mystery science

Lesson: “Why do frogs say ‘ribbit’?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi, it's Doug! Do you hear that? When I was young, I would hear this sound at night, especially in the summertime when it was hot during the night. And in my house, we sometimes would have our windows open. I got curious what this sound was. I asked my older siblings and they said, "Oh, that's just the sound of nighttime." What do you think it is?

EXPLORATION VIDEO 2

My siblings told me that this sound was just the sound of night time but that didn't really make sense to me. After all, if you hear a sound there has to be some thing making that sound. Right? There's not just a night-time sound. Like, maybe it was a bird. So I asked my dad. He said, "Good thinking. You're absolutely right. Sounds always do come from something." But in this case, my dad told me that this was the sound of crickets making little chirping noises at night. It turns out, they make that sound by vibrating their wings together. Here's an actual video of one. Watch this. You see that? But one night, during springtime, I heard a new sound. This. I knew this couldn't just be the sound of springtime. Some thing had to be making that sound! It was off in the distance. It sounded like it was coming from the swamp at the edge of the woods behind our neighborhood. So I asked my dad what it was. He said, "This time, I don't know what it is but let's go find out." I was surprised, and to be honest with you, a little scared. I said to my dad,

"But it's nighttime. It's dark out. You want to go in the woods by the swamp?" My dad said, "Sure! Don't worry, you've got me. Grab a flashlight and let's go check it out." So we did. We went to have a look. We followed our ears and sure enough, the sound was coming from the swamp. I shone my flashlight out over the water. At first, I didn't see anything. Wherever the sound was coming from it was really well hidden. But then, I saw something. Two little spots shining back at me through the dark. I took a closer look at the shining spots and I could just make out an outline. They were two eyes, barely sticking out above the water. Those eyes were unmistakable. It was a frog. Now, that makes sense, I thought. Frogs like to live near the water, like in a swamp, but don't frogs say, "ribbit?" This frog clearly didn't. It made a sound high, trilling noise instead, like this. To find out more I decided I'd try to catch it. With my dad's help, we caught the frog and put it in a bucket so that we could see it better. It looked like this. It was reddish-brown with rough, warty skin, dark blotches, and a light stripe down its back. We had a book about frogs so I could look up what kind it was. I learned that this one was called an American toad. Toad is the name we use for the types of frogs that have rough, warty skin. I released the toad back into the swamp and after that day I started to hear even more American toads all making the same sound from the swamp. They would get really loud at night. They sounded like this. Listening to all those frogs I wondered, why are frogs so noisy? Why do they make sounds? Do you have any ideas?

EXPLORATION VIDEO 3

Scientists who study frogs have figured out that frogs' sounds are how they communicate with one another. Similar to how people talk to each other. Now, what would frogs be saying to each other? Scientists were curious about that. One clue they discovered was that it's only the male frogs who make loud sounds. They're calling out to the female frogs to let female frogs know

where they are. You see once a female chooses a male they'll lay eggs together. Each one of these is a frog egg. These eggs all hatch into tadpoles a few weeks later. So the sound of the frogs at night is the sound of the male frogs calling to female frogs to let them know it's time to lay eggs. But now listen to this. This is the sound from a real pond taken at nighttime during egg-laying season for frogs. Notice how you didn't just hear one kind of frog sound. You can actually hear lots of different frog sounds. That's because different kinds of frogs have different sounds. Some, like this American toad, make a trilling noise. But other frogs, like this American bullfrog, make a low rumbling noise. American bullfrogs are the largest frogs in North America. They're so big that they sometimes catch and eat mice. Or check out this one, it's called a pig frog. The pig frog gets its name because the noise it makes sounds so much like a pig. Here's another. This is the gray tree frog. The gray tree frog has large sticky toe pads that help it cling to the leaves and tree bark. Now, this might surprise you but there's actually only one frog that makes a ribbit sound. It's called the Pacific chorus frog. I didn't have these growing up in Illinois but I can hear them here in California where I live now. Scientists have studied the sounds that frogs make and they figured out that each kind of frog has its own unique call. That means that when frogs are calling they're only calling to frogs of their same kind or species. When a Pacific chorus frog says ribbit it's only calling to other Pacific chorus frogs, not to American toads or other frogs. Having their own unique call makes it a lot easier for frogs of the same species to hear each other through all that noise. The different calls that frogs make can also be really useful for scientists. Imagine if you were a scientist and you were trying to figure out how many different species of frogs there were in a pond. What could you do?

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to figure out which species of frogs are found in a pond by listening to their calls. Scientists use words to help them remember different frog calls. You already know one example of this. Ribbit, that's the word scientists use to describe the call of the Pacific chorus frog. But here's another example, listen to the America bullfrog. Some say that the bullfrog sounds like he's saying grum, grum, grum. You're going to listen to five different frogs. Each time you hear a frog call, you'll write down a couple of words to help you remember the sound. Then, you'll use what you know to figure out which species of frogs live in a real pond like this one. Just by listening, you'll know which species of frogs live there. We'll give it a try now. I'll show you how to get started, step by step.

ACTIVITY STEP 1

If you're in a class, form a group of four. You'll work together. If you're not in a class, that's okay, you can work alone. When you're done with this step, click the arrow on the right.

ACTIVITY STEP 2

Get these supplies.

