

**Weather**

What does the word “weather” mean to you? Everyone knows 10  
 how to describe the weather. There are beautiful sunny days with 21  
 blue skies and then there are gray rainy days perfect for staying in 34  
 bed. But do you know what actually causes weather? 43  
 Let’s start with a scientific definition of weather. Weather is 53  
 the state of the atmosphere at a given time and place. Four main 66  
 ingredients determine the weather: temperature, humidity, wind speed 74  
 and direction, and air pressure. 79  
 Temperature is the heat of the air. When the sun shines down 91  
 on earth, it warms up the earth’s surface. But that is not all that 105  
 happens. The warmth of the sun also heats up the water on earth. 118  
 This process is responsible for many changes in weather and weather 129  
 patterns. A thermometer measures temperature. 134  
 Humidity is the amount of water in the air. The air always 146  
 has water in it, even though we cannot always see it. Most of the 160  
 weather conditions that we can observe come from humidity. Clouds, 170  
 rain, and snow all have to do with humidity. 179