



Transcript for *The Dinosaur Expert* by Margaret McNamara (Schwartz & Wade Books, an imprint of Penguin Random House)

Introduction (approximately 0:00 – 4:27)

Hi everyone! It's Colleen from the Natural History Museum, and I'm so excited for today's Story Book Science! Now I do want to wait for some people to join us.

So while we wait, I just want to give a little brief introduction of what we're going to be talking about today. So we are going to be talking about paleontology, and paleontology is the study of fossils. Now fossils are the remains of living organisms that lived in a past geological age. So they lived a really long time ago! And fossils, these remains of living organisms from a long time ago, they can come in all shapes and sizes. Some are really big like the titanosaur that we read about last week, and some can also be really small like different microbes that have become fossilized, so tiny single-celled organisms. Now other organisms that can be fossilized, those include plants, those include non-animal living things. So fossils are really unique, and you can study a lot of different things when you look at fossils.

Now when we talk about fossils, fossils can be placed into one of two categories. It can be a body fossil, which means that it comes directly from the body. So things like bones, teeth, claws. All of those are body fossils. An example of one, and we'll talk about this later today, is a toe claw. And this is a cast, or a replica, of a toe claw of a *Tyrannosaurus Rex*. So this is a body fossil. The other category of fossil is trace fossils. And trace fossils, those are things a living organism made using its body or made in its body and then expelled it. But they're not directly a part of the body. And a really good example of those are footprints or trackways because an organism can use its foot in order to make a footprint, and it can have a series of steps to make a trackway. So it uses its body to make it, but it's not a direct part of its body.

And we'll talk a little bit more about fossils, but some other folks have joined us. So let's go ahead and get started with Story Book Science!

First and foremost, we have to go over what our guidelines are. When we do Story Book Science, we want to make sure that we are following museum rules, even if we're not in the museum. So what that means is you want to make sure that if you write a question or write a comment, you are doing so in a way that uses kind and considerate words. And if you respond to someone's question or comment, you're also using kind and considerate words. We want to make sure that this is a welcoming and inclusive space, and so we want to be careful with the words that we use.

Now for today's Story Book Science, I am reading a book called *The Dinosaur Expert*. It's written by Margaret McNamara, and it's illustrated by G. Brian Karas. And we are reading it with permission from Schwartz and Wade books, which is an imprint of Penguin Random House. So thank you to them for letting us read this book! I really like this book because it reminds me that it's good to have passions, and it's good to follow those passions. And you should never be discouraged by someone who says that you shouldn't learn and share those things that you're passionate about. So I'm so excited to get to read this with you!

Now if you have questions, please feel free to post those in the comments. But do know that I may not be able to get to them until the end and only if time remains. Additionally, if you need a partial transcript for this reading, that will be made available later today on the museum's website. And there is a link to where you need to go on the website for that transcript. So let's go ahead and get started!

The Dinosaur Expert.

Reading from *The Dinosaur Expert* (approximately 4:28 – 13:09)

The Dinosaur Expert *includes copyrighted materials, and we do not have permission to include the written text of the book in this transcript.*

Conclusion (approximately 13:10 – 23:20)

The end.

Now I do want to let you know that on the next page, Kimmy wrote down a lot of her favorite female paleontologists. And some of these female paleontologists are also on my wall. So we'll talk about those female paleontologists in just a second, but I want to talk about why I love this book. Now it's so much fun to be able to go to the museum and see the fossils and get excited about those things you think are so cool and interesting and want to share with people. And that's why Kimmy was excited. But then her classmate, Jake, said something that wasn't very nice. He said that girls can't be scientists, they can't be paleontologists. And that made Kimmy feel really bad. And what Jake said is simply just not true. Girls can be scientists. They can be paleontologists. They can study any field they want. In fact, anyone of any gender identity can be a scientist! So follow your passions, and don't be discouraged by people who say mean things like Jake did.

Now let's talk about these female paleontologists on my wall! So they're all paleontologists, which means they study fossils, but they study different things. And we're going to first start off with Dr. Lisa White.

Now Dr. White is a micropaleontologist. So she studies really small fossils because micro means small. And sometimes these fossils are so small, we cannot see them with just our naked eye. So you have to use a special tool! And Dr. White uses an electron microscope. Now this is a photo, and this photo is an example of what microfossils would look like underneath an electron microscope and the pictures you could take of those microfossils using that tool. I think it's amazing to think about really small, tiny fossils and how you can use tools in order to see them. That to me is so cool. So I'll let you see this one more time. Alright.

