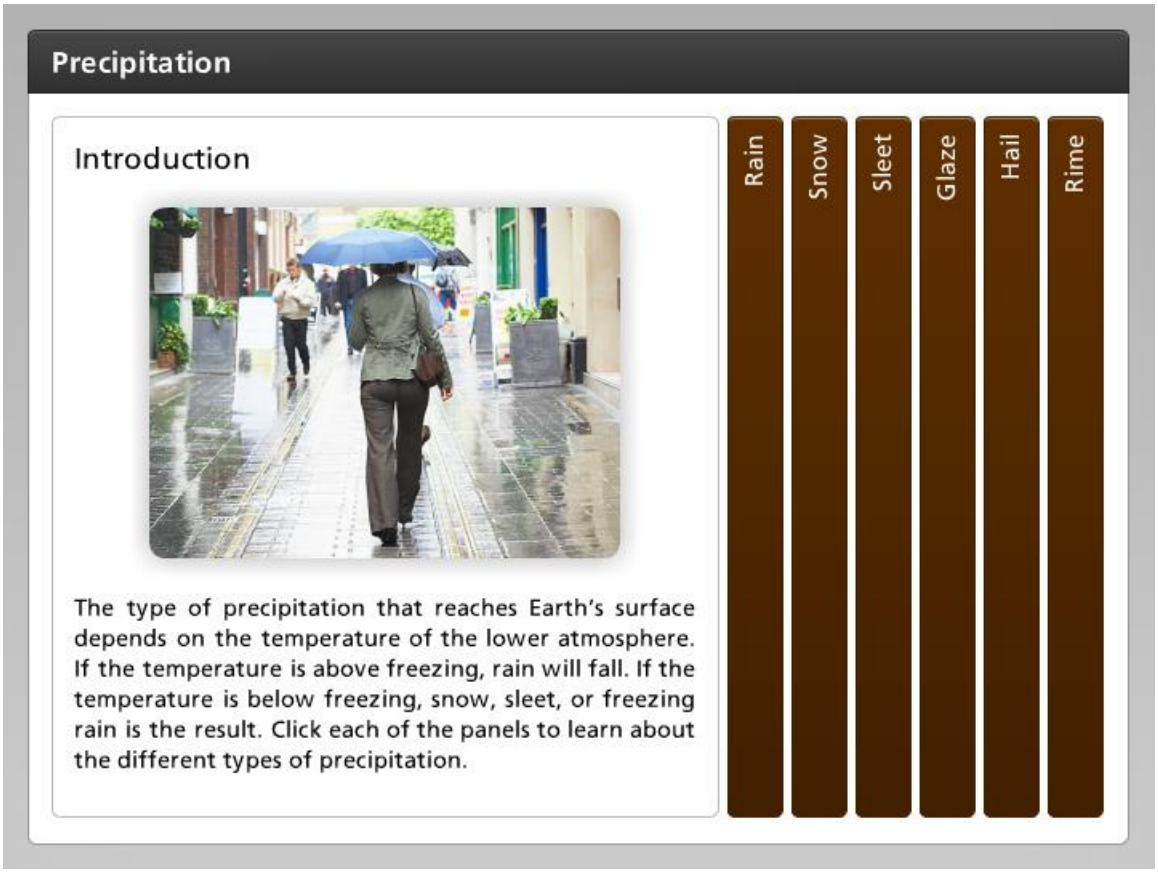
Module 11: Meteorology
Topic 2 Content: Precipitation Notes

Introduction



The type of precipitation that reaches Earth's surface depends on the temperature of the lower atmosphere. If the temperature is above freezing, rain will fall. If the temperature is below freezing, snow, sleet, or freezing rain is the result. Click each of the panels to learn about the different types of precipitation.

