

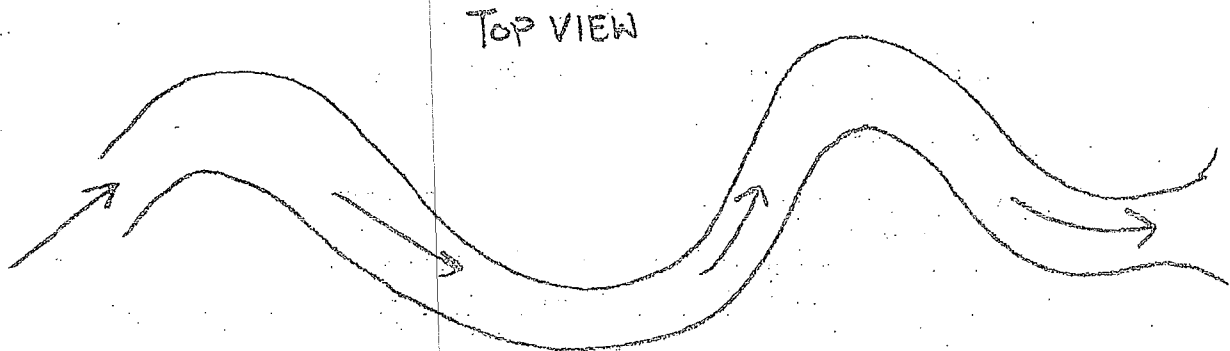
Name _____

Erosion/Deposition Review

Directions: Answer the following questions using all possible resources (text book, notes, review book, ect...). Use this review as a study guide for the test. **You can only do as well as you prepare yourself!**

Part I: Erosion

1. What is the primary force that controls all erosion?
2. List the major agents of erosion. Which of the agents is the most dominant form of erosion?
3. What factors affect the velocity of water flowing in a stream?
4. Where in the stream is the water's velocity the fastest? Why?
5. Using the diagram below of a meandering stream label the areas of deposition and erosion. Explain why deposition and erosion occur in these specific areas.



6. What are the different methods that materials can be transported in a stream?

- Use the "Relationship of Transported Particle Size to Water Velocity" chart found on page 6 of the Earth Science Reference Tables to answer the following questions.

7. List in order from smallest to largest the sediments found on this table.
8. What must the stream velocity be to carry sediments at a size of 0.5 cm?
9. A stream with a velocity of 200 cm/sec can carry sediments of what sizes?

Part II. Evidence of Erosion

1. Draw how the rock below would appear after running water has eroded it.



2. How are scratches (striations) formed on bedrock when a glacier passes over it?
3. Draw how this V shape valley, formed by a river, would be altered if a glacier passed through the valley.



4. How do sediments appear after they have been eroded by wind?

Part III. Deposition

1. When an erosional agent carries sediments, why do they become deposited at a new location?
2. Explain the three factors that affect the deposition of sediment.
3. Draw a picture of vertical sorting and horizontal sorting.
4. In your diagram of horizontal sorting where is the water's velocity the lowest?
5. What type of pattern do wind deposits create?

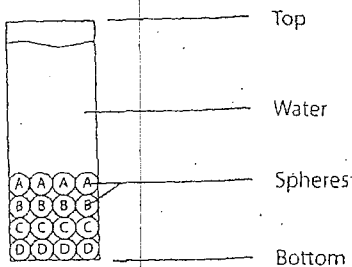
Name _____

Directions: Match the characteristics on the left with the type of erosion by putting a check (✓) in the appropriate columns. More than one agent of erosion may be checked.

Characteristics	AGENTS OF EROSION			
	Running Water	Wind	Glacial Ice	Mass Movement
round and smooth				
bedrock with striations				
talus				
unsorted/and angular				
suspension				
abrasion				
bed load				
colloids				
flotation				
oxbow lake				
meanders				
polished bedrock				
discharge				
sorted				
unsorted				
pitted and frosted				

