

Name \_\_\_\_\_

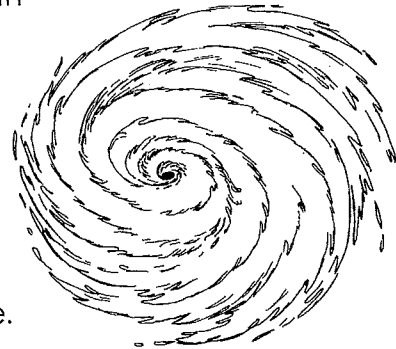
**Day  
1**

**Weekly Question**

**Why don't hurricanes happen at the equator?**

Anyone who has lived on the East Coast of the United States is probably familiar with hurricanes. A hurricane is a severe tropical storm that forms over the ocean, producing strong winds and heavy rains that rotate around a central "eye." The eye of a hurricane is the calmest part of the storm, with only light winds and fair weather. It typically ranges in size from 20 to 40 miles in **diameter**, while the hurricane itself may stretch as many as 600 miles across.

As the winds of a hurricane spiral around and around, they push seawater up into a rising swell within the eye. This is called a *storm surge*. As it approaches land, the storm surge becomes a huge wave that may extend as high as 9 meters (30 feet) above sea level! When the wave reaches land, it causes flooding along the coast. In fact, storm surges are often the most dangerous part of a hurricane.



Daily Science

**Big  
Idea 3**

**WEEK 2**

**Vocabulary**

**diameter**

dye-AM-ih-tur  
the distance  
across a circle  
through its center

**A. Write true or false.**

1. Hurricanes form over land. \_\_\_\_\_
2. The eye is the most dangerous part of a hurricane. \_\_\_\_\_
3. As it moves toward land, a storm surge will grow. \_\_\_\_\_
4. Hurricanes are tropical storms. \_\_\_\_\_

**B. Fill in the blanks with words from the passage.**

1. We heard on the news that the hurricane was so large, its \_\_\_\_\_ measured more than 400 miles.
2. In the \_\_\_\_\_ of the storm, it was sunny and calm.
3. When the hurricane reached shore yesterday, the \_\_\_\_\_ destroyed many homes along the coast.

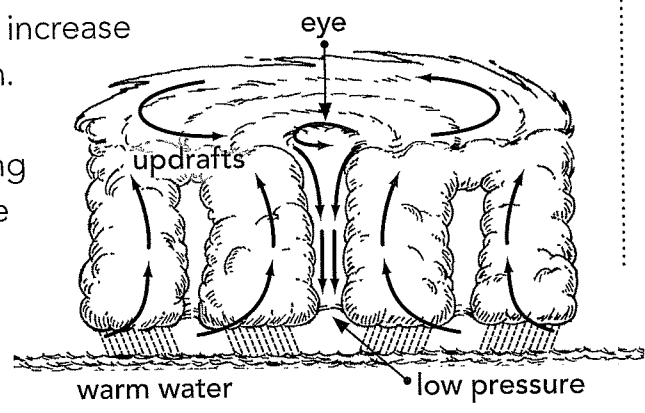
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**Day 2** **Weekly Question**  
**Why don't hurricanes happen at the equator?**

Where and when a hurricane forms depends on four basic factors. The first is **latitude**. Most hurricanes occur at latitudes of either 5 to 30° north or 5 to 30° south of the equator. The second factor is wind, which must blow in the same direction between the ocean and 40,000 feet and at a continuous speed of at least 74 miles per hour. The third factor is the surface temperature of the ocean, which must be at least 26.5°C (80°F). Finally, the atmosphere must contain a lot of moisture to fuel the hurricane.

A hurricane begins as a tropical **disturbance**. As the ocean's surface water absorbs solar energy, it becomes heated and starts to evaporate. The water vapor condenses as it rises, releasing heat energy in the process. This causes the winds to speed up, produces **updrafts**, and lowers the air pressure within the eye of the storm. These forces work together to increase evaporation and condensation. The cycle continues and the storm intensifies, lasting as long as three weeks. However, once on land and without the warm ocean waters to supply heat and moisture, a hurricane usually dies out quickly.



**Vocabulary**

**disturbance**  
dih-STER-bints  
a variation from normal or average wind conditions

**latitude**  
LAT-ih-tood  
the distance north or south of the equator, measured in degrees

**updraft**  
UP-draft  
the upward, vertical movement of air

**A. What are the four factors required to form a hurricane?**

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

**B. Write a vocabulary word to complete each sentence.**

- 1. Sensing the \_\_\_\_\_ in the atmosphere, the captain turned his ship toward shore.
- 2. The hawk used the \_\_\_\_\_ to soar higher.

Name \_\_\_\_\_

**Day  
3**

**Weekly Question**

**Why don't hurricanes happen at the equator?**

Hurricane season officially lasts from June 1st through November 30th. Hurricanes occur during this period because the sun warms the oceans throughout the summer and fall. Surface waters reach their highest temperatures during late August and September, and this is when most hurricanes develop. For example, Hurricane Katrina, one of the worst hurricanes in recent U.S. history, devastated New Orleans in August 2005. The wind reached speeds of 175 miles per hour over the Gulf of Mexico.

Strictly speaking, hurricanes occur only in the Atlantic and eastern Pacific oceans. The same type of storm in the northwestern Pacific Ocean is called a *typhoon*. In the Indian and southern Pacific oceans, it is called a *cyclone*.

