mystery science

Grades K-5
Mini-Lesson: “What makes hurricanes so dangerous?”

VIDEO TRANSCRIPT

Hi, it's Doug! If you've ever played with a fan before you know you can create wind inside. But I'm curious, what's the strongest wind you've ever experienced? Has it ever been so windy that you get knocked down by the wind?

Well, someone named Caitlin has a question for us about one of the strongest windstorms on Earth—hurricanes. Let's give her a call now.

[Video Call]
- Hi, Doug!
- Hi, Caitlin!
- I have a question for you. What makes hurricanes so dangerous?
- That's a great question.

First of all, what even *is* a hurricane anyway? This is the view of a hurricane from space—that's the hurricane right there. You probably know that a hurricane is a windstorm, but they're not just any windstorm, they're huge. That, right there, is the U.S. State of Florida. So a hurricane is as big as an entire state.

A hurricane actually starts out in the ocean. Now, as long as ships avoid them out there, people are fine, it's when a hurricane reaches land that you get real trouble. As a hurricane gets close

to land, everyone in its path is asked to evacuate—to get in cars and buses and leave—to try to get far away, but why? Do you really have to leave just because a windstorm is coming? What do you know about hurricanes? Why do you think they're so dangerous?

Now would be a good time to pause the video and discuss.

Okay. You ready?

One thing you might have thought is: "Well, hurricane winds are really strong, right?" But how strong? Strong enough to knock down houses? The answer is, they *can* be that strong. But it depends on the hurricane. Not every hurricane is the same.

Scientists have divided hurricanes up into five different groups, or categories, based on how fast the winds are. In a category one, or two, hurricane, you might not even need to evacuate. But the winds are strong, you do have to be careful of things flying around. People often put boards over their windows in case anything flies into them.

The worst kinds of hurricanes are categories four and five. These are hurricanes with winds as strong as 130 miles an hour. Here you can see this news reporter is having to take cover. And watch carefully behind him, right there. Did you see that? That's part of a roof blowing away. Here's another example. Watch as the winds blow off, at first, the shingles on the roof of this house, and then—the whole roof itself. Let's watch that again.

The strong winds of a hurricane don't just blow roofs off houses, there's also another danger.

Remember that hurricanes always start in the ocean, so, as they arrive, those same strong winds have been pushing the surface of the ocean along with them, bringing ocean waves high

up onto the shore. Normally, ocean waves just crash along the beach, but during a hurricane, the winds are so strong that it sweeps ocean water all the way up onto the land, causing flooding and sometimes knocking cars and debris into things.

When hurricanes push ocean water up onto the land like this, it has a special name—it's called a storm surge. It's because of storm surges that people who live along the coast often have to build their houses like this. They build them up on stilts so that the water of the storm surge can pass underneath. It looks kind of funny, but it helps.

There's one other thing that makes hurricanes so dangerous—these: the clouds. From space, a hurricane looks like this big swirling, white pinwheel of fluffy clouds. It almost looks fun. But each of those fluffy clouds is actually a giant rainstorm that is dumping tons and tons of rain. So hurricanes aren't just strong windstorms—they're also huge rainstorms. When it rains too much—like this—in a short amount of time, the land starts to flood.

So in summary, hurricanes are so dangerous because of strong winds and storm surges that knock things over and cause flooding along the coast, plus, incredibly heavy rains. The places most in danger from hurricanes are near the ocean, and people who live there may need to evacuate if a hurricane is heading toward them.

That's all for this week's question. Thanks, Caitlin, for asking it!