mystery science

Grades K-5
Mini-Lesson + Activity: “Why are butterflies so colorful?"

VIDEO TRANSCRIPT

MINI-LESSON VIDEO 1

Hi, it's Doug! I've shared butterflies with you before, but I want to show you two more today. Their bodies were preserved by scientists who were studying them. This one is called a lemon emigrant. And you might guess from the name lemon, it's because it's bright yellow. It lives in parts of Asia and Australia. But now let me show you what some people consider to be the most brightly colored butterfly in the world. It's this, the blue morpho. It lives in parts of Central and South America. Someone named Malia has a question about butterflies. Let's give her a call now.

[Video Call]

- Hi, Doug!

- Hi, Malia!

- I have a question for you. Why are butterflies so colorful?

- That's a great question.

When you think about it, it seems strange that butterflies are so colorful. With so many predators, like birds that want to eat them, wouldn't being colorful be a bad thing because it would make them stand out? For example, take this butterfly that's bright orange. There's no way a butterfly like that could hide from birds, right? But take a look at it in its habitat. It's

actually pretty well hidden. Or take a look at this bright green butterfly. When you see it in its habitat, it seems to blend right in with all the leaves. Colors like this are called camouflage. Camouflage colors help butterflies disguise themselves by blending in with their surroundings, which makes it harder for predators to find them. But not all butterflies have colors that help them blend in. They may have bold spots or bright stripes that make them stand out. But wouldn't these colors make them easy targets for a predator? What's going on here? Why do you think some butterflies have bright colors and patterns that stand out instead of being camouflaged?

MINI-LESSON VIDEO 2

Rather than having camouflage colors to help them hide or blend in with their surroundings, some butterflies have patterns that might startle or scare a predator, like this butterfly. The spots on its wings look just like the eyes of an owl, an owl that might eat the kinds of birds that eat butterflies. So these patterns help protect butterflies by startling or scaring predators away. Still, there are other butterflies that have bold colorful patterns for another reason, like this one. It doesn't look like something that would scare a bird. Scientists have studied this butterfly, a long-tail butterfly, and figured out it's poisonous to birds. If a bird tries to eat a poisonous butterfly, it'll taste bad and sometimes make the bird sick. So birds quickly learn to avoid butterflies like this. Their bright colors act like a warning signal. Here are two other butterflies that signal to predators with bright colors. The one on the left is a monarch, it's highly poisonous to birds. The one on the right might look like a monarch, but it's a different kind of butterfly called a viceroy. It's actually not poisonous, it just looks like it is. Many butterflies that aren't poisonous have warning colors that mimic butterflies that are poisonous. If predators can't tell the difference, they'll leave them both alone. So in summary, butterflies can be brightly colored for a

lot of different reasons. Some of them, while it seems like they'd stand out, they're actually well camouflaged in their habitats. Others have colors that will scare away predators either by looking like other animals or having warning colors to let predators know that they're poisonous. That's all for this week's question. Thanks, Malia, for asking it. Now, after this video is done playing, my friends and I here at Mystery Science have created a step by step activity where you can create a card for someone special with your own colorful butterfly. I hope you'll try it. Have fun and stay curious!

ACTIVITY INTRODUCTION VIDEO

In today's activity, you're going to make a butterfly that flaps its wings. You'll also make a card that shows your butterfly's favorite flower. You can tuck your butterfly inside the card, which will make a great gift for someone special. I'll show you how to get started, step by step.

ACTIVITY STEP 1

Get these supplies. When you're done with this step, click the arrow on the right.

ACTIVITY STEP 2

Have a look at your butterfly worksheet and choose which butterfly you want to color. You can use a pattern, like these, to help you get started, or you can start with a blank butterfly. Once you choose, go to the next step.

ACTIVITY STEP 3

Discuss.

ACTIVITY STEP 4

Discuss these questions, then decide what you want your butterfly to look like. You don't have to make it look like a real butterfly that you've seen; you can get creative.

ACTIVITY STEP 5

Color the butterfly's wings from the template that you chose. You can use any colors you want, but remember, your butterfly wants to avoid being eaten. You don't need to spend too long on this. If it's helpful, I'll start a timer. All right, are you done coloring? It's okay if you aren't, let's move on, but you can always finish later.

ACTIVITY STEP 6

Turn your butterfly sheet over so that it's facedown on the table. Then, fold it in half like this on the center line. You want to make sure to line up the corners when you fold it so that it's straight. You can also run your fingernail over the fold, like this, to make a nice crease.

ACTIVITY STEP 7

To get your butterfly, start by just cutting on the dotted lines, like this.

ACTIVITY STEP 8

Now, with the paper folded, cut on the dark lines, like this. Here's a tip: as you cut, you might find it's easier to turn the paper, not the scissors. Now, one more tip: the easiest way to cut the pointed-end triangle is to use two cuts for the tight spots, like this.

ACTIVITY STEP 9

Unfold your butterfly, like this. Then fold it again so that the colored part is on the inside, like this.

ACTIVITY STEP 10

While keeping your butterfly folded, fold your butterfly's body in half, like this. Bring the bottom edge up to the top edge.

ACTIVITY STEP 11

Fold the wing down on this side. Then turn the butterfly over and fold down the other wing, like this.

ACTIVITY STEP 12

If you want to make your butterfly flap its wings, hold its tail and gently move it up and down. The wings will catch the air and appear to flap in a motion that looks similar to a real butterfly.

ACTIVITY STEP 13

Now it's time to put your ideas about butterfly colors to work and make a beautiful card for someone special. Put your card worksheet facedown and fold it twice, like this. Now, older grades: your card sheet will look a little bit different than this, but you'll still fold it in the same way that I'm showing. When you're done, you'll have a card.

ACTIVITY STEP 14

Lay your ruler on the dotted line. Then, fold the front of the card up, like this. Turn the card over and do the same thing on the other side. This makes a place in the middle of the card that will hold your butterfly.

ACTIVITY STEP 15

Now that you colored your butterfly, think again about its flower. You're going to color a flower in the next step. Discuss.

ACTIVITY STEP 16

Color your card and write a message to someone special. When you choose colors for the flower, think about your butterfly's colors. You don't need to spend too long coloring. If it's helpful, I can start a timer. All right, are you done coloring? It's okay if you aren't, let's move on, but you can always finish coloring later.

ACTIVITY STEP 17

Set your butterfly into your card, like this. Then, close your card with your butterfly inside. Younger grades: you're done. Older grades: go to the next step.

ACTIVITY STEP 18

Older grades: on the back of your card, write what's special about your butterfly, like how its colors and patterns help it survive. Have fun, and stay curious!