Guided Notes on Glaciers, Section 8.3

1. A glacier is a large, moving mass of ice.

2. Glaciers form near Earth’s poles and in mountainous areas at high elevations.

3. Glaciers currently cover only about 10 percent of Earth’s surface.

4. Cold temperatures keep fallen snow from completely melting, and each year, the snow that has not melted accumulates in an area called a snowfield. Thus, the total thickness of the snow layer increases as the years pass, and a glacier begins to form.

5. Small glaciers form even in mountainous tropical areas along the equator, such as in Chile.

6. Glaciers can be classified as one of two types: valley glaciers or continental glaciers.

7. Valley glaciers are glaciers that form in valleys in high, mountainous areas.

8. Continental glaciers, also called ice sheets, are glaciers that cover broad, continent-sized areas.

9. The movement of a valley glacier occurs when the growing ice mass becomes too heavy to maintain its rigid shape and begins to flow, much like a thick liquid.

10. As a valley glacier moves, deep cracks in the surface of the ice, called crevasses, can form.

11. The speed of a valley glacier’s movement is affected by the slope of the valley floor, the temperature and thickness of the ice, and the shape of the valley walls.

12. Continental glaciers form under the same climatic conditions as valley glaciers, but they move in a different way.

13. Of all the erosional agents, glaciers are the most powerful because of their great size, weight, and density.
14. When glaciers with embedded rocks move over bedrock valley walls, they act like grains on a piece of sandpaper, grinding out parallel scratches into the bedrock.

15. Scratches and grooves provide evidence of a glacier's history and establish its direction of movement.

16. Glacial features include hanging valleys, cirques, waterfalls, U-shaped valleys, horns, and aretes.

17. Cirques are deep depressions scooped out by valley glaciers.

18. Moraines are ridges consisting of till deposited by glaciers.

19. Outwash is gravel, sand, and fine silt formed from the grinding action of the glacier on underlying rock that is deposited by meltwater.

20. An outwash plain is the area at the leading edge of the glacier, where the meltwater streams flow and deposit outwash.

21. Drumlins are elongated landforms that are formed when glaciers move over older moraines.

22. Eskers are long, winding ridges of layered sediments that are deposited by streams flowing under a melting glacier.

23. Sometimes a large block of ice breaks off a glacier and is later covered by sediment. When the ice block melts, it leaves behind a depression called a kettle hole. After the ice block melts, the kettle hole fills with water from precipitation and runoff to form a kettle lake.

24. Cirques can also fill with water and become cirque lakes. When a terminal moraine blocks off a valley, the valley fills with water to form a lake. Moraine-dammed lakes include the Great Lakes and the Finger Lakes of northern New York State which are long and narrow.

25. Mass movements, wind, and glaciers all contribute to the changing of Earth’s surface. These processes constantly wear down landforms, and in many ways, they also impact human populations and activities.