

Name: \_\_\_\_\_

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

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## Lab Activity: Weather Instruments

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### INTRODUCTION:

At commercial airports throughout the country the weather is observed, measured and recorded. In New York State there are over a dozen observation sites that record temperature, dew point, cloud cover, visibility, height of cloud base, amount of precipitation, wind speed, and wind direction. These measurements are also made every hour and at weather stations around the country.

The challenge is that the large amount of data need to be communicated to every weather station in the United States and because of the lack of space on weather maps, the weather information needs to be coded. In order to do this the information needs to be highly organized and standard throughout the country.

### OBJECTIVE:

By using station models the data can be represented by a symbol or number, and it's meaning is easily understood by where the symbol or number is placed on the station model. Through this lab you will learn to understand station models used in meteorology by coding and decoding a variety of stations.

### VOCABULARY:

Station Model -

Thermometer -

Barometer -

Sling Psychrometer -

Anemometer -

Weather Vane -

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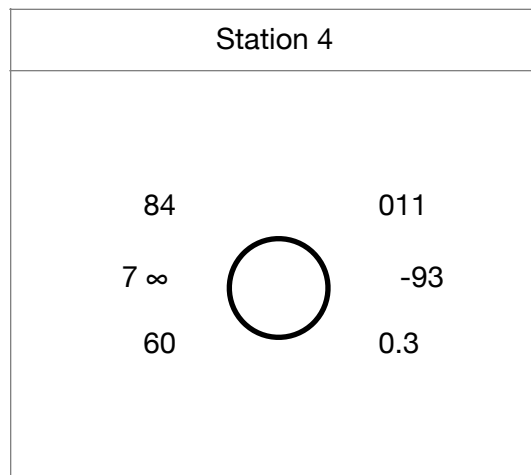
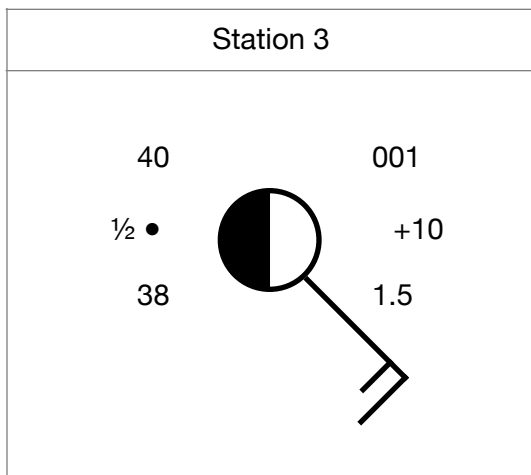
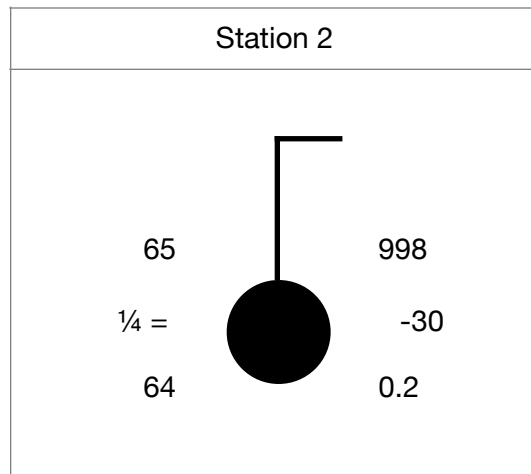
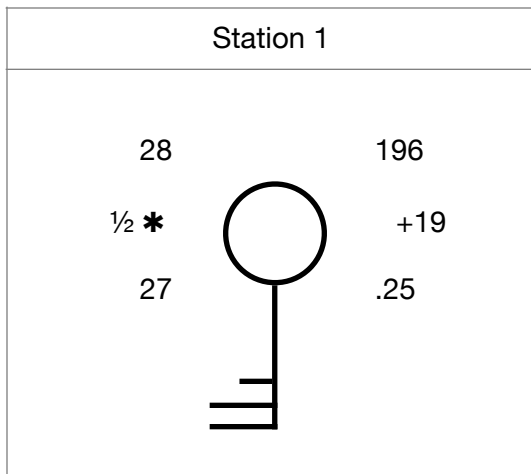
## PROCEDURE A:

Using your Earth Science Reference Tables and the Station models below, decode the weather conditions and record the information on Report Sheet 1.

### Helpful Hints:

When coding air pressure on a station model, use the following rule:

1. If the air pressure on the station model is 500 or more, place a 9 in front of this number and put a decimal point in front of the last number. Example: 588 = 958.8 millibars.
2. If the air pressure on the station model is 500 or less, place a 10 in front of this number and put a decimal point in front of the last number. Example: 320 = 1032.0 millibars.



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## Report Sheet 1

Weather Element	Station 1	Station 2	Station 3	Station 4
Temperature (°F)				
Temperature (°C)				
Barometric Pressure (millibars)				
Barometric Pressure (inches)				
Barometric Trend (millibars)				
Percent of Cloud Coverage (%)				
Wind Direction				
Wind Speed (knots)				
Visibility (mi)				
Dew Point (°F)				
Present Weather				

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## PROCEDURE B:

In the chart below, you find meteorological data that was taken at several different New York State airports. Use this data to create station models for each city listed in the table.

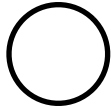
City	Temperature (°F)	Dewpoint (°F)	Wind Speed & Direction	Air Pressure (millibars)	Cloud Cover (%)	Present Weather
Rochester	69	58	SW 15	1016.9	50	none
Buffalo	60	45	NE 5	1030.1	25	none
Syracuse	70	69	SW 20	998.2	25	drizzle
New York	72	72	W 30	986.4	100	thunderstorm
Binghamton	71	69	NW 35	999.1	100	sleet
Albany	32	32	S 10	1000.0	50	snow

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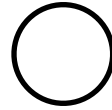
# Lab Activity: Weather Instruments

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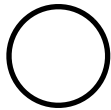
Rochester



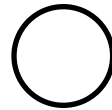
Buffalo



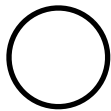
Syracuse



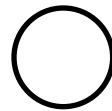
New York



Binghamton



Albany



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## DISCUSSION QUESTIONS:

1. What weather instrument is used to measure temperature?
2. What weather instrument is used to measure air pressure?
3. What weather instrument is used to measure dewpoint?
4. What weather instruments are used to measure both wind direction and speed?
5. What is the air pressure when a station model's pressure reads 024?
6. What temperature is the human body in terms of Fahrenheit, Celsius, and Kelvin.

**CONCLUSION:** Why do meteorologist use station models?