

Comprehension

Genre

Informational Nonfiction

Presents facts about real people, things, places, or events.



Text Structure

Description

As you read, use your Description Chart.

| Signal Words | Descriptive Facts |
|--------------|-------------------|
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Read to Find Out

How does a tropical storm become a category 5 hurricane?



HURRICANES

by **SEYMOUR SIMON**

Hurricanes are huge spinning storms that develop in warm areas around the equator. Hurricanes bring strong winds, heavy rains, storm surges, flooding, and sometimes even tornadoes. Coastal areas and islands are in the most danger during a hurricane, but even inland areas are at risk.

Hurricane season along the East Coast of the United States begins in June and continues until the end of November. The peak hurricane months are August and September. The East Coast averages about five hurricanes a year. Over other parts of the world, hurricanes happen year-round.





The word *hurricane* comes from people who lived in the Tropics in earlier times. The ancient Mayan people of South and Central America called their storm god Hunraken. An evil god of the Taino people of the Caribbean was called Huracan. Hurricanes are not really evil, but they can cause terrible **destruction** and great loss of life.

Hurricanes are one of three kinds of storms called tropical cyclones. Tropical means that the storms form over the warm waters of the Tropics near the equator. Cyclones are storms spinning around a calm center of low air pressure, which also moves. Cyclones spin counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Tropical depressions are cyclones of clouds and thunderstorms that spin around a central area. They have steady wind speeds of 38 miles per hour or less.

Tropical storms are cyclones of heavy clouds and strong thunderstorms that spin at steady wind speeds of 39 to 73 miles per hour.

Hurricanes are the strongest tropical cyclones. They have steady winds of 74 miles per hour or higher. When these storms form over the North Atlantic, Caribbean Sea, Gulf of Mexico, or the west coast of Mexico, they are called hurricanes. In the North Pacific, these kinds of storms are called typhoons, and in the Indian Ocean they are called cyclones. In Australia, hurricanes are called willy-willies, after the word whirly-whirly.

Hurricanes are the only weather disasters that have been given their own names, such as Andrew, Camille, Floyd, Fran, Hugo, Irene, and Opal. In some ways all hurricanes are alike. But like different people, each hurricane has its own story.



Description

What characteristics does the author list about hurricanes?

All hurricanes form in the same way. They begin life in the warm, moist **atmosphere** over tropical ocean waters. First, the atmosphere gathers heat energy through **contact** with ocean waters that are above eighty degrees Fahrenheit to a depth of about two hundred feet. Next, moisture evaporating from the warm waters enters the atmosphere and begins to power the infant hurricane.

The growing hurricane forms bands of clouds and winds near the ocean surface that spiral air inward. Thunderstorms form, heating the air further and forcing the winds to rise higher into the atmosphere and the spinning to increase. Because of their power, hurricanes can easily last more than a week and may strike Caribbean islands days before whirling north and east into the United States.

Hurricane forecasts estimate when the eye will pass over a particular location. But even a small hurricane has damaging winds and rains that may arrive many hours before the eye.

One of the worst hurricanes in the United States in terms of **property** damage was Hurricane Andrew. Andrew became a tropical storm in the southern Atlantic Ocean on August 17, 1992. At first, Andrew was a small storm with winds of about 40 miles per hour. But the storm rapidly gained strength over the warm waters, and wind speeds reached 155 miles per hour. Andrew was a category 5 hurricane by the time it passed over the Bahamas and began heading east toward Florida.



Description

Which signal words in the first paragraph alert you to an upcoming list of descriptive facts?





Andrew hit the coastline of southern Florida on August 24. It was moving quickly and dropped about seven inches of rain across the state. Even more rain would have fallen had it been moving slowly. Storm tides reached seventeen feet along Biscayne Bay.

