

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

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

Weather  
Earth Science

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## Lab Activity: Weather Instruments

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### INTRODUCTION:

Throughout the country weather variables are observed, measured and recorded every hour. Some of the weather variables include: temperature, dew point, cloud cover, visibility, height of cloud base, amount of precipitation, wind speed, and wind direction.

The challenge for meteorologists is being able to place the large amount of weather data collected at that location and share it with other locations around the country. Due to a lack of space on weather maps, the weather information needs to be coded, highly organized and standard.

### OBJECTIVE:

To manipulate station models to record and decode the large amounts of weather data that are recorded at a variety of stations around the country.

### VOCABULARY:

Thermometer -

Barometer -

Sling Psychrometer -

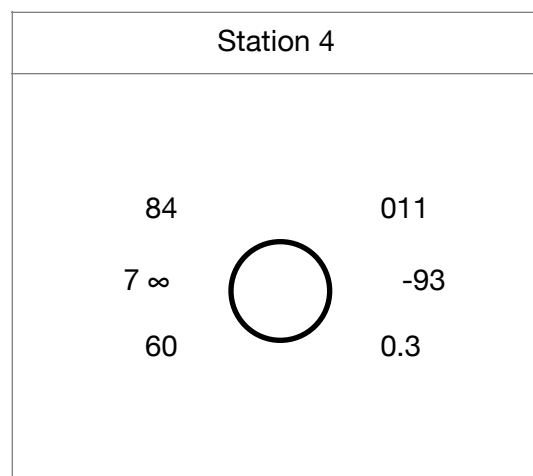
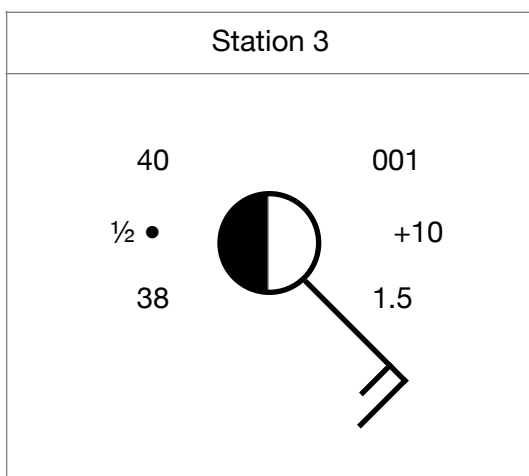
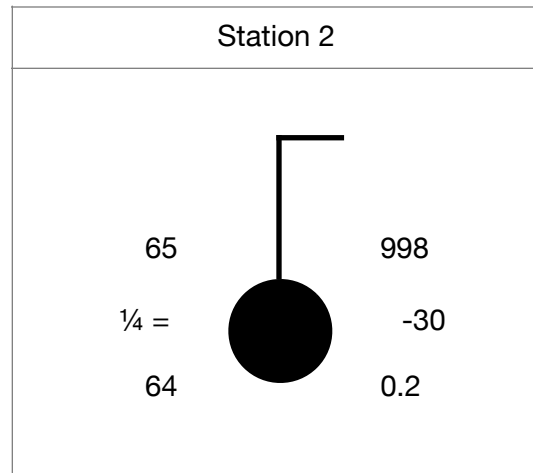
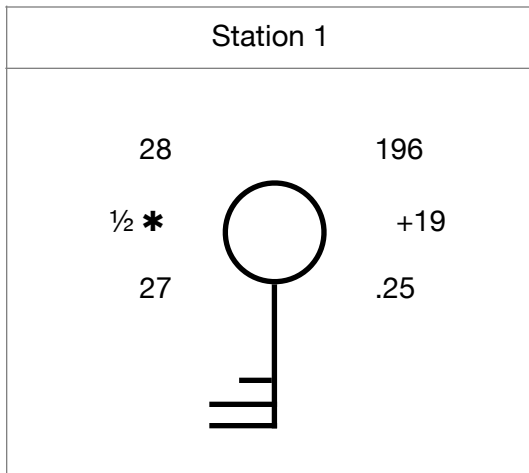
Anemometer -

Weather Vane -

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## PROCEDURE A:

1. Using your Earth Science Reference Tables and the station models below, decode the weather conditions and record the information on Report Sheet 1.
2. When coding air pressure on a station model, use the following rule:
  - 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.
  - 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 og Hg]				
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:

Using the weather data below, add the information onto the correct city's station model. Be sure to use the shorthand code form and the appropriate symbols.

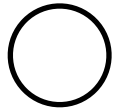
City	Temperature [°F]	Dewpoint [°F]	Wind Speed & Direction	Air Pressure [millibars]	Cloud Cover [%]	Present Weather
Rochester	69	58	SW 15	1016.9	50	none
Buffalo	60	45	NE 5	1030.1	25	none
Syracuse	70	69	SW 20	998.2	25	drizzle
New York	72	72	W 30	986.4	100	thunderstorm
Binghamton	71	69	NW 35	999.1	100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

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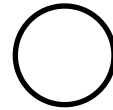
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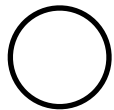
Rochester



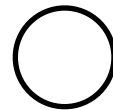
Buffalo



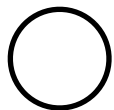
Syracuse



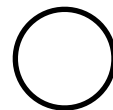
New York



Binghamton



Albany



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## DISCUSSION QUESTIONS:

1. What weather instrument is used to measure air pressure?
2. What weather instrument is used to measure relative humidity and dewpoint?
3. What weather instruments are used to measure both wind direction and speed?
4. What is the air pressure when a station model's pressure reads 024?
5. Convert the current outdoor air temperature to Celsius and Kelvin.

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