Name _____ Date _____ Period _____

THE AIR IS A SPONGE

***GOAL*:**

The goal of this demonstration is to show students how air can act like a sponge in terms of absorbing and holding water vapor molecules.

***DIRECTIONS*:**

1. Obtain a sponge and a beaker of water. Tell the students that the sponge represents the air.

2. Pour a couple of drops of water onto the sponge. Ask the students to observe what happens.

3. Repeat step 2 a couple more times. The students should observe that the water basically disappears into the sponge. When the temperature is warm, water molecules simply evaporate into the air.

4. Pour more water onto the sponge. Keep doing this until the sponge is nearly saturated with water but not dripping. Explain how the air can become saturated with water before any precipitation occurs.

5. Slowly add more water onto the sponge until it finally begins to drip. See if the students recognize that this represents precipitation (such as rain or snow).

6. Continue to add more water to the sponge. Explain that when water vapor is added to saturated air, precipitation will immediately occur.

7. Remind students that warm air has more room to hold water molecules than cold air. Whenever warm air is saturated with water vapor and the temperature decreases, clouds and precipitation will form. Model this phenomenon by squeezing the sponge. A lot of the water will fall onto the floor or lab table.

8. After precipitation occurs, the air is no longer saturated with water vapor. More water vapor can now evaporate into the air without precipitation immediately occurring.

9. Remind students the humidity refers to the amount of water vapor in the air, which was shown by adding water to the sponge. You cannot experience humid weather in the winter because cold air doesn't have any room to store molecules of water vapor. You can experience humid weather in the summer because warm air has a lot empty space which can store molecules of water vapor.

10. Ask a student to help you clean up the water that was spilled on the floor or lab table.