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Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Hurricanes

*Read the information on hurricanes below, highlighting/underlining important facts and figures. Use this information to answer the discussion questions on the back of this sheet.*

Roaring onto the Gulf Coast with sustained winds of 225 kilometers per hour (140 miles per hour), Hurricane Katrina dumped rain at a rate of more than 2.5 centimeters (1 inch) per hour for several hours and pushed a swell of ocean water more than 6 meters (20 feet) above normal along this vulnerable coastline. Two days after the storm abated, more than 80 percent of New Orleans, Louisiana, lay under water—some areas by as much as 6 meters (20 feet). Thousands of residents who had successfully weathered the storm were left stranded in or on top of their flooded homes—many for several days.

The devastating storm prompted its own endless flood of questions about how and why such a disaster had occurred. Many people demanded to know who was responsible for failing to fully evacuate the city and to provide adequate aid for those stranded by the storm. Others wondered to what extent human activities might have played a role in Katrina's destructive power. What effect did land-use practices along the Gulf Coast have on the catastrophe? What, if anything, did global warming have to do with what seemed to be one more in a run of increasingly powerful Atlantic hurricanes?

Katrina arrived in the middle of the Atlantic Ocean's busiest hurricane season on record. By season's end, 24 tropical storms had formed. Thirteen of these became hurricanes, including seven classified as major hurricanes, meaning they were category-3 or higher. In fact, 2005 saw a continuation of a trend that began in 1995. Since that year, tropical storm and hurricane activity in the Atlantic has been well above normal. An average of 7.7 hurricanes and 3.6 major hurricanes developed each year between 1995 and 2005, compared to an average of five hurricanes and 1.5 major hurricanes in each of the previous 25 years.

While a recent study has shown a correlation between warmer ocean surface temperatures and more intense tropical storms and hurricanes, most experts say it's too early to tell how much of an effect global warming is having on the frequency and intensity of hurricanes. After all, periods of frequent tropical storms and hurricanes have happened before. On average, they have occurred every 25 years and lasted about as long, followed by equal periods of less-than-normal activity. Scientists say these cycles result from meteorological phenomena that have nothing to do with global warming. Still, most experts agree that if the current global warming trend continues it will both intensify the pattern already seen and increase the intensity of individual storms.

Name: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_

Unfortunately, even if Atlantic hurricane frequency and intensity remain unchanged in the future, catastrophes like the one caused by Hurricane Katrina will likely become more common. The reason is simple: More people than ever before live in hurricane-prone areas of the United States. When Florida was hit by several powerful hurricanes in the 1940s and 50s, the devastation to human life and property was limited because so few people lived in vulnerable areas of the state. In contrast, Katrina left more than 1,300 people dead in Louisiana and Mississippi and caused at least several billion dollars' worth of property damage. The destruction could have been even worse. Before Katrina made landfall, its intensity dropped from category-5 status, with wind speeds greater than 249 km/hr (155 mph) to category-4.

### Discussion Questions

*Please answer in thoughtful and complete sentences. Make reference to specific information in the reading.*

1. How has hurricane activity changed over the past century?
2. What evidence can be used to support the claim that the severity of Katrina was the result of global warming?
3. What lessons can be learned from this devastating natural event?