



**Transcript for *Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner* by Janice N. Harrington
(Calkins Creek, an Imprint of Boyds Mills & Kane)**

Introduction (approximately 0:00 – 4:05)

Hi everyone! It's Colleen from the KU Natural History Museum, and I'm so glad that you joined me for Story Book Science today. But we're going to wait for some more folks to join us.

So while we wait, what I want to do is I want to talk a little bit about Charles Henry Turner. We're going to be reading a story about him and all of the amazing things that he did, specifically studying insects. Now he studied insects. He also studied a lot of other arthropods, or animals that have body segments and don't have a backbone. And there are so many arthropods. Insects like this Madagascar hissing cockroach. That's an arthropod. And so are arachnids like the spider.

But with all of these different arthropods, how can you tell the difference between the two of them, and all the other ones? So how would you tell the difference between an insect like the Madagascar hissing cockroach and the arachnid? So what I want you to do is I want you to look at these images, and I want you to see what is the same. I want you to see what's different. What are the things that you notice, and how could you determine that this is an insect and that this is not an insect, even though they're both arthropods? How would you differentiate or determine which one is which? So just think about that for a moment.

Now hold on to what you're thinking about because we're going to talk about insects and all of those different arthropods after the reading. But it looks like folks have joined us, so let's go ahead and get started!

First and foremost, we are going to go over our rules for Story Book Science. We are not in the museum, but we are still going to follow our museum rules. And so that means we're going to be kind and considerate. So if you have a question or you want to write a comment, please feel free to write those, but make sure you use kind and considerate words. If you answer or respond to a question or a comment, you want to make sure that you use kind and considerate words too. We want to make sure that this space is welcoming and inclusive. Alright?

Now for today's Story Book Science, we are reading *Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner*. This book is written by Janice N. Harrington, and it's illustrated by Theodore Taylor III. And it's being read with permission from Calkins Creek, which is an imprint of Boyds Mills & Kane. Now I'm really excited to read this book. It's a biography, or a true story, about Charles Henry Turner, who was one of the first African American entomologists. So we're going to learn about all of the amazing things that he studied and researched, but more importantly we're going to talk about how he constantly asked questions. He was very curious and wanted to better understand the world. So it's a good reminder that we should ask questions and we should remain curious.

If you have questions about this book, please feel free to write those. If you have questions about any of the specimens we looked at, you can write those as well. But just know I may not be able to see those immediately. Additionally, if you need a transcript of this reading, it will be made available later. And that will

be found on our museum website. And there is a link to where you can find it on the website in the video description.

So let's go ahead and get started!

Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner.

Reading from *Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner* (approximately 4:06 – 20:20)

Buzzing with Questions: The Inquisitive Mind of Charles Henry Turner includes copyrighted materials, and we do not have permission to include the written text of the book in this transcript.

Conclusion (approximately 20:21 – 29:37)

And that is the end of the story, but you can see that there are two photos of what Charles Henry Turner looked like in real life. So right there.

Now I think that that story is wonderful! Charles Henry Turner not only worked tirelessly to teach us about insects and all of the amazing things that they do and how intelligent they are, but he also asked questions! And it's a good reminder that we should ask questions and we should be curious and we should wonder about the world around us and question it. So I'm so glad that we were able to read that story together.

Now the other thing I wanted to point out was just how amazing and how patient and how gentle Charles Henry Turner was when he researched insects. Because insects, they can be very slow like those caterpillars. And it can take a really long time to watch them, but Charles Henry Turner was so patient. And he waited. And he waited in order to study those caterpillars and other insects! And he was so gentle. He made sure that they weren't harmed. And I think that's incredible because I'm not the most patient person. So I don't know if I could sit and wait and study caterpillars like Charles Henry Turner did.

Now the other thing I wanted to talk about is that no matter how patient and gentle Charles was, no matter how many amazing things he discovered, no matter all of the wonderful things he did for the community to help others around him, there were just some people that didn't like him. And the reason they didn't like him was because of what he looked like. Because of the color of his skin. And those people who had no reason not to like Charles, but didn't like him anyway, they were prejudiced. And it's not good to be prejudiced.