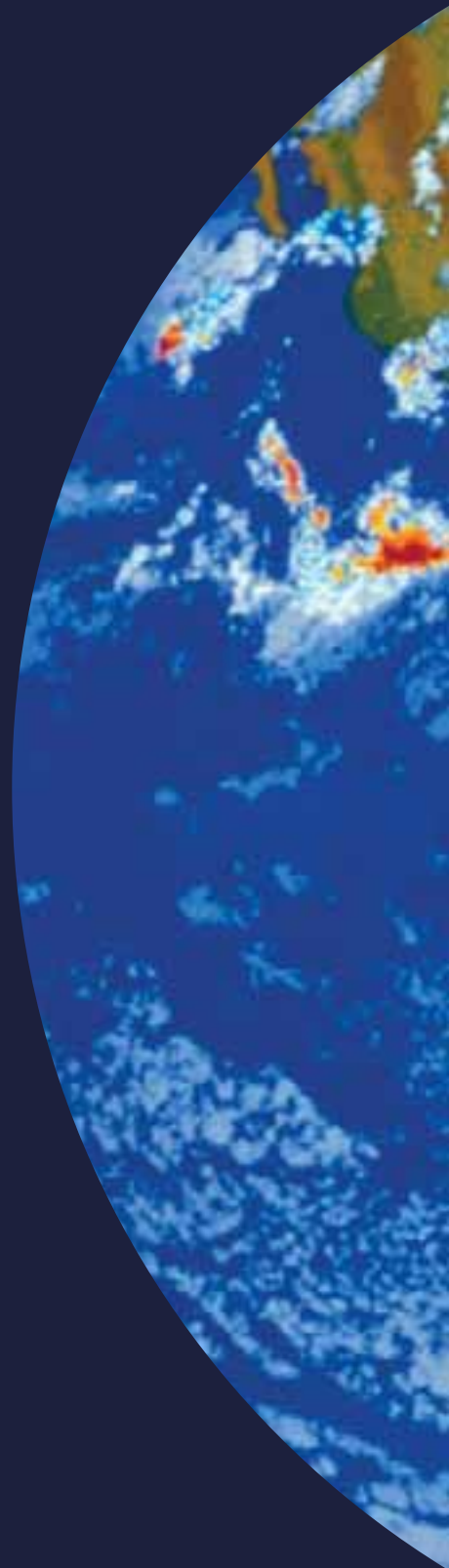
Wind speeds started to decrease over land, but Andrew quickly reached the warm waters in the Gulf of Mexico, where it regained 120-mile-per-hour winds. Then Andrew turned and slammed into the shoreline of Louisiana on August 26.

