

<b>Slingin' that Psychrometer: Measuring Relative Humidity and Dew Point</b>
Geology/Earth Science <span style="float: right;">Mr. Traeger</span>

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

**Purpose**

To measure the relative humidity and dew point of air. To see how relative humidity varies from place to place. To see how temperature affects relative humidity.

**Materials**

- Sling psychrometer kit
- Distilled water

**Procedure**

1. Get into groups of 3. Obtain a sling psychrometer for your group.
2. Soak the wet bulb of the sling psychrometer with **distilled** water.
3. Whirl the psychrometer above your head for about 30 to 40 seconds.
4. Immediately record the dry bulb temperature and wet bulb temperature.
5. Repeat steps 1-4 another two times at each site for accuracy.
6. Fill in the other blanks by using the supplementary instructions for the psychrometer.
7. An alternative, less accurate way to find Relative Humidity is by using the chart below.

<b>Relative Humidity (%)</b>							
Dry Bulb Temperature (°C)	Wet Bulb Depression (Dry Bulb Temperature . Wet Bulb Temperature (°C))						
	0	3	6	9	12	15	18
0	<b>100</b>	<b>46</b>					
8	<b>100</b>	<b>63</b>	<b>29</b>				
16	<b>100</b>	<b>71</b>	<b>46</b>	<b>23</b>			
24	<b>100</b>	<b>77</b>	<b>56</b>	<b>37</b>	<b>20</b>	<b>5</b>	
32	<b>100</b>	<b>80</b>	<b>62</b>	<b>46</b>	<b>32</b>	<b>20</b>	<b>9</b>

**Sling Psychrometer Measurements**

Site Description	Dry-Bulb Temp	Wet-Bulb Temp	(Dry Bulb . Wet Bulb) or Wet Bulb Depression	Dew Point Temp	Vapor Pressure at Dry Temp	Vapor Pressure at Dew Point	Relative Humidity
Example	22 °C	20 °C	2 °C	17 °C	26.1 mb	19.2 mb	(19.2/26.1) x 100 = 74%
Classroom: Trial 1							
Classroom: Trial 2							
Classroom: Trial 3							

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Site Description	Dry-Bulb Temp	Wet-Bulb Temp	(Dry Bulb . Wet Bulb) or Wet Bulb Depression	Dew Point Temp	Vapor Pressure at Dry Temp	Vapor Pressure at Dew Point	Relative Humidity
Sunny: Trial 1							
Sunny: Trial 2							
Sunny: Trial 3							
Shady: Trial 1							
Shady: Trial 2							
Shady: Trial 3							

**Questions**

1. What is specific humidity?
2. What is relative humidity?
3. Which type of humidity, specific or relative, is affected by temperature?
4. Look at your data. Was there any difference between relative humidity in the sun compared to relative humidity in the shade? Why?
5. Warmer air will hold more moisture. If this statement is true, what do you think will happen to *relative* humidity when the temperature rises? What will happen to *specific* humidity?
6. What is dew point?
7. What are condensation nuclei? How do they help clouds/fog to form?
8. What will happen when the air temperature and the dew point temperature are the same? What will be the relative humidity reading when this happens?