Connections

World of Winds

For as long as people have lived on the earth, they have lived in a world of winds. As time has passed, people have wondered about the winds. They have found ways to explain them and to use their mysterious power.

Winds and Their Causes

The ancient Greeks explained the winds by thinking of them as *gods,* or spirits, each with a different power. About 2000 years ago, the Greeks built the eight-sided Tower of the Winds in the city of Athens. In this tall marble tower, each side faced a different compass point. On each side was a carved likeness of a different wind. The North Wind is wrapped up for protection against the cold he brings. The Northeast Wind rattles stones in his shield to bring hail. The South Wind pours water from a jar to make the rain fall. The West Wind, which brings good weather, has a lapful of flowers.

Thousands of years later, people still enjoy the old stories and beliefs about the winds. They know, however, that the winds are neither gods nor spirits. Winds, as science tells us, are nothing more than moving air. Air moves because heat from the sun makes it warmer in some places than in others. As

Illustrated by Joanna Adamska Koperska

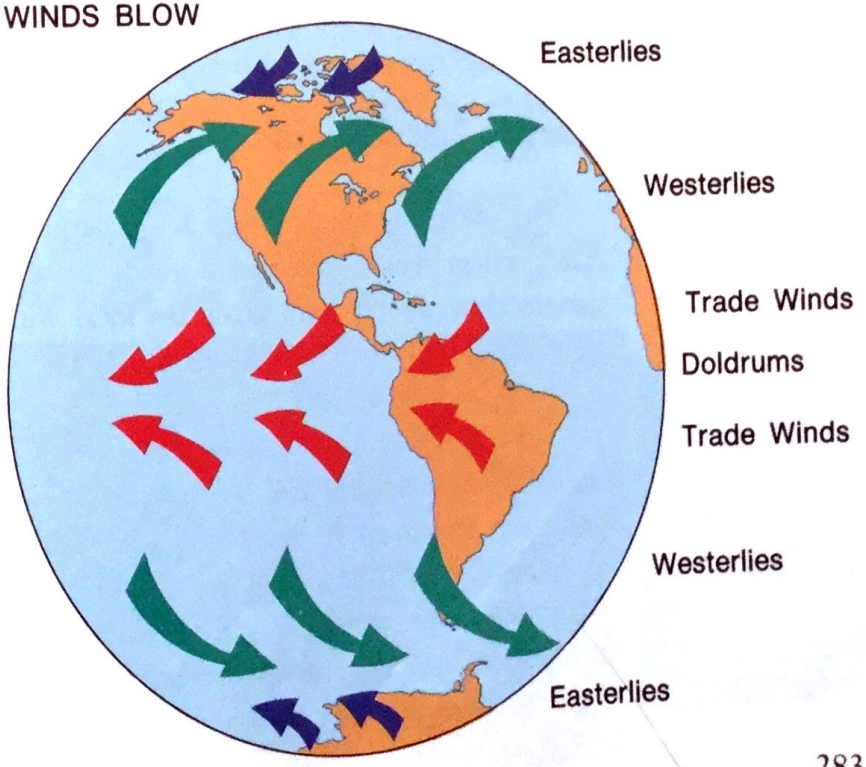
the air warms, it rises, and cooler air rushes in to take its place. When warm air rises high enough, it loses its heat, becomes cooled, and sinks back to earth. This movement of warm air rising and cool air taking the place of warm air causes winds.

Earth's Prevailing Winds

The ancient Greeks were right when they thought that there were different *kinds* of winds. Scientists have named and classified the winds.

Prevailing winds are wide bands of winds that blow in the same direction and at much the same speed. Prevailing winds are caused by the rising and sinking of huge masses of warm and cold air.

HOW THE WINDS BLOW



The *doldrums* are the winds that blow around the equator. The doldrums are very gentle, warm breezes.

The *trade winds* blow farther north and south of the equator than the doldrums. The trade winds are the steadiest and strongest of the winds.

Above and below the trade winds are the *westerly winds.* The westerlies are prevailing winds that blow from the west.

Cold air flowing away from both the North and South Poles creates the *easterlies,* the prevailing winds that blow from the east.

All of the winds are affected by Earth's *rotation,* or turning. This rotation causes the winds to bend slightly instead of blowing directly north or south. In the Northern Hemisphere, the winds bend to the east. In the Southern Hemisphere, the winds bend to the west.

