



## **RAIN**

You can often tell when it will rain. The sky fills with dark clouds. Those clouds hold water. When the clouds have too much water, the water falls as rain. Some rain falls into lakes. Some rain falls on land.

When the sun warms the land, the land gets dry. The water goes from the land into the air. Lakes also warm up and water goes from them into the air.

The water in the air makes clouds. When the clouds have too much water, it rains once more.



## Building Comprehension

1. How can you tell if it will rain?
  - a. the land gets dry.
  - b. the water goes from lakes into the air.
  - c. the sky fills with dark clouds.

2. How does water get into clouds?

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## **SNOW**

Snow and rain are the same in some ways. Both fall from clouds in the sky. Both are made from water.

However, snow is different from rain in one important way. Sometimes, the air in the sky gets very cold. The water in the clouds freezes. When the water freezes, it is no longer rain. It is snow.

Sometimes, water comes down as rain. As the water falls through the air to land, the rain freezes and turns into balls of ice. Those balls of ice are called hail.



## Building Comprehension

1. How are snow and rain the same?
  - a. both are made of water.
  - b. both are frozen water.
  - c. both are balls of ice.

2. What is hail?

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## **WIND**

The Sun causes much of the wind on Earth. The Sun heats the Earth. The air gets heated, too. When air gets warmer, it rises. Cooler air rushes in where warm air was. That cooler air is wind.

The way the Earth spins can also cause wind. The spinning Earth moves cool air in different ways. The air becomes wind as it moves.

Air from different places has different temperatures. Air from the North Pole is cold. When that wind comes south, it brings cold wind. Warm winds blowing from the south can bring warmer temperatures to the north.



## Building Comprehension

1. What is wind?
  - a. cool air that makes the Earth spin
  - b. cooler air rushing in
  - c. warm air rising
  - d. hot air that heats the Earth

2. Why does wind have different temperatures?

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## FOG

You may have been outside when all you see is white air. That white air is fog. When water dries, it goes into the air as vapor. The vapor in the air can change back into water, though. When that happens, there is fog.

In fog, tiny drops of water float in the air near the ground. Fog is a cloud near the ground.

Fog can be a problem. Car and bus drivers cannot see far ahead. They must drive slowly in fog. People in boats at sea have problems in fog, too. They cannot easily see the shore.



## Building Comprehension

1. What is fog?

- a. snow in the air
- b. clouds at sea
- c. rain near the ground
- d. a cloud near the ground

2. Why is fog a problem for people in boats?

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## **RAINBOWS**

Light is made up of many colors. When you see a rainbow, you see the seven colors that make up light. Rays of sunlight land on Earth. First, they pass through what is in the sky. You might see blue sky. Then, the rays bounce off other gases in the air. The air that hits those gases bounces blue to our eyes.

Rainbows happen the same way. Sunlight passes through ice and water in the air. The rays then bounce off rain and ice. They split the light into seven colors. You may see a rainbow when there is a break in a storm, or right after a storm.



## Building Comprehension

1. What is a rainbow?

- a. storm split into rain and ice
- b. rays of sun bounced off rain and ice
- c. sun rays bounced off colors in the sky
- d. rays of color within a storm

2. Why is the sky blue?

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# THUNDERSTORMS

There is a black cloud above. It gets darker and darker. You run inside. You know that soon there may be a thunderstorm.

Thunderstorms happen when huge amounts of heated air rush up. They may happen on hot summer days after the land is heated by strong rays of sun. Cold air sweeps in. The hot air rises. For thunderstorms to happen, the hot air must be full of water.

Drops of water and ice are tossed in these huge, high clouds. That tossing causes electrical charges. The electrical charges cause thunder. As the rain falls, less warm, wet air rises. The thunderstorm dies down. Soon it is over.



