

Name: _____

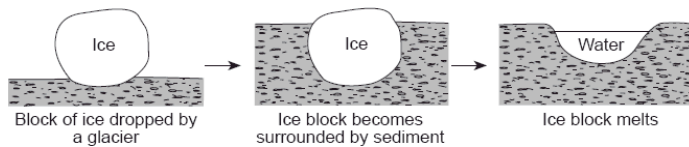
1.

Which statement presents the best evidence that a boulder-sized rock is an erratic?

1. The boulder has a rounded shape.
2. The boulder is larger than surrounding rocks.
3. The boulder differs in composition from the underlying bedrock.
4. The boulder is located near potholes.

2.

The diagram below shows a glacial landscape feature forming over time from a melting block of ice.



This glacial landscape feature is best identified as

1. a kettle lake
2. an outwash plain
3. a finger lake
4. a moraine

3.

Base your answer to the question on the map below, which shows the different lobes (sections) of the Laurentide Ice Sheet, the last continental ice sheet that covered most of New York State. The arrows show the direction that the ice lobes flowed. The terminal moraine shows the maximum advance of this ice sheet.

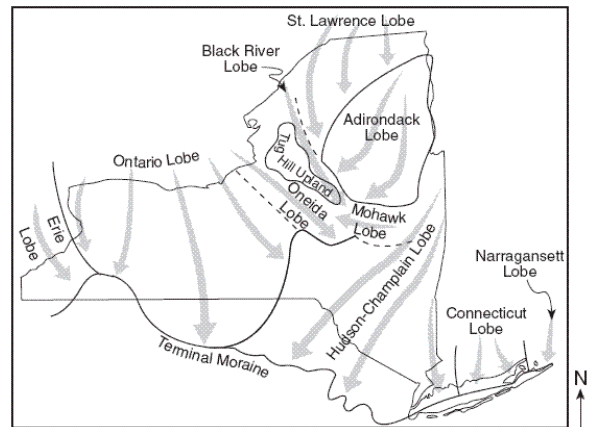


Figure 1

Describe the arrangement of rock material in the sediments that were directly deposited by the glacier.

4.

[Refer to figure 1]

According to the map, toward which compass direction did the ice lobe flow over the Catskills?

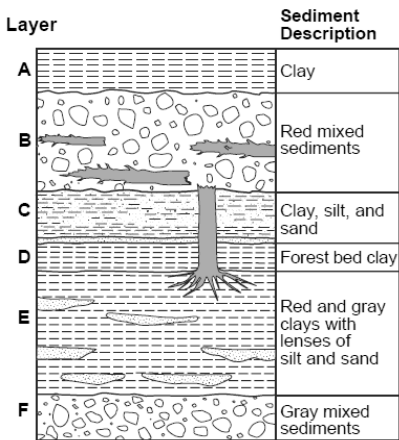
5.

[Refer to figure 1]

What evidence might be found on surface bedrock of the Catskills that would indicate the direction of ice flow in this region?

6.

The cross section below shows layers of sediments deposited in a region of Wisconsin that has experienced several periods of glaciation. Descriptions of the sediments in layers *A* through *F* are included.



Source: A. N. Strahler, *The Earth Sciences*, 2nd Edition, 1971 (adapted)

Which two layers of sediments were probably deposited directly by glaciers?

1. *A* and *D*
2. *B* and *F*
3. *C* and *E*
4. *D* and *E*

7.

Base your answer to the question on the maps below. The southwest corner of the New York State map below is enlarged in maps I, II, and III. Arrows on maps I, II, and III show the location and direction of flow for part of the Allegheny River at different times during the Cenozoic Era. The present boundaries of New York State and Lake Erie are shown on each map. Point *A* on map III represents a location in New York State.

