mystery science

Grades K-5
Mini-Lesson + Activity: “Why are flamingos pink?”

VIDEO TRANSCRIPT

MINI-LESSON VIDEO 1

Hi, it's Doug. It's not every day you see an animal that's pink. But recently, when I was visiting the tide pools in California, along the ocean, I spotted this tiny little animal. Up close, it looks like a pink shaggy dog, or maybe an alien. It turns out it's a type of sea slug that lives along the Pacific coast. Someone named Yoxagani has a question about a slightly more famous pink animal, though. Let's give Yoxagani a call now.

[Video Call]

- Hi, Doug!

- Hi, Yoxagani!

- I have a question for you. Why are flamingos pink?

- That's a great question.

Birds come in so many different colors, but it's not every day you see a bird that's pink. Why are flamingos pink? I find it's always interesting to find out why something is the color it is. We've explored other color questions before for lots of different things, like why is the sky blue? Why is Mars red? Why are pumpkins orange? And if you've seen those episodes, then you know that there are sometimes different reasons why things can be the color they are. But in general, a lot

of things around us are the color they are because on a microscopic level—when we look at them close up under a microscope—we find out that they contain tiny amounts of substances made of that color. We call these colored substances pigments. Maybe you've heard that term before. Leaves are a great example of this. When microscopes were first invented, we were able to find out that the reason leaves are green is because they're filled with these tiny microscopic blobs of a green substance, a green pigment called chlorophyll. And it's a similar reason why most animals have the colors they have, like this black cat and this black Labrador retriever. When scientists look at their fur under a microscope, they find it contains a black-colored pigment called melanin. This black-colored pigment in their fur is just something these animals were born with. Their whole lives, these animals' bodies naturally make melanin and store it in their fur, which is why they're colored black. So you might expect then that the reason flamingos are pink is because their bodies naturally make some kind of pink-colored substance, some kind of pink pigment. Based on why other animals have the colors they have, that would make sense. But have a look at this baby Flamingo. It's cute, but notice it's not pink. And check out even these adult flamingos. Wait, why are they kind of white? Are these some rare white kind of Flamingo? They're not. In fact, all flamingos kind of light gray or white each time they molt or grow new feathers to start to replace their old feathers. The new feathers always grow in grayish-white. What? What's going on here? Why is it that in so many photos and videos you see, even in flamingos you might've seen yourself, like at the zoo, they look pink? Do flamingos somehow change color? What do you think?

MINI-LESSON VIDEO 2

Well, our mystery can be solved by noticing something zookeepers would have noticed when they first started keeping flamingos in zoos. You see, they had to decide what to feed the flamingos. With other water birds, zookeepers knew it always worked to feed them specially made pellets, kind of like bird chow, and flamingos seemed to do okay on that, too. But this isn't what flamingos eat in the wild and zookeepers soon discovered that flamingos fed these pellets, well, once they started growing new feathers, their feathers came in white and stayed white, as in they lost most of their pink color. And there didn't seem to be any hope of them getting it back, until someone had the idea, "Wait, could it be—there's something that wild flamingos are eating, which isn't in these pallets we're feeding the flamingos at the zoo?" There was only one way to find out, and that was to observe flamingos in the wild and find out exactly what they're eating, then feed this same wild food to the white flamingos at the zoo and see what happens. It turns out flamingos in the wild, they lots of algae, that's small plant-like organisms that float in the water, as well as tiny shrimp that look like this. Both the algae and the shrimp that wild flamingos eat contain a kind of orangish-pink-colored pigment. You can actually see this color really easily in the shrimp. The pink color in the algae that flamingos eat isn't always easy to see, but there are some types of algae that are much more obviously pink, like the algae that live in this lake in Australia named Lake Hillier, but known around the world as Australia's Pink Lake. Or, if you ever fly in and out of San Francisco, California, you can notice this algae growing in some of the ponds along the edge of San Francisco Bay. Sure enough, by feeding things like algae and shrimp to flamingos in the zoo, they get their pink color back and they keep it. So in a funny way, flamingos are like a real-life example of the expression you are what you eat. They get their pink color from the pink pigments in the foods that they eat. It might seem really unusual, but

flamingos aren't even the only animals that get their color from the foods that they eat. That sea slug I showed you earlier, it's pink because of what it eats. And it's not just with the color pink, either. Some birds, like Cardinals—they get their red color from pigments in seeds and berries that they eat. But maybe weirdest of all, it turns out that even human beings can change color depending on the food that we eat. It's been discovered that when parents accidentally feed their babies too much baby food containing orange-colored fruits and vegetables, things like carrots, squash, and sweet potatoes, a baby's skin can start to take on an orangish color, especially their noses. This tends to be more noticeable in babies that have otherwise pale skin. If this happens, at first it can make any parent feel worried. Is my baby okay? But doctors don't consider it a major health problem. They just suggest that the parent *maybe* not feed the baby quite so many carrots and sweet potatoes all at once. So in summary, while most animals are born with the colors they have, flamingos get their famously pink color from the food that they eat. That's all for this week's question. Thanks, Yoxagani, for asking it. Now, after this video is done playing, my friends and I here at Mystery Science are inviting you to dance like a Flamingo, like a spider, and like an ostrich. It's a fun activity you can do in class or at home, all by yourself or with others. I hope you'll try it. Have fun and stay curious!

