

Figure 1

3. **Wind direction:** You should think of the station circle as the point of an arrow. Attached to the station circle is a line, which is the arrow's shaft. The wind direction is represented as moving along the arrow's shaft *toward* the center of the station circle. Wind directions are given in degrees and represent the direction *from which* the wind is blowing. In Figure 1, the wind is blowing from the southwest toward the northeast. Figure 2 will help you determine wind direction.

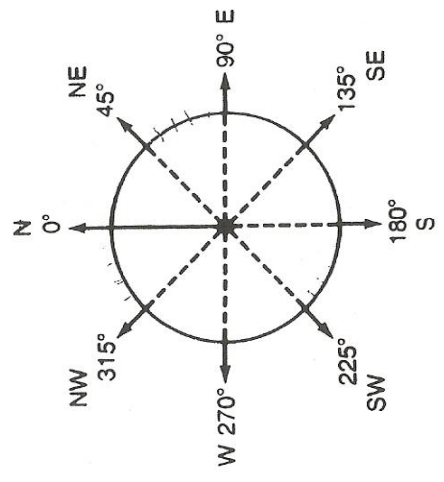


Figure 2

4. **Wind speed:** Often there are small lines that resemble arrow feathers at the end of the shaft. These lines are symbols for wind speed. Each full line represents an increase in speed of about 10 miles per hour. Half a line is about 5 miles per hour. If there is only one "feather," place it at the end of the arrow if it is a full feather, and slightly farther in if it is a half feather.

5. **Atmospheric pressure:** Look at a weather map in your local newspaper. You will see long, curving lines that have a number attached to them. These lines are called isobars. Some of the curves are closed, some open. Isobars are lines joining places on a weather map that have the same atmospheric pressure. The numbers associated with these lines are the atmospheric pressure recorded at each observation station. These pressures are measured in millibars. So isobars are measured in millibars. Look at the column of atmospheric pressures in Figure 6. To determine the pressure in millibars, use only the last three digits of the pressures listed and omit the decimal point. An example (196) is given in Figure 1.

- Temperature:* The average daily temperature is usually recorded in degrees Fahrenheit.
- Present weather:* From the list in Figure 3, select the symbol that most accurately describes the weather existing at the location when the data were collected.
- Cloud coverage:* Using Figure 4, indicate the amount of cloud cover at each observation station. This information is enclosed within each circle. Put this information in the circles on the map.
- Now transfer all the weather information listed in Figure 6 to the specific observation stations shown in Figure 7.

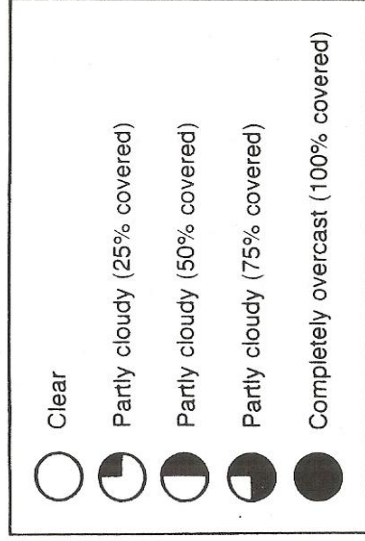


Figure 4

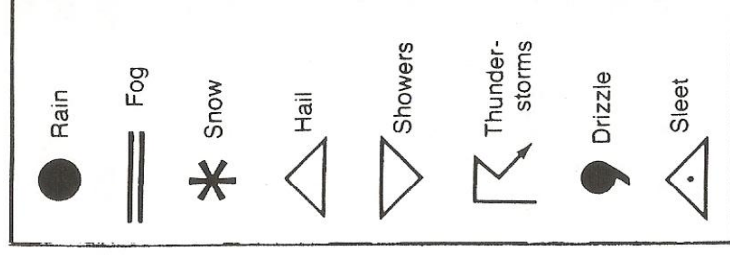


Figure 3

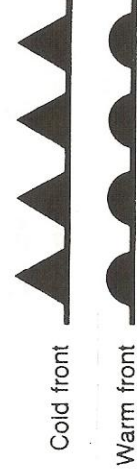
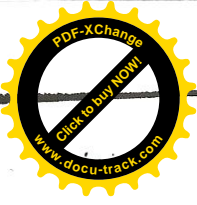


Figure 5

Part B. Additional Weather Map Information

- In Figure 7, locate the observation station with the lowest atmospheric pressure and write the word "Low" just above it. Starting at this point, which is the center of a low-pressure area, draw in the cold and warm fronts. The symbols are shown in Figure 5.

