mystery science

Grades K-5
Mini-Lesson: “Could a turtle live outside its shell?”

VIDEO TRANSCRIPT

Hi, it's Doug! You can see here I have a turtle. There are different kinds of turtles. This kind is called a tortoise. You might have heard of them. Tortoises are turtles that live on dry land. They don't need to be in water. In fact, they don't like to be in water. Now, why do I have a turtle with me? Well, this is actually my pet. It's my pet tortoise. And I thought it'd be fun to get it out because someone named Samaliya has a question for us about turtles. Let's give her a call now.

[Video Call]
- Hi, Doug! I have a question for you.
- Hey, Samaliya!
- Could a turtle live outside its shell?
- That's a great question, Samaliya.

Let me show you something. You know how turtles have this shell that they can hide in—they can pull their head in if they want to, even their legs and tail. But could a turtle come out of its shell completely, like crawl out of it and leave its shell behind?

Like, you might wonder, maybe a turtle is like a hermit crab. Hermit crabs are these creatures that live in shells but the shell isn't part of their body. They can come out of their shells completely. Could a turtle do that too? Well, let's look at a picture of a turtle up close. Does this

give us any ideas? If you want to pause the video to take a longer look at it, now would be a good time.

Okay. You ready?

If you've ever touched a turtle shell, then you know it's very hard. It feels similar to how a fingernail feels. It feels like a similar material. And the top part here—what looks like a pattern or design—I learned once is actually separate pieces, almost like tiles.

Now, none of this really helps us figure out if a turtle can come out of its shell though. But look at this photo again. This here—this is the turtle's skin, and these parts on top and bottom are the shell. Now, right here, maybe you noticed that there's no space between the turtle's skin and its shell—it's all connected.

A turtle's skin is connected to its shell. So, I have to say, it seems like a turtle's shell is probably part of its body. I'm thinking the answer to the question is no, a turtle can't come out of its shell the way a hermit crab can. But, it'd be great to be totally sure.

Now, how can we be totally sure? Is there anything else we can look at? Well, what we really need is to be able to look inside the shell. And for that, we need to see a turtle's bones. That's what you see here. This is a real picture of a turtle skeleton. We can see, turtles do have bones, just like we do. We see here's the skull, here's the neck bones, leg bones, but now, what about the shell? Let's get a closer look at that. Again, if you want to pause the video to look, now would be a good time.

Okay. You ready?

Now, maybe you saw what I saw, that the shell itself, on the inside, is white. You see that there? It looks like it's made of bone. In fact, if we flip a turtle skeleton over so that we can look at the turtle from below, we can see its backbone, here. Now, look really closely. It looks like the shell is just part of the backbone.

Can you see that? Interesting. Now it turns out, sometimes, scientists find fossils of turtle bones. I'm talking about bones from turtles that lived long, long ago. This is a turtle fossil right here. A really long time ago, it seems that turtles didn't have the complete shells that they have today. Instead, a long time ago, it was just really long backbones. So, maybe over time—scientists think—turtle backbones have gotten bigger and bigger, to the point where the backbone now forms a complete shell on the turtle's back. So, can a turtle live outside its shell? Well, you've seen all the clues. The answer is no, a turtle's shell is part of its body. When we look on the inside, at the turtle's skeleton, we can see that the shell is part of the turtle's backbone.

And, when we look at turtle fossils we can see that back in time, it definitely was just the backbone.

So, thanks, Samaliya, for asking that question!