

THE DAY THE SKY

SPLIT TOP

More than 1,000
tornadoes strike
the U.S. every year.



LOOK FOR WORD NERD'S 6 WORDS IN BOLD

The Super

In just over 15 hours,
148 tornadoes destroyed
towns in 13 states. It was
one of the most disastrous
days in U.S. history.

By Lauren Tarshis

On April 3, 1974, the strongest tornado ever recorded in U.S. history hit the town of Xenia, Ohio. It was so big—half a mile across—that people on the ground didn't even know it was a tornado. The entire sky, it seemed, had turned into a great swirling blackness.

In just nine minutes, the tornado destroyed more than half the town. One neighborhood, known as Arrowhead, was flattened, dozens of tidy brick homes erased from the Earth. Shops,



XENIA

Tornado Outbreak of 1974

schools, and churches were smashed. The bowling alley was wrecked when two trucks, carried by the wind for 100 yards, landed on its roof. In the end, 33 people in Xenia were killed. More than 1,000 were injured. “We should all be dead,” wrote the editor of the town’s newspaper.

In the hours after the tornado hit, few in Xenia knew their suffering was just one small part of a far bigger disaster. In approximately 15 hours, 148 tornadoes touched down in 13 states—all were part of the same massive weather system.

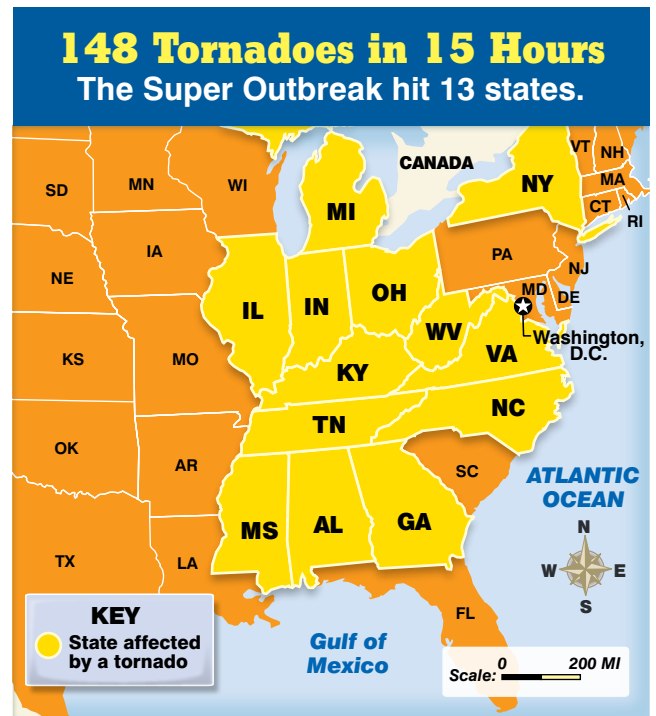
In Brandenburg, Kentucky, a tornado flattened three-quarters of the buildings and killed 31 people. Farther west in Fountaintown, Indiana, a tornado lifted a metal warehouse and carried it a mile away. In Jasper, Alabama, firefighters escaped from their station house just seconds before the building and all the fire trucks were destroyed. All along the storm’s path were similar scenes—stunned survivors standing in **rubble**. By the time the skies cleared, more than 315 people were dead and over 5,000 were injured.

Out of the Ruins

Forecasters working that April day knew that dangerous weather was simmering over the central U.S. Cold air was sweeping down from the Canadian Rockies. A mass of warm, wet air was blowing northward from the Gulf of Mexico. These weather fronts would **collide**. And when they did, the perfect conditions for a violent type of thunderstorm would occur. These storms are known as “supercells.” They are dangerous on their own—with driving rain, booming thunder, lightning, and hailstones. They are also the kind

of storms that produce the most severe tornadoes.

But there were no tornado warnings in advance of the Super Outbreak. On April 3, the Xenia newspaper ran its daily weather forecast in its usual spot on page one. The National Weather Service had issued a “severe storm watch” from noon until 3 p.m. that day. “Severe thunderstorms with damaging winds” were predicted. There was



Above: A massive tornado blackens the sky above Xenia, Ohio. Right: A scene of destruction in Xenia. Below: The Super Outbreak was front-page news across the U.S.



no mention of tornadoes until the funnel cloud actually appeared in the sky. But by then it was too late for most to escape to safety. As one Xenian survivor said, “All we could do was close our eyes and pray.”

