

Lesson: “Are plants alive?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi, it's Jay from the Mystery Science team. When I was a kid, my sister and I really wanted a dog. We begged our mom and dad to let us get one. We picked out a bunch of names for our future puppy. We knew we were ready for a dog, but our parents weren't so sure. They told us that caring for a dog was a lot of work, and they were right. Whether it's a dog or a cat or a bird or a lizard, there are a lot of things you have to do to take care of a pet. How many can you think of?

EXPLORATION VIDEO 2

If my family got a dog, we'd have to walk her, refill her water dish, and feed her every single day. We'd have to be ready for a lot of responsibility. But my sister and I still thought we were ready for a dog. We had lots of practice taking care of pets. Our family had a pet bird named Pirulo. My family all took turns feeding Pirulo, filling his water dish, and cleaning out his cage. We also had a fish tank with a bunch of different fish. My sister and I took turns sprinkling fish food into the water for them to eat. Though it may feel like a chore sometimes, all the things we do to take care of pets help them stay healthy. Even though dogs, cats, birds, and fish look very different, they all have something in common: they're all living things. They're all alive. Because they are living, there are certain things they must get to stay healthy. This is another way of saying that

all living things have needs. If animals don't get the things they need, sometimes you can notice that they look different or sound different.

[- Are you hungry?]

Or act different. Our bird Pirulo would squawk when he was hungry. And even though our fish didn't make noise, they'd swim right up to the surface when we sprinkled their food in the water. How else can a pet animal tell or show you what they need? I wonder what you think?

EXPLORATION VIDEO 3

To notice how an animal tells or shows what their needs are, you have to pay really close attention. Scientists call paying close attention to something observing. You can observe how an animal acts when they need food and water. You can see that they need those things to stay healthy. That's one clue that animals are alive. But animals aren't the only things people keep as pets. Some people treat their plants like pets, too. They invite them into their homes. They love and care for them. Some people give their plants names. Sometimes they even sing to them. So, some people treat plants as pets, but does that mean plants are alive? We know that animals like dogs and cats and birds are living things, and one way we know they're alive is because they have needs. Plants certainly don't act like animals do. They don't run around like cats or dogs or lizards. We can't watch a plant munch on birdseed or whine to be taken out on a walk. So how could we find out if plants have needs? I wonder what you think.

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to use your imagination and pretend to be a plant. If you've ever observed a plant before, you know you can watch for hours and hours and hours and it seems like the plant isn't really doing anything. So to help you observe plants today, we're going to look

at some videos of plants—videos we're going to speed up fast! These videos can help you notice if plants are moving and growing. You'll have to watch carefully. Even though the video is sped up, plants move just a teeny tiny bit at a time. As you watch the plants, you'll also use your imagination and pretend to be a plant. My friend, NayMyo, will help show you what to do. As you observe plants and pretend to be plants, you'll figure out if plants are living things. If plants are living things, then they must have needs. But what are their needs? What does a plant need to stay healthy? We'll show you how to get started, step by step.

ACTIVITY PART 1 STEP 1

First, let's observe some plants together. Some of these plants are healthy and some of them are not healthy. Look closely and discuss: which plants do you think are not healthy? Why do you think that?

ACTIVITY PART 1 STEP 2

We noticed that plants 1 and 3 both have leaves that are bright green and reach up, so we think these are healthy. But plants 2 and 4 have leaves that are very droopy, so we think that these plants are not healthy. Now that you have an idea of what a healthy plant and a not-so-healthy plant look like, let's see if we can figure out if plants have needs. This plant hasn't been watered in two weeks. Let's give the plant some water and watch closely to see what happens. Now we'll speed up the video. Watch carefully. What do you notice? What are the leaves doing? I'll play the video a few more times. Once you're done watching, go to the next step.

ACTIVITY PART 1 STEP 3

In a minute, you're going to pretend to be a plant. You can stay seated or find a spot to stand up and stretch. Once everyone is in their spot, go to the next step.

ACTIVITY PART 1 STEP 4

Now it's your turn. Pretend to be a plant. If you're not sure what to do, you can watch my friend NayMyo to see what he does. Imagine you start as a thirsty plant. Your leaves are droopy. Now imagine that you finally get some water. Your leaves start to lift up. And slowly you start to look healthy again. Great job. Let's do that one more time. Let's look at another plant that also hasn't been watered in a while. Start as a plant with droopy leaves. Now you've gotten water. Let's speed up the video. Your leaves start to lift up. And slowly you start to look healthy again. Great job. Go to the next step.

ACTIVITY PART 1 STEP 5

In a minute, you're going to play a game, pretending to be a thirsty plant again. Before you play the game, watch closely so you'll know what to do. In the game, a watering can will come on screen to give you water. But it only adds a few drops of water at a time. That's not enough water to make sure you're healthy. So you'll watch and wait for the watering can to appear again, to give you more... and more... and more drops of water. Eventually, you'll have enough water to be a healthy plant. Go to the next slide to play the game.

ACTIVITY PART 1 STEP 6

All right, time to pretend to be a droopy plant. Watch and wait for the watering can to give you a few drops of water. You'll get a little bit healthier every time it does. Ready? Go. All right, by now you should be a tall and healthy plant. Go ahead and take a seat. Once everyone has returned to their seats, go to the next step.

