mystery science

Grades K-5
Mini-Lesson: “Can animals really predict the weather?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Doug! Wouldn't it be interesting to see into the future? To know what kinds of things will happen? Well, that's something a lot of people have wanted for a long time. In stories and movies, people have imagined things like a crystal ball that can show you exactly what's going to happen and you could say, in a way, there's an entire holiday about this. At least, in North America—Groundhog Day—except instead of a crystal ball, we pretend that a groundhog can help us predict the future. Specifically to predict if warmer springtime weather will come sooner than we hope. Someone named Renatta has a question about this. Let's give Renatta a call now.

[Video Call]

- Hi, Doug!

- Hi, Renatta!

- I have a question for you. Can animals really predict the weather?

- That's a great question.

In case you're not familiar with the details, every year on February 2nd, people in the United States and Canada gather to watch a groundhog crawl out of its burrow where it's been hibernating all winter. Legend says that if the groundhog sees its shadow on the ground, there

will be six more weeks of winter weather. In other words, cold weather all the way through the middle of March. And if there's no shadow, warmer spring weather will be here sooner than March. In the United States, the most popular groundhog that people watch is named Punxsutawney Phil. He lives in the town of Punxsutawney, Pennsylvania, a town that takes Groundhog Day very seriously. They have a big party and visitors come from around the world to watch Phil make his prediction, which he's been doing since the year 1886. So is it true? Is this groundhog any good at actually predicting weather that'll be in early spring? Well, you be the edge. Punxsutawney Phil is only right two out of every five times. That means if you flipped a coin to decide whether spring would come early, you'd actually do a better job of predicting this than Phil does. Where does anyone even get the idea of using an animal to predict the weather? After all, we don't normally use animals to predict the weather. Meteorologists, those are scientists who study the weather, have all kinds of scientific instruments that they use. Things like radar and satellites that can spot storms from overhead. Thermometers and anemometers, tools that measure wind speed. So how did this Groundhog Day tradition come about in the first place? Well, Groundhog Day is an old tradition, brought by German people who came to North America to live. And you know, traditions don't always make sense. Some of them are what we call superstitions. Like have you ever seen someone knocking on wood and saying knock on wood in the hopes of having good luck? Or the idea of walking around a ladder instead of under it in the hopes of avoiding bad luck? Those are superstitions. But is that it? The whole idea of an animal being able to predict the weather, it's just a superstition? This got me curious. Are there actually any animals that might be able to predict the weather? Well, a friend of mine claims that her dog can predict thunderstorms. This is her dog, Grace. My friend says Grace can tell that a thunderstorm is coming before my friend even knows it's going to happen. According to my friend, about 15 or 20 minutes before my friend is even aware it's about to

storm, Grace will stop being her regular happy self and start acting scared and nervous. She paces and shivers. She shakes. She even hides under the bed. Poor Grace. Maybe you've noticed this too if you have a dog or if you know someone who has a dog. But how would a dog know that a thunderstorm is coming before my friend does? How do you think she can tell?

VIDEO 2

Maybe you thought, "Well, a dog has a really great sense of hearing, so maybe dogs can hear a thunderstorm coming before we can." That's definitely what I thought, but my friends at Mystery Science looked into this and found out that scientists think it's unlikely that a dog can hear a thunderstorm before we can because a dog's great sense of hearing is good at high-pitched sounds like this, not low pitched sounds, like the rumbling of thunder. But there are other possibilities. For example, dogs don't just have a great sense of hearing. They also have a great sense of smell, and thunderstorms do have a smell, the smell of rain. Maybe you've noticed that smell before. Scientists have discovered it's an earthy smell that gets released when the soil gets hit by rain droplets. And even lightning has a smell. When it's very close, human beings can smell it, and people describe it as kind of a burning plastic or metal smell. So it is possible that because a dog's sense of smell is so much better than ours, they might be able to tell a storm is coming by the smell of rain or lightning, even when it's far away. So it may be that groundhogs aren't good at predicting how long the cold winter weather will last, but there is some reason for thinking that dogs can tell a storm is coming. What I think is interesting to notice here is the reason why we think an animal like a dog might be able to make a weather prediction. It's because some of a dog's senses are more powerful than ours. Could there be other animals that can use their powerful senses to predict changes in the weather, changes that we don't notice very quickly? Well, at least one scientist is looking into this. This scientist is

doing a study where he tracks different animals around the world by attaching tiny sensors to their backs. The sensors are so light that he can put them on everything from insects to larger animals like goats and elephants, even bears. Once the sensors are attached, the scientist and his team carefully watch for patterns, both in the weather and natural disasters like earthquakes, to see if the animals show any signs of knowing that a change is about to happen. So in summary, the tradition of looking for a groundhog's shadow on Groundhog Day isn't actually helpful for predicting the weather. It's just a fun tradition. But if we ask ourselves if any animals could predict changes in the weather, there are some reasons for looking into this. If we do find more examples, maybe those animals can help us make weather predictions in addition to the weather tools we already use. That's all for this week's question. Thanks, Renata, for asking it!