mystery science

Lesson: “Why do dogs wag their tails?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi, it's Doug! Do you have a pet at home? A cat, a dog, a hamster, a goldfish, even? I've had a lot of pets in my life, but one of the more unusual pets I've ever had is this: this is my pet tortoise, a type of turtle that lives on land. His name is Mr. Tortoise. I know, it's not the most original name. My youngest daughter was two years old when she helped me name him. I think he's great. He's actually one of the easiest pets I've ever had. He barely makes a mess. He only eats once a day, he doesn't make any loud noises. But recently, a friend of mine came over and he was joking with me. He said, "Mr. Tortoise isn't really a pet." “Of course he is,” I said. I was surprised. “What do you mean?” My friend said, "Look, the tortoise just sits there. He doesn't get excited when you come home. He doesn't snuggle with you on the couch when you watch TV." My friend was just being playful with me, but he had a good point. Mr. Tortoise is not like a dog. If you've been around dogs much, then you probably know what I'm talking about. It's true, dogs get happy to see you. They're cuddly and they snuggle with you. What is it about dogs that makes them so special in this way? It seems like, even though dogs don't use words, they have ways of communicating with us. Where did this come from? Why are dogs special this way, but a pet like a tortoise or a fish doesn't do that? What do you think?

EXPLORATION VIDEO 2

You learned in a previous Mystery that dogs originally came from wolves that live in packs. They were bred into dogs over many years using selection by human beings. Wolves and dogs are still a lot alike to this day, especially in many of the expressions that they make. Like dogs, wolves also bow when they want to play. Scientists have studied wolves and discovered that they work together to catch prey, and to help each other survive. Within each wolf pack or group, one wolf becomes the leader, the alpha, and that wolf is in charge of deciding where the pack goes and leading the hunt for prey. All the other wolves in the group are under the alpha, and they recognize him as the top wolf. But wolves are aggressive animals, and having to live together in a group peacefully does not come naturally to them. Scientists have observed that so much of wolves' communication is about letting each other know who's in charge. For example, when a wolf rolls onto its back to show its belly in front of the alpha wolf, it's telling the alpha, I'm not a threat to you, you're in charge. When it's clear which wolf is in charge of the pack and what role the other wolves have, the pack is actually better at hunting and catching prey, so communication between the wolves actually helps them to survive. Since dogs are related to wolves, scientists think that the reason dogs wag their tails probably comes from their wolf origins; it might originally have been a way of saying, I promise I'm friendly. Dogs and wolves really do communicate with each other. They might not be expressing complicated things the way we human beings can with our spoken language, but just like human beings, wolves live in a group and have different roles. Wolves have an alpha who's in charge of their pack, but human beings form teams or companies and there's leaders at work and in sports. Wolves and human beings are not the only living things that live in groups to help each other

survive. Scientists even have a name for this kind of group living, they call it *social behavior*. What other kinds of animals do you know of which live in groups and have social behavior?

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're gonna watch animals from all over the world and write down what you observe in a field journal. You're gonna see some amazing animals, like meerkats that live in the Kalahari Desert of Africa and snow monkeys that live in Northern Japan. In your field journal, you'll record what you notice, just like scientists do. When you're done, you'll use the information you collected to come up with ideas about why these animals live in groups. I'll show you how to get started, step by step.

ACTIVITY STEP 1

Get your supplies. When you're done with this step, press the arrow on the right.

ACTIVITY STEP 2

Before you start watching animals, you're going to make a field journal. Scientists take notes to help them remember what they see and collect evidence or clues that support their ideas. To make your journal, first, you'll flip each page over and fold it in half like this, with the words on the outside. Now, you'll wanna line up the edges. Then, run your fingernail along the edge to make a good crease. Go ahead and do this for all three pages.

ACTIVITY STEP 3

Find the A, B, and C in the corner of the papers. Then, stack them like this. A goes on top, B in the middle, and C at the bottom. Once you have them stacked like that, fold them in half all together like this. Run your fingernail over the edge to make a nice crease.

ACTIVITY STEP 4

Find a partner to help you staple. Hold the stack together and make sure the edges are all lined up. Your partner staples your journal on each white rectangle where it says staple. Then, help your partner. When you're stapling something, one thing that helps is to stand up and push hard with both hands.

ACTIVITY STEP 5

Okay, write your name and the date on the cover. Then, open up each page of your journal and fold it, like this. Run your fingernail over the edge to make a nice crease. Go ahead and do this for the whole journal.