So our next female scientist we've already talked a little bit about in the story, but it's Dr. Zulma Brandoni de Gasparini. Now she is a paleontologist from Argentina. And last week, you might remember, we learned where Argentina was. We looked at it on a map, and it's a country in South America. So Dr. Zulma Brandoni de Gasparini, she is a paleontologist from Argentina. And she has led many digs. She has discovered many different organisms, and one of those organisms was named in her honor! And that is the *Gasparinisaura*. Now we talked about that in the book just a little bit, but this is an illustration of what this dinosaur is believed to have looked like. So this is the *Gasparinisaura*. Now just like Kimmy I think this is my favorite dinosaur too! Alright.

So our next female paleontologist is Dr. Karen Chin, and she studies fossils called coprolites. Now we talked a little bit about coprolites earlier. We talked about them last week. They're trace fossils. So they're something that an organism made in its body and then expelled. And coprolites, the reason why it expelled, is because it's fossilized poo. Now there are many different types of coprolites. There are some that are dinosaur

coprolites, such as this picture. This is a picture of *Tyrannosaurus Rex* fossilized poo. But dinosaurs are not the only types of coprolites we can see. We can also study these. Now this is a coprolite of what is likely to be a shark. So sharks, just like dinosaurs, and even some other animals that lived in past geological ages, their poo can become fossilized and form coprolites. Alright.

Now the last female paleontologist I want to talk about is Dr. Stephanie Pierce, and she is a vertebrate paleontologist. And when we say vertebrate, what we mean is a backbone. So vertebrate paleontologists study organisms from a past geological age that had backbones. Now there are a lot of different examples of animals that had backbones that we study their fossils. But when I think of vertebrate paleontology, I always think of dinosaurs. So I have some body fossils, so fossils that came directly from the body, of dinosaurs that I want to share with you. Now I will let you know that these are all casts. So they're replicas, but they're still super exciting, and I can't wait to show you!

Here's the first. This is a *T. rex* toe bone, or I'm sorry, a toe claw. And you can tell it's quite large, which would make sense because the *Tyrannosaurus Rex* was the largest Carnosaur, which means it was a meat-eating dinosaur that walked on two legs. And we know its size based on its toe claws, and scientists have been able to study how big it was based on its bones. But because it was a meat-eater, one of the things that is really important to study to better understand its diet is its teeth. So let me grab a cast of a *T. rex* tooth. So this is a replica of a *T. rex* tooth. And what I notice when I look at this is that it's long. So here's kind of where the tooth starts. It's very long. It's sharp, and it's narrow. So it's pretty thin. Now this is a shape that's very good for meat-eating. So a *T. rex* would need a long, sharp, and narrow tooth in order to rip and shred meat. So that's a good indication that the *T. rex* was a Carnosaur.

Now Carnosaurs, meat-eating dinosaurs, they were not the only dinosaurs. There were dinosaurs called sauropods, and they walked on four legs. They ate plants. And I have a toe claw and a tooth of a sauropod to show you. Let me go grab the toe claw. This is the toe claw of a *Camarasaurus*. Now it's a little bigger than the toe claw of the *T. Rex*, but it's roughly the same size. So there's a lot of similarities between this toe claw and that of the *T. Rex*, but, as I said earlier, the *Camarasaurus* was a sauropod that ate plants. So do you think their teeth are going to have the same shape as the meat-eating *T. Rex*, or do you think they're going to be a different shape? What do you think?

So I'm going to grab a cast of the *Camarasaurus* tooth, and we're going to look at the shape of that tooth together. Alright. So this is a cast, or a replica, of a *Camarasaurus* tooth, and looking at it I can definitely see it's a very different shape than that of the *T. Rex* tooth – and just for comparison.

So what things did you notice that were different? When I look at the *Camarasaurus* tooth, one of the things I notice is it's not as long. It's actually quite short. And it's not as sharp. And it's also pretty rounded. So when you look at this *Camarasaurus* tooth, looking at the shape, what you probably notice is that it wouldn't be very good for meat-eating, but it's great for plants! So this tooth shape is needed in order to break branches and tear leaves and then grind them just a little bit before the dinosaur would swallow them. So tooth shape is a really important. It's a very important body fossil to study to better understand diets of dinosaurs.

So I had such a fun time reading *The Dinosaur Expert* with you and talking about female paleontologists and also looking at fossils, and I hope you had a good time too! Unfortunately, this is the end of Story Book Science, but I will be back next week! And I will read the book *Green Machine: The Slightly Gross Truth about Turning Your Food Scraps into Green Energy*. It's written by Rebecca Donnelly and illustrated by Christophe Jacques. And we'll read that together with permission from Henry Holt and Company. So I hope to see you next week for Story Book Science here on Facebook Live at 10am. I'll see you then! Bye!