



MIXING UP A STORM

Determine what conditions create a thunderstorm.

Materials

- A large clear plastic container (about the size of a shoebox)
- A mixing cup
- Red and blue food coloring
- Ice tray
- Water

Procedure

- Prep for this experiment by mixing a few drops of blue food coloring with water in your cup. Make sure the water is a vibrant blue. Pour the colored water into the ice tray and place the tray into the freezer. The ice cubes will have to be fully frozen before continuing with the activity.
- Fill your large container 2/3 full with lukewarm water. Let container of water sit for a few minutes so it can cool to room temperature.
- Squeeze a few drops of red food coloring into the water on one side of the container. Place a frozen blue ice cube in the water on the other side of the container. Observe how the colors react with each other.

Results

The cold blue water from the ice cube sank to the bottom of the container while the warmer red water stayed at the top.

The moving air within the clouds builds up electric charges as it slides past each other. This build up allows lightning to form! This is similar to creating a spark after shuffling your feet on a carpet.

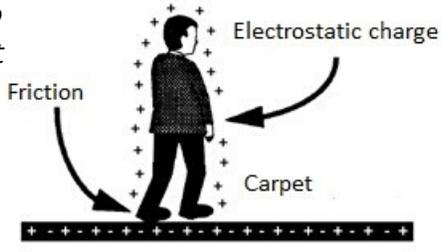


Photo Credit: EEGinfo-Europe.com

Why?

Convection is the action of warm air rising and cold air sinking. A thunderstorm is caused by convection, or when a warm body of air is forced to rise by an oncoming cold front. The blue water represents the front or moving body of cold air, and the red water represents the warm body of air.

As warm air rises, it cools and condenses into cumulus clouds. The *cumulus* clouds become saturated or filled with water droplets, and rain begins to fall. A downdraft of cool dry air follows the rain down to the ground as an updraft of warm moist air continues to rise up into the atmosphere. With an updraft, downdraft, and rain, the cloud is now called a *cumulonimbus* cloud and the cycling of air up and down is called a thunderstorm cell.

To learn more about weather, check out the Pink Palace Museum's *Weather Whys* Program.

This activity was adapted from Earth Science Week