ACTIVITY STEP 6

You'll start your observations with a visit to the meerkats in the Kalahari desert in Africa. Watch the video. Be sure to pay attention to what the meerkats do. You don't have to write anything yet. Okay, I'll play the video a few times more. When you're done, you can go to the next slide.

ACTIVITY STEP 7

Open your field journal to the meerkats pages. Discuss the questions with your partner, then write your answers to the questions. We'll keep playing the video in case you need another look.

ACTIVITY STEP 8

Now you'll travel to the European country of Estonia, where an eagle is eating its dinner. Watch the video. Pay attention to what the group of ravens, the black birds, do. You don't have to write anything yet. I'll play the video a few times. When you're done, go to the next slide.

ACTIVITY STEP 9

Open your field journal to the ravens pages. Discuss the questions with your partner and write your answers to the questions. We'll keep playing the video in case you need another look.

ACTIVITY STEP 10

Now you'll travel to Japan, where snow monkeys live. Watch the video. Pay attention to what the snow monkeys do. You don't have to write anything yet. I'll play it a few times and when you're done, you can go to the next slide.

ACTIVITY STEP 11

Open your field journal to the snow monkeys pages. Discuss the questions with your partner and write your answers. We'll keep playing the video in case you need another look.

ACTIVITY STEP 12

Now you'll travel to Yellowstone National Park in Wyoming, USA, where a herd of bison are grazing on a snowy slope. But then, a wolf comes. Watch the video and pay attention to what the bison do.

ACTIVITY STEP 13

Open your field journal to the bison pages. Discuss the questions with your partner and write your answers. We'll keep playing the video in case you need another look.

ACTIVITY STEP 14

Discuss. Then fill in page nine in your field journal.

ACTIVITY STEP 15

Turn to page 10 and fill in the answer. When you're done, watch the final video.

WRAP-UP VIDEO

In the activity, you did what scientists who study animals do: you carefully observed animals and took notes to figure out how they work together in groups. You probably noticed how living in a group can help some animals stay safe or protected. For example, in meerkats, one meerkat keeps lookout while the others find food. If a predator like an eagle gets near, the meerkat in charge of lookout warns the others to run back to the burrow and hide. Bison are another animal that stay safe in a group. They come close together and defend themselves from predators like

wolves that might try to attack a single bison by itself. By staying in a large group, bison can protect one another from predators. Protection is one really important reason for living in a group, but it's not the only reason. You also saw how some animals live in groups because it makes it easier to get food, like we saw with these ravens. Some of the ravens distracted the eagle while the other ravens grabbed its food. A single raven never could've done this alone. The ravens got more food by working together. Many predators too, like dolphins and lions, hunt for their food in groups. They're more likely to catch food when they work together as a group. Animals living alone, like this single wolf by itself, have a much harder time hunting. So, some animals live in groups for protection and some for food, but there's still one other way it can be helpful for some animals to live in a group. When an environment changes quickly, like when the weather gets really cold, that's also a situation where it sometimes helps if animals live in a group. Like in the activity, you saw a group of snow monkeys huddle together in a blizzard to stay warm. One of the most interesting animals that lives in groups is one that lives all over the world. Wherever you are right now, even if you're in the middle of the city, these animals are probably near you. They're these: ants. Hundreds of thousands of ants live together in a group called a *colony*. If you've ever accidentally stepped on an anthill, then you know how ants try to defend their colony. A huge swarm of them come out of the anthill, ready to bite any intruders. So, ants live in a group for protection, but ants also work together to gather food, like here: these leafcutter ants are trying to cross from one tree to another to bring back food to the rest of their group. A single ant couldn't get across this gap all by itself, but together, the ants are able to form a bridge so that other ants can carry food across. So, living in a group helps them get food. Ants also respond to changes in the environment as a group, like when it pours rain. This is a video someone took after a big flood. Now, it's almost hard to tell what you're looking at. It just kind of looks like a pile of dirt. But if you look closer, you can see what it is. It's a group of

fire ants. When water flooded a fire ant hill, they formed a raft out of their bodies so that they can float on the surface of the water until the water level goes back down. Then, they'll set up a new colony wherever they end up. By living in a group, ants get protection from predators, more food to eat, and they're better able to survive when the environment changes. Ants are a very special case. No other animal lives in such a big group or cooperates so much with other group members. Now, it's worth noting not all animals would be better off living in groups. There are plenty of animals—like frogs, snakes, and jaguars—that don't live in groups. But for the animals that do, it's not just because it's a nice thing to have others around. It actually helps those animals survive. Keep an eye out for animals around you and try to figure out which animals live in groups. How does that help them survive? Have fun and stay curious!