



Air Movement in Wisconsin



Essential Question: *What other states will feel the effects of emissions from a coal-burning power plant built in southern Wisconsin?*

Overview

As you have already learned, power plants emit nitrogen oxides (NO_x) and sulfur dioxide (SO_2) into the atmosphere. Both compounds contribute to acid deposition. Both compounds break down and begin to form acids within a few days. In this activity, you will predict where the wind will carry sulfur dioxide and nitrogen oxide emissions from a power plant built in southern Wisconsin.

Materials

- ruler

Analysis Questions

1. Look at the map showing wind direction in the eastern region of the United States. Locate the southern region of Wisconsin (the state that is circled). Record the wind direction in southern Wisconsin.
2. Of the environmental impacts of coal-burning power plants that you have learned about in this chapter, which is most affected by the wind?
3. Pollution that travels through the atmosphere can remain in the air for several days before rain or gravity pulls it toward Earth. How far can pollution travel while it remains in the air? *Calculate how far pollution from a power plant in southern Wisconsin will travel if a typical wind speed for southern Wisconsin is 8 miles per hour.*
 - a. Distance in one day:
 - b. Distance in two days:
 - c. Distance in three days:
4. On the map of the U.S. on the next page, draw the plume of SO_2 and NO_x that would develop as it leaves the southern Wisconsin power plant. Use your previous answers to determine how far the pollution would travel. Use the arrows to determine the direction in which it would travel.
5. Answer the essential question: *Which states will feel the effects of emissions from a coal-burning power plant built in southern Wisconsin?*