EXCERPT TO WRITE ABOUT

"The Storm Factory"

From *Hurricane Force: In the Path of America's Deadliest Storms*

by Joseph B. Treaster

▶ **Directions: Think about the title "The Storm Factory." What question does that title make you ask? Read the first two paragraphs and highlight information that answers that question.**

Hurricanes owe a great deal to the dry, hot winds of the Sahara desert. In summer, the desert winds swirl out over the Atlantic from the coast of West Africa, carrying tropical waves (also called easterly waves) that often spawn clusters of thunderstorms stretching hundreds of miles.

Some of these sprawling patches of turbulent weather grow into hurricanes right there off Africa. Most shift and scatter as they drift westward across the Atlantic on the trade winds and die out quietly. But if conditions are right, some of the clusters of thunderstorms build into hurricanes in the Atlantic east of the Bahamas, in the western Caribbean, or in the Gulf of Mexico—within easy range of the coasts of Mexico and half a dozen southern states.

▶ **What important information have you learned from the first two paragraphs? Highlight and annotate any information that helps explain what a storm factory is. Use the margins to sketch or draw visuals to help you understand.**

Scientists are still searching for the answers to what causes some tropical waves to blossom into hurricanes and others to drift into oblivion. But it is clear that hurricanes get going in areas of low atmospheric pressure, that they need warm water to fuel their massive engines, and that they depend upon certain favorable wind conditions.

▶ **Does this paragraph answer questions or does it raise new questions?**

As you read on, notice how the author uses the term *low pressure* from the last paragraph. How does that help answer what a storm factory is?

Use the margins to sketch or draw visuals to help you understand.

Tropical waves provide a vast area of low pressure. As they move over the ocean, warm, moist air rises and condenses into clouds that often crackle with thunder and lightning. The pressure drops further and surrounding air rushes in. This creates wind, which, because of the rotation of the earth, begins turning counterclockwise. The pressure continues to fall and the swirling warm air alternately absorbs and releases heat and energy that drive the storm even faster.

Any number of conditions can scatter a gathering storm before it can become a hurricane. Warm, dry air at altitudes of 10,000 to 20,000 feet can choke a storm. Wind shear—a sharp difference in wind speed and direction—can knock the rising air at an angle, destroying the chimney that the storm needs to channel moisture and heat upward. If the layer of warm water at the ocean's surface is not deep enough, the storm will quickly use it up and weaken.

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- **Notice the next sentence starts with the word *But*—what does that make you do as a reader? How does the next information build on the previous section?**

  What information is important?

  Use the margins to sketch or draw visuals to help you understand.

> But it is the surviving storms that get our attention. When the wind is spinning in a closed circle at up to 38 miles an hour, it is designated as a tropical depression. At 39 miles an hour it becomes a tropical storm and is given a name. And at 74 miles an hour the storm becomes a hurricane.
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> At full song, a hurricane is a roaring natural turbine, spinning as fast as 175 miles an hour. The heart of the turbine is a flexing double column of air—like a rumpled sleeve within a rumpled sleeve—rising as much as ten miles from the surface of the sea. The greatest killing power is in the space of perhaps ten to twenty miles between the sleeves, known as the eye wall. The center, or eye, of the storm is usually calm and may be as large as fifty miles across. But powerful and destructive winds often extend hundreds of miles from the center.

- **What new information do you have about hurricanes? What is important from this last section?**

Note: In this excerpt from a book on hurricanes, Joseph B. Treaster is focusing on a single topic: where hurricanes come from—what causes them. It's interesting that he titles it "The Storm Factory," likening a natural occurrence to a word wholly associated with human-made production. Notice that in the first couple of paragraphs, he is including a lot of geographical information. If you happen to know where the Sahara desert is and have seen photos of it, you can envision it. The same is true of the Atlantic Ocean, the coast of West Africa, and all the locations mentioned in paragraph two. These paragraphs provide a good example of how nonfiction writers are constantly making choices about what to show and explain, and what they expect their readers to already know. In these opening paragraphs, it's almost as though we are being nudged to pull out maps, globes, and online resources to help us see the global weather pattern he describes. In the next three paragraphs, Treaster explains the way tropical waves, moisture, air pressure, and temperature interact to create wind. Might you be able to create a color graphic, based on these details so far? What would you picture, and what facts would you use as labels?