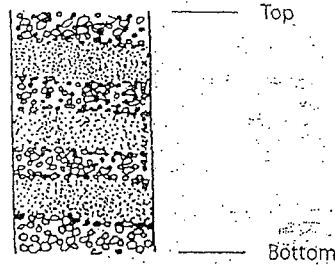
Review Questions

- Which evidence best supports the idea that a vast inland sea once covered the Great Plains area of the United States? (1) considerable erosion has occurred there (2) extensive igneous intrusions are presently exposed there (3) extensive sedimentary rock layers have been formed there (4) numerous earthquakes occur there
- A stream is carrying sediment particles ranging from 0.0004 to 25.6 centimeters. When the stream's velocity decreases from 300 to 100 centimeters per second, the stream will most probably deposit (1) silt and clay (2) sand and silt (3) pebbles and sand (4) cobbles and pebbles
- When a river enters the ocean, sediment is deposited. Describe the change in kinetic energy of the river that leads up to this event.
- The rate at which particles are deposited by a stream is least affected by the (1) size and shape of the particles (2) velocity of the stream (3) stream's elevation above sea level (4) density of the particles
- Small spheres that are identical in shape and size are composed of one of four different kinds of substances: A, B, C, or D. The spheres are mixed together and poured into a clear plastic tube filled with water. Which property of the spheres caused them to settle in the tube as shown in the diagram below? (1) their size (2) their shape (3) their density (4) their hardness

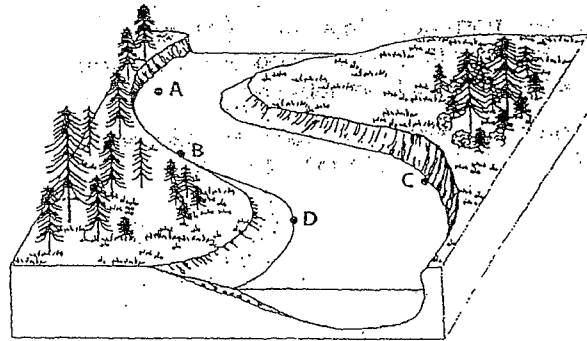


- Much of the sediment that covers New York State was deposited by glaciers. Describe a depositional characteristic that these sediments should have in common.

- The following diagram represents a cross section of sedimentary deposits. Where would this type of deposition most likely occur? (1) at the base of the shifting sand dune (2) at the rapids in a stream (3) beneath a large glacier (4) in a lake fed by a stream that often floods

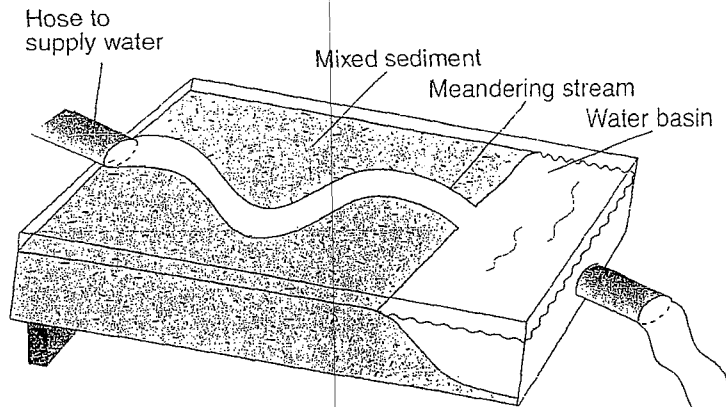


Base your answers to questions 8 and 9 on the following diagram. The diagram shows points A, B, C, and D on a meandering stream.



- Which material is most likely to be transported in suspension during periods of slower stream velocity? (1) gravel (2) sand (3) silt (4) clay
- At which point is the amount of deposition more than the amount of erosion? (1) A (2) B (3) C (4) D
- More deposition than erosion will take place in a streambed when the (1) density of the rock particles carried by the stream decreases (2) slope of the stream increases (3) discharge of the stream increases (4) velocity of the stream decreases
- Which is the most probable description of the energy of a particle in an erosional-depositional system? (1) Particles gain kinetic energy during erosion and lose kinetic energy during deposition. (2) Particles lose kinetic energy during erosion and lose kinetic energy during deposition. (3) Particles gain potential energy during erosion and gain potential energy during deposition. (4) Particles lose potential energy during erosion and gain potential energy during deposition.

Base your answer to the following question on the diagram below, which 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.



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

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

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

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

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. Pieces of bedrock material that are broken from a cliff and deposited by a landslide at the base of the cliff are best described as

- A) rounded and sorted
- B) rounded and unsorted
- C) angular and sorted
- D) angular and unsorted

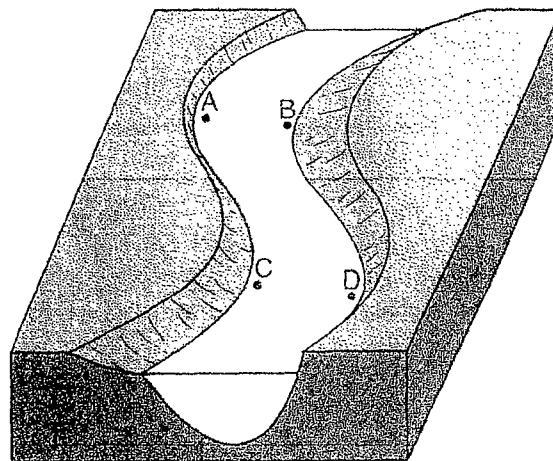
5. Which sediment is most easily picked up and transported by the wind?