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to watch how animals move and then you'll move along with them. Some animals, like this ostrich and these flamingos, do strange movements that kind of look like dances. Scientists call these dances displays. It might look a little silly when people do animal displays, but when animals do displays, it's often an important competition to try to attract or impress a male or female animal. In this activity, you'll learn to dance along with these

three animals, then you'll race against the clock to see how fast you can do their display dance moves. Ready? I'll get you started, step by step.

ACTIVITY STEP 1

First, find a space where you'll be able to move around and where you won't bump into anything. Make sure there isn't anything on the floor that you might trip over. When you're done with this step, click the arrow on the right.

ACTIVITY STEP 2

Watch how an ostrich does its display dance. This is how an ostrich shows off to another ostrich. What dance moves do you see it doing? Pay attention to how it moves its legs, wings, and neck.

ACTIVITY STEP 3

Here's what we noticed. The ostrich crouches down and waves its wings and neck back and forth like this. Then it stands up again. Practice doing this once, then go to the next slide for a challenge.

ACTIVITY STEP 4

Now we have a challenge for you. In just a minute, we'll play the ostrich video in slow motion and then faster and faster and faster. Dance along with the ostrich matching its speed. Try to keep up. Okay. Ready? Are you standing up? Go! Dance slowly along with this ostrich. Try to match its speed. Now stand up again. Okay. Good! Now let's do it a bit faster. Dance at this speed now. Great! Now let's do it even more sped up. Okay. Last time, now let's try it really,

really fast. Great job! You're all done. Take a break if you need to rest. When you're ready for the next animal dance, go to the next step.

ACTIVITY STEP 5

Watch how flamingos do their display dance. This is how flamingos try to impress other flamingos. What dance moves do you see them doing? Pay attention to what they do with their heads and how they walk.

ACTIVITY STEP 6

Here's what we noticed. Flamingos stand up straight and turn their heads from side to side like this. And as they turn their heads, they also walk back and forth as a group. So this is how we'll dance along with the flamingos display. We'll tiptoe like this while turning our heads. Stand up and practice moving like this. And then go to the next slide for a challenge.

ACTIVITY STEP 7

Now we have a challenge for you. In just a minute, we're going to play the video of the flamingos moving to the right and to the left over and over again, but sometimes the flamingos will switch directions slowly, and sometimes they'll switch directions quickly. So pay attention and try to keep up. Will you be able to follow along? Alright. Start by standing in the center of your room, and I'll countdown to when we'll begin. If you run out of space while walking, just go ahead and walk in place. Three, two, one, go! Tiptoe to the left, doing your flamingo dance. Okay. Switch to the right. To the left, to the right. To the left, to the right. To the left, to the right, to the left, to the right, to the left. To the right. To left. To the right. Great! You're all done. Take a break if you need to rest. When you're ready for the next animal dance, go to the next step.

ACTIVITY STEP 8

These jumping spiders are tiny and cute. Watch how they do their display dances. This is how jumping spiders show off to other jumping spiders. What dance moves do you see them doing? Pay attention to how they move their legs and their bodies.

ACTIVITY STEP 9

Here's what we noticed. First, this spider raises one leg as it moves back and forth. So we'll raise one of our arms like this. The next spider raises and shakes two of its legs, so we'll raise two of our arms and dance like this. And the last spider moves its whole body from side to side, so we'll dance along like this. Okay. Now that you've seen how we'll dance along, go to the next slide.

ACTIVITY STEP 10

Now we have a challenge for you. In just a minute, we'll play the spider video in slow motion and then a little faster and faster still. Dance along with the spiders matching their speed. If you run out of space while walking, just walk in place. Try to keep up, Okay. Are you standing up? Ready? Set? Go! Move along with the spiders. Great! Now let's do it a bit faster. Good job! Now let's do it really fast. Great! You're all done. Take a break if you need to rest. When you're ready, go to the next step.

ACTIVITY STEP 11

Alright. It's time for the last dance. This time, you'll dance along with all the animals. Can you keep up? You'll start the dance as an ostrich, crouch down. So get into position on your knees

and I'll count down to when we'll begin. Three, two, one, go! Great job. The dance is done. Go to the next step.

ACTIVITY STEP 12

Some animals who do displays are very colorful, and they show off their colors when displaying, like this peacock. If you want to, find some colorful clothes to wear, and do this activity again showing off your colors while you dance along with the animals. Have fun, stay curious, and see you next time!