Sorting and Deposition Lab #17

Discussion: Weathering, erosion, and deposition are related. There are five chief depositional agents. Each agent can be recognized by the characteristics of the deposits they form. In the Method section below, we will name each depositional agent and describe the characteristics of the deposits left by each agent.

Define the following terms:

1. Weathering – _____

2. Erosion – _____

3. Deposition – _____

Objectives: Identify depositional agents by their characteristic features.

Theory: There are five chief agents of deposition. Each agent has unique characteristics which allow scientists to identify the type of agent that left a deposit. (See pages 207-210 in your workbooks.)

Materials: pen/pencil Earth Science workbook

Method: List each agent in the same order as they are discussed in your workbook on pages 207-210. Follow the prompts to describe the characteristics of the deposits left by each agent.

1. _____

   In the course itself, deposits occur _____

   During flooding, deposits occur _____

   The high velocity of a flooding _____

   Deposition at the end of a _____

2. _____

A moraine forms at the _____

_____

_____

A moraine that mounds up into a streamlined oval shape is called _____

that can indicate _____

_____

Circular depressions that are left behind are called _____

which are formed by _____

_____

_____

When glaciers melt, running water will deposit sediments forming an _____

which resembles a _____

The sediments deposited this way will be _____

3. _____

Waves slow down as they approach the shore and tend to _____

_____

_____

This wave movement often builds up _____

The side of a barrier that projects into the ocean that faces a longshore current _____

_____

The side of the barrier facing away from a longshore current _____

_____

Explain how barrier islands form. _____

_____

_____

_____

4. _____

Air usually transports only _____

Sediments smaller than sand (_____) _____

Volcanic ash is deposited _____

Sand deposited in mounds are called _____

Describe how to determine the wind direction from a sand dune. _____

_____

Describe the appearance of windblown sand. _____

5. _____

Describe the appearance of sediments deposited by avalanches or rock falls. _____

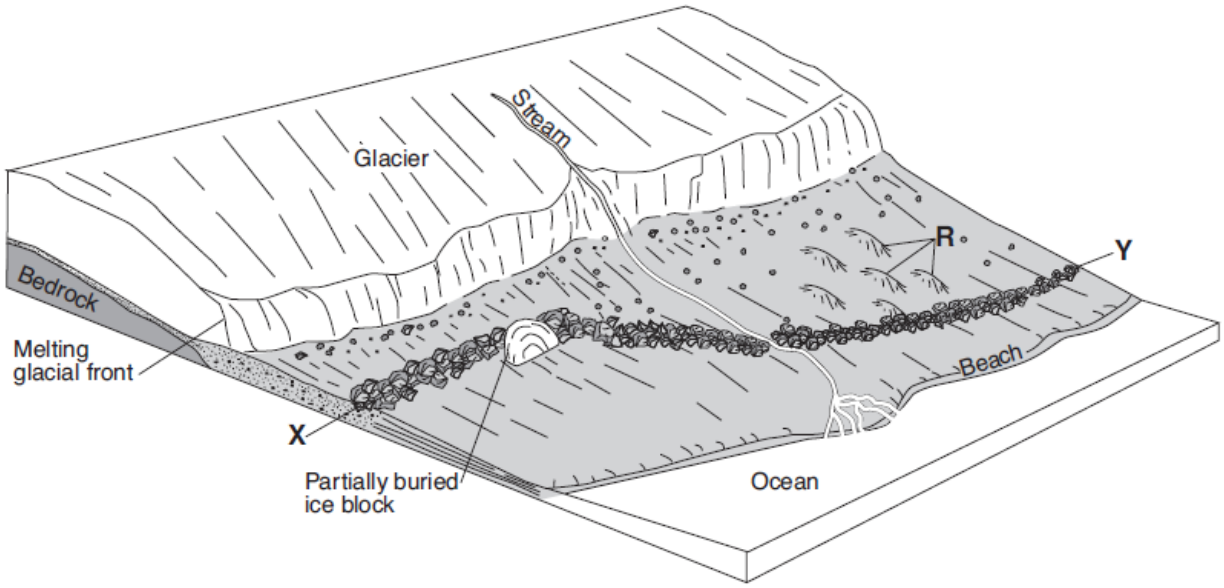
_____

The most easily recognizable depositional feature of mass movement is _____

_____

Conclusions:

Base your answers to questions 1 through 3 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.



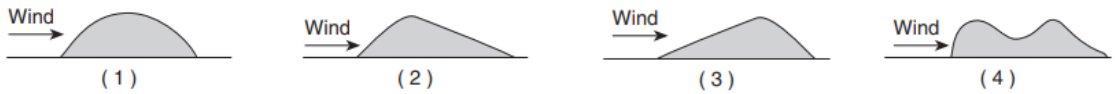
1. The elongated hills labeled R are most useful in determining the
   (1) age of the glacier
   (2) direction the glacier has moved
   (3) thickness of the glacier
   (4) rate at which the glacier is melting

2. Which feature will most likely form when the partially buried ice block melts?
   (1) drumlin (2) moraine (3) kettle lake (4) finger lake