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

6. 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

7. 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?

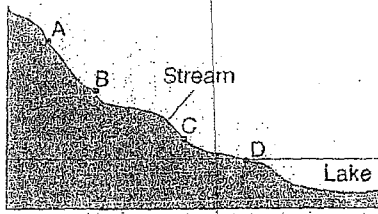
- A) A and B
- B) B and C
- C) C and D
- D) D and A

8. Which agent of erosion was primarily responsible for forming the long, narrow, U-shaped valleys in the Finger Lakes region of New York State?

- A) wind
- B) landslides
- C) meandering streams
- D) continental glaciers

Erosion and Deposition Review

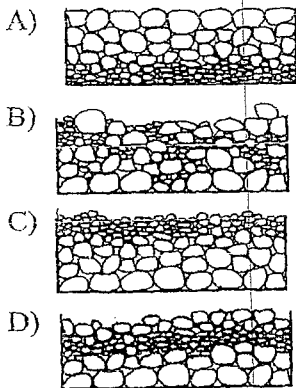
9. The cross section below shows a stream flowing downhill. Points *A* through *D* are locations in the stream.



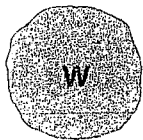
At which point would most deposition occur?

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

10. 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?



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



Density = 3.8 g/mL



Density = 2.4 g/mL



Density = 3.8 g/mL



Density = 2.4 g/mL

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

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

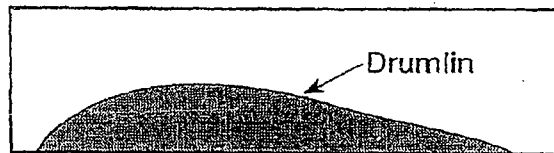
12. What change will a pebble usually undergo when it is transported a great distance by streams?

- A) It will become jagged and its mass will decrease.
 B) It will become jagged and its volume will increase.
 C) It will become rounded and its mass will increase.
 D) It will become rounded and its volume will decrease.

13. 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

14. The diagram below represents a side view of a hill (drumlin) that was deposited by a glacier on the Atlantic coast.



This hill is most likely composed of

- A) cemented sediments
 B) unsorted sediments
 C) vertically layered sediments
 D) horizontally layered sediments

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

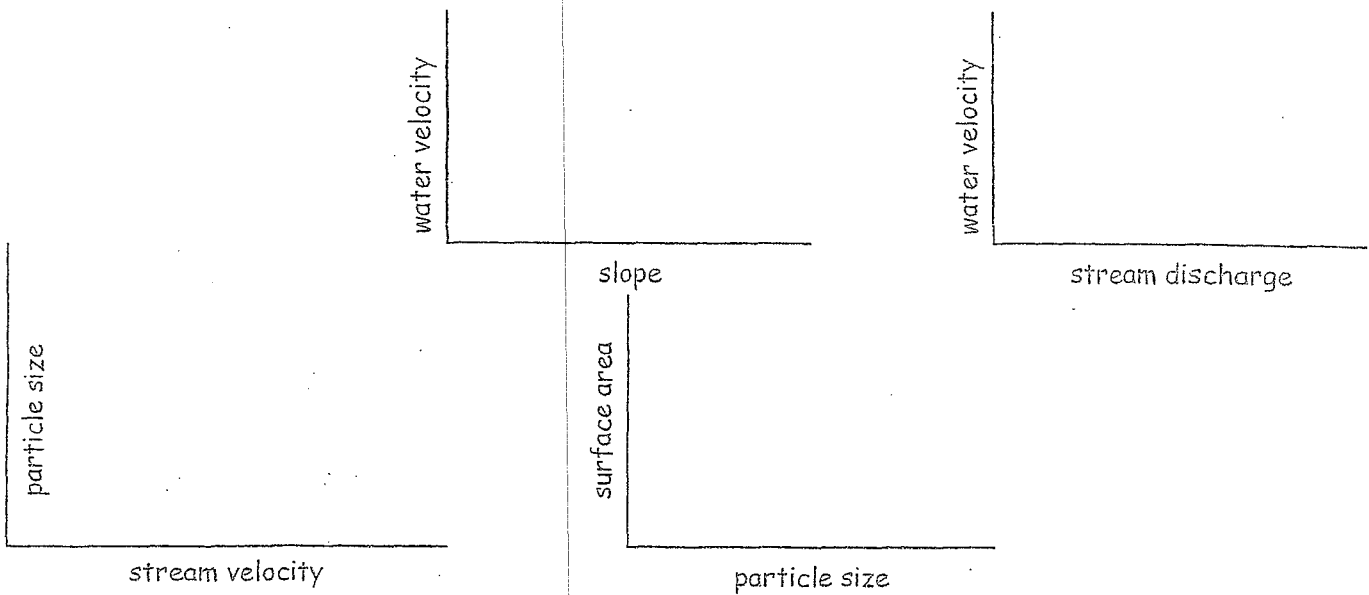
- A) low density and round shape
 B) low density and flat shape
 C) high density and round shape
 D) high density and flat shape

