mystery science

Lesson: “How do plants and trees grow?”

VIDEO TRANSCRIPT

EXPLORATION VIDEO 1

Hi, it's Doug! If you're like I used to be, I never paid much attention to plants. They just sit there. They're so still. It's so easy to forget about them. But there are some really interesting plants. Many of them you can even buy and have in your home or your yard. Like, maybe you've seen these—they're cactuses. There are some really cool cactuses out there. There are also some really colorful plants, like these. This kind is called a bromeliad. They're from the jungle. They do really well inside of people's houses. Now, where I live, I have one that's reddish-orange, like this, growing in my house. Here's the bromeliad’s cousin. Now, this is maybe my top favorite plant that I own. Do you recognize it? That's a pineapple right there. This is a pineapple plant. It's where pineapples come from. I found this at a plant store for $10. I couldn't believe it. But actually, let me show you one of my other favorite plants I have. It's this little tree. Trees are plants too, they're just a special kind of plant. A plant that has wood and grows tall. Now, speaking of tall, this one, it's just a baby tree, but it's not just any tree. It's a baby Redwood tree from California. When Redwood trees grow up, they're the tallest trees in the world. I just love having a little baby one knowing that, one day, it's going to get so tall. I'll have to plant it in a forest once it gets bigger so that it has room to grow. You can find interesting plants all around you. Plants growing outside. Plants in the forest. Plants in the garden. Plants that people keep inside. There are so many different kinds of plants that you can grow at home. Once you

become a plant keeper—here's something to think about, though—if you're going to leave for a trip and you're gone for a few weeks, you'll need someone to take care of your plants. You'll need a babysitter for your plants–you'll need a plant-sitter! Now that's a strange word you don't hear every day, a plant-sitter. Why would you need someone to take care of your plants if you're going to be gone?

EXPLORATION VIDEO 2

Plants—things like trees, and flowers, and grass, anything that has leaves—they're all living things. Now, I know plants don't look like you or me, and they don't look like animals. They're not animals—but they are alive. And so, they need to drink water, just like you, me, and animals do. Now, plants don't have mouths, but you might know that they soak up the water in their roots, like when it rains. So if you're a plant keeper, and you're gone for more than a few days, the reason you need a plant-sitter is for them to come and water your plants. Otherwise, the plants will go thirsty and they'll die. Is there anything else a plant needs besides just water? Well, I want to tell you a story about a tree. There was this big, old tree growing in a field of grass. Like any tree, it cast a big shadow on the ground. On a bright sunny day, if you sat near the base of the tree, it would look dark where you were sitting. The tree blocked the sunlight above. Now one day, a powerful storm passed by. The wind was gusting. The branches on the tree were swaying back and forth very wildly. As the wind blew stronger and stronger, the old tree got knocked over. Now it looked like this. It's sad that such a huge tree got knocked over, but something new happened. Next to the big tree, a little tree had been growing. Year after year, it never got very big. But once the big tree got knocked over, suddenly, in just a few months, that little tree grew bigger, and bigger, and bigger than it had ever grown before. Within just a few years, it got so big that it started to take the place of the old tree that had fallen over.

Everywhere we look in forests, we can find baby versions of big trees. When the big trees get old and fall over, or get knocked over in a storm, the little trees around them start to grow big. Now, why do you think that is? Why do you think that little trees start to grow when the big trees get old and fall over?

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to watch what happens when you give seeds water and sunshine. You're going to make a tiny garden on your window sill, and you'll do that by planting radish seeds in a cup of wet soil. When your seeds sprout, you'll watch them change as they grow up. Now, the hardest thing about planting seeds is waiting for the baby plants to come up. For a few days, it looks like nothing's going on. Your seed is under the soil, and you can't see what it's doing, but we have a trick that will show you what's happening under the soil. We'll show you that later. Now it's time to plant some seeds. I'll show you how to get started, step by step.

ACTIVITY STEP 1

Find a partner. You and your partner will help each other plant seeds.

ACTIVITY STEP 2

Get your supplies.

ACTIVITY STEP 3

Go ahead and write your name on your label.

ACTIVITY STEP 4

Now, put your label on your cup, like this.

ACTIVITY STEP 5

Pour the radish seeds onto the plate, like this. Each person count out three seeds, like this—one, two, three.

ACTIVITY STEP 6

You and your partner will take turns planting seeds. Have your partner hold your cup. With a spoon, make a pile of soil, just like this. Drop three seeds into the cup. One, two, three. Then cover them with soil. When you're done, hold the cup for your partner while they plant their seeds.

ACTIVITY STEP 7

Touch the soil to see if it's dry. If it's dry, spray the soil with water. Your seeds need water to grow.

ACTIVITY STEP 8

Put your cup somewhere where it will get sunshine. Your teacher can show you a good spot. Now, for the hardest part—waiting. It takes at least five days for a seed to sprout.

ACTIVITY STEP 9

Every day, spray the soil with water to make sure your seeds grow. What would happen if you don't water your seed? Well, we tried that experiment. Look what happened to ours after a week.

ACTIVITY STEP 10a

Instead of putting seeds in soil, your teacher put some seeds in a plastic bag with a wet paper towel, both are in the sunlight. Discuss.

ACTIVITY STEP 10b

Look at the plastic bag each day. Can you be the first to see a root come out of the seed? It will look like a white squiggle.

ACTIVITY STEP 11

Once you start seeing leaves on your baby plant, discuss.

ACTIVITY STEP 12

Here at Mystery Science, we kept watering our seeds, and here's what happened. On day four, leaves popped out of the soil like this.

ACTIVITY STEP 13

When most of our seeds had sprouted, we noticed something. We noticed that all the leaves faced the sunny window. That seemed strange. Discuss.

ACTIVITY STEP 14

We decided to try an experiment. We turned all the plants so the leaves faced away from the sunny window. Discuss.

ACTIVITY STEP 15

Here's what happened. This is a sped-up video. It shows eight hours in just a few minutes. Watch what the leaves do.

ACTIVITY STEP 16

The leaves turn to face the sunny window because the baby plants need light to grow.

WRAP-UP VIDEO

There are lots of interesting plants—plants with colorful flowers, plants that grow the food we eat, plants that we can find in the forest, plants that we can grow in our homes. And plants are living things—they're alive just like animals. Now, they don't have legs so you won't see them walking around and they don't have mouths or eat food the way we do, but they do grow and they move. They have needs, like they need water and they have other needs too. When a big tree falls, a little tree can now get more sunlight. Sunlight and water are both needs that plants

have. If you like growing plants, I hope you'll become a plant keeper. There are so many interesting plants. Have fun and stay curious!