mystery science

Grades K-5
Mini-Lesson: “Why are four-leaf clovers so rare?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Esther! Check this out. These are clovers. You might have seen them before. Have you ever looked for a four-leaf clover? Let's give it a try together. Can you find the four-leaf clover in this photo? I'll give you ten seconds to look for it. Ready? Go.Okay. Time's up. Did you see it? It's here. Don't worry if you didn't spot it. Four-leaf clovers can be really hard to find. Someone named Sophie has a question about why this is. Let's give Sophie a call now.

[Video Call]

- Hi, Esther.
- Hi, Sophie.
- I have a question for you today. Why are four-leaf clovers so rare?
- That's a great question.

Kids and grown-ups have been searching for four-leaf clovers for hundreds of years. Some people long ago thought they gave you good luck. Some people even believe they gave you magical powers. Oh, and get this. Some kids long ago thought four-leaf clovers helped them see fairies. Whatever people think of four-leaf clovers, one thing is for sure. They're really rare. And that's what makes them so hard to find. Before I go on, I'm curious. Why do you think four-leaf clovers are so rare?

VIDEO 2

To answer this question, we need to look at the way living things grow. Usually a living thing like a plant will look like its parents when it grows up. So we kind of know what to expect. An elm tree will look like a regular elm tree. A strawberry will look like a typical strawberry. But every once in a while, a plant will grow in a way we don't expect. And that's when things get interesting. Have you ever seen a tree trunk look like this, or a strawberry look like this? Now you won't always find plants that are growing in unusual ways like these, but if you look hard enough, you can find examples almost anywhere. Like in the forest, a pine tree might usually look like this, but sometimes those trees can look like this. Or in the desert, some kinds of cactus usually look like this. But every once in a while, that same kind of cactus my grow to look like this. You can even find unexpected-looking plants in your own grocery store. I'm serious. Next time you go to the store, look for fruits like apples and oranges that look different from what they usually look like, and you just might find one. Now we're not always totally sure why some seeds grow into plants that look different from what we expect, but there are two kinds of things that can cause this to happen. Things inside the seeds and things outside of them. Let's start with the inside. Even though seeds from the same kind of plant, like an apple tree or rose bush, are pretty much the same, there are always tiny differences inside. And those differences matter because if a seed has just the right things inside it, it can grow into a plant that looks different from what we expect like this flower. This is how these flowers usually look But check out this one. It's the same kind of flower, but it looks way different, right? Whoa. But it isn't just the differences inside of a seed that can make a plant grow in an unexpected way. There are also things outside that can make plants grow in unusual ways, like things in the soil or air, or changes in temperature or amount of daylight, or even nibbling insects. Which brings us to

clovers. Most clover seeds grow into clovers that only have three leaves. But sometimes when everything inside a clover seed is just right and everything outside of that clover seed is just right. It might grow into something really special a clover with four leaves or five leaves or even more. Now it's important to remember that if things inside of the seed and outside of the seed aren't exactly right, then the clover will probably only have three leaves, and that's why four-leaf clovers are so rare and hard to find. In fact, they're so rare that only about one in about five thousand clovers has four leaves. But just because they're rare doesn't mean you can't find one. The trick is to look down at the clover patch from above. And instead of just counting leaves, look for patterns in the shapes of the clovers. Like, let's go back to that first bunch of clovers we looked at. Since most of the clovers have three leaves, they'll kind of look like a triangle, but a four-leaf clover will look like a square When you see the square, pick it up because it just might be a four-leaf clover. So in summary, most living things like plants grow up in ways we expect. An apple will look like an apple. A cactus will look like a cactus and a clover will have three leaves. But on rare occasions, something else happens. If everything inside of a seed is just right and everything outside of a seed is just right, A plant may grow in a way that's different than we expected, and that's why some clovers have four leaves instead of the usual three. But since things have to be just right for this to happen, we don't see very many four-leaf clovers and that's what makes them so special. That's all for this week's question. Thanks, Sophie, for asking it.