

Name _____ Date: _____

Avalanche

Most people know that an avalanche is a large mass of snow that detaches from a mountainside and rushes down the slope, often at a very high speed. However, not everyone realizes that there are many different kinds of avalanches, with various causes and effects. Avalanches are categorized based on whether the snow is wet or dry, and whether or not it is compacted. The four most common types are: dry snow, wet snow, wet slab and dry slab.

The least dangerous type is a dry snow avalanche, which is made up of powdery snow. A dry snow avalanche most often occurs on steeper slopes during a snowstorm when the temperatures are below freezing. Despite the fact that they can reach speeds of up to 225 miles per hour, these avalanches tend to be small, and their snow is loose, not compacted, so they are less dangerous. Yet even a dry snow avalanche can cause harm under the right conditions.

A wet snow avalanche differs from a dry snow avalanche in that it consists of loose, partially melted snow and water. Wet snow avalanches generally occur during the springtime when temperatures are consistently above freezing and there is an abundance of both sunshine and rainfall. The warmer temperatures and the sun melt the outer layers of snow. The increased springtime rainfall saturates the snow with water, weakening the cohesive layers beneath the surface. The combination of these factors results in unstable conditions. Wet snow avalanches are the least common type of avalanche, and they are much slower than dry snow avalanches, typically traveling at speeds of only 10 - 20 miles per hour.

Like a wet snow avalanche, a wet slab avalanche most often occurs during the spring, due to melting snow and increased rainfall. The additional moisture weakens the bonds between the water molecules of the snow. Daytime melting and nighttime refreezing of the ice and snow create ideal conditions for a wet slab avalanche. This type of avalanche is the slowest, generally traveling at a speed of no more than 10 miles per hour. Because the snow is compacted, not loose, a wet slab avalanche is still quite dangerous even at this slow speed.

The last type, a dry slab avalanche, is the most dangerous of all. It occurs when substantial snowfall accumulates over a layer of existing snow in a very short period of time. The stress caused by the weight of the newly fallen snow can make the compacted layer underneath break away. This creates a dry slab avalanche, which travels at speeds of 60 - 80 miles per hour. Dry slab avalanches account for roughly 90% of all avalanche related casualties annually.

Millions of avalanches happen around the world each year, the vast majority of which occur naturally. However, nearly all of the avalanches that result in fatalities are triggered by either the victim or someone in the victim's party. Each year, approximately 150 people become casualties of an avalanche. Sadly, most of these avalanche accidents are preventable. The first step in preventing avalanche related fatalities is to be better informed about the various types of avalanches and the conditions under which they occur.