mystery science

Grades K-5
Mini-Lesson: “What's the best place to look for dinosaur fossils?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Doug! This is paleontologist Sue Hendrickson. She loves exploring the world and finding things, like sunken ships and hidden treasure, and this—the largest T-Rex dinosaur ever found. This fossil is so huge that it took six people, 17 days in order to get it out of the ground. Whoa! And when they were done, they gave the T-Rex a name. You want to guess what it was? They named it Sue, after Sue Hendrickson, since she was the one who discovered it. Someone named Natalie has a question about dinosaur fossils. Let's give Natalie a call now.

[Video Call]

- Hi, Doug!
- Hi, Natalie!
- I have a question for you. What's the best place to look for dinosaur fossils?
- Ooh, that's a great question.

It could be tempting to think that you have to be a scientist in order to find dinosaur fossils or that there's only one really special place on Earth that you could find them, but believe it or not, that's not true at all. Consider Nathan Hrushkin. At the age of 12 years old, Nathan had dreamed of finding a dinosaur for as long as he could remember. And one day, while hiking in Canada with one of his parents, he saw something. It looked like a long bone stuck in the rock.

Could it be the fossil bone of a dinosaur? It was. Nathan had discovered a young hadrosaur, a duck-billed dinosaur that lived in that area long ago. Dinosaur fossils have been found on farms like these dinosaurs called ornithopods in China. They've been found on construction sites, like the Triceratops that these builders found in Colorado, and even behind grocery stores, like this fossil called a nodosaur, found by a five-year-old in Texas. Wouldn't it be amazing to find a dinosaur like that? But how did these people find them? Is it just luck? Were they just walking around and noticed a dinosaur fossil just lying on the ground, ready to pick up. Before I say anything more, I'm curious, what do you think? Where would you look if you wanted to find a dinosaur fossil?

VIDEO 2

To start off, it's good to know that when dinosaur fossils are found they're usually found stuck in rock whether it's rock that you can see on the surface when you're walking around, or rock that's deeper in the ground where people have to use tools like hammers and chisels to get them out. So does that mean to just look anywhere there's rock? There's a lot of rock on Earth. For example, when you dig into the ground eventually you always hit solid rock. Can dinosaur fossils be found in any kind of rock? It would be helpful if there were some way to narrow it down, luckily there is. A lot of illustrations of dinosaurs, like this one, seem to often show dinosaurs hanging around erupting volcanoes. So could it be that lava rock is the best place to look for dinosaurs? The kind of rock that comes from volcanoes? Surprisingly, fossils are almost never found in volcanic rock, rock made by lava. No, if a dinosaur died during a volcanic eruption the lava is so hot that it would destroy the bones, so there'd be nothing left to find later on, no fossil. So what kind of rock should we look for? Scientists have discovered that most

dinosaur fossils are formed when a dinosaur dies near a watery place and its body gets covered by things like sand, or by mud—any small bits of rock or other earthy materials we call sediment. Over time, layers of more and more, and more sediment piles on top, and these sediments harden into rock. So the best place to look for dinosaur fossils is a type of rock called sedimentary rock, rock that's made of bits of sediment. Sediment are the ground materials that settle to the bottom of oceans or rivers, think of mud, or clay, or sand, or pebbles. When these harden they become sedimentary rock like sandstone, which is made of hardened sand or shale, a mixture of hardened clay and mud. So when an animal like a dinosaur dies the best last chance at skeleton has of becoming a fossil which we can find later on, is if its body gets covered by sediment that turns into rock. Okay, so if you want to find dinosaur fossils yourself sedimentary rock is the best place to look, not lava rock but how can you tell whether rock near you is made of sediment or came from lava? Both rocks can look very similar, so it can be hard to tell but there are a few things you can do to try to tell them apart, often you can tell the difference by scratching it with your fingernail or something even harder like a safety pin or a nail. If a rock is made out of sediment, like sand or clay then you should be able to scratch it and get little pieces off, with volcanic rocks, you usually can't do that. Volcanic rock tends to be much tougher. If you scratch a volcanic rock usually nothing will flake off. So have a look at the rocks around you, if you find sedimentary rocks there's a chance there could be some fossils in there. In the United States, fossils of dinosaurs have been found so far in over half of all the states. But even if there haven't been dinosaur fossils found near where you live, there are fossils of other prehistoric animals found in every state some of them just as strange and amazing as dinosaurs from the shells of prehistoric squid-like creatures called ammonites, to the extinct insect-like trilobites that once lived on the ocean floor, even the fossilized teeth of prehistoric

sharks. There is some amount of luck involved in finding fossils. There's no guarantee that every place that has sedimentary rock is going to have fossils in that rock but you might be surprised how close you might live to a place where you can easily search for fossils. One tip is to ask an adult in your life to look up where the nearest quarry is. A quarry is a place where people dig into rock underground in order to use the rock for things like construction and building. In many quarries, they find fossils as they dig and some even give permission for anyone to come and collect fossils at certain times. You might be surprised at how close the nearest quarry might be to you. Even major cities sometimes have quarries nearby like the Fort Ann Quarry outside Chicago, Illinois which is home to some amazing prehistoric ocean fossils. That's all for this week's question thanks Natalie for asking it!