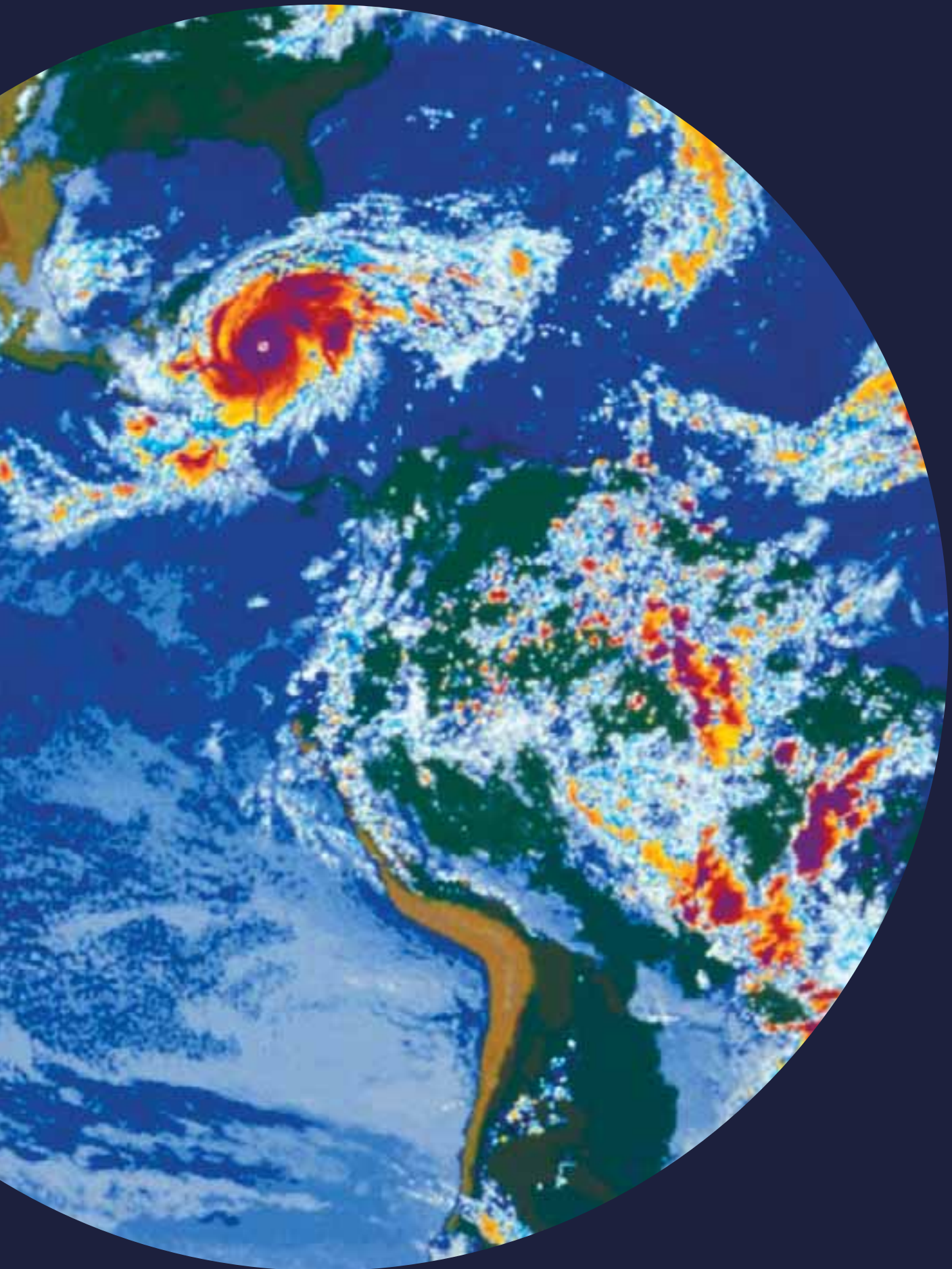
Andrew left a path of destruction in its wake. **Damages** totaled more than \$25 billion. Thousands of people had lost their homes. More than a million people had been evacuated. But fewer than fifty-five people died, because of early hurricane warnings.

Weather forecasters at the National Hurricane Center were able to give a twenty-one-hour advance warning of Hurricane Andrew. This made it possible for people to flee dangerous low-lying places along the coast and go to safer spots inland.

Forecasters need to find where a hurricane is developing and how strong it is. At one time this was possible only when people saw the storm from a ship or from land. Nowadays forecasters use satellite images, airplanes, radar, and computers to track a hurricane.

Weather satellites orbit the earth at an altitude of nearly twenty-two thousand miles over the equator. The satellites send back images day and night of bands of clouds and early signs of a tropical storm. To get accurate readings of wind speed and pressure, pilots and scientists fly right through a hurricane into its eye.





When a hurricane gets close to the coast, it is pictured on land-based weather radars. Doppler radars show wind speeds and location and quickly detect changes. The National Hurricane Center takes the information from radars and other sources and uses computers to help forecast the path, speed, and strength of hurricanes.

Hurricane and storm warnings are broadcast over radio and television and are also **available** on the Internet. National Oceanic and Atmospheric Administration (NOAA) Weather Radio broadcasts warnings, watches, forecasts, and other weather information twenty-four hours a day. These radio stations cover all the states, coastal waters, Puerto Rico, and United States Pacific territories.

A hurricane or a flood *watch* is usually given within thirty-six hours of an approaching storm. During a watch, it's important to prepare and decide what you and your family are going to do during the storm. A hurricane or a flood *warning* is usually given within twenty-four hours for a particular area. During a warning, listen to local radio or television stations for safety instructions.

National Weather Service (NWS) radios are specially equipped to give you immediate news about tropical hurricanes and floods. Regular NWS programs send out a special tone that turns on these radios in the listening area when there is an emergency. The radios can be connected to lights, computers, even bed shakers so that everyone can get the information.

