

# Predicting the Weather

By Sharon Fabian

---

<sup>1</sup> If the groundhog sees his shadow there will be six more weeks of winter. Watching the groundhog is one way of predicting the weather, but it's not the most scientific way. To really forecast the weather, you will need to look at things like wind speed, wind direction, temperature, air pressure, precipitation, and humidity.



<sup>2</sup> There are different ways to measure each of these things, and weather forecasters use all of the data to help predict the weather.

## <sup>3</sup> *Temperature*

<sup>4</sup> The temperature outdoors is measured with the same type of instrument used to measure a person's temperature, a thermometer. It can be measured in either degrees Fahrenheit or degrees Celsius.

## <sup>5</sup> *Wind Speed*

<sup>6</sup> Wind speed can be measured using a device called an anemometer. An anemometer is like a pinwheel turned on its side. You can make a simple one using straws and small paper cups. Arrange the straws to form an X. The middle of the X can be attached to the eraser end of a pencil with a pin; this is the axis that they will spin around. Attach a cup to the end of each straw. The cups must all face in the same direction so that the wind will spin the anemometer around the axis. You can measure how many times it revolves per minute to find the wind speed.

<sup>7</sup> Wind speed can also be estimated by observing nature. In 1805, Sir Francis Beaufort created a scale to measure wind speed. His original scale was used to observe waves and sailing ships, but other versions of the scale can be used anywhere today. According to a Beaufort scale, wind that just makes the leaves rustle is called a slight breeze. Wind that moves leaves and twigs is called a gentle breeze. Wind that makes the branches sway is a strong breeze. When whole trees move, it is considered a moderate gale. Wind that causes extreme damage and is life threatening is a hurricane. These are just some examples. Look up a Beaufort scale if you would like to see all of the details.

## <sup>8</sup> *Wind Direction*

<sup>9</sup> A weather vane measures wind direction. You can make a weather vane using some of the same materials that you use to make the anemometer. Start with a pencil for the axis. Use a pin to attach a straw across the top of the pencil. Put a small lump of clay at one end for a weight. Attach a small rectangular card to the other end. The wind will turn the weather vane until the end with the lump of clay points into the wind.

## <sup>10</sup> *Air Pressure*

<sup>11</sup> Air pressure is measured with a barometer. To make a simple barometer, take a piece of rubber such as balloons are made of, and stretch it over the end of a large open jar. Attach it with rubber bands. Attach a straw to the center, and stand the jar next to a wall, where you can tape a paper to mark the location of the top of the straw. A change in air pressure should cause the top end of the straw to raise or lower.

## <sup>12</sup> *Amount of Precipitation*

<sup>13</sup> You can measure the amount of rain with a rain gauge, which is just a cylinder to catch the rain. It can be labeled in inches or centimeters to measure the amount. To measure the amount of snow, just use a ruler. You can also let the snow melt in a rain gauge to see how much water there was.

<sup>14</sup> *Relative Humidity*

<sup>15</sup> Relative humidity is the amount of moisture in the air. It is measured using two thermometers. One is an ordinary thermometer. The other one has the bulb covered by a wet cloth. The end of the cloth must stay in water at all times. The difference between the two temperatures can be used to determine the relative humidity by looking it up on a humidity table.

<sup>16</sup> Weather forecasters use all of these measurements to tell us what the current weather is like. They combine data from different sources to look at weather patterns and predict whether it will be chilly or warm, sunny or stormy, tomorrow.

## Predicting the Weather

1. A thermometer is used to measure _____. <input type="radio"/> A Wind direction <input type="radio"/> B Wind speed <input type="radio"/> C Temperature <input type="radio"/> D Air pressure	2. An anemometer is used to measure _____. <input type="radio"/> A Wind direction <input type="radio"/> B Temperature <input type="radio"/> C Air pressure <input type="radio"/> D Wind speed
3. A barometer measures _____. <input type="radio"/> A Air pressure <input type="radio"/> B Wind direction <input type="radio"/> C Temperature <input type="radio"/> D Wind speed	4. A weather vane measures _____. <input type="radio"/> A Wind speed <input type="radio"/> B Temperature <input type="radio"/> C Wind direction <input type="radio"/> D Air pressure
5. A Beaufort wind scale is used to _____. <input type="radio"/> A Estimate wind direction <input type="radio"/> B Measure wind direction <input type="radio"/> C Measure wind speed <input type="radio"/> D Estimate wind speed	6. The word that means the amount of moisture in the air is _____. <input type="radio"/> A Anemometer <input type="radio"/> B Forecast <input type="radio"/> C Relative humidity <input type="radio"/> D Air pressure
7. The usual shape of a rain gauge is a _____. <input type="radio"/> A Cone <input type="radio"/> B Cylinder <input type="radio"/> C Rectangle <input type="radio"/> D Square	8. From the article, you can tell that the word forecast means _____. <input type="radio"/> A Observe <input type="radio"/> B Report <input type="radio"/> C Measure <input type="radio"/> D Predict