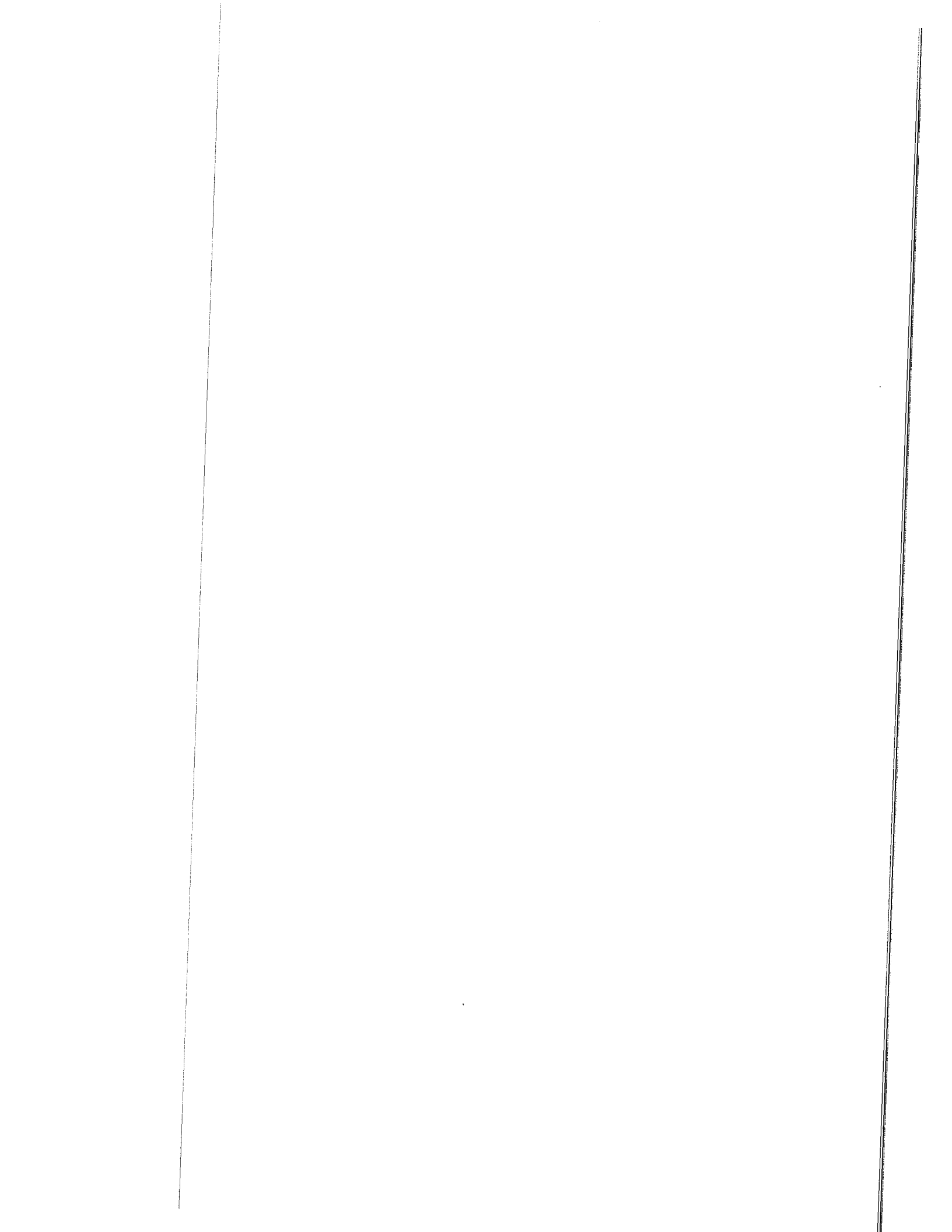
Name _____

Directions : Place a check in the box of the erosional agent(s) that matches the described evidence for that type of erosion.

