

Unit 4 Lesson 3 Digital Lesson "Processes that Shape the Land"

1. What is a sand dune?
2. How far can they move?
3. What do you call the process that picks up the sand particles and moves them to another location?
4. What is the process of deposition?
5. What is loess?
6. What are the three agents of erosion in this lesson?
7. List and describe the two main types of glacial ice?

8. How do glaciers form?
9. What is glacial drift?
10. How do glacial striations form?
11. What is the bowl-shaped depression on the side of a mountain called?
12. What are the sharp peaks at the tops of mountains called?
13. What are **arêtes**?
14. What is the shape of the valley left behind by the alpine glacier?
15. A **moraine** is an accumulation of _____, _____, and other _____ left by a glacier.
16. What is a **drumlin**?
17. Drift can include _____, _____, _____, and _____.
18. List the steps for ice wedging:

19. List the ways that gravity can cause erosion:

20. If you were on top of a mountain and you found a boulder with one side smoothed off, which agent of erosion do you think was the cause and why?

21. Erosion can be caused by _____ that shapes dunes and rocks high on mountains.
22. _____ and other forms of _____ can scrape and erode surfaces.
23. _____ and _____ are examples of erosion caused by _____.

QUICK LAB  **Inquiry**

Modeling a Glacier

In this lab, you will use a model of a glacier to study how glaciers affect the land over which they move. You will use ice with sand and gravel embedded in it to represent the glacier, and clay to represent the land.



PROCEDURE

- 1 Fill one paper cup with sand and gravel to a depth of 1 cm. Add water to the cup until the water is approximately 2 cm below the rim of the cup.
- 2 Place the cup in a freezer overnight.
- 3 Retrieve the cup from the freezer, and remove the ice block from the cup.
- 4 Use a rolling pin to flatten a stick of clay.
- 5 Hold the block of ice with a paper towel. Press down and move the ice block over the slab of clay.
- 6 Did any clay material become mixed with the ice block?

- 7 Was any material from the ice block deposited on the clay surface?
- 8 Why is it important to observe both the surface of the clay and the surface of the ice?

- 9 How does this activity model the way that glaciers erode rock?

OBJECTIVE

- Describe how glaciers can cause erosion and deposition.

MATERIALS

For each group

- clay, stick
- cup, paper
- gravel
- paper towel
- rolling pin
- sand
- water

For each student

- lab apron
- safety goggles



7.2.7

Use geological features such as karst topography and glaciation to explain how large-scale physical processes have shaped the land.

NOS 7.5

Analyze data, using appropriate mathematical manipulation as required, and use it to identify patterns and make inferences based on these patterns.