mystery science

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

VIDEO TRANSCRIPT

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?

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.