The reason why there was no advance warning is simple: Tornadoes were not well understood in 1974. The radar that weather forecasters used four decades ago could not detect tornadoes before they came down from the sky.

Mr. Tornado

After the Super Outbreak, scientists became determined to develop better ways of predicting tornadoes. Leading the effort was a professor of **meteorology** named T. Theodore Fujita. Dr. Fujita was already well-known among weather scientists. He had even earned the nickname “Mr. Tornado.” In 1971, Dr. Fujita developed the Fujita Tornado Scale. This system rated tornadoes on a scale of zero through five, according to how much damage they caused. An F-0 tornado, the weakest, might snap branches off small trees. An F-5, the strongest, can wipe out an entire town.

Before Fujita’s scale, scientists rated tornadoes by size, even though small tornadoes could be more intense than larger ones. Fujita’s system was more useful and far more accurate.

Fujita did a complete study of all the damage the Super Outbreak caused. Flying low in a small plane, he **surveyed** the path of destruction over and over. He examined photographs and interviewed survivors.

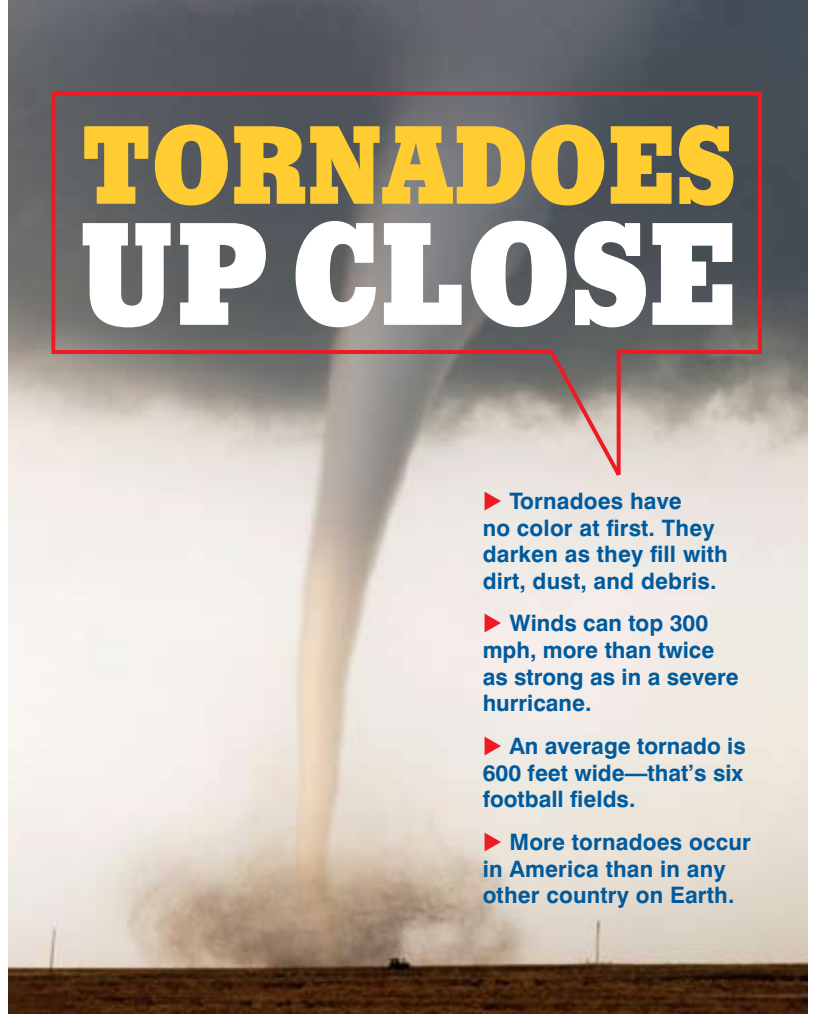
TORNADOES UP CLOSE

▶ Tornadoes have no color at first. They darken as they fill with dirt, dust, and debris.

▶ Winds can top 300 mph, more than twice as strong as in a severe hurricane.

▶ An average tornado is 600 feet wide—that’s six football fields.

