

**Teacher Time**  
**Take it Outside! Adventures in Nature with STEAM**

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Kristin Ainslie: Hi, everyone. Welcome to Teacher Time today. I am Kristin Ainslie, one of your hosts.

Dawn Williams: That's right, and I'm Dawn Williams, your other host.

Kristin: We are here, coming from the National Center on Quality Teaching and Learning. And Dawn and I are both curriculum specialists and writers, and we have been classroom teachers.

Dawn: That's right. And we also want to say happy Teacher Appreciation Week to all the teachers out here who are watching Teacher Time.

Kristin: Yes, happy Teacher Appreciation. We appreciate you!

Dawn: Yeah. So we, as always, want to know who's here today, so please go ahead and sign in so we can keep track of your attendance. And there you can also opt-in to join our Teacher Time community, and from there you can receive follow-up documents after the show.

Kristin: That's right, and you can always write to us. And we did have a viewer write to us. His name was Robert Fox, and he said he really enjoys the topics, that they were very relevant. So we thank you very much, Robert, for that compliment, and we hope you're watching today.

Dawn: All right, so we also would love to know what you think about the show, so we have an evaluation that's going to open up later. It opens about, oh, I would say about five minutes before we end. And if you're watching the show live today, this is the opportunity to receive your -- do the evaluation, to receive your certificate of attendance. So we leave the evaluation open for an hour afterwards, and this makes it a good professional development opportunity for those of you that are joining us. So when you go ahead and fill out the evaluation, at the end of it there'll be a place where you can select whether or not you want a certificate of attendance, and there you can put in your email address as you want it to -- your email address and your name as you want it to appear on the certificate. And you should receive that in about a week.

Kristin: So it's a bittersweet day, Dawn.

Dawn: It is.

Kristin: Because today is the last show. You may or may not know, it's the last show of our 2014-2015 season. So we are all saying goodbye today, and we have loved learning about STEAM along with you. Dawn and I have learned a ton, and we have loved bringing you all this information. And hopefully you are all ready to go with all this knowledge, ready to teach children all about science, technology, engineering, art, and math.

Dawn: And so we have a wonderful show for you today. It's called Take It Outside! Adventures in Nature with STEAM. It's all about nature-based learning and how to integrate STEAM activities while playing and learning outdoors.

Kristin: So we have Déana Scipio, she is back. This will be her third time with us, and we're really excited. She comes to read books with us, and today she's going to do some think-alouds with storybooks that are related to nature-based learning.

Dawn: And Gail will be joining us a little bit earlier and at the end as well. We're going to talk with her about a nature-based learning program that she did outside called an ECO Classroom, so we're happy to bring that to you as well.

Kristin: Great. And then Sam Dolan will join us for Try It Out! She's going to talk about the NatureBased Learning and Development work group, and she'll share some nature-based learning activity ideas that you all can do in your classroom.

Dawn: And Sam's also going to stay with us as we move into our Resources section, and then Gail will be back to share her favorite Behavior Management Moment tips and Resiliency and Wellness.

Kristin: That is right. We are excited about that. The Resiliency and Wellness is such a nice place to end our show always, because we always just feel so calm.

Dawn: We do. All right, so before we bring on Déana for our nature-based storybook think-aloud, we have a chat question for you: what is your favorite book to read to children that deals with nature? To chat in your answer, click on the "want to join" button, type in your name, and click "enter" or "return" on your keyboard and then chat away. We'll be right back.

[Music]

Kristin: All right, welcome back, everyone. We are here with Déana Scipio again. Hi, Déana.

Déana Scipio: Hi, everybody.

Kristin: That was great. So there were lots of books chatted in. Lots of people are -- you know, there are so many books that I think about when I think about nature-based learning and storybooks. What have you brought for us today?

Déana: All right, so I brought some fun things. One, I brought "Everybody Needs a Rock." So this is by Byrd Baylor, and the pictures by Peter Parnell, or Parnall. And the reason that I brought this book is manyfold. I brought it because I know that there are a lot of preschool classrooms out there with rocks in their science areas. And I thought, why don't we have rocks in story time and circle time? And one of the things that I really, really love about this book is how simple and just really gentle the illustrations are. They're line drawings with a little bit of color, and this is a beautiful storybook about rocks. And there are rules for choosing a rock. So this is rule number two. "When you're looking at rocks, don't let

mothers or fathers or sisters or brothers or even best friends talk to you. You should choose a rock when everything is quiet. Don't let dogs bark at you or bees buzz at you. But if they do, don't worry. The worst thing you can do is go rock hunting when you're worried."