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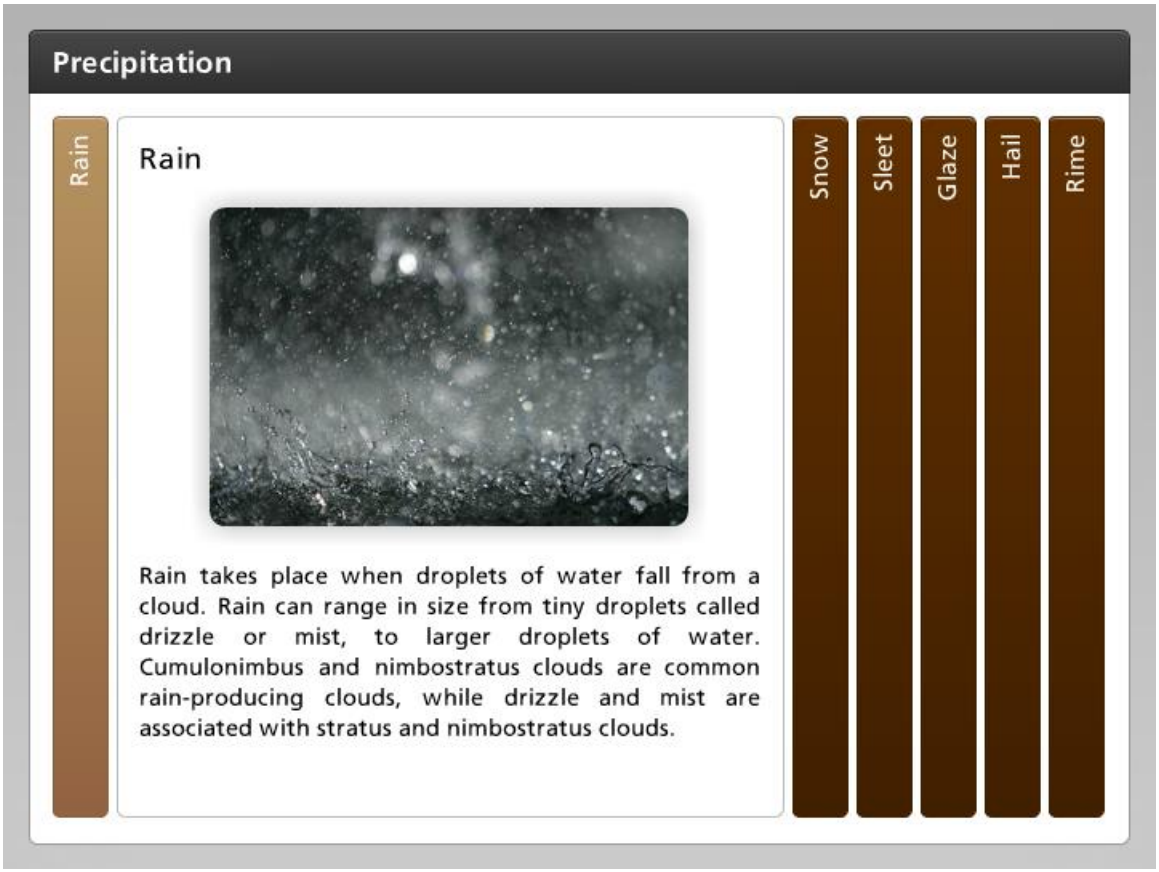
Rain



Rain takes place when droplets of water fall from a cloud. Rain can range in size from tiny droplets called drizzle or mist, to larger droplets of water. Cumulonimbus and nimbostratus clouds are common rain-producing clouds, while drizzle and mist are associated with stratus and nimbostratus clouds.

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Snow

Snow is the precipitation of ice crystals, or snowflakes and can take many shapes and sizes depending on the temperature during formation. Snowflakes which form at very cold temperatures will contain less moisture. These conditions produce a very light, fluffy snow, which is known as powder to skiers and snowboarders. At slightly warmer temperatures, snowflakes become larger and contain more moisture. The result is a heavier snow that is good for making snowballs.