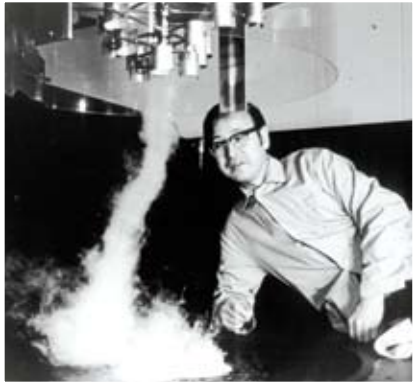
▶ More tornadoes occur in America than in any other country on Earth.



Fujita had a special talent for “reading” a disaster area—finding the patterns of fallen trees, the scruff left in a corn field, the spray of wood from a flattened house. Using these patterns, Fujita created detailed pictures of all 148 tornadoes. He determined that the Xenia tornado had winds far stronger than anything ever recorded—more than 300 miles per hour. (The destructive winds of Hurricane Katrina in 2005, by contrast, reached 140 mph.) He proved that tornadoes could occur almost anywhere; one had even climbed up a Kentucky mountain. The most shocking thing he discovered was that some tornadoes actually have more than one “suction **vortex**.” This means that some tornadoes are actually two or three tornadoes packed into one swirling cloud.

Thanks to the effort Fujita led, the United States government has improved the system for tracking dangerous storms. Today, meteorologists in more than 120 national weather stations monitor storms as they develop. They use a





Above: “Mr. Tornado,”
T. Theodore Fujita.

Right: Today’s tornado
researchers study storms
up close. Below: The
red “probe” is released
into a tornado to capture
information like wind speed.



system called “Doppler radar,” which helps forecasters predict tornadoes with an 80 percent success rate. In the 1970s, people often had less than one minute to prepare for a tornado. Now, the average “lead time” between the warning and impact is 12 to 14 minutes. For many, that is the difference between finding shelter or not—between life and death.

Rush of Horrifying Winds

Every year, an average of 1,000 tornadoes strike the United States. The middle of the country—the Dakotas, Nebraska, Kansas, Oklahoma, Western Texas, and Eastern Colorado—is the most tornado-prone area. It’s nicknamed “tornado alley.” Few experts think another Super Outbreak will happen during this century. But for those who survived, memories echo like those thundering winds.

Vicki Gamble was just 4 years old when the tornado hit her Arrowhead neighborhood in Xenia. Decades later, she remembers every second of that day—riding her tricycle in her driveway, how kids were laughing in the street. “It was a picture-perfect day,” she recalls, until neighbors



began running down the street screaming, “Tornado! Tornado!” Her father gathered Vicki, her mother, and brother into a hallway and put a mattress over them. After checking on a neighbor, he crawled under the mattress with his family, laying his body on top of them. There was a moment of eerie quiet. And then, “a rush of horrifying winds seemed to be tearing our roof off.” When the family finally crawled out of their hiding place, their house was still standing. But the neighborhood outside their window was gone.

“A tornado **devastated** my town that afternoon,” she wrote 32 years later. “It became a day that I have not forgotten.” 🌩️

WRITE TO WIN!

Write your own newspaper article about the 1974 tornado outbreak and send it to “Tornado Contest,” by November 15, 2010. We’ll send 10 winners a copy of Ivy Ruckman’s *Night of the Twisters*. See page 2 for details.



WRITE A PARAGRAPH

Sentence Chef



Directions:

1. Read "The Day the Sky Split Open." Then reread the section **Mr. Tornado** and do the Sentence Chef activity below.
2. Use the color-coded boxes and lines as guides to help you write each part of the paragraph.
3. Remember to back up your statements by including information and details found in the article.
4. When you're finished, copy the entire paragraph onto a separate piece of paper.

THE PROMPT

How did Dr. Fujita develop better ways of predicting tornadoes?

Topic Sentence Dr. Fujita developed better ways of predicting tornadoes by studying the damage from the Super outbreak.

Supporting Sentence 1 Explain the first thing Dr. Fujita did.

Detail Sentence 1 Provide a detail about this. (Hint: What did he examine? Who did he interview?)

Supporting Sentence 2 Describe another step Dr. Fujita took.

Detail Sentence 2 Provide a detail about this. (Hint: What kinds of patterns did he look for?)

Concluding Sentence Repeat the topic sentence, but in different words.