## Building Comprehension

1. When do thunderstorms happen?
  - a. when cool air is full of water
  - b. when huge amounts of cool, dry air rise
  - c. when warm, dry air does not move
  - d. when huge amounts of warm, wet air rise

2. Why does a thunderstorm die down?

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## **BLIZZARDS**

Blizzards are serious winter storms with snow. In a blizzard, snow comes with strong winds of 35 miles per hour or more. The temperature is usually 20 degrees below freezing or lower. Because the wind is blowing, people can see less than a quarter of a mile. Sometimes, a blizzard is so strong that people can only see a few feet ahead. Blizzards with that kind of wind are called whiteouts.

Blizzards cause dangerous conditions. People in cars may be stranded on roads. Those who are outside may not be able to tell where they are. People can suffer frostbite. They may even die from exposure to the cold. When blizzards occur, the best advice is to stay indoors



## Building Comprehension

1. Which best tells what a blizzard is?
  - a. when the temperature is below 20 degrees, and the wind is blowing
  - b. a windy snowstorm with temperatures 20 degrees below freezing or lower
  - c. a snowy storm when winds are 20 miles an hour or more
  - d. a storm with snow that blows a quarter of a mile or more

2. What is the best advice for living through a blizzard?

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## FLOODS

Floods happen when normally dry areas are covered by water. There are several kinds of floods. Coastal floods occur near the coasts of lakes and oceans. High water from storms can cause this kind of flooding. The storm creates a storm surge, a high wall of water that surges over the land and floods it.

Floods can also occur near rivers. A river can flood from heavy rain or snow melting. Water flows into the river and over its banks. Land around the river can sometimes flood for hundreds of miles. One very dangerous kind of flood is a flash flood, which happens after intense rainfall. Flash floods happen so quickly that people cannot always escape to higher ground.



## Building Comprehension

1. What can cause a coastal flood?
  - a. high water from storms
  - b. water flowing over a river's banks
  - c. melting snow
  - d. a serious flood at a riverclouds at sea

2. Why are flash floods dangerous?

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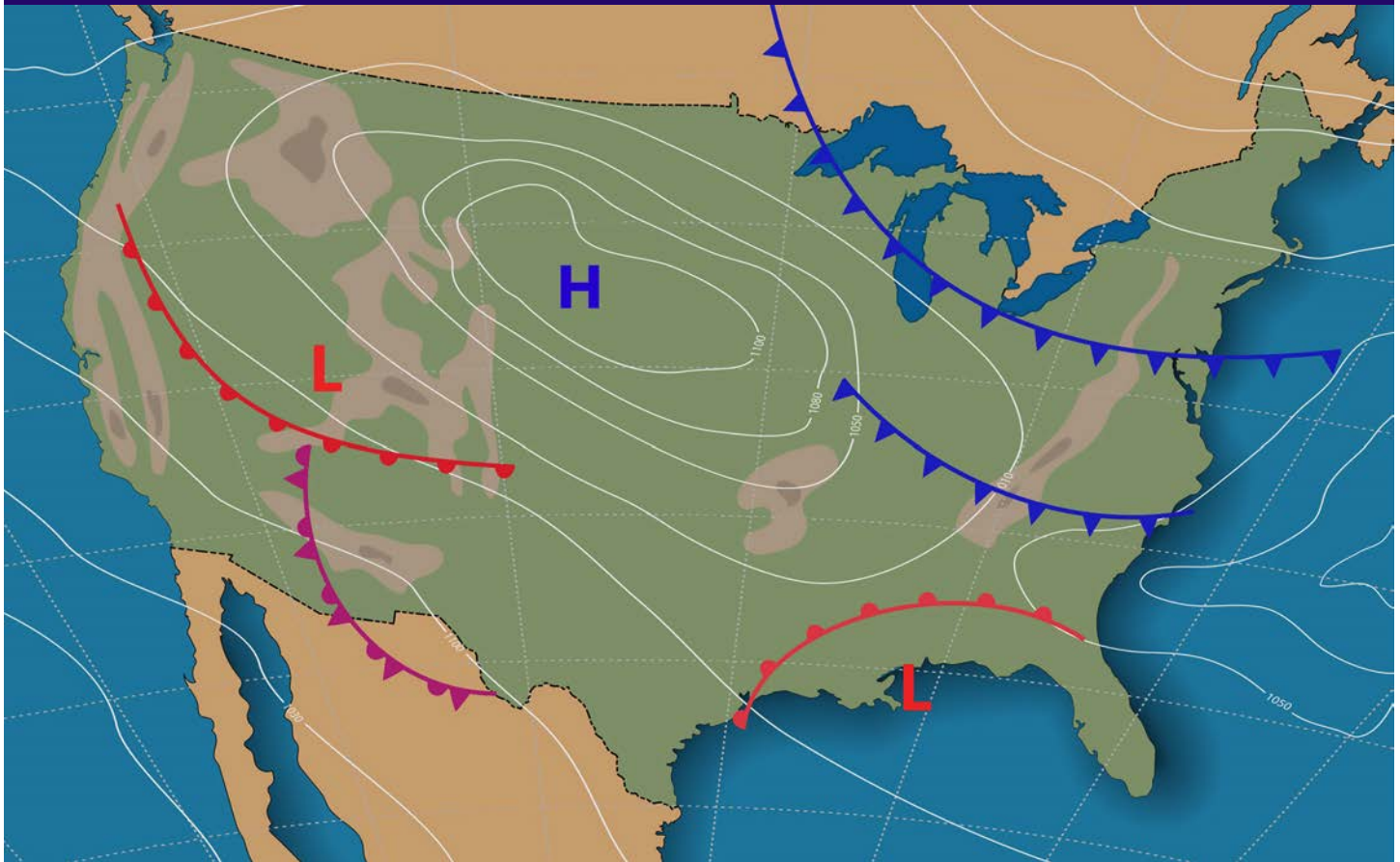
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## WEATHER MAPS