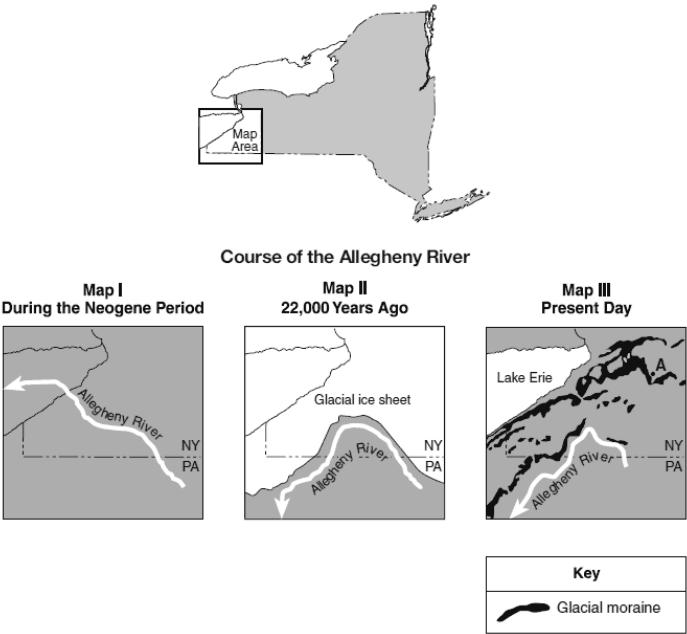


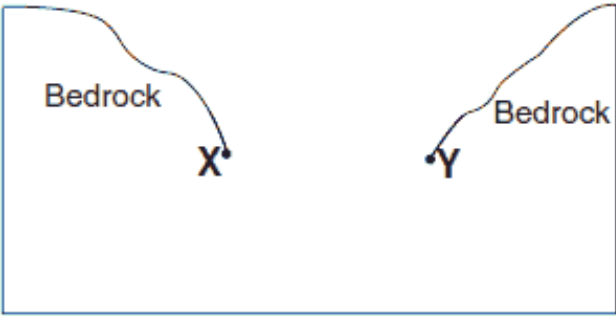
Figure 2

Identify the present-day feature that prevents the Allegheny River from returning to its earlier (Neogene) direction of flow to the northwest.

8.

[Refer to figure 2]

The diagram below shows a partial cross section of a valley near location A on map III. On this diagram, draw a line beginning at *X* and ending at *Y* to show the shape of this valley after it was eroded by glacial ice that flowed down the valley.



9.

Base your answer to this question on the topographic map below, which shows three glaciers found in Alaska. Dashed lines show the inferred location of the front edge of each glacier in 1948, 1964, and 1980. Solid lines show the location of the front edge of each glacier in 1998. Points *A* and *B* show the location of the front edge of the Taku Glacier in 1948 and 1998. Elevations are in feet.

