



Badlands in Your Classroom

Secrets of the Past Video Transcript

Hi, Welcome to Badlands National Park.

I'm Ranger Cindy and today you're going to be learning about why Badlands is such a great place to find fossils. We're also going to be talking about how our formations were made.

So let's get started and let's take a trip way back in time. Let's go back about 70 million years ago and we're going to be under the water so everybody needs to hold their breath. And we know that when we are in water there is a lot of mud at the bottom. When we walk through a mud puddle we are going to find mud at the bottom, so at the bottom of our inland sea because we were covered with water at this time we are going to have a lot of mud and any creatures that are swimming in that sea when they die they're gonna fall in that mud and more mud is going to cover them up. They are going to be preserved; they're going to be kept safe underneath that mud.

But a real cool thing happens in the park, in our area. The Rocky Mountains start to rise, the Black Hills start to rise and as they rise they start tilting this area down and when they do that water starts to flow out of the area. Have you ever held a pan of water and tried to carry it? If you tilt it one way it kind of sloshes out the other side. That's what's happening, our land is tilting, the water is coming off and as it does on top of that black mud that water is going to leave behind more mud.

But when it reaches the air it's going to do something really cool, it's going to change color. It's going to start turning colors because the air hits it changes it chemically and it's going to start looking yellow. So in some parts of the park we have a yellow soil that's on top and because the soil is up above the water now we can start having a lot of plants starting to grow in the area.

We going look almost a jungle, we are going to be kind of a rainforest tropical environment. We're going to have animals that are coming through the area that eat a lot of the vegetation. And when they die, they are going to fall to the ground and because we're a marshy area, because we have a lot of water that's flooding and bringing in more soil-just like making your bed those sheets of soil are going to be laid down in layers. And they're going to lay down in layers on top of that yellow. Oldest is black and then we start getting newer layers, laying new sheets down.

That continues to move through the area, the hills are going to keep rising and the sediments and the dirt that is washing down from those hills is going to come over and lay down more sheets on it. We're also going something else happen. We're going to have some volcanoes. Everybody do a volcano with me. It's going to blow up, it's going to send all that ash over and it's going to mix-up with the sediments to make more layers.

So we keep adding layers, but our climate hasn't finished yet, it's going to change and get even drier. And as it gets drier we see different kinds of animals come into the park. And we see all kinds of mammals come into the park. We have ancient rivers that are flooding and leaving more sediments as sheets, laid down on that protecting any animals that might die or might be laying in the soil. Their bones are going to be protected from other predators or being crushed or carried away. We are going to lay more sediment down. Sometimes the sediments have a lot of iron in them, so if you look at some of our formations, if you look around the park and you see we have a lot of red layers and those red layers have a lot of iron in them. As soon as they hit the air they almost start to rust.

We have more layers laying down on that. Our rivers are starting to set their course but they're still flooding and we're still getting lots of sediments down from the other areas that are eroding. So we're laying more and more layers. We might get some more red layers that lay down. Remember our oldest is at the bottom our youngest is up here. We have some red layers come down. We have another volcanic time, so we need another volcano to erupt and it erupts sends ash over the top layers of the park. That's our Rockyford Ash and it lays down and then we have our Sharps that lay down. At this time our land is getting really dry, it's flat, looks a lot like what our prairie looks like today. But about 500,000 years ago the rivers start going really fast down their courses and they start cutting through those layers, just like you would cut a layer cake. And as they're cutting through our layers they are showing scientists and people what is hidden in those layers that have been protected for all those millions of years.

You have learned about our layers, you know that the oldest is at the bottom and the youngest is at the top and when we put all those layers together they're actually going to make our formation. They're going to make those buttes that we see. And they're going to reveal secrets of the past to us as we look inside those layers.

Your teacher has a special activity for you today. To find out about the past and what makes Badlands such a great place to visit and a great place for fossils. Have a great day.