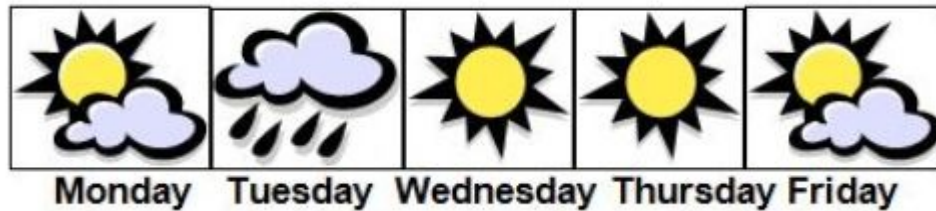


Weather - An Introduction to Weather

by ReadWorks



What does the word "weather" mean to you? Everyone knows how to describe the weather. There are beautiful, sunny days with blue skies, and then there are gray, rainy days perfect for staying in bed. But do you know what actually *causes* weather? The pictures above show the forecast for a week. Soon you will know what causes different types of weather!

Let's start with a scientific definition of weather. Weather is the state of the atmosphere at a given time and place. Four main factors determine the weather: *temperature*, *humidity*, *wind speed and direction*, and *air pressure*.

Temperature is the measure of how hot or cold the air is. When the sun shines down on the earth, it warms up the earth's surface. But that is not all that happens. The warmth of the sun also heats up the water on the earth. This process is responsible for many changes in weather and weather patterns. A thermometer measures temperature.

Humidity is the amount of water in the air. The air always has water in it even though we cannot always see it. Most of the weather conditions that we can observe come from humidity. Clouds, rain, and snow all have to do with humidity.

Wind speed and direction carry the weather. They also help forecasters predict the weather. Forecasters can measure wind speed and direction to determine how fast a storm is moving. Often the winds blowing far up in the earth's atmosphere are different than the winds we feel on the earth.

Air pressure has to do with the thickness of air. To understand air pressure, imagine you are standing in a room packed with people. There is a lot of pressure in the room. You can feel the person behind you hitting your elbow. If someone opens up a door into an empty room, people would start moving into the empty room until there are about the same number of people in both rooms. Air particles spread out in the same way. They always move from an area of high pressure to an area of low pressure. A barometer measures air pressure.

All of the weather's four main factors interact with each other. As air particles respond to changes in pressure, they move and create wind. On a very humid day, there may be many clouds in the sky. When it is cloudy, many of the sun's rays never reach the earth. What would this do to the temperature?

Name: _____ Date: _____

1. According to the text, what is the state of the atmosphere at a given time and place?

- A. weather
- B. temperature
- C. humidity
- D. air pressure

2. What does the text describe?

- A. some types of clouds
- B. some famous forecasters
- C. some examples of barometers
- D. some factors that determine the weather

3. Read this paragraph from the text.

Temperature is the measure of how hot or cold the air is. When the sun shines down on the earth, it warms up the earth's surface. But that is not all that happens. The warmth of the sun also heats up the water on the earth. This process is responsible for many changes in weather and weather patterns. A thermometer measures temperature.

Based on this evidence, what can you conclude about the sun's relationship with the earth's surface?

- A. the longer the sun shines, the colder the earth's surface
- B. the longer the sun shines, the warmer the earth's surface
- C. the longer the sun shines, the longer the earth's surface
- D. the shorter the sun shines, the warmer the earth's surface

4. Imagine you were looking up at the sky, and you saw storm clouds moving slowly your way. The clouds come from humidity.

Based on the text, what determines the clouds moving slowly your way?

- A. temperature
 - B. humidity
 - C. wind speed and direction
 - D. air pressure
5. What is this text mostly about?

- A. the sun warming the earth
- B. things forecasters do
- C. some causes of weather
- D. the thickness of air

6. Read these sentences from the text.

All of the weather's four main factors **interact** with each other. As air particles respond to changes in pressure, they move and create wind. On a very humid day, there may be many clouds in the sky.

What does the word "**interact**" mean as used in the text?

- A. to be unrelated or not impact something
- B. to stay the same or not change
- C. to have an effect on or change something
- D. to argue or talk to each other

7. Choose the answer that best completes the sentence.

Weather is caused by a few things, _____ air pressure.

- A. finally
- B. including
- C. excluding
- D. but

8. According to the text, what are the four main factors that determine the weather?

9. Read the last paragraph from the text.

All of the weather's four main factors interact with each other. As air particles respond to changes in pressure, they move and create wind. On a very humid day, there may be many clouds in the sky. When it is cloudy, many of the sun's rays never reach the earth. What would this do to the temperature?

What is the answer to the question at the end of the paragraph? Use evidence from the rest of the text to support your answer.