Evidence of Erosion	Rivers	Wind	Glaciers	Mass Wasting
rounded sediments (abrasion)				
angular sediments				
scratches/striations on bedrock				
pitted and frosted sediments				
"V" shaped valleys				
unsorted sediments (till)				
polished bedrock				
mushroom shaped rock (hoodoos)				
unsorted piles/angular fragments				
Carved "U" shaped valleys				
materials transported by solution, suspension, and rolling				

Directions: complete the following sketch graphs.





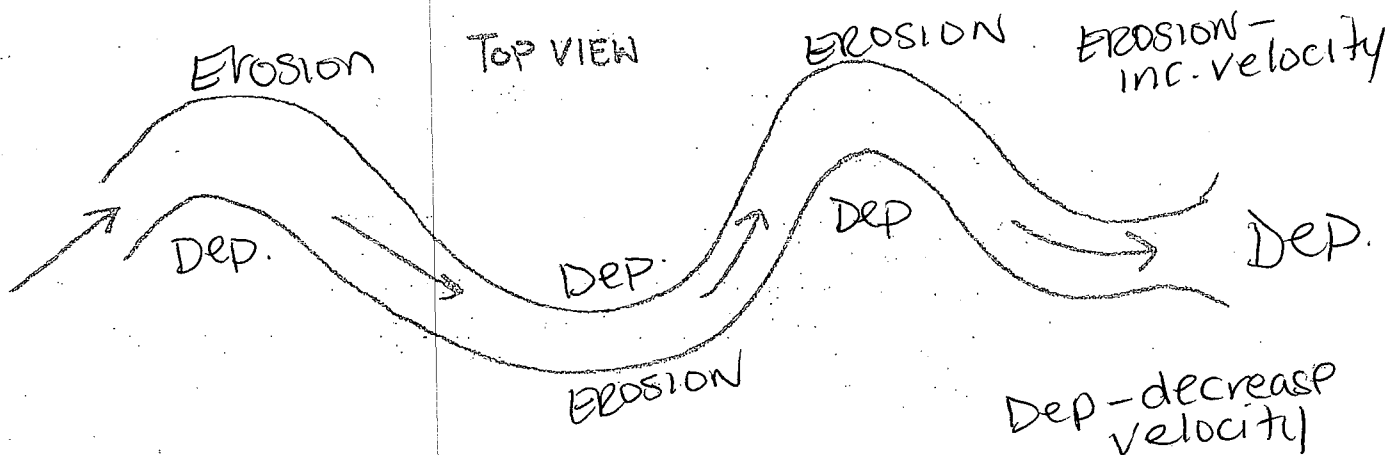
Name _____

Erosion/Deposition Review

Directions: Answer the following questions using all possible resources (text book, notes, review book, ect...). Use this review as a study guide for the test. **You can only do as well as you prepare yourself!**

Part I: Erosion

1. What is the primary force that controls all erosion? *Gravity*
2. List the major agents of erosion. Which of the agents is the most dominant form of erosion? **water, glaciers, wind, mass movement, waves*
3. What factors affect the velocity of water flowing in a stream? *slope and discharge (volume of water)*
4. Where in the stream is the water's velocity the fastest? Why? *center below surface - less friction*
5. Using the diagram below of a meandering stream label the areas of deposition and erosion. Explain why deposition and erosion occur in these specific areas.



6. What are the different methods that materials can be transported in a stream?

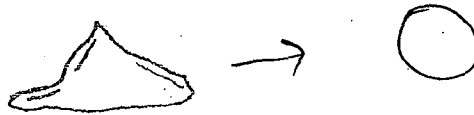
- solution - dissolved minerals
= ions
- suspension - clay (small)
- saltation / traction - bouncing, rolling, dragging on bottom

- Use the "Relationship of Transported Particle Size to Water Velocity" chart found on page 6 of the Earth Science Reference Tables to answer the following questions.

