



## Weather Conditions

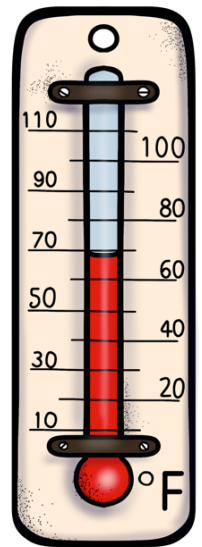
Peek out the window. What do you see? Step outside. What do you feel? Do you need a jacket? **Weather** is the condition of the atmosphere at one time and place. Weather is what you see when you look out the window. It is what you feel when you step outside. If you listen to the news or check a weather website online, you can get a quick update of what the weather is at the current moment. You can also see what the weather is expected to be like the next day or even a week in the future. There are several tools that you can use to help you measure weather more precisely. These tools can be used to measure things like wind speed, wind direction, precipitation, and temperature.

Temperature is one of the most important weather conditions that you might be interested in knowing each day. You might want to know how hot it will get today or what the highest expected temperature for the day is. You might also be interested in the lowest expected temperature for the day. Or maybe you want to know how cold it will be in the morning or at night. The answers to these questions help you decide what type of clothes to wear. Will you need to wear a jacket or is it warm enough that you can wear sandals? **Temperature** is the amount of heat that is present on any given day. Temperature is measured using a **thermometer**. Thermometers can be read in degrees Fahrenheit or degrees Celsius. Most places in the United States measure temperature in degrees Fahrenheit. Many countries around the world measure temperature using degrees Celsius.

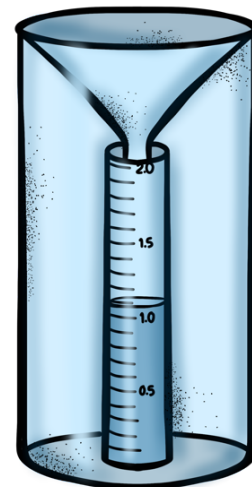
After you figure out the expected temperature, you might want to know whether or not any precipitation is expected. **Precipitation** is any form of water that falls to the ground. Examples of the different types of precipitation are rain, snow, sleet, and hail. Precipitation can be measured using a rain gauge. A **rain gauge** is a container that catches precipitation before it hits the ground. It usually has markings on its side so that people can easily read how much rain has fallen. The amount of precipitation is usually measured in inches. Measuring precipitation will help you decide if you need an umbrella or snow boots!



This is a digital thermometer.



This is a thermometer. The red liquid is ethanol with red dye.



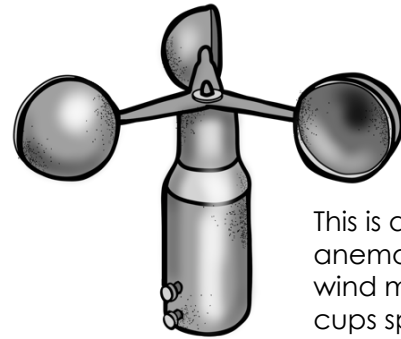
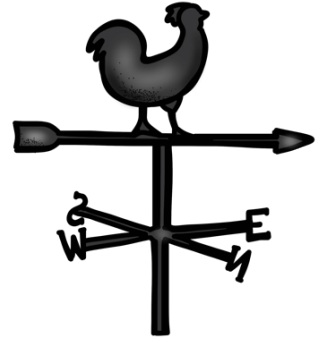
This is a rain gauge. The funnel at the top catches the precipitation. The tube collects the precipitation below the funnel. The amount of precipitation can be measured by reading the numbers on the side of the tube.



## Weather Conditions

Wind is another important weather condition that can be measured using specific tools. **Wind speed** is a measure of how fast or strong the wind is blowing. It is measured with an anemometer. An **anemometer** is a pole that has four horizontal beams stemming from it at the top. Each of these four beams has a device that looks like a cup attached to the end of it. Wind causes the cups to spin, and the anemometer counts the number of spins in a given time period. The more times the cups spin, the faster the wind speed. The less the cups spin, the slower the wind speed. Wind direction is measured with a similar tool called a weather vane or a wind vane. Like the anemometer, a **weather vane** is a pole with four horizontal beams stemming from it at the top. Instead of cups on the end of each beam, there are letters on the end of the beams on a weather vane. These letters represent the four major directions: N for North, S for South, E for East, and W for West. These letters are fixed and do not move. Each letter faces the direction that it represents. For example, the N always points to the North. There is also an object at the very top of the weather vane that spins with the wind. A rooster figurine is the most common object on the top of weather vanes. If the wind is blowing to the South, the rooster figurine will spin to point to the South. Measuring wind speed and wind direction is important because changes in these weather conditions can indicate a coming storm or temperature change.

This is a wind vane. The rooster sitting on the arrow spins in the direction that the wind is blowing. The letters represent directions.



This is an anemometer. The wind makes the cups spin.

The professionals that measure and report the weather conditions each day are called **meteorologists**. Meteorologists study the weather very closely and try to predict it. Although no one can ever know for sure what the weather will do, meteorologists can predict what will happen with the weather very closely. They are able to do this by using the weather tools that you just read about. Weather predictions are not guesses; they are based on specific pieces of information. This information is gathered through making observations and taking measurements. Meteorologists display the weather information they gather using **weather maps**. Temperature, air movements, and precipitation can all be shown on a weather map. These are the maps that are displayed on the weather channel each day!

Figuring out the weather can be as simple as peeking out your window or stepping outside. However, weather is also a very specific science. It is most accurately measured using specific tools, such as a thermometer or a weather vane. Meteorologists work very hard each day to collect weather data. They then use this data to tell you what you can expect from the weather that day or at some point in the upcoming week! Try meteorology out for yourself. Keep a journal of weather observations. See how your notes and predictions match up with those of the professionals!

**TEXT-BASED EVIDENCE QUESTIONS****Weather Conditions**

**Directions:** Answer these questions after you read the passage. Remember to begin your answer by restating part of the question, use direct evidence from the text, and explain your thinking.

**KEY IDEAS & DETAILS**

1. According to the first paragraph of the text, what is weather? **RI.1**

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2. Explain what temperature is. **RI.3**

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3. Describe how precipitation is measured. **RI.3**

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4. Explain how an anemometer works. **RI.3**

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5. Summarize the different conditions of weather. **RI.2**

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**TEXT-BASED EVIDENCE QUESTIONS****Weather Conditions**

**Directions:** Answer these questions after you read the passage. Remember to begin your answer by restating part of the question, use direct evidence from the text, and explain your thinking.

**CRAFT & STRUCTURE**

6. Explain the meaning of the term “meteorologist.” **RI.4**

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7. How is the passage organized? (Chronological, cause/effect, comparison/contrast, description, problem/solution). Use evidence from the text to explain your answer. **RI.5**

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**INTEGRATION OF KNOWLEDGE & IDEAS**

8. What is the key idea that the author wants readers to understand from this text? Use evidence from the text to support your reasoning. **RI.8**

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