

Name:

Skill Sheet 27-B

Using a Weather Map



You have read about how Earth and its atmosphere are affected by heating and cooling. You have learned how the sun heats the Earth and how the heating of land is different than the heating of water. Based on your readings, you are going to analyze the national weather forecast and make deductions as to what causes differences in weather across the nation.

1. Analyzing temperature

Your teacher has provided you with a national weather forecast from a daily newspaper. Locate the list of the temperature and sky cover in cities around the country. Also, locate the weather map showing sunny regions, the temperature, high- and low-pressure regions, and fronts.

Begin the Investigation by recording the high and low temperatures for cities in the table below. Then find the difference between the two temperature readings. You will fill in the rest of the table later.

City	High	Low	Temp difference	Sky cover	Pressure
Seattle					
Los Angeles					
Las Vegas					
Phoenix					
Atlanta					
Tampa					
San Francisco					
Oklahoma City					
New Orleans					
Kansas City					
Tucson					
Denver					
Dallas					
Houston					
Minneapolis					
Memphis					
Chicago					
Miami					
New York					
Baltimore					

2. What causes the wide variety of temperature conditions across the map?

Use the table in part 1 to respond to the following.

1. Give examples of differences in the cities' high temperatures due to latitude. Explain why these differences exist.

2. Give examples of differences in the cities' high temperatures due to geographical features such as the Pacific Ocean, the Rocky Mountains, the Great Lakes, or the Atlantic Ocean. Explain why geography influences temperatures.

3. Give examples of differences in the cities' temperature *ranges* due to the biomes in which they are located. Explain why different biomes have different temperature characteristics.

4. Fill in the table for the sky cover for each city. How does the sky cover affect the temperatures of cities near the same latitude? Why do you think this is?

3. What does atmospheric pressure tell us about the weather?

1. On your weather map, over which states are areas of high pressure centered? Over which states are low-pressure areas centered?

2. In the sixth column of the table (the heading is **Pressure**) in part 1, record whether you think each city is in a region of high pressure, low pressure, or in-between.

3. What kind of cloud cover or weather is associated with high-pressure regions? Look at the sky cover for the cities in the high-pressure regions. What do you think the humidity is like in these regions?

4. What kind of cloud cover or weather is associated with low-pressure regions? Look at the sky cover for the cities in the low-pressure regions. What do you think the humidity is like in these regions?

5. Locate the fronts shown on the weather map. The flags on the fronts tell us the direction of the wind. The cold fronts are symbolized by triangular flags, the warm fronts by semicircular flags. Are fronts associated with high- or low-pressure regions?

6. What type of weather is associated with a warm front? What type of weather is associated with a cold front?

7. Based on what you have read about low- and high-pressure regions, let's investigate what effect they have on the wind. High-pressure regions tend to push air toward low-pressure regions. Do you think the air in a low-pressure region tends to sink or rise? Does the air in a high-pressure region sink or rise?

8. Based on those conclusions, how do you think low-pressure regions contribute to the formation of rainstorms?