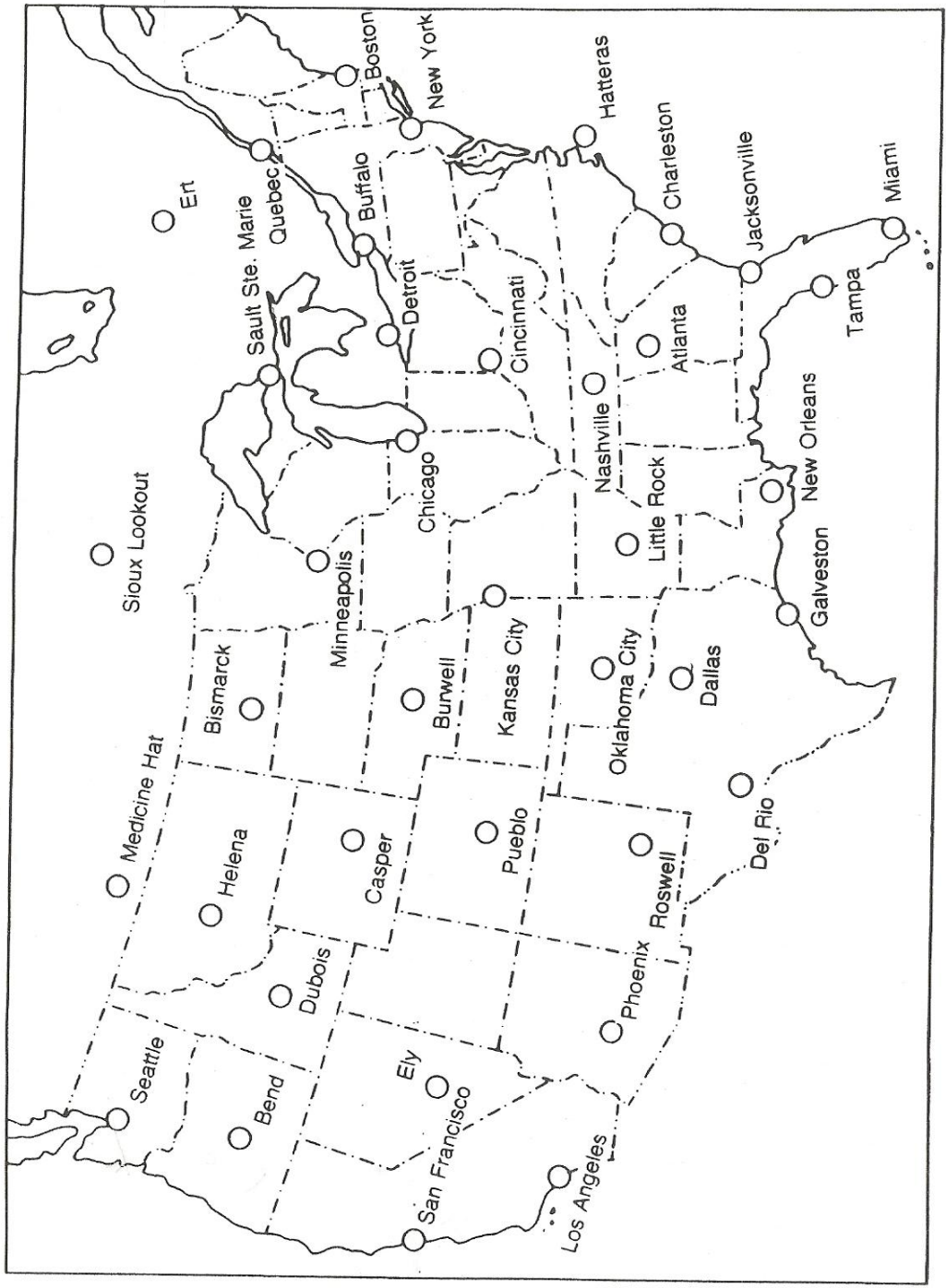
The cold front comes out of the low-pressure center. This front, when placed in Figure 7, will be located between stations where winds change from southwest to northwest and temperatures decrease suddenly. The warm front comes out of the low-pressure center. This front, when placed in Figure 7, will be located between stations where winds change from east to southeast and temperatures rise suddenly.



