

How tornadoes form and why they're so unpredictable

By Brian Clark, National Geographic Partners, adapted by Newsela staff on 05.09.19

Word Count **485**

Level **570L**



Pictured are two tornadoes that approached Pilger, Nebraska in June 2014. Photo by: AP Photo/Eric Anderson

Tornadoes can be very dangerous. The whirling winds can knock over buildings and throw train cars. There can be a lot of damage.

Tornadoes can happen at any time of year. In North America, they are most common in May and June. This is when weather conditions are right. Weather has to be just right in order for a tornado to form.

Between The Ground And A Cloud

A tornado is a spinning column of air. It stretches between the ground and a cloud. Most tornadoes last for fewer than 10 minutes, says Harold Brooks. He is a scientist. Brooks works for the National Oceanic and Atmospheric Administration (NOAA). NOAA studies the weather. They make predictions about it.

Large tornadoes can last around 30 minutes. The strongest have wind speeds of more than 300 miles an hour. This is more than three times as fast as the fastest roller coasters! These can rip

buildings off the ground. They can spin for dozens of miles.

Tornadoes are deadly. They kill about 60 people a year in the United States.

Certain Ingredients

The strongest tornadoes develop from supercell thunderstorms. For such a storm, you need certain ingredients. First, you need all the ingredients of a regular thunderstorm. There must be warm air near the ground. There must be cold, dry air above.

A supercell thunderstorm needs even more. It needs winds that get stronger and change direction as they go up. Then the upward current of air tends to rotate. It produces a supercell storm.

The supercell churns high in the air. In some cases, a tornado forms below it. This happens when the air begins to spin near the ground.

America's Tornado Alley

Tornadoes have been seen on every continent except Antarctica. They are common in North America. About 1,200 tornadoes hit the United States each year. Tornadoes appear in other countries as well.

In the United States, tornadoes are most common in "Tornado Alley." This area includes Kansas, Nebraska and the Dakotas. It also includes parts of Texas.

Tornadoes are hard to predict. The amount of time between a tornado warning and the arrival of a storm is about 13 minutes. A tornado warning means a tornado has been seen. A tornado watch means one is possible.

Random Paths Of Destruction

It is also hard to predict a tornado's path. Tornadoes usually follow the thunderstorms they come from. The path can be random, though.

"It's kind of like walking a dog," Brooks says. "You get down the block, but in the middle the dog goes back and forth."



Quiz

- 1 What can make tornadoes dangerous for humans?
- (A) Tornadoes have strong wind speeds.
 - (B) Tornadoes mix warm and cold air.
 - (C) Most tornadoes happen in May and June.
 - (D) Most tornadoes are short.
- 2 Which selection explains WHERE tornadoes in the United States are likely to hit?
- (A) Tornadoes are deadly. They kill about 60 people a year in the United States.
 - (B) Tornadoes have been seen on every continent except Antarctica. They are common in North America
 - (C) About 1,200 tornadoes hit the United States each year. Tornadoes appear in other countries as well.
 - (D) This area includes Kansas, Nebraska and the Dakotas. It also includes parts of Texas.
- 3 Image 4 shows a tornado shelter. The shelter is designed to keep people safe in a tornado. Which feature LIKELY protects people from a tornado?
- (A) Part of the shelter is white to keep it warm.
 - (B) Part of the shelter is underground to protect it from winds.
 - (C) The shelter has no windows to keep light out.
 - (D) The shelter has a tall round roof to protect it from lightning strikes.
- 4 Which question is answered in the section "Random Paths Of Destruction"?
- (A) How do tornadoes form from thunderstorms?
 - (B) Why is it difficult to figure out a tornado's path?
 - (C) What types of damage can a tornado cause?
 - (D) When are tornadoes most likely to start forming?
- 5 A student claims that humans can make tornadoes less dangerous for people. Is the student right and why?
- (A) No. People find it hard to predict a tornado using science.
 - (B) No. People are not safe from a supercell anywhere.
 - (C) Yes. People can live in the middle of America to avoid a tornado.
 - (D) Yes. People can make buildings that are safe from a tornado.

- 6 Read the following selection from the section "Between The Ground And A Cloud."

He is a scientist. Brooks works for the National Oceanic and Atmospheric Administration (NOAA). NOAA studies the weather. They make predictions about it.

What does the word "predictions" mean?

- (A) strong facts
- (B) big problems
- (C) scary warnings
- (D) best guesses

- 7 A student claims that a room with windows would keep a person safest during a tornado. Why is the student wrong?
- (A) The window will allow the cold temperature of the tornado to enter the room.
 - (B) The window will allow water from the tornado to enter the room.
 - (C) The window can explode due to temperature changes.
 - (D) The window can break due to the strong wind and flying objects.

- 8 Read the following paragraph from the section "Certain Ingredients."

The supercell churns high in the air. In some cases, a tornado forms below it. This happens when the air begins to spin near the ground.

What is the definition of "churns" based on the context clues?

- (A) moves forcefully
- (B) appears slowly
- (C) stops spinning
- (D) drops down