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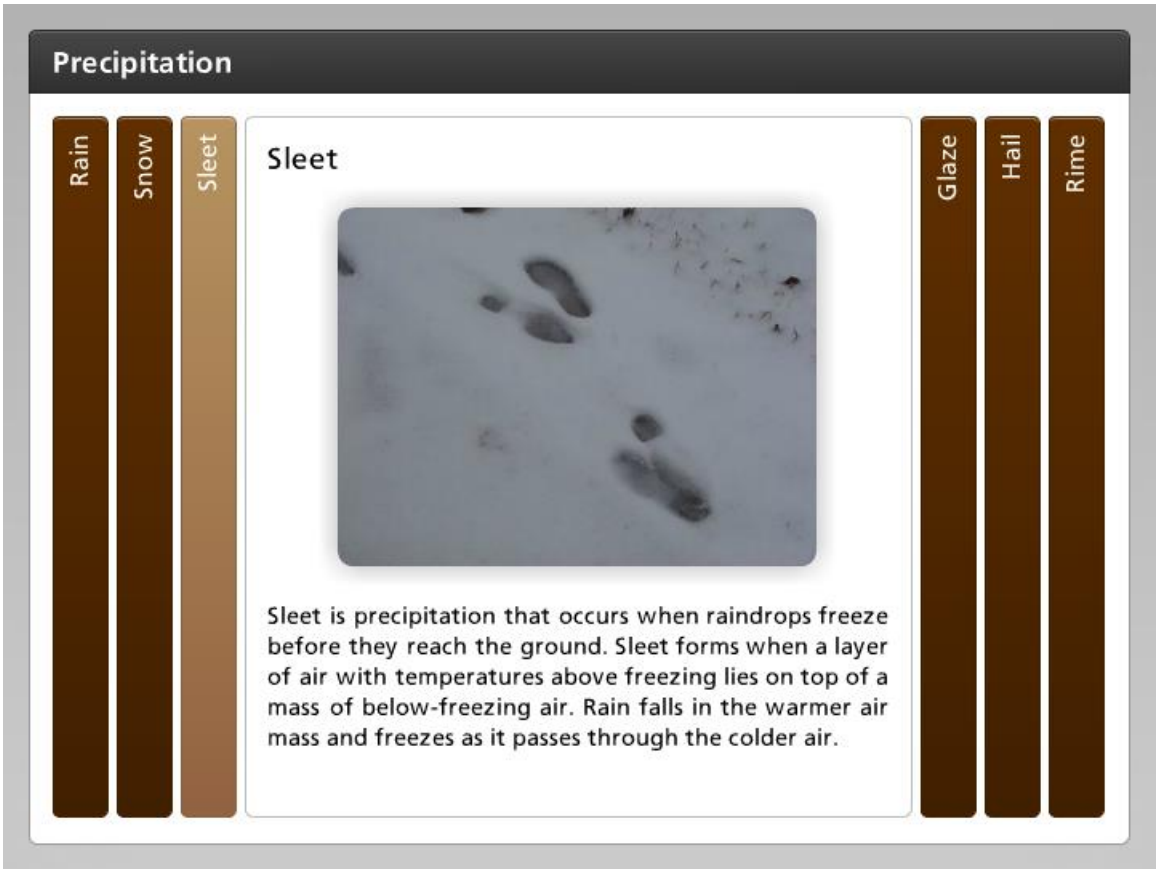
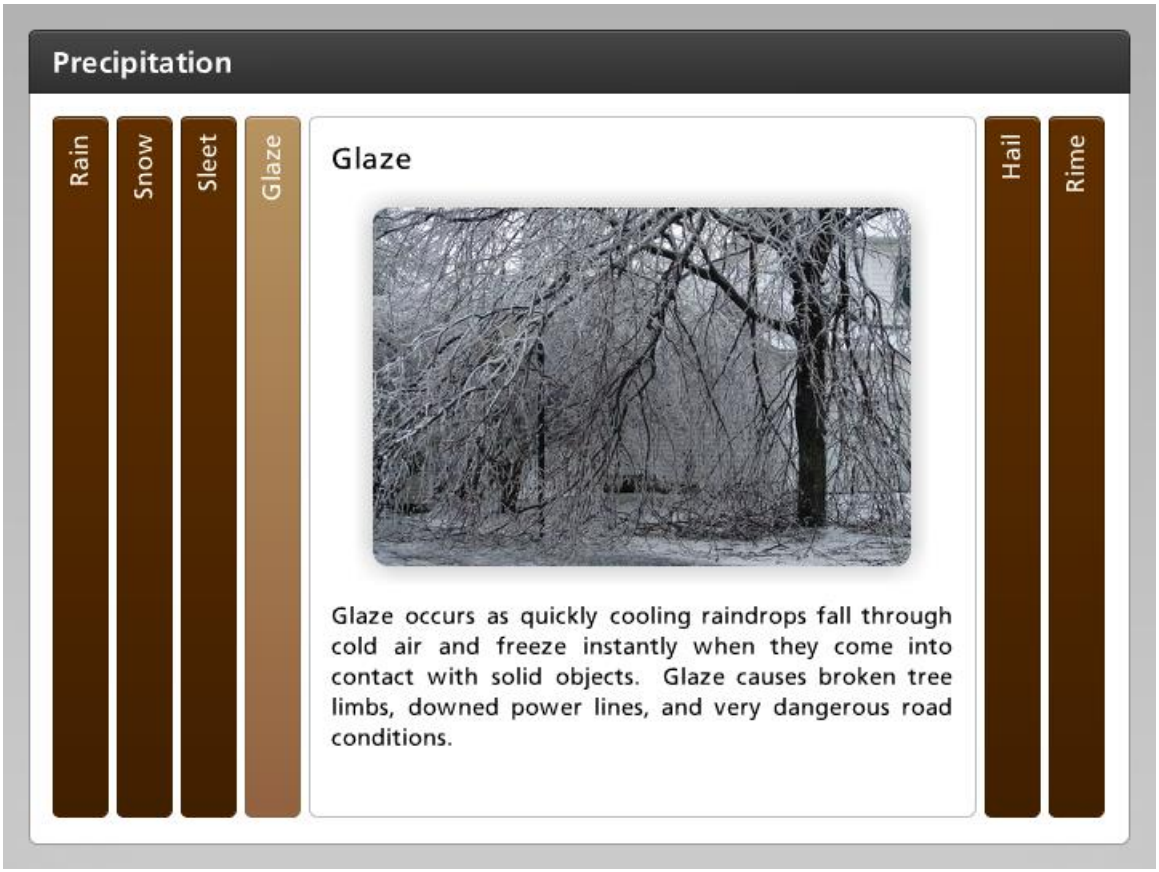
Sleet



