5. At the end of two weeks, arrange your weather watch data sheets (BLM 1.1) and weather maps (BLM 1.2) chronologically, with the oldest first and the newest last.

Questions and Conclusions

1. Examine your weather watch data sheets (BLM 1.1). On which days did you observe precipitation at your location?
2. For each day that you observed precipitation at your location, examine BLM 1.1 for the day just prior to it. Is there anything common on those days? For example, were the cloud patterns the same prior to each day that precipitation was observed? If you observed atmospheric pressure at your location, did the atmospheric pressure rise (or fall) in the days leading up to when precipitation was observed? If you observed temperature, did the temperature rise (or fall) in the days leading up to when precipitation was observed?
3. For each day that you observed precipitation, look at the national weather map (BLM 1.2) for that day. Is there anything common on those days? For example, if you recorded the locations of fronts on your maps, was there a front near you at that time? If so, what kind? If you recorded high and low atmospheric pressure locations, was there a high (or low) area near you at that time?
4. For each day that you observed precipitation, look at BLM 1.2 for the day just before it. Is there anything common on those days? For example, was there an area of precipitation nearby? If so, was the area of precipitation generally to a particular side, like west of you or east of you? Was there a front nearby or a high (or low) area nearby? If so, were they generally to a particular side, like west of you or east of you?
5. Look at your first national weather map (BLM 1.2). Can you find a front or large area of precipitation in the western part of the nation? If not, look through the rest of the weather maps until you find one.
   (a) Now look at the national weather maps (BLM 1.2) following the one with the front or precipitation. Has the front or precipitation moved? If so, in which direction did it move? As it moves, does it change shape? If so, how?
   (b) Find other fronts or patterns of precipitation and see if they moved in the same direction. Did they? If not, describe the direction in which they moved. Do they also change shape? If so, how?
6. From your answers to question 5, would you say there is a general direction of weather movement over North America? If so, what is that direction?

Materials

Each student will need:

- national weather map every day for two weeks (the teacher will display these)
- pencil and colored pencils or crayons
- two weeks (10 days) of data sheets (5 BLM 1.1 and 10 BLM 1.2) per student. If weekend observations are asked for, then more data sheets and maps will be needed.

Time

- One class period for the introduction to the Activity
- 10 minutes each day for a period of two weeks to record required information on data sheets
- One class period to analyze and discuss the data at the end of the Activity

What Can I Do?

In this Activity, you attempted to identify possible relationships between precipitation at your location and other weather. Identifying relationships is a big part of science, but science is not simply about identifying relationships. In science, we need to test those tentative relationships. In this case, you can test your proposed relationships by making a prediction about tomorrow's weather. If your prediction ends up being correct, that lends support to your relationship. If your prediction ends up being incorrect, that means your relationship may need to be revised. Over the next few days following this Activity, you are encouraged to test out your relationships. Revise them as necessary. Can you identify a method that works most of the time?

In science, we not only identify tentative relationships and test them, we also come up with models or explanations for why the relationships are the way they are. In this Activity, we did not attempt to explain any of the relationships that were observed. However, in future Activities, as we learn more about the atmosphere, we will be able to develop tentative explanations for why the relationships might exist.

7. Look at the last data sheet (**BLM 1.1**) that you completed. Based on your answers to questions 2 to 6, what is your prediction for tomorrow's weather in your location?
8. Based on your answers to questions 2 to 6, which is more useful when making a forecast—the observations made at your location or the weather maps? Why?
9. Are there any areas of the country that you think might be easier to forecast than others? Why?
10. The method you are using to make a forecast is also the method used by meteorologists to make a forecast. However, they only use this method when making a short-term prediction—a couple of hours or a day at most. Why might they find this method lacking when predicting more than a day in advance?