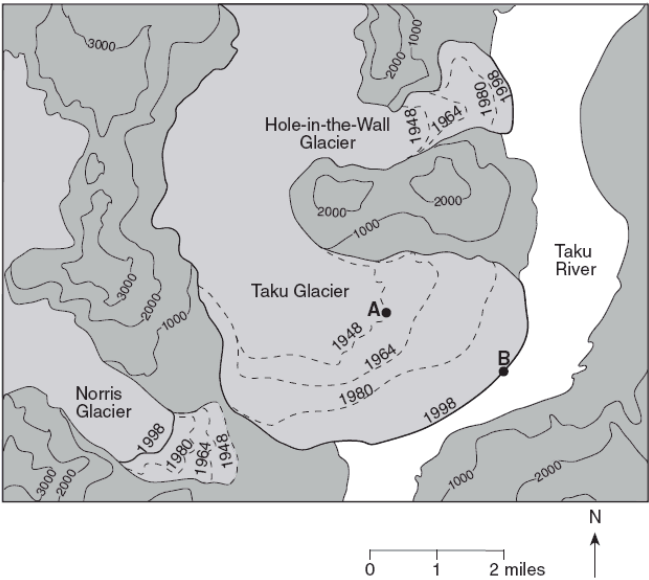


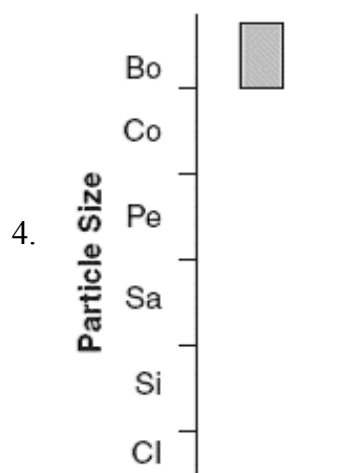
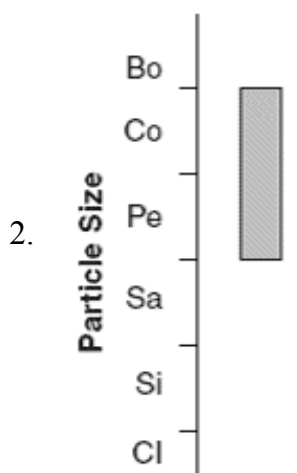
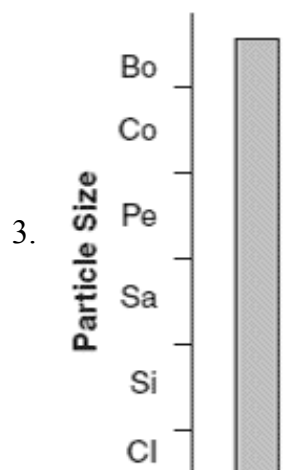
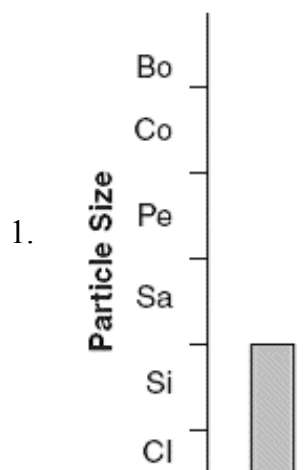
Figure 3

Determine the rate, in miles per year, that the front edge of the Taku Glacier moved between point *A* and point *B*.

10.

Which graph best represents the range of particle sizes that can be carried by a glacier?

Key			
Cl	clay	Pe	pebbles
Si	silt	Co	cobbles
Sa	sand	Bo	boulders



11.

Base your answer to this question on map *A*, map *B* and map *C* below, which show evidence that much of New York State was once covered by a glacial ice sheet. Map *A* shows the location of the Finger Lakes Region in New York State. The boxed areas on map *A* were enlarged to create maps *B* and *C*. Map *B* shows a portion of a drumlin field near Oswego, New York. Map *C* shows the locations of glacial moraines and outwash plains on Long Island, New York.