Kristin: I love that.

Déana: And then you've got lovely images of rocks. It's just such a great way to jump into thinking about rocks.

Kristin: Well, I'm thinking about the think-aloud that you introduced us, that sort of concept that you introduced us to, at least to me, I don't know. You probably already knew about it. But thinking about that picture is so simple, and you can ask children what is happening in this picture, right? And "I wonder..." and all of those great kind of concepts you can talk.

Déana: Yeah. And then you can get kids out there drawing their own pictures of their rocks. I know a lot of kids who have pet rocks, too. It could be really fun. So I also want to push on our definition of what nature means, because I think a lot of times people close their eyes, they think green spaces and animals and flowing water. But people, we are nature, too. And the places that we live and the things that we build are also part of our natural environment. And so I brought you this book, "Madlenka," by Peter Sis. And when you look at this, you're like, but wait a second, how is this a book about nature? It's a book about human spaces. And you know how I love to push on the idea that the spaces, the things that you have in your classroom, the spaces around you are resources. So think about how your neighborhood could be a resource. So this is Madlenka. And Madlenka's tooth is loose. She must tell everybody.

Dawn: Oh, she's excited about it.

Déana: So she goes out to tell all the people, and here's what happens when she goes, "Hey, everyone, my tooth is loose! Loooooose!" And look at these gorgeous illustrations.

Dawn: It's so detailed.

Kristin: Right, the shapes and the -- I mean, there's so much to talk about in these pictures.

Déana: Imagine then if you took your kids out into your neighborhood to find out who lives in your neighborhood. What do they do? Go out, do drawings of the neighborhood. Talk to the people who work in the neighborhood, do interviews. That's science, too.

Dawn: Absolutely. And social studies. You're getting to know your neighborhood and what's around you.

Déana: Community mapping. You can do a map of your community. They can build it step by step as they get more and more information. So I brought this one to help think about other kinds of natural environments kids could explore.

Kristin: I love that. That does push our definition. I like it!

Dawn: It does, and it's such a good point, because Head Start programs are all over the country, in many different places with different types of weather all throughout the year. And every space isn't going to be a green, open space all the time, so I think it's a good one to bring up.

Déana: And I brought you one more. So this is one of my -- a book by one of my favorite illustrating teams, Leo and Diane Dillon. And one of the things that I really, really love about this book is that they always do such detailed, gorgeous illustrations. Look at this. So this is a story about Earth Mother. So Earth Mother, Mother Earth, she goes out into the globe, walks among her creations, and has conversations with them. So she talks to frog and she talks to man and she talks to mosquito. Now, imagine what mosquito has to say about man.

Dawn: Man's probably pretty good.

Déana: Man is delicious. Man is delicious. Man should stick around, because the mosquito says, "This is great. Thank you, Earth Mother. Best creation ever. Let's hang on to man." All right, and now imagine what frog has to say about mosquito.

Dawn: Probably a fan of mosquito.

Déana: "Mosquitoes are delicious! Please hang on to all the mosquitoes. Best creation ever. Thank you, Mother Earth." Now, what do you think that man has to say about frog?

Dawn: Well... they're green.

Déana: They're green. They're noisy. They're delicious!

Dawn: Frog legs? Frog legs.

Déana: Mm-hmm, right? "Thank you so much, Mother Earth. Keep frogs around. Frogs are awesome, delicious. Let's hang on to them." But imagine what man has to say about mosquito.

Dawn: Yeah, not a fan.

Déana: Not a fan. Get rid -- so terrible. They don't have any purpose, they buzz in your ears, they bite you. Get rid of them. And frog, what do you think frog has to say about man?

Dawn: No, if you eat me, I have no need for you.

Déana: "He eats me, eats my friends. Get rid of him." And mosquito thinks the same thing about frog. "Get rid of frogs. They're always eating me and my sisters. No, no. No more frogs." And Mother Earth says, "Mm-hmm." So this is a much longer book than you might necessarily want to read with your -- oh, see, here's the image of man smacking the mosquito that's trying to bite him on the forehead. He says, "Ah!"

Kristin: She's just listening.

Déana: He says, "More frogs, no mosquitoes. None at all. This world would be perfect." So you get to think about food webs and interconnections, but also you get to think about how you might use a book in a different way. So you can read this book over many days. So read the story of man and mosquito, and then put it down. And then when you come back the next day, put a bookmark in it, you say, "Hey, who remembers what happened in the story yesterday?" And then you get a great opportunity to have kids summarize the story, what they remember about it, the things that were important about the story, and you can slowly build over time the idea that you're talking about a food web and connections between all these things.

Dawn: Well, that certainly fits with things we said in the other show about scientific investigation, that for preschool children, you need to do it over time and need to approach the same concept in different ways so it's something that they actually can learn from instead of a, "Let's do a great science experiment right here," and it's really exciting, but doing it over time, you could do the book in the same way.

Kristin: That's right, there are so many longer books. And just giving children little snippets of it, I love that.

Déana: Then they get to summarize, they get to predict what might happen next.

Kristin: What happened before, what happened yesterday.

Dawn: And give them something to look forward to, because you left them with a cliffhanger.

Déana: Yep. What's going to happen next?

Dawn: Right, more predicting. Okay, thank you, Déana.

Kristin: Thank you. Always such a pleasure to have you. Thank you so much for coming.

Déana: Thank you so much for giving me this opportunity to talk to you and your audience about all these wonderful books that I care so deeply about.

Kristin: That's so good. We'll put these titles and the authors in our follow-up document, and you'll get that in a few weeks.

Dawn: Okay, so we are going to be right back with Gail, and she's going to tell us a little bit about this ECO Classroom, which we're going to show you a video of first. In it, it also features Teacher Daren, who we had on a previous show in October. It was the show about When Children Ask "Why?": STEAM Sharpens Your Inquiry Skills. And we're going to show you that video first so you can get an idea of what happened there.

Kristin: All right, so we'll be back in just a moment.

[Videoclip begins]

Gail Joseph: The ECO Classroom Project is the Early Childhood Outdoor Classroom project, where we've had a few goals. One is to get kids outdoors more and create spaces for kids to play and learn outdoors. So we've taken a lot of things that we typically would do indoors and have done those outdoors. So we've done art outdoors and we've done reading books outdoors, as well as a lot of unstructured play outside. And then the other goal that we've had for the project is really to create some connections and a sense of awe and discovery around the environment.

Boy: A squirrel been missing an acorn. That squirrel that been missing.

Gail: And we've chosen some environments that have been close to where these children live, so we've been to a park -- or to a forest habitat and an ocean habitat. And we've explored a wetlands as well as a lot of the local parks. And just tried to get kids curious about nature, noticing little things and big things about nature and how all of that connects to their own lives.

Dara Bourne: Gosh, look at -- what are we looking at?

Boy: A squirrel ate out this hole.

Dara: Oh, that would be a really big squirrel, Philip! So this tree, look, it looks like they cut it at the top. But, look, it's still growing. Do you see that?

Boy: Yeah, they cut the...

Dara: And we can actually see inside!

Brad Street: So getting children out into the natural world gives them a chance to develop connections and caring about the world and hopefully be in that place where they'll be stewards in the future and have some sense of what's out there and why they should love it.

Gail: So to kind of tie things together for the kids, we've introduced Molly. And Molly lives in a clubhouse, and each morning, one of the kids could come up and knock on her clubhouse, and Molly would come out, and she'd always been out exploring. And she happens to have just been exploring the environment that they were going to go to that day. And Molly brings with her a magic magnifying glass. "It is, but you know what, it is a funny tree, because it is not a tree that grew in a forest. In fact, it didn't grow at all. Somebody went to the forest, and they came home, and instead of drawing a picture of a tree, they made a sculpture of a tree." But Molly has also modeled that sense of discovery and wonder and curiosity for kids.