ACTIVITY PART 1 STEP 7

You did a great job pretending to be a plant. Discuss, do you think plants need water? Why or why not?

EXPLORATION VIDEO 4

A puppy might start to pant or whine when she's thirsty. That's one way a puppy shows that she needs water. A plant that doesn't get enough water starts getting droopy. That's one way a plant shows that it needs water. And just like a thirsty puppy might feel better after she laps up some water, a too-dry plant might grow greener and stronger after it gets water. Just like animals, plants need water. Okay, so you figured out that plants need water, but is that it? Do plants need anything else? Let's continue our observations to find out.

ACTIVITY PART 2 STEP 1

Next, let's observe a plant that's near a window with lots of bright sunlight. Let's speed up the video to see what happens. Watch carefully. What do you notice? I'll play the video a few more times.

ACTIVITY PART 2 STEP 2

We noticed that the plant seems to bend and move toward the sunlight, so we were curious about what would happen if we changed where the sunlight comes from. Let's grow a new plant and find out. First, the sunlight comes from this side. We'll speed up the video. Watch the plant closely to see what happens. Now let's change where the sunlight is coming from. Now the sunlight is coming from the other direction. What do you notice?

ACTIVITY PART 2 STEP 3

In a minute, you're going to pretend to be a plant. You can stay seated, or find a spot to stand up and stretch. Once everyone is in their spot, go to the next step.

ACTIVITY PART 2 STEP 4

Now it's your turn to pretend to be a plant. If you're not sure what to do, you can watch my friend NayMyo to see what he does. Pretend the sun is over here. Imagine that you're a growing plant. Your leaves are reaching toward the sunlight...reaching...reaching... Now the sunlight is coming from the other side. Reach for the sunlight. Great job. Go to the next step.

ACTIVITY PART 2 STEP 5

In a minute, you'll pretend you're a plant again. But this time, your teacher is going to be the sunlight. Look where your teacher is and move your leaves toward them, like this. Remember, wherever the sunlight goes is where you want to reach with your leaves. Your teacher will let you know when this game starts.

ACTIVITY PART 2 STEP 6

You've noticed that plants seem to follow the sunlight, but do plants *need* sunlight? What would happen if a plant didn't get any sunlight at all? Let's take a look. Let's compare a plant grown in the sunlight to a plant grown in the dark. This plant had plenty of sunlight as it grew. This plant was in a dark room without any sunlight. Discuss. What do you notice?

ACTIVITY PART 2 STEP 7

Discuss. Do you think plants need sunlight? Why or why not?

ACTIVITY PART 2 STEP 8

Earlier, you learned that animals have needs. They need to eat food and drink water to stay healthy. That's one way we know that animals are alive. If something is alive, it has needs. But what about plants? Now that you have observed plants, what do you think? Discuss. Do you think plants are alive? Why or why not?

WRAP-UP VIDEO

When we watched these plants grow in a sped-up video, we saw that they move toward the light, and for good reason. If a plant doesn't get enough sunlight, it will eventually lose its color and droop. Plants grow toward the light because they need the sunlight to stay healthy, just like they need water to stay healthy. You might not have to refill a pet plant's food dish like you would with a pet dog or cat, but you can still take care of a pet plant by making sure it gets enough water and sunlight. Even though plants have some different needs than animals have, plants still have needs. But that's not true for all pets—like, check this out. This is a pet rock. It's

kind of rare these days, but some people do keep rocks as pets. Rocks make fun pets. You can name them, play with them, and make videos with them, like this person did. But one thing you don't have to do with a pet rock is take care of it. If a rock never gets any food, it stays the same. If a rock never gets any water, it stays the same. You don't have to do anything to take care of a pet rock because rocks don't have needs. And because they don't have needs, that's one way we know they are not alive. Rocks are non-living things. All living things have needs. Plants have needs. That gives us an important clue that plants are alive. Plants are living things. There are other clues you can look for to know if something is alive, too. Like, maybe you notice that plants grow bigger and bigger over time, or maybe you've noticed that your neighbor's dog is much bigger than when he was a puppy. All living things grow. Because plants and animals grow, that's another clue that they're living things. And pets and plants aren't the only things that grow. You've probably noticed that you don't look the same as you did when you were a baby either. You grow, too. And just like a puppy needs dog food and a full water bowl to stay healthy, and a potted plant needs the right amount of sunlight and water to stay healthy, you need food and water to stay healthy. People grow and have needs. We are alive. We're living things. And if we humans get what we need to stay healthy and grow, we can also learn to help other living things get what they need to stay healthy and grow. Remember how my sister and I dreamed of getting a dog? Well, even though we didn't have a puppy, we were still surrounded by living things we could help take care of. We had our bird and our fish, yes, but we also had the grass outside our front door and the trees in our local park and even the people around us, like our family and friends. The more we paid attention, the more we noticed the needs of each living being around us and how to care for them. And a few years later, our parents finally decided we were ready to take care of yet another living thing—a dog named Sasha. So whether you have

a pet dog or a pet flower, you are surrounded by things that are alive, just like you are. Look out for other living things around you, and stay curious.