Because of early warnings, the number of hurricane-related deaths has decreased in the United States in recent years. But hurricanes still remain a danger along the Atlantic coast and the Gulf of Mexico.







Scientists think that, potentially, the most dangerous place in the United States during a hurricane is New Orleans. That's because a storm **surge** could cover the low-lying city with twenty feet of water. Southwest Florida from Tampa Bay to the Everglades National Park is also dangerous, because the area is also very close to sea level.

If you are ever caught in a hurricane, it's important to know what to do. The first thing to remember is to listen closely to the radio, television, or NOAA Weather Radio for official bulletins. Follow instructions and leave immediately with your family if told to do so.

Only stay in a house if you are not ordered to leave. Stay away from windows and doors during the storm. During the worst of the storm, lie on the floor under a table or another sturdy object. Make sure you have a battery-driven portable radio and keep listening for storm information. Keep on hand at least a three-day supply of water and food that won't spoil.

Even after a hurricane passes by, conditions outside may still be dangerous. Here are some tips for you and your family.

- Keep listening to the radio for updates on flooding and highway conditions. Wait until an area is declared safe before going back into it.
- Stay away from moving water. Rapidly moving water even less than a foot deep can sweep you away. If you see water flowing across a street, turn around and go another way.
- Don't play in flooded areas. They are dangerous. The water may also be electrically charged from downed or underground power lines.
- Use a flashlight for emergency lighting. Don't use a candle or a flame indoors if the power goes off.
- Use bottled or stored water for drinking and cooking. Use tap water only when local officials say it is safe.
- Use the telephone only for emergency calls. If someone needs to be rescued or helped, call the police or local officials.

By preparing ahead and listening to the radio and following instructions, everyone can be much safer during a hurricane.

People are now much more aware of hurricanes than they were twenty-five years ago. When a hurricane threatens the United States, it becomes big news on television and radio. Even people who live in the middle of the country and will never experience a hurricane at home are interested in what's happening during the storm.

Along the East Coast, hurricanes are a fact of life. But nowadays forecasts, combined with timely warnings about hurricane dangers, are saving lives. The more we learn about hurricanes, the better our chances of coming through them safely.

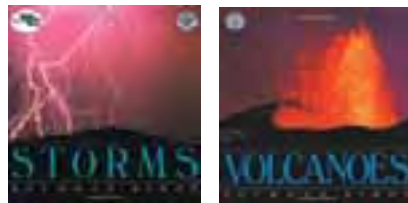
Talking Up a Storm with Seymour Simon



Seymour Simon has written over 200 books, but he still calls himself a teacher. He started by teaching in a classroom, but now reaches more kids through his books. First, Seymour picks a topic he loved as a child. “Interests don’t change,” he says. “Kids still love spectacular things.” After that, he researches and writes and rewrites the story until the explanations and descriptions are perfectly clear. Seymour wants his books to open up new worlds to the reader, not just answer questions. Then, when the books come out, he is back in the classroom, talking again to students and teachers.

Other books by Seymour Simon:

Storms and Volcanoes



Find out more about
Seymour Simon at
www.macmillanmh.com

Author's Purpose

Would you say that the author believes it is important to study extreme weather? What details from the selection help you to know?



Comprehension Check



Summarize

Use your Description Chart to help you summarize *Hurricanes*. Be sure to include descriptive facts, characteristics, and important details in your summary.

| Signal Words | Descriptive Facts |
|--------------|-------------------|
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Think and Compare

1. Use the descriptive details on page 467 to describe tropical depressions, tropical storms, and hurricanes. Include facts and characteristics about each kind of storm in your description. **Text Structure: Description**
2. Reread the tips on page 475. Why should you stay inside until the area is declared safe after a hurricane? **Analyze**
3. Decide why you would or would not like to be a pilot or scientist who flies through the eyes of **hurricanes** to measure wind speed. Explain your answer. **Analyze**
4. Why are people who will never directly experience hurricanes interested in these storms? **Evaluate**
5. Reread “The Extreme Costs of Extreme Weather” on pages 462–463. Compare the damage and injury caused by Hurricane Floyd with the damage and injury caused by Hurricane Andrew that is described in *Hurricanes*. **Reading/Writing Across Texts**