

## Notes – Glaciation Video

1. **What is a glacier?** *A glacier is a large body of ice that forms near the top of high mountains or on land masses near the poles from built-up snow fields. To be considered a glacier (as opposed to an ice field), the ice must flow.*
2. **What is a snow field?** *A snow field is an area of snow, usually near the poles or high on mountains, that does not melt completely each summer. Over a period of years, snow can build up in snowfields and eventually become a glacier.*
3. **How does snow change to glacial ice?** *As snow builds up on top of a snow field or glacier over many years, the tips of the snow crystals partially melt and slower convert into ice crystals. The snow and ice crystals compress under the weight of the snow above it, completing the conversion from snow to glacial ice.*
4. **What are the three kinds of glacier?** *The three kinds of glaciers are continental glaciers, alpine or valley glaciers, and piedmont glaciers.*
5. **What are two examples of continental glaciers?** *A continental glacier covers most or all of a continent of large land mass. The two continental glaciers that presently exist on Earth are on Greenland and Antarctica.*
6. **What makes a glacier flow?** *Glaciers begin to flow when a portion of the ice mass spreads to a downward slope. Gravity and the great weight of the glacier then slowly pull it down the valley or slope. The steeper the slope, and the greater the water flow under the glacier from melting, the faster the glacier will flow.*
7. **Are most glaciers in the world growing or shrinking?** *Most glaciers in the world are shrinking. During the last decade, the rate of shrinking has greatly increased, in response to global warming and long-term climate change cycles.*
8. **How are icebergs created?** *Icebergs are created when a glacier flows into the ocean, and large masses of ice “calve” off of the end of the glacier to form icebergs. This process is known as calving.*
9. **What is a valley or alpine glacier?** *A valley or alpine glacier forms near the top of high mountain peaks, where the temperature is usually below freezing and large amounts of snow accumulate each winter. As the snow field builds up and the snow compresses into ice, the glacier flows down existing river valleys, creating a cirque (bowl-shaped depression at the top of a mountain valley) and widening the bottom of the valleys by moving much rock down the glacier.*
10. **What is plucking?** *Plucking is the weathering process used by glaciers to pull rock fragments from the bed of rock over which the glacier is flowing. The plucked rocks are then carried along by the glacier until it stops advancing, and deposited as moraines.*
- 11: **Define each of the following types of erosional features created by glaciers:**
  - a. **Cirque:** *a bowl-shaped depression carved into the upper end of a glacial valley, usually just below a mountain peak.*

- b. **Arête:** *a narrow knife-edged ridge carved by glaciers on either side of the ridge forming cirques.*
- c. **Horn:** *a sharp-edged and pointed mountain peak that is carved by glaciers flowing down its sides from cirques just below the peak.*
- d. **U-shaped Valley:** *a valley carved by the flow of a glacier. The glacier widens the bottom of an existing V-shaped river valley, making the valley sides almost vertical and the valley floor almost flat.*
- e. **Hanging Valley:** *a glacially carved valley that ends at a cliff above a lower valley. Often, the glacier in the hanging valley was a “tributary” of a much larger, thicker glacier in the main glacial valley.*
- f. **Fjord:** *a valley originally carved by a glacier that flowed into the ocean during a past ice age, and that later became flooded by the ocean as sea levels rose after the ice age ended. Fjords are thus inlets off the ocean with very steep or vertical side walls. Many fjords still have glaciers flowing into them, and may be filled with icebergs calved off the glacier.*

12. **Define each of the following types of depositional features created by glaciers:**

- a. **Till:** *the sediment that is deposited by a glacier.*
- b. **Erratic:** *a large rock carried by a glacier a long distance from where it originally formed.*
- c. **Terminal moraine:** *a levee-shaped pile of till deposited at the end of glacier when it stops advancing (growing) and starts receding (shrinking).*
- d. **Lateral moraine:** *a levee-shaped pile of till deposited by a glacier at its sides.*