebbles are transported in a stream over a great distance.

15. State the relationship between stream velocity and the size of the sediment the stream can carry.

16. Draw a cross-sectional view of the general shape of the stream bottom between points *A* and *B*. The water surface line has already been drawn.