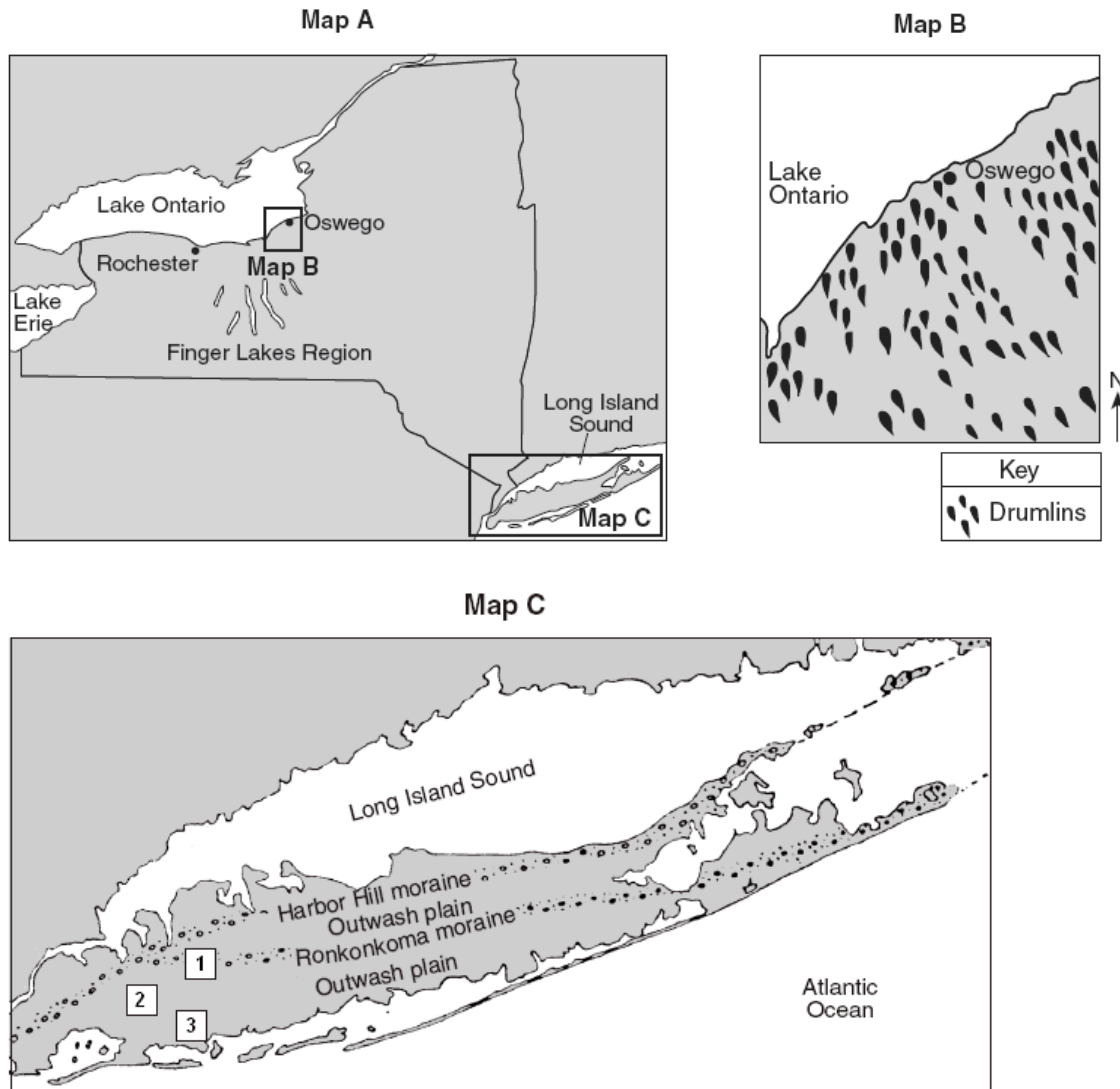


Figure 4

The arrangement of the drumlins on map *B* indicates that a large ice sheet advanced across New York State in which compass direction?

Answer Key for Review - Glaciers

1. 3

5.

9.

Acceptable responses include, but are not limited to, these examples:

- parallel scratches, grooves, or striations
- orientation of glacial features, such as drumlins and lateral moraines

Any value from 0.035 to 0.045 mi/yr is acceptable.

2. 1

6. 2

10. 3

3.

7.

11.

Acceptable responses include, but are not limited to, these examples:

- glacial sediment is unsorted.
- piles of mixed sediment sizes

Acceptable responses include, but are not limited to:

- glacial deposits
- moraines
- ridges of glacial sediments

Acceptable responses include, but are not limited to:

- southeastward
- from NW to SE
- south–southeastward
- from N to S

4.

8.

Acceptable responses include, but are not limited to, these examples:

- southwest
- SW
- south southwest
- SSW

The line should be U-shaped.

Example:

