Science Storytime with Rubella Wonder!

Listen to the Language of the Trees by Tera Kelley

Transcript:

Hello little kitties and chickadees! This is Rubella Wonder with another Science Storytime, where we read a fun story and we learn about science in a fun way! Today's story is Listen to the Language of the Trees by Tera Kelley with pictures by Marie Hermansson. It's a really fun story that talks all about how trees communicate with each other!

Trees can't really speak like you and I can. When I speak, you can understand me, and when my cat speaks, you can understand her! Let's go grab, let's grab her. Hi, Hyla! Come say hi! We're doing a story time! So, for instance, when Hyla is really hungry, she'll meow at me and that's her way of communicating. But trees can't make sounds, so how do they communicate with each other, if they can't speak and the other trees can't hear them? Well, they can do what my cat also likes to do, where they talk through other ways that aren't through sound. like she can bat at my face while I'm sleeping or give me little kiss to show me that she loves me. And trees do similar things, they have other ways of communicating that aren't based on sound. So let's learn a little bit about them!

This is Listen to the Language of the Trees by Tera Kelley and Marie Hermansson, it's the Story of How Forests Communicate Underground.

The forest was full of chattering. A jay shrieked at a sniffing coyote. A squirrel scolded them from a low branch. The trees rustled, as if whispering to one another. No one noticed the tiny seedling pushing its way above the soil. Quietly, its needles stretched out in the cool darkness of the forest floor.

{It's a Little Seedling right there! And we can see it better right here.}

It was a miracle that it sprouted at all.

{Look at the size comparison to the snail! It's a really tiny seedling what's he supposed to do?}

As a seed, he had been tucked inside a seed cone hanging high on the branch of a giant tree. Until one day... CHOMP! The squirrel grabbed the cone and then scampered down the tree. He buried it in a

special spot for a winter snack. The seed rested underground for months. Luckily, the squirrel had a lot of special spots. He never came back! Nestled inside its cone, the seed just waited.

When it was ready, the seedling sprouted at the base of a giant tree. Centuries ago, this mighty tree was a tiny seedling too. Now, it towered over all the other trees in the forest, strong and straight. It looked like it could survive anything! But no part of the forest is entirely free from danger.

As small as it was, the seedling's roots reached underground and met the roots of other trees. Threaded between them was a silky net of fungi, a web that stretched from root to root and beyond. Through this web, the forest passed secrets.

{You can see the secrets all moving through these little roots and all of the little fungi that connect them.}

The trees talked to each other through their roots. They spoke of danger -- of drought and pests. They spoke of what one tree needed and another had to give. The seedling began to listen.

{It's good that the trees all talk to each other, they can all help each other if they need to!}

The giant tree with its huge crown soaked up so much of the sunlight, it soaked it up and turned it into food. It took care to send the little seedling enough to nourish it. How did it know that the little seedling was one of its own? It was a mystery buried under the soil where the root tips intertwined.

{So, because the seedling can't get up and get as much sunlight as the big tree, the big tree sends the little seedlings some food. And it does that through that whole root and underground system. Just like your parents will feed you little snacks and everything. They provide for you because you can't provide for yourself, so it's good that trees do that too!}

It was not only the tiny seedling that depended on the tree, but the rest of the forest too! Larger than all the others, the giant tree sent nutrients through the underground web. It brought water up from deep in the Earth. It housed the owl that nested in its upper limbs. And the coyote with the den at its foot. Day by day, the seedling inched taller. Then, one night, everything changed. The sky came alive with lightning flashes. The forest swayed under the force of the winds, and thunder roared in the sky, ROAR! Tucked away safely down below, the seedling's needles barely wrestled. Until...

{Ooh, I wonder what's gonna happen!}

CRACK! A massive strike lit up the giant tree's crown. THUD! Down went the uppermost branch. The animals of the forest scattered. The jay shrieked. The squirrel ran. For a moment, the giant tree lit up with an orange glow. And then... darkness.

{Hope the tree's gonna be okay.}

In the morning, it was quiet. The giant tree had been struck. It had burned briefly, but it still stood tall. Down on the forest floor, the seedling was missing one of its branches, snapped off when a limb had fallen from the giant tree. But otherwise, it had escaped harm. But something was different...

{Uh oh, I wonder what's different!}

A streak of golden light touch the seedling's needles. Instead of only drinking from its roots, it drank in the full light of the sun. For the first time, it made its own food.

{So, it's great that the damage to the big tree ended up actually helping the little tree! I love how the forest works like that, where one little bad thing can kind of lead to another good thing. It's kind of like finding that silver lining. It's always a good lesson to try to do.}

After the storm, the animals returned to the forest. The squirrel began its seed cone collection again. The owl took a long nap. And the forest waited. The forest listened. That's when the first winged beetle landed.

{Uh oh. Most beetles are okay, most beetles are great for the environment, but some of them not so much, oh no!}

The beetle sent out an odor which said, ATTACK!!!! Winging through the air, crawling over bark, beetles clustered on the giant tree and laid their eggs.

{Oh no, the beetles are all gonna try to eat the tree!}

But the giant tree sent out an alarm: DANGER! The warning pulsed through the forest, passing through tree roots, carried by the web of fungi.

{So, you can see sending the message about the beetles, "Oh no the bad beetles are coming to get me!"}

Day after day, the beetles attacked, a small but persistent swarm. No more sugar flooded the underground web from the giant tree, just distress. Then, something unexpected happened. Through the threads of fungi, from root tip to root tip, nutrients flooded in. But not FROM the giant tree, but TOWARD it! The forest gave what it had, so the giant tree might live.

And it did!

Someday, with luck, the seedling would grow tall too. But for now, it drank deep through the web at its roots and waited and listened as the forest talked.

{And that's our story!}

So, I think we have a lot to learn from Listening to the Language of the Trees, and since the language of the trees isn't really a spoken language, and it's all underground, I think we have even more to learn from them. But to start, the story starts out with the little seedling. And the little seedling became that way because a squirrel actually took that seed, that little cone, and buried it underground to save for later as a snack. And squirrels do that a lot! I know you probably -- if you've seen squirrels around -- you've seen them carrying acorns and walnuts and stuff. And maybe they you think that they eat them right away, but most of the time they store them for later, because they are hiding them out for the winter when there's probably less food around.

Now, the squirrel can remember a lot of the places, but a lot of squirrels can bury up to TEN THOUSAND SEEDS! And that's a lot of hiding places to remember! I don't think I can remember that many. Do you think you could? Yeah, probably not! So this ends up meaning that MILLIONS of trees end up being planted by squirrels who forget where they buried their snacks!

Now I think if I was gonna hide some snacks, I'd hide fruit snacks because those are my favorite. And where would I hide them? Hmm, I'd probably hide them on my bookshelf, because the fruit snacks are pretty colorful and I have a lot of really colorful books so I think that they would hide up really well there! Where do you think you'd hide your favorite snack? Is there any good spot that you think that it

would hide well? And maybe even grow into something fun? Because I really wish that my fruit snacks could grow into a fruit snack tree! But I think more than anything, they're just gonna grow mold. BLEGH!

Now I don't like mold on my food, but mold actually is super important! You know that white fuzzy stuff that you see on food when it gets a little old? You don't want to eat that, but the fungus is happy that there's something good to eat and it's probably grateful that you left that bread out. But the fungus is also super important. The fungus is what makes that interconnected web underground that the trees use like this. And so, I think that it's really good that we have the fungus to help the trees all talk to each other. And I think we have a really cool way of being able to understand how the trees talk to each other without using words and using that fungus.

