

Name _____

Relative Humidity and Dew Point

Introduction: Relative Humidity and Dew Point are 2 variables that assist a meteorologist in determining atmospheric moisture. The sling psychrometer is the instrument that will be used to determine these two variables. In the following lab, you will be determining Relative Humidity and Dew Point and will be graphing these factors as well.

Procedure: Air Temperature and Wet Bulb Depression have been provided to you.

1. Subtract Air Temperature and Wet Bulb for each time of day.
2. The difference will be the Wet Bulb Depression.
3. Using the Air Temperature and Wet Bulb Depression (and your reference table), determine the Dew Point and Relative Humidity.
4. Once your table is created, graph your variables. This graph will be a 3 line graph.
5. This is what your graph will consist of:

1st Line: Time of Day vs. Air Temperature

2nd Line: Time of Day vs. Dew Point

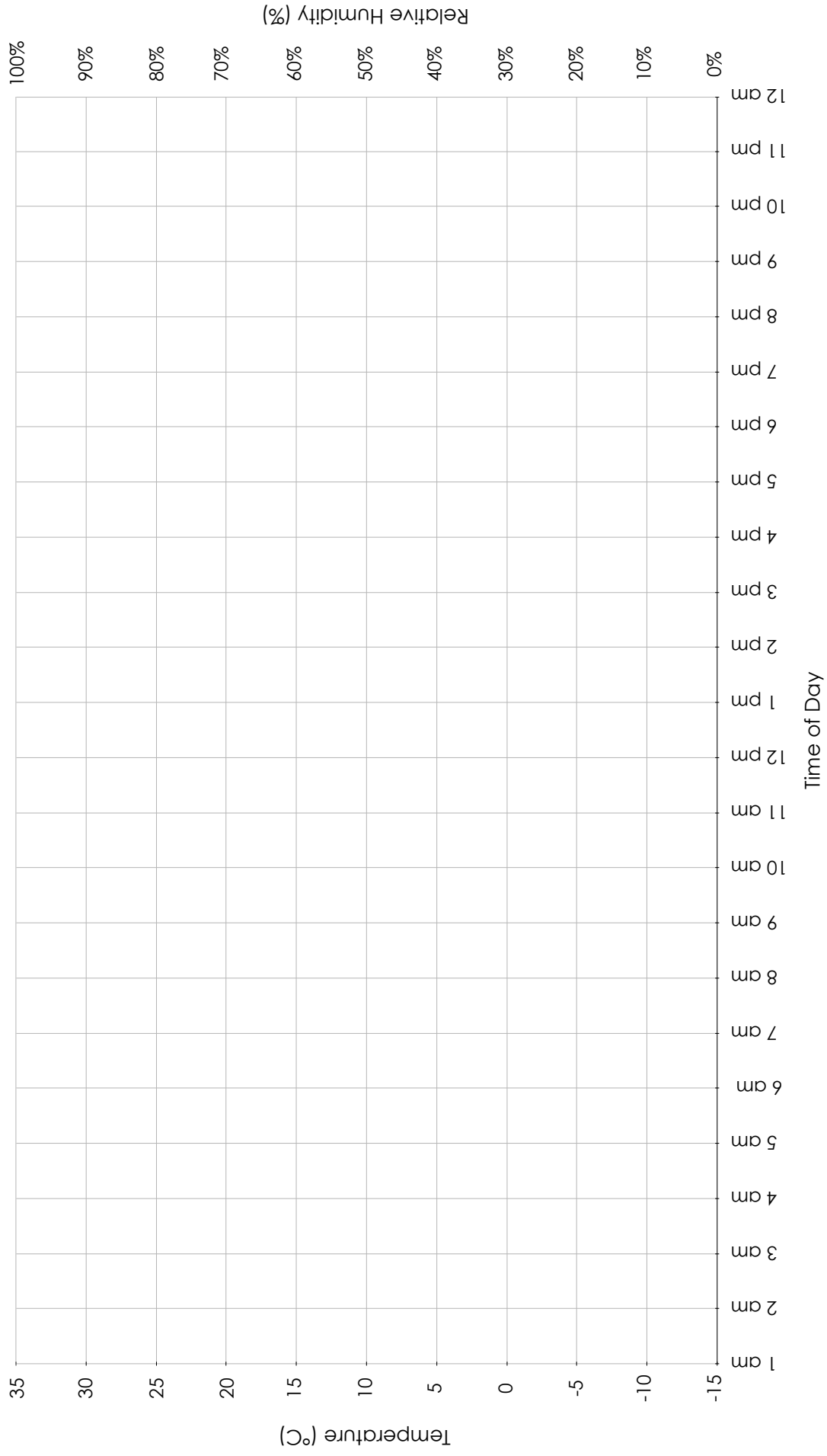
3rd Line: Time of Day vs. Relative Humidity

Questions:

1. What changes occur outside when the air temperature reaches the dew point temperature? _____
2. When the air temperature reaches the dew point, we say that the air is what? _____
3. When the air temperature reaches the dew point, what happens to the relative humidity of the air mass? _____
4. When an air masses humidity approaches 100%, what changes occur outside?

5. What time of day is relative humidity the highest? _____
6. What time of day is relative humidity the lowest? _____
7. What time of day is Dew Point the highest? _____
8. What time of day is Dew Point the lowest? _____
9. As temperature increases, relative humidity _____
10. As temperature decreases, relative humidity _____

Time of Day	Air Temperature (°C) (Dry-Bulb)	Wet Bulb (°C)	Wet Bulb Depression	Dew Point (°C)	Relative Humidity (%)
1:00 AM	10.0	5.0			
2:00 AM	8.0	4.0			
3:00 AM	6.0	4.0			
4:00 AM	4.0	4.0			
5:00 AM	6.0	4.0			
6:00 AM	8.0	4.0			
7:00 AM	10.0	5.0			
8:00 AM	12.0	5.0			
9:00 AM	14.0	6.0			
10:00 AM	16.0	7.0			
11:00 AM	18.0	8.0			
12:00 PM	20.0	9.0			
1:00 PM	22.0	10.0			
2:00 PM	24.0	10.0			
3:00 PM	26.0	11.0			
4:00 PM	26.0	11.0			
5:00 PM	24.0	10.0			
6:00 PM	22.0	10.0			
7:00 PM	20.0	9.0			
8:00 PM	18.0	8.0			
9:00 PM	16.0	7.0			
10:00 PM	14.0	6.0			
11:00 PM	12.0	5.0			
12:00 AM	10.0	5.0			



CONCLUSION QUESTIONS

1. What is the relationship between air temperature and moisture capacity?

2. What is the relationship between air temperature and relative humidity? Why?

3. As the air temperature and dew point temperatures get closer together, what happens to the relative humidity?

4. Draw two station models based on the following data.

Temperature = 82°F	Temperature = 82°F
Cloud Cover = 100%	Cloud Cover = 75%
Wind Direction = N	Wind Direction = W
Wind Speed = 35 knots	Wind Speed = 15 knots
Dew Point = 80°F	Dew Point = 64°F
Pressure = 989.7 mb	Pressure = 996.2 mb
Pressure Trend = ↓1.1 mb	Pressure Trend = ↓1.3 mb
Visibility = 1/8 mile	Visibility = 1/4 mile

Which location will have a higher relative humidity? How can you tell?