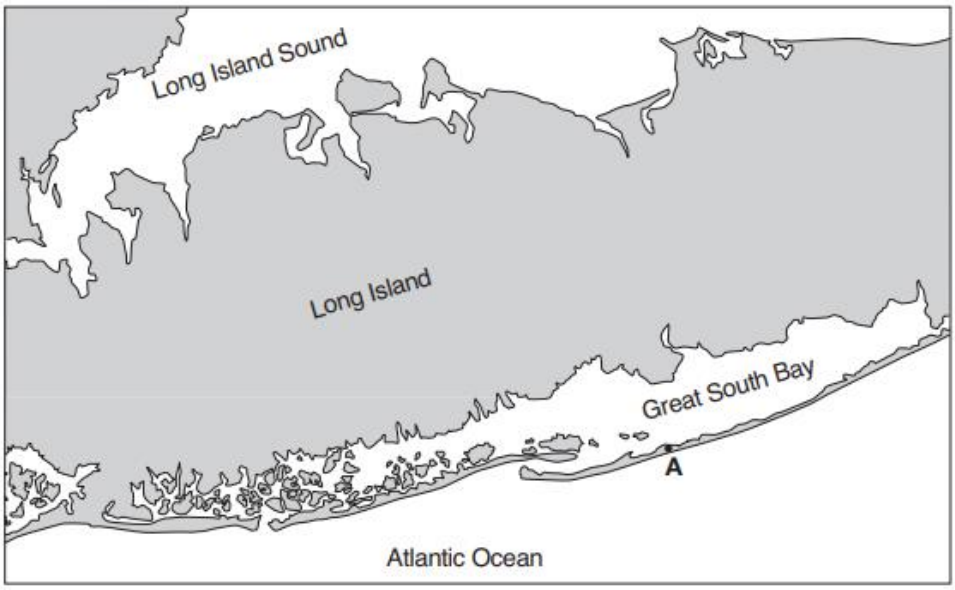
3. The ridge of sediments from X to Y can best be described as
   (1) sorted and deposited by ice
   (2) sorted and deposited by meltwater
   (3) unsorted and deposited by ice
   (4) unsorted and deposited by meltwater

4. Which agent of erosion most likely moves sediments in a sand dune?
   (1) wind (2) glaciers (3) wave action (4) running water

5. Which diagram represents a side view of a sand dune most commonly formed as a result of the prevailing wind direction shown?



6. The map below shows coastal features of a portion of Long Island, New York. Point A represents a location on a landscape feature that resulted from wave action and longshore currents.

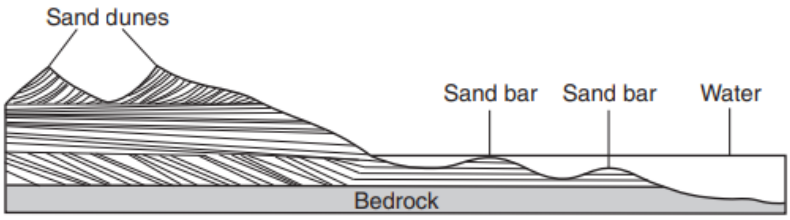


On which landscape feature is point A located?

(1) moraine (2) delta (3) barrier island (4) floodplain

7. The cross section below represents two types of sorted-sand depositional features found at a coastal location.

Cross Section of a Coastal Location



Which table correctly pairs these depositional features with the agents of erosion that formed them?

Depositional Feature	Agent of Erosion
sand dune	mass movement
sand bar	wind

(1)

Depositional Feature	Agent of Erosion
sand dune	mass movement
sand bar	glaciers

(3)

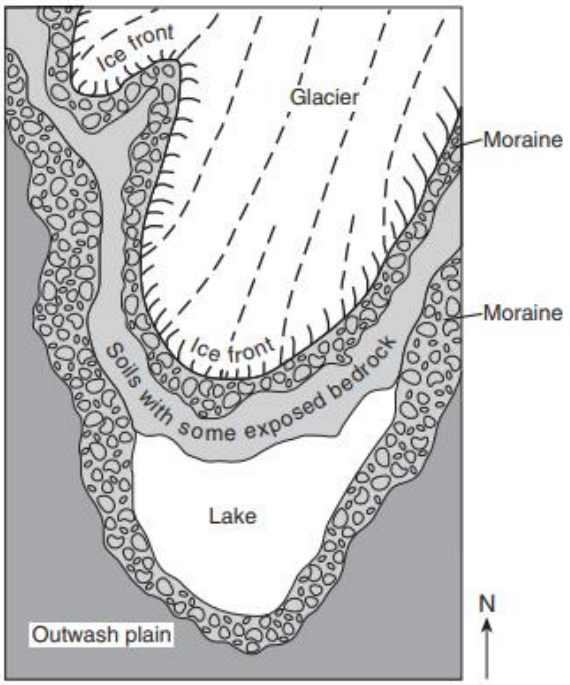
Depositional Feature	Agent of Erosion
sand dune	glaciers
sand bar	waves

(2)

Depositional Feature	Agent of Erosion
sand dune	wind
sand bar	waves

(4)

Base your answers to questions 8 through 11 on the map below and on your knowledge of Earth science. The map shows a retreating valley glacier and the features that have formed because of the advance and retreat of the glacier.



8. Describe one piece of evidence likely to be found on the exposed bedrock surfaces that could indicate the direction this glacier moved.

_____

_____

9. Describe one difference between the arrangement of sediment in the moraines and the arrangement of sediment in the outwash plain.

_____

_____

10. Describe the most likely shape of the valley being formed due to erosion by this glacier.

_____

_____

11. Explain why the glacial ice absorbs less solar radiation than the surrounding exposed bedrock and soil.

_____

_____

_____