During a weather report, you may have seen a map of the United States with curved lines. These weather maps can help a meteorologist, or weather expert, explain the weather. The weather expert may point to the map to show what weather is coming.

The curved lines on the map show weather systems. The curve shows the direction that weather is heading. An H or L labels the curves. The H stands for a high-pressure area. It often means the weather will be calm.

An L stands for a low-pressure area. Low pressure means the weather is not settled. If a meteorologist points to an area labeled L, he or she might tell about rain, wind, or snow. Those low-pressure areas are where storms happen.



## Building Comprehension

1. What do the curved lines on a weather map show?
  - a. temperature
  - b. thunderstorms
  - c. weather systems
  - d. winds

2. What does an H on a weather map mean?

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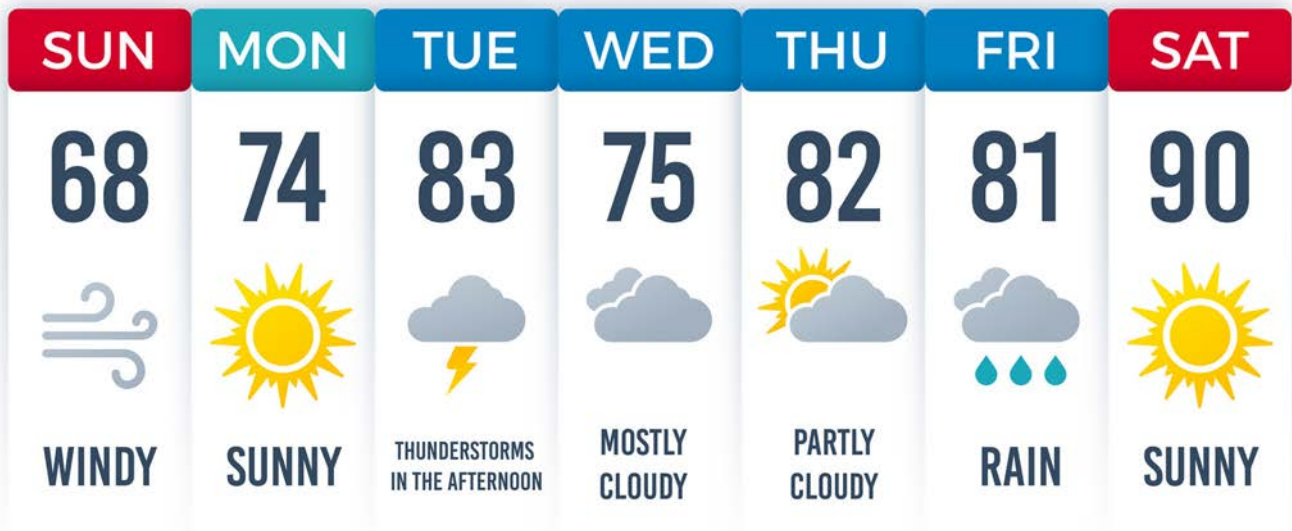
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# FORECAST