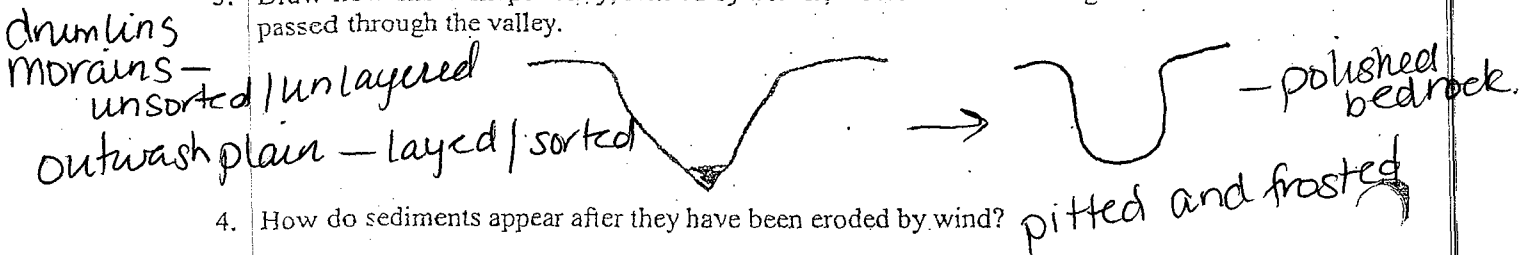
7. List in order from smallest to largest the sediments found on this table. *clay, silt, sand, pebble, cobble, boulder*
8. What must the stream velocity be to carry sediments at a size of 0.5 cm? *30cm/sec*
9. A stream with a velocity of 200 cm/sec can carry sediments of what sizes? *cobble, pebble, sand, silt, clay*

Part II. Evidence of Erosion

1. Draw how the rock below would appear after running water has eroded it.



2. How are scratches (striations) formed on bedrock when a glacier passes over it? *rocks are dragged by moving ice over bedrock*
3. Draw how this V shape valley, formed by a river, would be altered if a glacier passed through the valley.

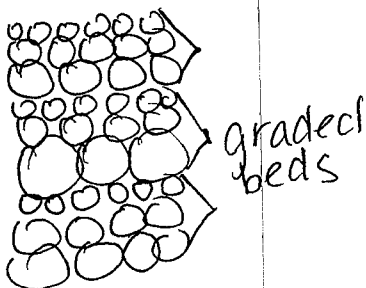


4. How do sediments appear after they have been eroded by wind? *pitted and frosted*

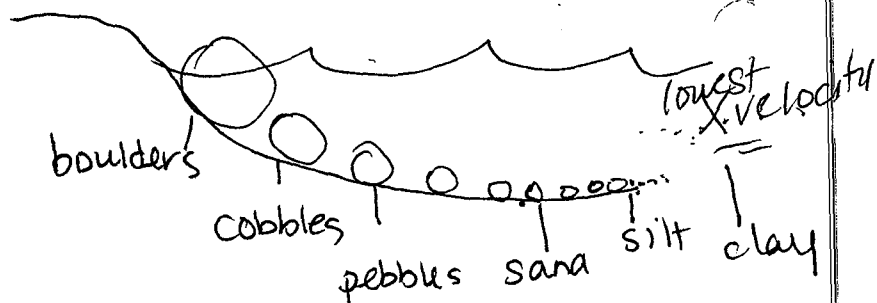
Part III. Deposition

1. When an erosional agent carries sediments, why do they become deposited at a new location? *decrease in velocity*
2. Explain the three factors that affect the deposition of sediment. *inc. density, size, inc. dep. rate*
3. Draw a picture of vertical sorting and horizontal sorting.
4. In your diagram of horizontal sorting where is the water's velocity the lowest?
5. What type of pattern do wind deposits create? *cross bedding*

vertical sorting



horizontal sorting



Name _____

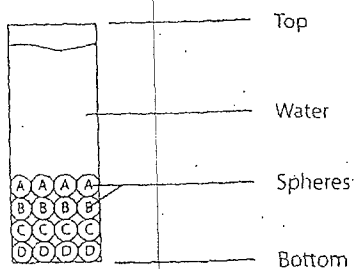
Key

Directions: Match the characteristics on the left with the type of erosion by putting a check (✓) in the appropriate columns. More than one agent of erosion may be checked.

