



Teacher Notes  
**How's Your Weather?**  
 Exploration

**GEOMES Topic:** Earth's Air and Water - Weather

<b>Lab setup:</b>	<u>none</u>	easy	moderate	difficult
<b>Reasoning level:</b>	<u>easy</u>	moderate	difficult	
<b>Time required:</b>	20-40 minutes	40-60 minutes	60-90 minutes	<u>2 weeks</u>
<b>Process skills:</b>	<u>measuring</u> <u>comparing</u>	<u>observing</u> <u>interpreting data</u>	<u>collecting data</u>	

**Objectives:** In this activity, students will be collecting basic weather information over a period of two weeks and looking for correlations between weather parameters.

**National Science Education Standards:**

Content Standards: Earth & Space Science - Geochemical cycles

Energy in the earth system

Unifying Concepts and Processes: Change, consistency, and measurement

**Materials:** Daily source of weather information (online sources are particularly useful, but newspapers are also a good source)

**Teaching Strategies:**

It would be ideal to begin this activity two to three weeks before starting a weather unit. Almost any source of data can be used, but the Internet is ideal because of the accuracy and timeliness of the information. See below for suggested Web sites to weather data. If your class meets in the morning, use a few minutes at the beginning of every day to make the observations for the entire class. Encourage students to find a source of data they can use for evening observations that can be used every day. Again, the Internet is ideal for this.

Make sure the class uses units that are standard and that everyone will use. Establish this at the beginning, and have students write those units at the top of each column of their data table.

There are many possible observations to make for precipitation and cloud cover. Precipitation examples are rain, drizzle, sleet, hail, snow, or freezing rain. Cloud cover can be difficult since this activity will be done before the weather unit. Most students know what a cumulus cloud looks like, and cirrus (high altitude) clouds are easy to identify. Fog would also go in this category. If you want to make it easier for your students, have students record the percentage of cloud cover.

**Sample Data and Observations:**

Date	Time	Temp	Dew Pt	Pressure	Wind Spd	Wind dir	Cloud Cover	Precipitation
3/4	9 am	45 °F	44 °F	990 mb	calm		100% overcast	rain
3/4	9 pm	34 °F	23 °F	993 mb	10 mph	NW	50% overcast	
3/5	9 am	40 °F	38 °F	1001 mb	5 mph	W	clear	
3/5	9 pm	30 °F	25 °F	998 mb	15 mph	N	clear	

### Sample Responses to Go Figure:

1. Any source of data can be used, but the Internet is ideal.
2. One pattern that should become evident is the temperature will probably be lower for the morning observations. The differences between temperature and dew point will probably be smaller in the morning, provided the moisture content of the air doesn't change drastically during the day.
3. The following patterns are possible, but not necessarily observed:
  - a. Temperature and Wind Direction – northerly winds tend to be colder, southerly winds tend to be warmer.
  - b. Pressure and Dew Point – there should be no correlation
  - c. Pressure and Wind Speed – There won't necessarily be any correlation here, but often there is a correlation between wind speed and the *change* of pressure. Since the change of pressure is not being recorded, your students may not notice any correlation. Highly observant students might find something.
  - d. Dew Point and Precipitation – The dew point will usually be highest when it is precipitating. The level of the dew point temperature is dependent on the air temperature. The dew point will be close to the air temperature during times of precipitation.
  - e. Temperature and Cloud Cover – There may or may not be a correlation. However, overcast days may result in a warmer temperature during the winter months as the clouds act as an insulator. Cloud cover during the summer can result in lower temperatures because the sun is being blocked.
  - f. Dew Point and Temperature – Dew point cannot be higher than the temperature, and the temperature cannot drop below the dew point.
  - g. Pressure and Precipitation – Low pressures are usually associated with precipitation, and high pressures are usually associated with fair weather.
  - h. Pressure and Cloud Cover – Low pressures tend to have overcast skies, while higher pressures are usually associated with clear skies.
4. Temperature, dew point, and precipitation are probably the easiest correlation to spot. During precipitation, temperature and dew point are usually the same or very close.

### Internet Connection:

Researchable Question:

If using an online weather site for data, which are the easiest to navigate?  
Which online sites contain the most useful weather data?

Search Engine Keywords: weather data