Weather Station	Wind Speed (mph)	Wind Direction	Atmospheric Pressure (mb)	Temperature (°F)	Type of Precipitation	Cloud Cover (%)
Seattle	7	260°	1020.8	42		0
Bend	10	200°	1023.5	40		0
San Francisco	8	135°	1020.0	48	Fog	25
Los Angeles	0	1021.1	1021.1	41	Fog	25
Phoenix	11	50°	1021.1	45		0
Ely	0		1025.1	37		0
Dubois	18	225°	1024.0	38		0
Helena	15	315°	1020.0	41		0
Medicine Hat	20	345°	1020.1	40		0
Bismarck	18	0°	1014.3	48		0
Casper	12	350°	1016.0	50		0
Pueblo	8	315°	1015.3	47		0
Roswell	22	350°	1016.0	48		0
Del Rio	38	315°	1012.0	50	Thunderstorms	100
Galveston	5	225°	1016.0	72		25
Dallas	29	315°	1007.9	60	Hail	100
Oklahoma City	45	315°	1007.7	57	Thunderstorms	100
Kansas City	0		1002.3	58	Rain	100
Burwell	22	325°	1009.3	52	Rain	100
Minneapolis	15	45°	1008.2	51	Drizzle	100
Sioux Lookout*	20	50°	1016.8	46		25
Chicago	10	45°	1005.2	58	Drizzle	100
Little Rock	8	225°	1009.3	67		25
New Orleans	5	225°	1017.9	73		0
Nashville	5	220°	1011.1	68		25
Cincinnati	7	90°	1009.8	57	Rain	100
Detroit	10	75°	1011.9	54	Drizzle	100
Sault Ste. Marie	15	45°	1013.1	50	Drizzle	100
Ert	5	100°	1017.2	48		0
Quebec	0		1017.0	50		25
Boston	12	100°	1018.1	52	Fog	25
Buffalo	7	75°	1016.0	52	Drizzle	100
New York	10	80°	1017.6	56	Fog	50
Hatteras	14	90°	1019.1	60		50
Charleston	15	225°	1017.8	70		25
Atlanta	3	225°	1014.6	70		0
Jacksonville	2	200°	1018.1	73		0
Tampa	2	230°	1018.0	74		25
Miami	0		1019.8	78		0

2. Locate the observation station in Figure 7 with the highest atmospheric pressure and write the word "High" just above it. This is the center of an area of high pressure.
3. Draw the following isobars in Figure 7: 1004 mb, 1008 mb, 1012 mb, 1016 mb, 1020 mb, and 1024 mb. Draw these isobars so that they point away from the center of the low-pressure area when they cross cold or warm fronts. Label each isobar. Remember that isobars are long, curving lines. They connect locations on a weather map that have the same atmospheric pressure. It will be helpful to review the atmospheric pressures listed in Figure 6.
4. In Figure 7, draw a line around all the locations where precipitation has fallen. Either use a pencil and shade in the area with precipitation or use a colored pencil or crayon and color in this area.

Figure 7



Observations and Conclusions

1. An area of high pressure is referred to as an anticyclone, while a low-pressure area is called a cyclone. According to your weather map, is precipitation generally associated with a cyclone or an anticyclone? _____