mystery science

Grades K-5
Mini-Lesson: “Why do we have allergies?”

VIDEO TRANSCRIPT

Hi, it's Doug! So my friend Sarah was telling me the other day that she walked out to her car, and her whole car was covered in this greenish-yellow powder. She rubbed her hand through it—it looked like this. Now if you don't know, this stuff is called pollen, and Sarah was pretty worried because she's allergic to pollen. Right away her eyes started watering—she started sneezing.

Someone named Justice has a question about allergies. Let's give him a call now.

[Video Call]
- Hi, Doug!
- Hi, Justice!
- I have a question for you. Why do people have allergies?
- That’s a great question.

When you're allergic to something, it often means your nose starts to run, you sneeze, your throat gets dry and itchy, your eyes start to water. In the springtime, a lot of people have allergies because they're allergic to pollen. That's this colorful powdery stuff I showed you. But what is pollen, and how do you think it causes allergies?

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

Okay. You ready?

Well, you might know that pollen has something to do with flowers. Pollen comes from flowers when they bloom. Making pollen is part of how flowers reproduce. In order to make seeds for the next year, flowers need their pollen to get carried to other flowers. And it's not just flowers like this. Many trees have flowers, too. Here's one example of what the flowers on trees often look like.

Trees release a lot of pollen in the springtime. You can actually see some of the pollen coming off of these ones here. Check out this video showing someone shaking one of these trees in the springtime. Look at that. All of that is pollen. It's like the tree is exploding with pollen.

Once pollen gets into the air, people start to breathe it in. Each tiny little grain of pollen gets into their nose, their throat, their eyes. That sounds bad, but if you're not allergic to pollen, it doesn't cause any harm. For people who are allergic, though, like this person, if they breathe it in or get any in their eyes, they don't feel well. They start to sneeze uncontrollably, their eyes water, maybe they cough.

Why does this happen? Well, people's reaction is actually a clue. Think about the other situations where you start sneezing or coughing. Your body reacts this way when you're fighting off some kind of sickness, some kind of germ. When a germ gets into your body, your body naturally starts trying to fight it off. That means you get symptoms like sneezing, watery eyes, a fever. These are all symptoms of when your body is attacking germs, or trying to get the germs to leave your body.

But now, pollen? Pollen's not a germ, right? Well, in the case of people who are allergic to pollen, scientists have figured out that their bodies are reacting to pollen as if the pollen were a germ. That's why people with allergies get similar symptoms you get when you're sick. Pollen isn't really a germ, but some people's bodies don't realize that, and they attack the pollen, making someone feel as though they're sick. It's a mistaken response.

Pollen won't actually hurt your body; it's harmless. But your body's response to pollen can make you feel miserable all the same. It turns out all allergies work similarly to this. They're all forms of the body mistakenly responding to tiny things as if those tiny things were germs.

For example, people who are allergic to cats, their bodies are reacting to little flakes of skin in the cat's hair called dandruff, or to the little bits of cat saliva found on cat fur when cats groom themselves. Or people who are allergic to bee or wasp stings, their bodies react to little bits of venom from a stinger. People who have food allergies react to things like tiny bits of peanuts or eggs or milk.

Now, if someone is allergic to pollen, they might not feel very well in the spring, but at least their allergies go away once the pollen goes away, like in fall when there aren't many flowers blooming. But with allergies to other things like pets or food, those people have to be careful all year round to try to avoid the things they're allergic to.

People with severe allergies may even have to go to the hospital if they're exposed to those things. For someone with a severe allergy, it's really important that they stay away from the things they're allergic to.

So in summary, when you're allergic to something, like pollen, your body responds as if it were being invaded by germs. Even though these things aren't really germs, your body's reaction is what gives you symptoms that make you feel bad. And in some cases, it can even be dangerous.

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