mystery science

Grades K-5
Mini-Lesson: “How do animals know when to wake up from hibernation?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Jay. Winter can be wonderful, and it can also be terrible. As a kid in Wisconsin, I loved getting to go sledding when it snowed, but I didn't love when I had to shovel slushy piles of snow off my driveway. That's the thing about weather, isn't it? Snowstorms, rain, winds, they're all incredibly cool in theory until they get in the way of the things you want to do. Big changes in weather can mean big changes in your plans. Someone named Mason has a question about how some animals handle big changes in the weather from season to season. Let's call Mason now.

[Video Call]

- Hi, Jay.

- Hi, Mason.

- I have a question for you. When do animals know when to wake up from hibernation?

- That's a great question.

Check this out. This little creature is called a dormouse. It's curled up in its nest in the middle of a cold winter. It might look like it's taking a nap, but there's something bigger going on here. It's been like this for months. During cold winters, many animals have a harder time keeping warm and finding food. What this dormouse is doing is something some animals do to need less

food and heat during cold winters. During the winter, they stop moving, their bodies get colder, they stop eating and drinking, and they even breathe less. It might look like a long sleep, but it's more like a body pause button. These animals can pause while food and warmth are hard to come by, then unpause and go back to normal once the seasons change. Many different animals go through a big pause like this. Some bears, bats, mice, chipmunks, frogs, all kinds of creatures do this. Different kinds of animals pause in really different ways. You might have heard a word for this kind of pause, hibernation. But animals have so many different ways of pausing that scientists disagree over what really counts as hibernation. For some animals, it's easy to tell when they're not hibernating, like this dog getting the zoomies in the snow. I think we can safely say she's not hibernating. But for other animals, it can be harder to tell. Some animals, like these bears, are cold and still most of the time, but wake up every once in a while or move around just enough to nurse babies in their dens. Some animals' bodies only get a little bit colder while they pause, while others, like these wood frogs, get so cold that they temporarily freeze. Some animals, like these fat tailed dwarf lemurs, even pause to avoid hot seasons rather than cold ones. For our purposes today, we'll think about hibernators as any animal that stops moving and gets a lot colder during the winter season. And regardless of exactly how they pause, come springtime, those animals unpause back to regular life. But how do they do this? How do hibernating animals know when to wake up again? I wonder what you think.

VIDEO 2

Maybe you thought about how the outside world can change when seasons switch from winter to spring. Spring means warmer weather, more sunlight for longer, maybe even new plants growing and animals running around. Could those changes be enough to let a hibernating

animal know it's time to unpause? Absolutely. Some animals rely on changes in the world around them, like temperature or light, to let them know it's time to stop hibernating. When the weather gets warm, their bodies take that as a cue to get up and moving again. But this can be risky. Ever been around when there's a weirdly warm day or week in the middle of winter? If a hibernating animal wakes up during a warm spell, they can't always just curl up and go back into hibernation if it gets cold again. Once they wake up once, their bodies might get really hungry. They'll need food, whether or not spring is here to stay. So maybe it's a good thing that some animals don't only depend on the weather to wake up. Instead, some get cues from inside their bodies that control when they unpause from hibernation. For some hibernating animals, a part of their brains acts like a clock. It judges when enough time has passed to end hibernation. And when the time's up, the brain sends out a cue, like an inside alarm that wakes the animal back up again. So in summary, hibernation is a way some animals pause their bodies during the winter when the weather makes it hard to find food and stay warm. Different kinds of animals pause in different ways, and they unpause in different ways too. Some animals wake up from hibernation when the world gives them cues that the season has changed, such as warmer weather or longer daylight. Some animals wake up from hibernation when part of their brain gives them cues that it's time to wake up. In either case, hibernation is an incredible animal superpower, one scientists are eager to learn more about. The more we learn about animals and their unique strengths, the more we'll understand about all the incredible ways they have of living in the world, both the warm spring days and the slushy winter ones. That's all for this week's question. Thanks for asking, Mason.