Characteristics	AGENTS OF EROSION			
	Running Water	Wind	Glacial Ice	Mass Movement
round and smooth	✓			
bedrock with striations			✓	
talus				✓
unsorted/and angular				✓
suspension	✓			
abrasion	✓	✓	✓	
bed load (traction)	✓			
colloids (suspended in solution)	✓			
flotation	✓			
oxbow lake	✓			
meanders	✓			
polished bedrock			✓	
discharge	✓			
sorted	✓	✓		
unsorted			✓	✓
pitted and frosted		✓		

Review Questions

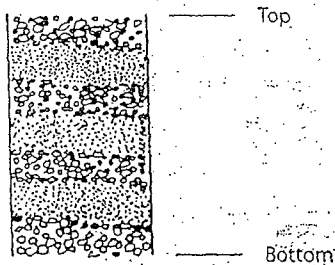
- Which evidence best supports the idea that a vast inland sea once covered the Great Plains area of the United States? (1) considerable erosion has occurred there (2) extensive igneous intrusions are presently exposed there (3) extensive sedimentary rock layers have been formed there (4) numerous earthquakes occur there
- A stream is carrying sediment particles ranging from 0.0004 to 25.6 centimeters. When the stream's velocity decreases from 300 to 100 centimeters per second, the stream will most probably deposit (1) silt and clay (2) sand and silt (3) pebbles and sand (4) cobbles and pebbles
- When a river enters the ocean, sediment is deposited. Describe the change in kinetic energy of the river that leads up to this event. *dec. velocity*
- The rate at which particles are deposited by a stream is least affected by the (1) size and shape of the particles (2) velocity of the stream (3) stream's elevation above sea level (4) density of the particles
- Small spheres that are identical in shape and size are composed of one of four different kinds of substances: A, B, C, or D. The spheres are mixed together and poured into a clear plastic tube filled with water. Which property of the spheres caused them to settle in the tube as shown in the diagram below? (1) their size (2) their shape (3) their density (4) their hardness



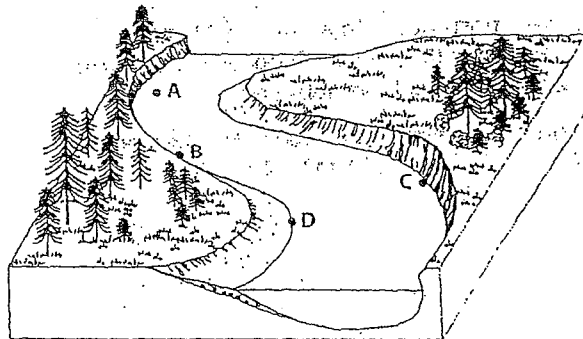
- Much of the sediment that covers New York State was deposited by glaciers. Describe a depositional characteristic that these sediments should have in common.

- polished
- striations

- The following diagram represents a cross section of sedimentary deposits. Where would this type of deposition most likely occur? (1) at the base of the shifting sand dune (2) at the rapids in a stream (3) beneath a large glacier (4) in a lake fed by a stream that often floods



- Base your answers to questions 8 and 9 on the following diagram. The diagram shows points A, B, C, and D on a meandering stream.

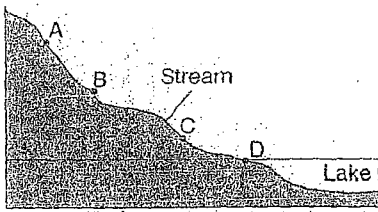


- Which material is most likely to be transported in suspension during periods of slower stream velocity? (1) gravel (2) sand (3) silt (4) clay
- At which point is the amount of deposition more than the amount of erosion? (1) A (2) B (3) C (4) D

- More deposition than erosion will take place in a streambed when the (1) density of the rock particles carried by the stream decreases (2) slope of the stream increases (3) discharge of the stream increases (4) velocity of the stream decreases
- Which is the most probable description of the energy of a particle in an erosional-depositional system? (1) Particles gain kinetic energy during erosion and lose kinetic energy during deposition. (2) Particles lose kinetic energy during erosion and lose kinetic energy during deposition. (3) Particles gain potential energy during erosion and gain potential energy during deposition. (4) Particles lose potential energy during erosion and gain potential energy during deposition.

Erosion and Deposition Review

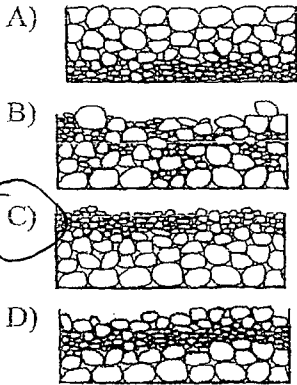
9. The cross section below shows a stream flowing downhill. Points A through D are locations in the stream.