[Music]

Gail: And right now we've created an outdoor classroom. So this is something that a lot of teachers might think is only an indoor activity, which is to sketch in sketchbooks and make some art, and instead we're taking it outside, where they can be inspired by the things that they're seeing out here as well. Rebecca Aubin: All right, one of the wonderful things about the sculpture park is that it integrates science and art. And SAM's motto is to bring art to life. And it's a wonderful place for you to see plants and sculptures and the pocket beach, so it's really a special place.

Daren Chamberlin: It seemed like a great opportunity to get the kids out, and for our population, for 3-, 4-, and 5-year-olds, you know, just being able to look and touch and engage the environment is such a powerful learning tool. And for our kids, where we have like five different languages spoken in our classroom, it's -- you know, it adds that whole other dimension where for these kids to get in those environments is, you know, if we don't do it, there's a good chance that it's not going to get done. And then adding a rowboat on the lake, I mean, that just took a -- that was a whole other level of discovery with just facing fears about, you know, a large body of water, some healthy, justifiable fear.

Boy: Oh, I'm scared!

Gail: How do you calm yourself down? Nice work!

Boy: Well, now I'm not scared already.

Gail: You're not scared.

Girl: Teacher, I want to touch the water.

Gail: Do you want to touch the water? Okay, gently lean over. Put your fingers in the water. What's it feel like?

Girl: Happy.

Gail: It feels happy?

Daren: And then just to be out there, like it just seemed that they were finding awe in all different kinds of aspects of that trip.

Gail: So, Martin, tell me things that you've seen today.

Martin: A duck. And the water and a flower and a lily pad.

Gail: Wow! Anything else?

Martin: And the boat.

Gail: Outdoors creates such a sense of discovery and wonder and awe for young children.

Girl: (singing) I like it, uh-huh, uh-huh. I like it, uh-huh, uh-huh.

Daren: But then one thing that I really appreciated was that everybody that was involved was really focused on the kids' learning experience, and so as it progressed, you know, we were able to think together about ways to have it be increasingly directed by the kids and different ways that it might really resonate with the kids. And so, and that for me as a teacher was one of the funnest parts.

Philip: I liked going on the boat.

[Videoclip ends]

Dawn: All right, welcome back, teachers. Hi, Gail and Molly!

Gail: Hi!

Kristin: Hi, Molly!

Gail: Hi. So nice to be here.

Kristin: Hey, Molly, we got to see you in that video we just watched.

Gail: Oh, yes. Mm-hmm.

Kristin: It was a great video of you.

Gail: Well, did you notice that I had my magic magnifying glass?

Dawn: Oh, we do notice that you have that. What are you doing with that?

Gail: Well, you know, I think what -- I like to explore a lot. I love to explore and I love to make predictions about what I might see in different places. Sometimes I, like, read a book about bugs, and then I predict what bugs I might see outside.

Dawn: Oh, fun!

Gail: Sometimes my magic magnifying glass tells you where you're going to go for a field trip.

Dawn: Oh, how exciting!

Gail: Mm-hmm, yeah. Mm-hmm.

Kristin: So those kids in the video, Molly, they didn't know maybe where they were going, and you got to tell them? That was kind of an exciting, important job.

Gail: Oh, yes, mm-hmm. I would like pull out the magic magnifying glass, and there'd be a picture on there of where they were going to go explore that day.

Dawn: Oh, what a great way to get that surprise.

Gail: Oh, it was pretty fun, mm-hmm. But, hey, I love exploring, so I've got to run.

Kristin: Molly, okay, thank you so much for coming.

Gail: Thanks for having me.

Kristin: I'm going to shake your hand.

Gail: Oh, thank you. Okay, nice to see you. Going to find some shoes, too.

Kristin: Okay, good. We'll see you in a little bit.

Gail: Okay, I just thought I'd start with Molly.

Kristin: Oh, Gail, the best.

Gail: That was me, in case you didn't know.

Dawn: It was so well done!

Kristin: Gail, I love Molly!

Gail: I know, isn't she great?

Kristin: And that whole project, I mean, just watching that video...

