

## WHAT IS A GLACIER?

Most people have seen pictures of glaciers and know that they are made of ice. But what more do we know about them? How do they form?

Picture in your mind a high mountain with broad, deep valleys cut into its side. During the many months of winter, snow falls on the mountain and into the valleys until a considerable depth of snow has piled up. This happens every year in many parts of the country, but glaciers seldom form. Why not? Because the snow in the valley melts in the summer heat.

This is the first clue as to how and where glaciers form. In the northern latitudes, such as in Alaska, and in many areas of high elevation, snow that falls in the winter does not completely melt away in the summer.

Perhaps 100 feet of snow falls, and 90 feet of snow melts away. When winter comes again, there is already 10 feet of snow from the previous winter. As this cycle of snowfall exceeding snowmelt is repeated year after year after year, great quantities of snow will gradually accumulate.

Snow is a form of ice. As the thickness of accumulating snow increases, its weight causes increased pressure at the bottom of the snow pile. The result of this pressure is that snow turns to a more dense form of ice. The pressure first turns the snow to ice granules called **firn**. Then, as the weight of more snow causes the pressure to increase, firn turns to solid, blue, **glacial ice**. It is possible to see an example of the transition from snow to firn to dense ice in any area where snow falls. After the next snowfall, watch what happens to the snow. After a few days, the snowflakes will have turned to firn, particularly if the weather becomes warmer. After a longer time, small patches of dense ice will appear.

When snow is melting, the last remnants are nearly always dense ice. This change occurs in our climate because of temperature rather than pressure, but the results are similar. However, one big difference between the ice we observe and glacial ice is its color. Our dense ice will

be dull white or gray because it contains lots of air bubbles. In glacial ice almost all of the air bubbles have been driven away because of the pressure. The color of glacial ice is blue. An accumulation of 100 feet or more of snow that lasts throughout the year is necessary before granules turn to glacial ice.

Credit: **Pennsylvania and the Ice Age** by W. D. Sevon and Gary M. Fleeger.

**Writing Prompt: How does a glacier form.  
Answer in a five-sentence paragraph.**