

## **ACTIVITY #5**

### **HUMIDITY AND HYGROMETERS**

**Purpose:** Students will make hygrometers and measure relative humidity.

**Materials:** Room Thermometers (2 per group)  
2" Square of Cotton Material  
Thread  
Quart Milk Cartons (1 per group)  
Rubber Bands (2 per group)  
Scissors  
Relative Humidity Table

#### **Procedure:**

1. Check thermometers to be sure they give the same readings.
2. Cover the bulb of one thermometer with the cotton fabric.
3. Tie the fabric with the thread and leave a fabric "tail."
4. Use the rubber bands to attach the thermometers to 2 different sides of the milk carton.
5. Cut a small hole in the carton just below the thermometer with the covered bulb.
6. Push the fabric "tail" inside the carton through the hole.
7. Fill the carton with water up to the level of the hole so the cotton fabric stays wet.
8. Place the hygrometers in different locations around the school or classroom.

#### **Comments:**

The water in the cloth around the wet-bulb thermometer will keep evaporating as long as the air can hold more water vapor. This evaporation uses heat, so the temperature will drop. The drier the air in the area where the hygrometer is placed, the further apart the two temperature readings will be. This activity is suggested for older students to observe the difference in humidity in different areas. The hygrometers should be observed and relative humidities recorded over several days. Student should also notice the relationship of relative humidity to room temperature. A discussion may then be conducted in which students theorize what would happen to speleothems if humidity or temperature in a cave system dropped.