ACTIVITY STEP 3

Now you're going to learn what wood frogs sound like. I'll play you a recording. Listen to it and then talk with your group about what words could describe the sound. Write down a few words to help you remember the sound. Are you ready? Here we go, here's the sound of wood frogs.

ACTIVITY STEP 4

All right, now it's time for spring peepers. Listen to the sound, then talk with your group and write down a few words to help you remember the sound. Here's the sound of spring peepers.

ACTIVITY STEP 5

All right, next is the sound of American bullfrogs. Listen to this and then talk with your group and write down a few words to help you remember the sound. Here we go.

ACTIVITY STEP 6

Now we'll listen to the sound of the northern leopard frog. Listen to it and then talk with your group and write down a few words to help you remember the sound. Here's the leopard frog.

ACTIVITY STEP 7

All right, listen to the sound of the American toad. Then talk with your group about the sound and write down a few words to help you remember the sound. Here's the American toad.

ACTIVITY STEP 8a

All right, here's a challenge. Challenge number one. Let's practice to see if you can recognize what frog is calling. Look at your frog calls list and listen to the call. What frog is calling? Talk to your group and fill in question number two on your worksheet.

ACTIVITY STEP 8b

Okay, are you ready for the answer? Challenge number one was a spring peeper. I don't know what words you used to describe its sound, but personally, I thought it sounded a bit like cheep or peep.

ACTIVITY STEP 9a

Okay, let's practice one more. Are you ready for challenge number two? Look at your frog calls list and listen to the call. What frog is calling? Talk to your group and fill in question number three on your worksheet. Here's the sound.

ACTIVITY STEP 9b

Okay, are you ready for the answer? Challenge number two was a northern leopard frog. Now I don't know what words you use to describe the sound but personally, I thought it sounded a bit like it was growling.

ACTIVITY STEP 10a

Now let's try an even more difficult challenge. You're going to listen to the sounds of the frogs at Oakwood Pond at night. Now there are two different kinds of frogs calling at the same time. That's what makes this hard. Listen and talk with your group. On your worksheet, check off the frogs you hear in question number four. Here are the sounds.

ACTIVITY STEP 10b

Okay, are you ready for the answer? I heard wood frogs and spring peepers. Listen again, can you hear them? Those are the spring peepers. And then right there, those are wood frogs.

ACTIVITY STEP 11a

Now you're going to listen to the frogs that live in Swede Lake at night. Listen and talk with your group. On your worksheet, check off the frogs that you hear in question four. Here are the sounds.

ACTIVITY STEP 11b

Okay, are you ready for the answer? I heard spring peepers, American bullfrogs, northern leopard frogs, and American toads. Let's listen together, and see if you can hear all those frogs. Here we go. That's the sound of American toads. There's the American bullfrog. Do you hear that? Those are some spring peepers. That's the sound of the northern leopard frog. And there's the American bullfrog again.

ACTIVITY STEP 12

Discuss.

ACTIVITY STEP 13

Discuss, then go to the next slide to watch the final video.

WRAP-UP VIDEO

When you did the activity you learned to identify different kinds, or species, of frogs from the sounds that they make. Sounds that scientists like to describe with words like ribbit for the Pacific Chorus frog, or grum for the American Bullfrog. Then, you compared the sounds of frogs from two different places to figure out which place had more species of frogs. You probably found out that Swede Lake has more species of frogs than Oakwood Pond. Why would that be? You might think it's just because the lake was bigger, but it's not just that the lake was bigger. It had a lot of different kinds of places that were just right for many different species of frogs. There were a lot more places for frogs to choose from. For example, it had muddy places for frogs that like to be in muddy areas. It had places like this for frogs that like warm, calm, shallow water, and it had places for frogs that like swampy areas, too. Oakwood Pond had fewer choices. It was smaller, it just had shallow water. And here's another big difference, Oakwood Pond is only wet during the spring when there's a lot of rain. By summertime, the pond dries up. Swede Lake is much bigger so it doesn't dry up in the summer. It's wet all year long. It turns out, how wet a place is makes a big difference for frogs. Remember how we found out that frogs are calling because male frogs are trying to attract females to lay eggs together? Well, frogs can only lay their eggs in wet places. Have a closer look at frog eggs. Frog eggs look a lot like a big ball of jelly. They're the kind of eggs that have to be in the water or else they'll dry out. Plus, when the eggs hatch, out come tadpoles and tadpoles have to swim in the water. So, since frogs need water for laying eggs and hatching tadpoles, there are usually more species of frogs in places that stay wet all year. That's why there were more frogs in Swede Lake than in Oakwood Pond. Oakwood Pond and Swede Lake are two different places where frogs could live. Scientists call them two different habitats. For frogs, some habitats are better than others.

So you'll find more species of frogs in some places. Swede Lake was a little bit better than Oakwood Pond, but the best habitat in the world for frogs is actually here in the Amazon Rainforest. There are over 400 species of frogs found in the Amazon. The reason for that is because there are so many places for frogs to live. In the Amazon, there are frogs like this that live on the ground. There are frogs like this that live high up on the leaves in the trees, and all kinds of other frogs living throughout the rainforest. The tropical rainforest is the richest habitat in the world, overflowing with all kinds of amazing and interesting species of frogs. Some of the scientists haven't even discovered yet. Try to find out what frogs live near you. Have fun and stay curious!