Earth's Local Winds

The prevailing winds sweep across large areas of Earth. Other winds, called *local winds,* blow only in certain areas. People have given the local winds in their part of the world special names.

Some local winds are very cold. In Texas, a *norther* is the cold wind that sweeps down from the north. When a norther strikes Texas, the temperature can sometimes drop 50 degrees in a few hours.

Other local winds are hot and dry. In Sydney, Australia, people call their hot, dry summer wind a *brickfielder* because it carries red dust from the brick fields south of the city.

Many winds blow across deserts, where they can cause sandstorms and make fires spread quickly. The *simoom* (SIH•moom), or *poison wind,* crosses the Sahara, a desert in northern Africa. Simooms are called "poison" because they make some people feel nervous or sick.

A warm, dry wind called the *chinook* (shih•NOOK) blows through western Canada in winter. People welcome the chinook because it brings springlike weather. A chinook melts the snow, exposing plants for hungry cattle to eat.

Destroying Winds

Much of people's fascination with the wind may come from the wind's destructive power. Winds can cause great harm. Giant storms called *hurricanes* are born over tropical seas during the summer and fall. Their whirling winds can move at speeds up to 200 miles an hour, bringing heavy rains. A hurricane pushes a wall of ocean water called a *storm surge* in front of it. When the surge reaches a shore, towns are buried under a great deal of water.

Another kind of whirlwind is the *tornado.* It moves across land rather than sea. A tornado is a smaller whirlwind than a hurricane, but it can be much more destructive.

Scientists cannot control these destructive winds, but they can study hurricanes and tornadoes. Specially trained researchers called Hurricane Hunters fly airplanes right into the center, or *eye,* of a hurricane. The eye is an area of little wind, where a plane is safe—for a little while. The plane flies along with the hurricane, and the researchers gather information on how powerful the hurricane is, where it might go, and how long it might last.

Tornado chasers, on the other hand, must follow their "twisters" on land. Researchers in Texas and Oklahoma, where tornadoes often happen, "chase" the whirlwinds in four-wheel-drive vehicles, gathering information. Scientists can also use information from weather satellites and weather stations to predict where hurricanes and tornadoes will strike. These studies and warnings save many lives.

Helping Winds

In days past, sailors would buy a "bag of winds" before they left on a voyage. Then, if the winds died, the sailors had a ready supply. They would open their bag of winds and be on their way.

The sailors were wasting their money, of course. They could not capture or control the winds. Over the centuries, however, people have learned to use the winds' energy. When the windmill was invented, for example, it became possible to do some jobs more easily with wind power than with human strength. Water was pumped out of the ground by windmills and grain was ground into flour. Today, scientists are exploring new ways to use windmills to get power from the wind.

Winds can also provide pleasure for people. Gentle winds fill the sails of small boats and move windsurfing boards on their way. Sailplanes and hang gliders can be used to carry people through the skies soaring on the wind.

Earth's winds do more than provide the power for work or sports. Winds have many effects on Earth. The wind moves heat from one place to another. Without wind, much of Earth would be too hot – or too cold – to support life. Without wind, moisture from the oceans would not be brought over land to fall as rain. Without wind, the land itself would have a different look. Wind-blown sand and dust play a big part in shaping the landforms of Earth.

Many living things depend on the wind. Some plants release seeds into the wind. The wind carries the seeds to other areas. Some small animals, such as spiders, ride the wind to new homes. Many birds use the winds to "glide" or ride during their yearly migrations. Large animals on a hunt depend on the winds to bring them the scent of their prey.

Down through the ages, people have learned much about the winds. They have discovered the causes of winds and studied their effects. People have learned many ways to use the winds' power and energy. Yet no one has been able to tame or control the winds for very long. The world of winds, in some ways, remains a mystery.

Think and Discuss

Think about the information article and the notes you took while reading. Then answer the questions.

1. How was the Greeks' treatment of the wind the same as the treatments in "Riddle" and "Wind Is a Ghost"? Why did the Greeks think of the wind this way?

2. Use your chart. What are some of the names that people have given to winds?

3. Use your chart. What is the main difference between the winds described as prevailing winds and those that are local winds?

4. What is the difference between a hurricane and a tornado? Which destroying wind do you think poses the greater threat to people?

5. What are some of the methods used to study destroying winds?

6. What is the wind's value as an energy source? Why is there growing interest in the wind as an energy source?

7. How does this selection fit into a unit about people living with nature?

8. What might the world be like if it had no winds?