Gail: Super fun. I was so excited to be a part of it, because, you know, I've got to say that when I was a Head Start teacher, I kind of thought about going outside as just like that was the time they went out to blow off some steam, and I often, I have to admit that I often was electing to be the one to clean up the tables and things. You know, I didn't really always think of outside time as a valid time that I could like do some instruction. I don't think I really embraced how wonderful the outdoors can be for children. I didn't really think about, you know, back then, that children aren't really going outdoors enough, right? And so it wasn't alwa-- you know, I just didn't utilize it. So when they approached me and said, "Would you like to be a part of this project where we're going to really help children get outside more, explore nature more?" You know, I was nervous because I didn't really know a lot about it. I'm certainly not a botanist. So I was really nervous about being involved in that project, but one of the great things about being a Head Start teacher and being a teacher of young children is that we always have an opportunity to learn new things, right? So I think about STEAM all season long, you know, I did not know as much about early math development, and so what a great opportunity that

you get to learn more about something that you don't know much about yourself. And so, anyways, I took it as kind of a learning opportunity. And it turned out great. It was a really fun project.

Kristin: So what were some carryovers from like all of the learning outside to inside? What did you...?

Gail: You know, I think what I would say is that there were three things that helped us kind of shape the experience. So one is that we really thought about let's take things that we do inside typically and take them outdoors, right? So whenever we could, we tried to take things outside. So reading books, we could just set up reading books in the grass. You know, we could bring some writing materials outside and let children be inspired by some of the things that they saw outside. Different shadows might happen from the sun outside, different than you can see inside. You could do different rubbings on things, you know, on natural things, on concrete. You could see what you would find. So it was a lot about taking things that we typically would do inside outside as often as we could, and then it was also bringing things from outside inside. So could we bring some more natural things into the classroom?

And that actually is one of the quality indicators we look for on the environmental rating scale. We actually -- yeah, yeah. We actually look for, do you bring things, natural things, inside for children to explore? And so we tried to bring things into the sensory table, bring things into small group, and when we started doing that, the children started bringing some things in, too. So I remember one little girl brought in a nest that she had actually found, an old nest that had kind of fallen from a tree. On their way in, she brought that nest into the classroom for us to explore. One of the assistant teachers brought in some blackberry branches, brought those in, and we were able to wash them off and eat blackberries for snack, right? So it was a lot about kind of that inside out, taking things inside out more often, and bringing some stuff from outside in.

And then I would say the third thing that we did is just really look for opportunities for children to explore and discover. And I love that Déana was talking about the importance of kind of keeping it to your own neighborhoods and thinking about places you can explore in your own neighborhoods. So it's not about taking children on a field trip three hours away to explore something that they wouldn't see on a regular basis. We really tried to get them to different habitats that were just a bus ride away that they can maybe go to again with their family once they got familiar with it and felt comfortable with it. So it was a lot of exploring things in our own garden outside the classroom door, in the park that we often walk to, and then maybe taking a bus ride to a lake habitat and some other places like that. So those were kind of the things that we did that --

Kristin: Those concepts are really great.

Dawn: One of my favorite parts of that is when you're in the canoe with the little boy, and he's like, "Okay, I'm getting scared," this is a new experience. Can you talk about that a little bit? It seemed like a great opportunity to do some social-emotional development.

Gail: You are on it, because that is one of the things I love, is around emotional literacy, and, you know, one of the things I always say is that we don't really use too many emotional words with young children, and we really need to use some more. And one of the best ways to do that is to label a feeling

as a child is experiencing it. But, you know, I know people have big emotions in classrooms. That's certainly the case, but one of the things that I felt was kind of a secondary effect -- I certainly didn't go into it planning that -- but the more we kind of got outside and went on hikes and found bugs and found natural life and then went on the water, we really saw a wider range of emotions that children were experiencing. There was something about being in nature that elicited empathy, that elicited kind of that, "I'm scared; I'm on the water," right? And so that was great for me, because I was able to take those opportunities and label those emotions and talk about emotional regulation. And I think that that's something really unique. I mean, I think if we expanded our STEAM acronym, we might even put emotions in there, too, right? Science, technology, engineering, emotions, art, and math. And so that was really great. I brought some fun little activities that we did.

Kristin: Because you mentioned that you were a little bit not the person at first to get out there, so what about a teacher who doesn't know exactly what kinds of activities to do? Could you give some ideas?

