

Directed Reading

Section: Glacial Erosion and Deposition

1. Name three examples of landforms created by glaciers.

2. Glaciers create landforms through which two processes?

GLACIAL EROSION

_____ 3. In what way are glaciers similar to rivers?

- a. Both are a result of rain.
- b. Both are agents of erosion.
- c. Both can move uphill.
- d. Both begin high in mountains.

_____ 4. Why do landforms that result from glacial action differ from those formed by rivers?

- a. There is no real difference because both rivers and glaciers contain water.
- b. Glaciers move very slowly and do not affect landforms as much as rivers.
- c. Rivers flow so quickly that they have little effect on rock but a major effect on soil.
- d. Because of the size and density of glaciers, the landforms that result are different than those formed by rivers.

_____ 5. When rocks dragged by a glacier cause parallel grooves in bedrock, the grooves show

- a. that the rocks were softer than the bedrock.
- b. that the rocks were carried in a stream inside the glacier.
- c. the direction of the glacier's movement.
- d. how far the glacier moved in a day.

_____ 6. Glacial processes that shape mountains begin

- a. at the upper end of the valley where an alpine glacier forms.
- b. at the base of the valley where an alpine glacier moves.
- c. on the sides of the valley where an alpine glacier moves.
- d. at the leading edge of an alpine glacier in a valley.

Directed Reading *continued*

- _____ 7. Rock fragments that become embedded in a glacier's ice as it moves down a river valley range in size from
- a. microscopic particles to pebbles.
 - b. pebbles to large rocks.
 - c. large rocks to large boulders.
 - d. microscopic particles to large boulders.
- _____ 8. Which of the following do NOT form when rock particles become embedded in a moving glacier?
- a. deep grooves in bedrock
 - b. hanging valleys
 - c. polished rock surfaces
 - d. round, large rock projections
9. What happens to the walls of a V-shaped river valley as a glacier moves through it?

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|-----------------------------|-----------------------------|
| _____ 10. cirque | a. sharp, jagged ridge |
| _____ 11. arête | b. rounded knobs of rock |
| _____ 12. horn | c. bowl-shaped depression |
| _____ 13. roches moutonnées | d. sharp, pyramid-like peak |

14. Describe how a cirque, an arête, and a horn are formed.

Directed Reading *continued*

15. When a rock projection has been rounded by a glacier, which side is smooth and gently sloping?

16. One side of a rock projection that has been rounded by a glacier is steep and jagged. Why?

17. What does *roches moutonnées* mean in English?

18. How does a V-shaped valley become a U-shaped valley?

19. The only way a U-shaped valley can form is through the process of glacial

20. How does a hanging valley form?

Directed Reading *continued*

21. How do landforms created by alpine glaciers differ from landforms created by continental glaciers?

GLACIAL DEPOSITION

22. When does glacial deposition occur?

23. Under what conditions will a glacier melt?

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|----------------------------|--|
| _____ 24. stratified drift | a. large rock carried by a glacier from a distant source |
| _____ 25. erratic | b. unsorted glacial sediments that have been deposited |
| _____ 26. glacial drift | c. term used to describe all glacial sediments |
| _____ 27. till | d. glacial sediments that have been sorted and deposited |

28. Why is the composition of an erratic usually different from that of the bedrock over which it lies?

29. Stratified drift is sorted and deposited in layers by streams flowing from the

30. Landforms that result when a glacier deposits till are called

Directed Reading *continued*

31. What is the typical shape of a lateral moraine?

32. How does a medial moraine form?

33. Unsorted material left beneath a glacier when the ice melts is called _____

34. What is the soil of a ground moraine usually like?

35. What are drumlins?

36. What do clusters of drumlins reveal about a glacier?

37. Where are terminal moraines located?

38. In the Midwest, where are many large terminal moraines found?

39. Where does meltwater come from, and what does it carry?

Directed Reading *continued*

40. Why does glacial meltwater sometimes have beautiful colors?

41. A deposit of stratified drift that lies in front of a terminal moraine and is crossed by many meltwater streams is called a(n) _____.

42. How does a kettle form?

43. A long, winding ridge of gravel and coarse sand deposited by glacial meltwater streams within a glacier is called a(n) _____.

GLACIAL LAKES

_____ 44. When glaciers erode surfaces and leave depressions in bedrock,
a. mountains rise up.
b. new rivers flow.
c. lake basins usually form.
d. moraines are formed.

_____ 45. Lake basins form as a result of
a. both glacial erosion and glacial deposition.
b. only glacial deposition.
c. only glacial erosion.
d. neither glacial erosion nor glacial deposition.

_____ 46. Long, narrow lakes that form where terminal and lateral moraines block streams are called
a. deep lakes.
b. cold lakes.
c. northern lakes.
d. finger lakes.

_____ 47. Evidence of all kinds of glacial lakes can be seen in
a. Illinois.
b. Iowa.
c. Minnesota.
d. Ohio.

Directed Reading *continued*

- _____ 48. Many large lakes that formed during the last glacial advance lost their outlet streams because
- a. glaciers no longer provided meltwater.
 - b. climate changes occurred.
 - c. the rate of snowfall decreased.
 - d. moraines blocked rivers.
- _____ 49. In a lake without outlet streams, water leaves only by
- a. deposition.
 - b. sedimentation.
 - c. evaporation.
 - d. precipitation.
- _____ 50. In a salt lake, the lake becomes increasingly salty when water evaporates and
- a. dissolved salt is left behind.
 - b. the lake becomes more polluted.
 - c. there is additional rainfall.
 - d. the lake level gets higher.
- _____ 51. Salt lakes commonly form in
- a. wet climates where evaporation is slow and precipitation is high.
 - b. cold climates where the lakes often freeze.
 - c. cool, moist climates where precipitation is high.
 - d. dry climates where evaporation is rapid and precipitation is low.
52. How did the Great Lakes of North America form?

53. During their early stages, the Great Lakes emptied into which rivers?

Directed Reading *continued*

54. When the Great Lakes became larger, where did they also begin to drain?

55. What caused the Great Lakes to drain to the northeast after the glacial period?

56. The northeasterly flow of the Great Lakes resulted in the formation of