**A. Hurricanes are divided into five categories based on wind speed and the height of the storm surge. Use the chart to answer the questions.**

Category	Wind Speed (in miles per hour)	Height of Storm Surge (in feet)
1	74-95	4-5
2	96-110	6-8
3	111-130	9-12
4	131-155	13-18
5	more than 155	more than 18

1. In 1954, Hurricane Hazel traveled from the Caribbean Sea up the U.S. east coast into Canada. Hazel reached a maximum wind speed of about 150 mph. What category of hurricane was Hazel? \_\_\_\_\_
2. Based on the information in the passage, what category was Hurricane Katrina before it reached land? \_\_\_\_\_
3. The Galveston Hurricane of 1900 had a storm surge in excess of 15 feet. What category was the hurricane? \_\_\_\_\_

**B. Why do you think hurricanes, cyclones, and typhoons happen between tropical latitudes and not at the higher latitudes?**  
\_\_\_\_\_  
\_\_\_\_\_



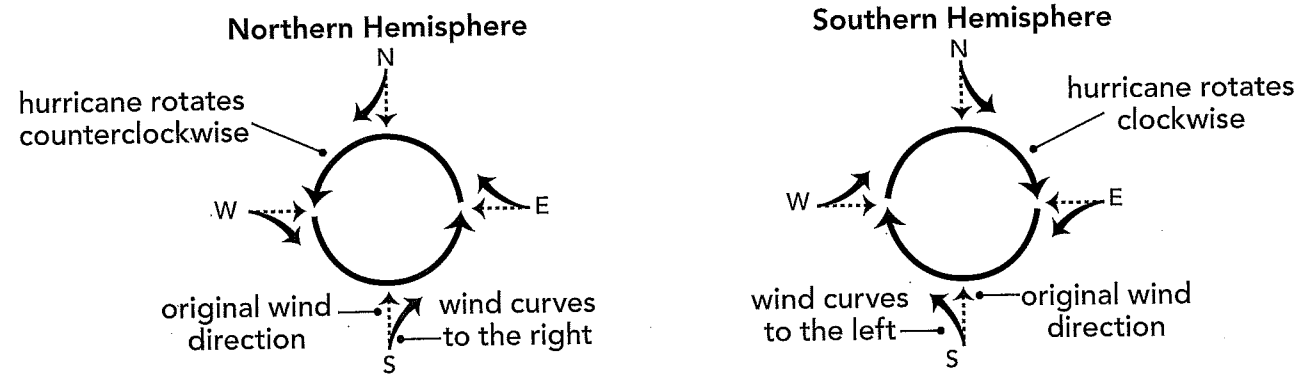
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**Day 4** **Weekly Question** **Why don't hurricanes happen at the equator?**

Even though hurricanes form over waters *near* the equator, they do not develop at the equator itself. This is due to the *Coriolis* (kor-ee-OH-liss) *force*, the apparent shift of a moving object produced by the rotation of Earth. Because Earth rotates from west to east, wind in the Northern Hemisphere appears to curve to the right. In the Southern Hemisphere, wind appears to curve to the left. The wind itself does not actually change directions, however. Instead, it is Earth that moves beneath it.

The Coriolis force creates the spin of a hurricane. In the Northern Hemisphere, hurricanes rotate counterclockwise, while in the Southern Hemisphere, they rotate clockwise. The Coriolis force is strongest at the poles, gets weaker with decreasing latitude, and is absent at the equator. Without the Coriolis force, the air will not rotate, and a storm cannot develop.

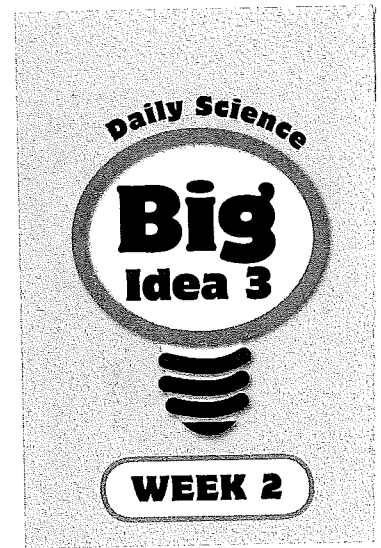


**A. Answer the questions.**

1. If you were in an airplane flying from Miami, Florida, to Toronto, Canada, would the plane drift to the right or left as it flew? \_\_\_\_\_
2. If you were on a ship sailing from Cape Town, South Africa, to Rio de Janeiro, Brazil, would the ship drift to the right or left as it sailed? \_\_\_\_\_

**B. In your own words, explain why the Coriolis force must be present in order for a hurricane to form.**

Name \_\_\_\_\_



**Day 5** *Weekly Question* **Why don't hurricanes happen at the equator?**

A. Use the words in the box to complete the paragraph.

diameter    disturbance  
latitudes    updrafts

Beginning as a \_\_\_\_\_ in the atmosphere at \_\_\_\_\_ near the equator, a hurricane is a powerful tropical storm, with an average \_\_\_\_\_ of 300 miles. A constant supply of energy causes winds to speed up and produces \_\_\_\_\_, increasing the strength of the storm.

B. Answer the questions.

1. Why do hurricanes form mostly in August and September?

\_\_\_\_\_

2. Why do hurricanes weaken over land?

\_\_\_\_\_

3. Where is the Coriolis force strongest?

\_\_\_\_\_

4. Why don't hurricanes form at the equator?

\_\_\_\_\_

C. Explain how solar energy contributes to the formation of a hurricane.

\_\_\_\_\_  
\_\_\_\_\_