How Changes in Temperature Affect Weather

Temperature affects the weather in a huge way as it affects the air's ability to absorb water vapor. More water vapor in the air means the air can become warmer and this will ultimately cause weather conditions such as **thunderstorms and hurricanes.** The way in which cold and warm air interacts is what makes us get different weather conditions.

The thing that affects the heat of the air and the land is the sun. The stronger the rays of the sun, the more heat there is in the air. As the air rises up into the atmosphere, its temperature will fall and this is **what causes clouds**. If more and more moisture is taken in by the clouds, this is what causes precipitation that can fall in the form of rain, sleet, snow or hail.

When cold and warm temperature masses meet, this is what causes different weather conditions. So for instance, when a cold air mass moves into a warm air mass the cold air will contract. This will then cause the cold air to become denser and heavier than the warm air so it is pushed out underneath the warm air. This type of activity is what causes conditions such as thunderstorms. The air will probably become cooler too as the sky begins to clear from the fronts moving on. On the opposite side, when a warm air front moves into a cold one, this will cause the warm air to rise as it is not as dense or as heavy as the cold air. This may cause some form of precipitation which falls on the land as snow or rain.

There are also the occasions where the cold and warm air fronts remain stationary and do not move. As a result of this, there will probably be some precipitation and weak winds.

So we say that the **temperature has an influence in creating** the type of precipitation that results from water-vapor exchanges between earth and atmosphere. The air is made up of individual molecules just like any other physical material. When exposed to warm or hot temperatures, these molecules expand as they dry out. When this happens, the air becomes less able to hold moisture, or water vapors. When air becomes cold, its molecules contract, which allows them to better hold onto moisture. As a result, rain, sleet or snow occurs when temperatures are cooler, while hot dry air produces little to no precipitation.

Writing Activity

1. When cold and warm temperature masses meet, what happens?

2. Temperature has an influence in creating the type of precipitation. How?

3. How are clouds formed?

4. What causes thunderstorms and hurricanes?