So, for our little activity today, we're gonna make a little string and cup telephone! So, what's really cool is that you can take some plastic cups, and very carefully -- with a parent's help -- punch little holes at the bottom. And then, you can run a little string through them, like a piece of yarn. And then you have a really cool telephone! And it's just me, so I can't really demonstrate, but what you do is you talk into one side, and you hold the string taut -- so it's nice and tight -- and then whoever's at the other end can listen to you. Like, "Hey there, Rubella Wonder! I think you're doing a really fantastic job!" "Why thanks Rubella! I think so too!"

Yep, so I could hear myself, but all that happens is I'm not hearing my voice through the air, but I'm hearing it transferred through the string -- kind of like a landline telephone, if your parents remember that! But what's really cool is it can only work if it's really tight. So I think that there's a really cool opportunities to do some experiments with this! You can experiment with, like, how much you can actually hear from somewhere super far away. Like, aah what are you guys saying??

I think it's also interesting to see what would happen if the line was loose instead of tight. Maybe it wouldn't work as well. Or, if you played with the string itself, like twist it and plucked it. What sort of sounds would you hear? What sort of ways can you figure out to communicate using these that don't involve sound? Because the trees aren't using sound. Maybe if you poured water through one cup, would it get the rest of the string wet? Would the other cup figure out that it was wet? You can do all sorts of fun stuff with this. I wish that I had someone else to talk with right now, but my cat's in the other room now and she's not cooperating. But that's a fun little activity that we can do!

I think another fun thing that we can think about for this story is think about what the trees might be saying to each other. So, we know how they're talking, which is through that underground web of fungi and roots and stuff, as we're demonstrating with our little cups and string, but now we can think about how similar that is to how humans communicate. We often build little social networks, little nets of people, and those Nets are really important with helping each other out when things are difficult. So for instance, when the big tree got struck by the lightning or was being attacked by the bugs, all the other

trees in the forest started sending nutrients and stuff to that original tree. And it's because the tree was able to say, "Help! I need help! I'm in danger!" And I think that's a really important message, that we are able to help each other through these extensive support networks, and we can build those as we go on, and they're really helpful. But, we also need to remember to say something when we do need help! I think that there's so much that can be done if people know that you need help. And never be afraid to ask for help. It's always going to be around, it's always going to be able to help and really make a big difference.

And I think the last little lesson we can learn is about resilience. Resilience means "being able to bounce back when something bad happens". So, for instance, when that big tree was struck by the lightning and a branch was lost, that branch now on the ground can be a good like home for all sorts of critters now. As it's rotting into the ground, salamanders can be found under it. All sorts of beetles will bore into the wood and live in it. Ants and lots of fungi and stuff -- lots of things live in rotting logs and so that's a great new habitat that's formed! It also allowed in a bunch of new sunlight for that little seedling to be able to make its own energy for once. So even when something bad does happen, like a storm or a beetle attack, I think it's really important to look at what the good things that are coming out of it are. And being able to share that with your support system is really important, as is looking for the silver lining in any situation.

But I think that those are some good lessons that we got out of this book about trees, and I'm looking forward to seeing what else we're going to learn! And I can't wait to hear all about it through our little telephones. So make sure to drop me a line, tell me what you've learned. Tell me some fun things that you're able to do with these! Maybe think of a time that you needed help and you asked for it and you got it or someone else asked you for help and you were able to do something for them. For instance, I really like it when my cat gives me little cuddles at the end of the day when it's a really long day and I'm really tired. And I know she's grateful when I give her little treats. So we're there for each other and we help each other out. And I hope you guys do the same!

Also when you're in the forest next, if you're in any sort of natural area with plants, maybe think about what the trees are saying to each other! Maybe think about the vast underground network that's underneath your feet, and what sort of messages are going back and forth! And if you listen really, really closely, you might actually be able to hear them. So think about it, pay attention, and I hope you had a good time! I'll see you for the next Science Storytime! And in the meantime, you'd better work, you'd better learn, and, most importantly, you'd better wonder! I'll see y'all later, bye!