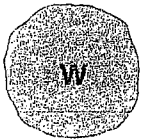
At which point would most deposition occur?

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

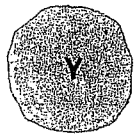
10. Quartz particles of varying sizes are dropped at the same time into deep, calm water. Which cross section best represents the settling pattern of these particles?



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



Density = 3.8 g/mL



Density = 2.4 g/mL



Density = 3.8 g/mL



Density = 2.4 g/mL

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

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

roundest density

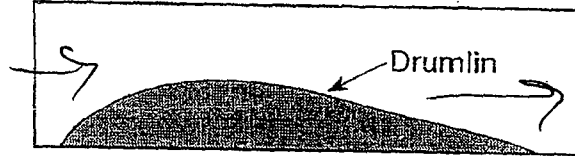
12. What change will a pebble usually undergo when it is transported a great distance by streams?

- A) It will become jagged and its mass will decrease.
 B) It will become jagged and its volume will increase.
 C) It will become rounded and its mass will increase.
D) It will become rounded and its volume will decrease.

13. 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

14. The diagram below represents a side view of a hill (drumlin) that was deposited by a glacier on the Atlantic coast.



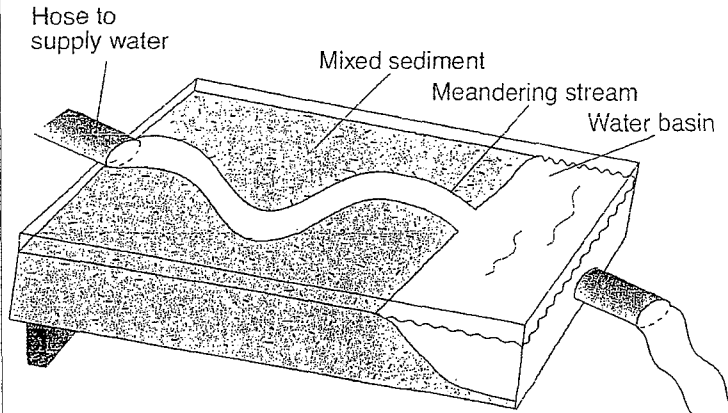
This hill is most likely composed of

- A) cemented sediments
B) unsorted sediments
 C) vertically layered sediments
 D) horizontally layered sediments

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

Base your answer to the following question on the diagram below, which 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.



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

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

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

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

7. 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

8. Pieces of bedrock material that are broken from a cliff and deposited by a landslide at the base of the cliff are best described as

- A) rounded and sorted
- B) rounded and unsorted
- C) angular and sorted
- D) angular and unsorted

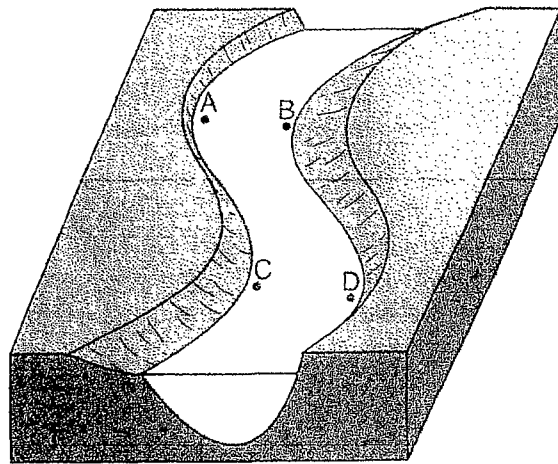
9. Which sediment is most easily picked up and transported by the wind?

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

10. 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

7. 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?

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

8. Which agent of erosion was primarily responsible for forming the long, narrow, U-shaped valleys in the Finger Lakes region of New York State?

- A) wind
- B) landslides
- C) meandering streams
- D) continental glaciers

Name _____

Directions : Place a check in the box of the erosional agent(s) that matches the described evidence for that type of erosion.

Evidence of Erosion	Rivers	Wind	Glaciers	Mass Wasting
rounded sediments (abrasion)	✓			
angular sediments				✓
scratches/striations on bedrock			✓	
pitted and frosted sediments		✓	⊗	
"V" shaped valleys	✓			
unsorted sediments (till)			✓	
polished bedrock			✓	
mushroom shaped rock (hoodoos)		✓		
unsorted piles/angular fragments				✓
Carved "U" shaped valleys			✓	
materials transported by solution, suspension, and rolling	✓			

Directions: complete the following sketch graphs.