Sleet is precipitation that occurs when raindrops freeze before they reach the ground. Sleet forms when a layer of air with temperatures above freezing lies on top of a mass of below-freezing air. Rain falls in the warmer air mass and freezes as it passes through the colder air.

Glaze



Glaze occurs as quickly cooling raindrops fall through cold air and freeze instantly when they come into contact with solid objects. Glaze causes broken tree limbs, downed power lines, and very dangerous road conditions.

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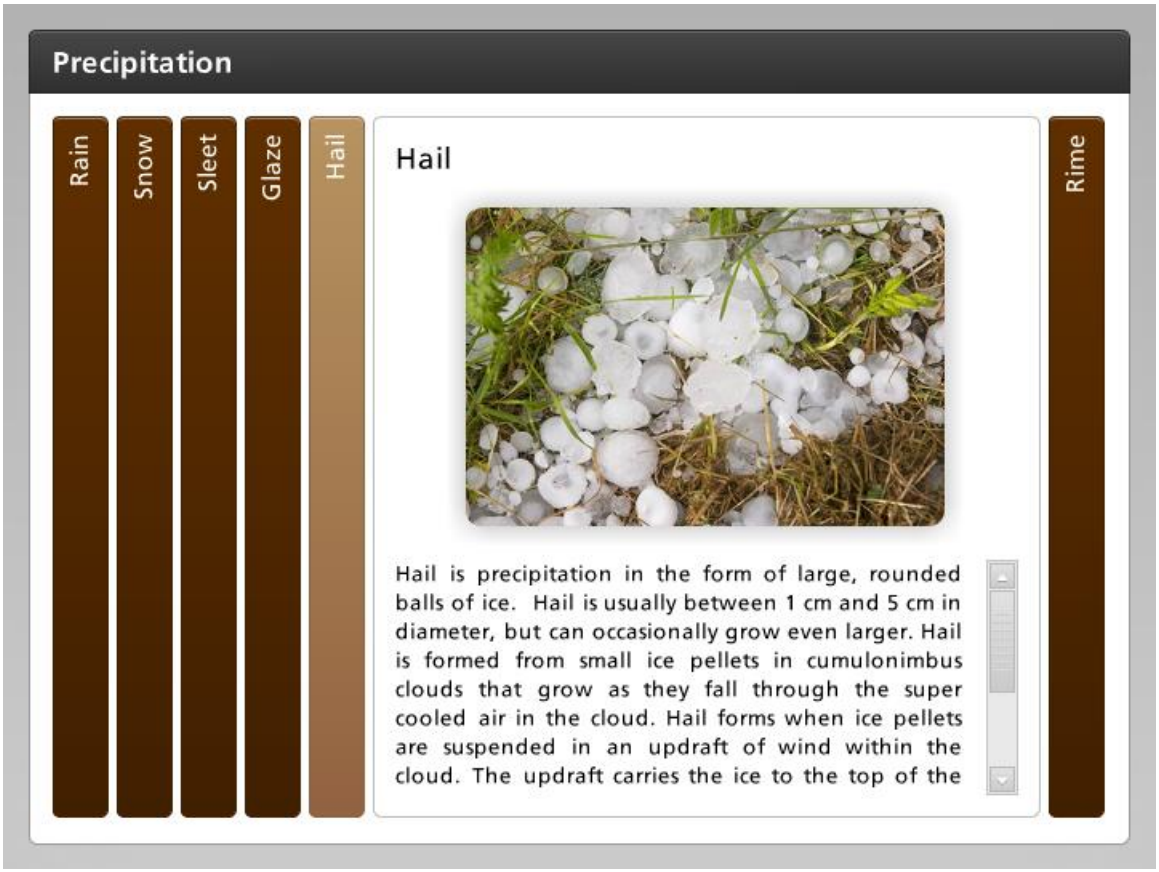
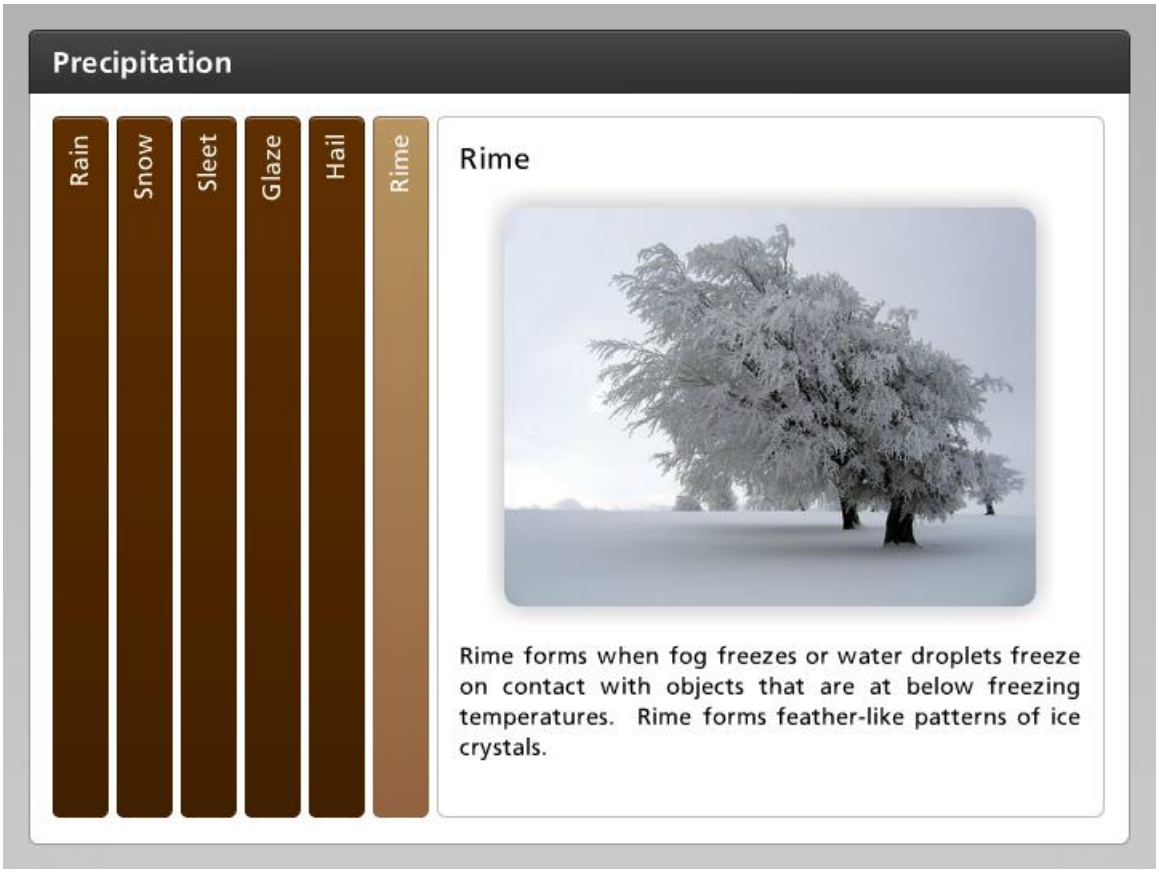
Hail



Hail is precipitation in the form of large, rounded balls of ice. Hail is usually between 1 cm and 5 cm in diameter, but can occasionally grow even larger. Hail is formed from small ice pellets in cumulonimbus clouds that grow as they fall through the super cooled air in the cloud. Hail forms when ice pellets are suspended in an updraft of wind within the cloud. The updraft carries the ice to the top of the cloud where it grows larger. Once the pellets become larger, they fall through the cold air of the cloud and accumulate even more growth. Eventually, the ice pellets will have too much mass to be lifted by the updraft and will fall out of the cloud as hailstones.

Rime



Rime forms when fog freezes or water droplets freeze on contact with objects that are at below freezing temperatures. Rime forms feather-like patterns of ice crystals.