Water Vapor and Weather

By Cindy Grigg

[1] *Caption: This hygrometer is used to measure humidity.*

[2] Water on Earth can be found in three forms or states. Water in a solid state is ice. We know water best as a liquid. It can also be a gas called water vapor.

[3] Water vapor is water in the form of an invisible gas. It is held in the air until it changes back to water. When the air gets cooler, the water can condense in the air. It changes from a gas into a liquid. It first condenses as tiny little droplets, which make clouds. When the droplets get bigger and heavier, they are pulled to the ground by gravity. This is precipitation. Precipitation can be rain. It can be frozen precipitation called sleet, snow, or hail. It can be drops of dew on the grass in the morning. It can be frozen dew that we call frost.

[4] When talking about weather, we often hear the word "humidity." Humidity is a measure of how much or how little water vapor is in the air. In summer, the air may feel sticky. Then there is a lot of humidity; there is a lot of water vapor in the air.

[5] Weather people often talk about "relative humidity." Relative humidity is a percentage. It compares the amount of water vapor in the air with the amount of water vapor the air could hold at a certain temperature. For example, the weatherman might say that the relative humidity is thirty percent. He means that the air holds thirty percent of the water vapor it could hold at the current temperature.

[6] The current temperature is important in talking about water vapor. The temperature of the air determines how much water vapor the air can hold. The warmer the air is, the more water vapor it can hold.

[7] Weather people also talk about the "dew point." Dew point is the temperature at which water vapor will start to condense out of the air as liquid water. If the ground is cooler than the air, the liquid water may collect as dew. If the air temperature drops, the liquid water may fall as rain. Knowing the temperature and the dew point can help you tell whether or not it will rain. For example, suppose a weather person says that the temperature is seventy degrees. She says that the dew point is sixty-six degrees. You know that if the relative humidity is high and the temperature falls to sixty-six degrees, it will rain.

Name _____ Science Pd _____

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1. Water on Earth can be found in three forms or states. Name them.

_____

_____

2. Where is water vapor found?
   - (A) Clouds
   - (B) In the air
   - (C) Both a and b
   - (D) None of the above

3. _____ is a measure of how much or how little water vapor is in the air.
   - (A) Precipitation
   - (B) Relative humidity
   - (C) Dew point
   - (D) Humidity

4. Suppose the relative humidity on a summer day is eighty-five percent. How would the air likely feel?
   - (A) Very comfortable
   - (B) Very dry
   - (C) Very humid/sticky
   - (D) None of the above

5. If the ground is cooler than the air, _____.
   - (A) It will likely rain soon.
   - (B) The relative humidity is high.
   - (C) Dew will likely form.
   - (D) The relative humidity is low.

6. The cooler the air is, the _____ water vapor it can hold.
   - (A) Less
   - (B) More

7. Dew point is a _____.
   - (A) Temperature
   - (B) Percentage
   - (C) Measure of how much or how little water vapor is in the air
   - (D) All of the above

8. Knowing what two things will help you know if it's going to rain?
   - (A) Temperature and the dew point
   - (B) Relative humidity and temperature
   - (C) Dew point and relative humidity
   - (D) None of the above