Now Charles Henry Turner, as we learned while reading this book, he studied and he helped us learn so much about insects and their behavior, so why they do what they do. But he also studied other arthropods like crustaceans like those crawfish and even spiders and other arachnids. Now insects, crustaceans, and spiders, they're all arthropods. So they have segmented bodies, and they don't have a backbone. But how do you determine an insect from any other arthropod? Let's learn together!

Now an insect, it has body segments like all other arthropods, but insects have three body segments. They have a head, a thorax, and an abdomen. So they have three body segments total: one, two, three. So that's one way you can identify an insect. The other way is to look at its legs. Insects have three pairs of legs. So they have one leg and directly across from it is another. And they have a total of one, two, three; three pairs of legs, but they have six legs total. So they have three pairs of legs for six legs total. And if you don't believe me, we'll count together! One, two, three, four, five, six; six legs of an insect.

So let's test this new knowledge. Now I showed you a photo of a Madagascar hissing cockroach earlier, but I have a museum specimen of one. Now it's a little hard to look for those body segments and look at its legs. So I'm going to flip it over so we can see the underside of the insect.

Now there's a head, a thorax, and an abdomen. So we have three body segments on this specimen. So three body segments means that it's an insect, correct? Yeah. Now let's look at its legs, just to make sure. We have one pair of legs and then another and then right below that we have another pair of legs for one, two, three pairs of legs. So the Madagascar hissing cockroach also has three pairs of legs. Let's count the total number of legs together. One, two, three, four, five, six. So the Madagascar hissing cockroach has three pairs of legs for a total of six legs, and it also has three body segments. So the Madagascar hissing cockroach is an insect!

What about some other arthropods? What about a centipede? Now how many body segments do insects have? They have three body segments. But looking at the centipede, I see a head. And then I see a lot of body segments, and each body segment has a pair of legs attached to it. There are more than three body segments, aren't there? Yeah. So a centipede has more than three body segments. And since we know it has more than three body segments, and each body segment has a pair of legs, we know that it has more than three pairs of legs, don't we? So a centipede, is it an insect? No! A centipede is not an insect. It has more than three body segments and more than three pairs of legs.

What about a millipede? And I have a couple millipedes in this museum specimen. Now millipedes are a little smaller than the centipede we just saw. And it may be a little hard to see, but you can see all of these body segments. Do you see that? Do you see more than three body segments? Because I definitely see more than three body segments! And millipedes, for each body segment, they have two pairs of legs. So if we have more than three body segments, then we still have more than three pairs of legs. So is a millipede an insect? No! A millipede is not an insect.

Now lastly, I have a picture of an arachnid, or a spider. Now I'm going to give you all a moment to see if you can count how many body segments a spider has. How many did you count? I count one, two; two body segments. So not an insect, correct? It's not an insect because it only has two body segments. But if you still weren't sure you could look at the legs. How many legs does a spider have? Let's count together! One, two, three, four, five, six, seven, eight; eight legs! So a spider has four pairs of legs for a total of eight legs. And we know insects only have six legs. So is a spider an insect? No! Arachnids like the spider are not insects. They have two body segments and four pairs of legs for a total of eight legs. Not an insect.

Alright! So I hope you enjoyed learning about Charles Henry Turner and learning about insects and other arthropods and how to tell the difference between an insect from all of the other arthropods. In case you want a refresher: remember that insects have three body segments and three pairs of legs for a total of six legs. Alright?

Now this is the end of Story Book Science. But at 11am, Rachel Neff, an entomology graduate student, so a scientist-in-training, is going to share all about insects and insects you can find in Kansas and insects you can find in South America and all of the ways that you can also be an entomologist! So stick around for that at 11am on Facebook, and then join me next week for another Story Book Science. We will read the book *You Matter*. It's by Christian Robinson, and I'll have some museum specimens to share with you. So I hope to see you then! Bye!