## WEATHER FORECASTING

People always want to know about the weather. Forecasting, or predicting, the weather is important for people who go outside. It is also important for farmers and people who work outside. People who run airports need to know if planes can safely fly. People who run schools need to know if students can get to school.

Those who forecast the weather use a number of ways to do it. They check pictures taken by satellites above the Earth. The satellites tell about weather around the world. They check readings that tell the temperature of the air. They find out how hard the wind is blowing.

Weather forecasters put together all the information they gather. That helps them forecast what the weather will be like tomorrow or next week.



## Building Comprehension

1. How do satellites help forecast the weather?
  - a. Satellites know if planes can safely fly.
  - b. Satellites put together information to forecast the weather.
  - c. Satellites let weather experts travel to take readings.
  - d. Satellites take pictures that tell about weather.

2. How do satellites help forecast the weather?

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# HURRICANES

Hurricanes are the strongest and most dangerous storms. They are often enormous—an average hurricane might be 350 miles in diameter. Hurricanes can travel for thousands of miles. They may last a week or more. Hurricanes are defined as having continuing winds of at least 74 miles an hour, and many have much higher winds. These serious, unpredictable storms can be extremely destructive to property and human life.

Hurricanes begin over tropical waters. They are bands of thunderstorm clouds that spin around a calm area called the eye. Around the calm eye, though, are the hurricane's strongest winds. One hurricane may contain hundreds of thunderstorms. As the hurricane moves, it draws in warm air full of water. The warm air gives the storm energy. As the hurricane passes over cooler land, it loses its energy source and finally dies.



## Building Comprehension

1. Which best tells what a hurricane is?
  - a. huge tropical waves
  - b. winds that get stronger as they pass over cooler land
  - c. bands of thunderstorm clouds that spin around a calm area
  - d. strong storms that begin over land and move to the sea

How do hurricanes get stronger and then die?

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## TORNADOES

Rapidly spinning winds in tornadoes can be extremely destructive. Although tornadoes are smaller than tropical storms that lash the coastal areas, the winds of some tornadoes are among the strongest on Earth. The wind speed of tornadoes can reach 300 miles per hour. What makes tornadoes especially dangerous is the speed with which they form. These whirling winds are unpredictable, which also increases the danger.

Tornadoes are often found with severe thunderstorms. They start when warm air rises quickly, and high winds set the column of air spinning. Air gets sucked into the column of air, fueling it to continue spinning thousands of feet from the cloud to the ground. The spinning air acts like a huge vacuum cleaner, sucking up everything on the ground, from dirt to cars. When tornadoes strike, people must take shelter to stay safe.



## Building Comprehension

1. Why are tornadoes so dangerous?
  - a. They are very fast and unpredictable
  - b. They cause severe thunderstorms.
  - c. They destroy coastal areas.
  - d. They are the largest storms.

2. How do tornadoes form?

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