Gail: Yeah, I'll give you some ideas that were really fun and great for us. So this one just takes getting those free paint chips that you can get in stores, and sometimes maybe they'll -- you know, they'll often give them to you for free. And so we just gathered some paint chips, and we put them on a metal ring, and then what we did is we had children before we went exploring to make predictions about what colors would they find in the natural environment, what color? And so they could go on a color hunt. So you could even have them maybe like, you know, put a little mark on the things they think they're going to find, so a prediction. And then we could go out and explore, and then they could match. And it just really got them a little quieter and a little bit more kind of intentional about trying, you know, is it this one or is it this one, and matching. They were doing a lot of comparing and categorizing as they're doing that. So it was really fun to see what colors they thought they would find and what they did find, so that's a real easy one. All kinds.

There are some other ones, so you can just take those out. So that was a fun little activity to bring in colors. This was another fun one. So this is a penny, so not very expensive. So this is a penny, and one of the things, we wanted them to do some more careful observations about things. We also don't want them to go out in the environment and say, "Collect things from the environment," and have them try and take down a whole tree or a bush or a big branch, right?

Kristin: Here's my collection!

Gail: Right, exactly. So what we did is we said, "Let's make tiny collections. So you can collect things that you can fit on a penny." And it caused them to be just super intentional, very -- a lot more kind of close observation and finding little things. They really got quiet, and it was really cute. And then they would bring together their tiny collections. We would just sit down outside, and we'd talk about who had things that were similar, who had things that were different. Lots, again, of kind of comparing and categorizing. We could even make predictions about what things might fit on a penny and what things might not before we even went out.

This was another fun one. This is just -- you know, all you need is kind of a white towel or a white sheet. And we would just bring this with us every time we went outside. And we did this fun thing

called shake a bush, and so we would just put it underneath a bush and we would just, you know, gently, not vigorously, but that was a good word to bring in to them, not vigorously, we would kind of shake a branch on a bush and see what would come out. So different things might fall out. Some little bugs might fall out, some little aphids might fall out. And we could just look at what kind of came out of that bush, right?

Kristin: Parts of the plant that are not living anymore.

Gail: Exactly. That's right, exactly. And then, and where should we put these things back? We should put them back on the bush, like the living things, right? Because they're there because they're finding food and shelter there. And so we could make some comparisons about these living things and what we need to be alive. So that was another fun one. And of course bringing in books. And I would say that I go into hundreds of Early Childhood classrooms every year, and I would say that this is probably not the case for our viewers, because I'm sure they're doing great with this, but I would say that there's often a lack of these kind of nonfiction books, so I love the idea that you could bring in STEAM concepts with narrative. That's so great, and I think children also need to see real-life pictures and kind of scientific-based books, too. And so that was another thing that we did, is we really kind of did a careful inventory of what was in our library in the classroom and we went to the library and we got some more books that had real-life pictures of bugs and butterflies and plants. We learned some really interesting facts and things through that.

This was one of my favorites. This is the big -- or it's not the big -- it is big, but *The Book of Beetles*, and it has like every beetle. Can you imagine that there's a beetle on every page here? And one of the things that the children could do -- this was just on the table during the free choice time, and so they could go through, and you see all these Post-it notes, they could put Post-it notes on their favorite beetle, one that maybe they wanted to talk about at closing circle, and so we could talk a little bit about that beetle and why it was their favorite and what did they like about it and where did they think it might live if these are the things it needed. So lots of ways to kind of bring that in; that was pretty fun. So those were some of the fun things that we did.

Dawn: Well, and so this just makes me think, you know, you're outside in nature, there's so many things that children get exposed to. How can you bring that back with some intentionality into the classroom? And thinking about CLASS and, you know, the expectations around that, how can you kind of pull all that together so that you're still taking the experience that they're excited about, interested in, and bringing it back in and still connecting it to CLASS? A big task we're asking teachers to do, but still is.

Gail: So, you know, I was thinking about that, and we have a little chart up here that I just kind of put together because I was thinking about what are the things that we did, and I took apart the concept development part of CLASS, the CLASS observation that folks are probably very familiar with, and took some of those pieces like the analysis and reasoning, the creating element of that concept development, the integration, connections to real world. These are probably sounding very familiar to our viewers out there. And also the advanced language, the importance of bringing in novel words into vocabulary. And so then I looked at some of the activities that we did, such as reading nature books and, you know, another activity that we did bringing the outside in is that we did bring in some

branches and some leaves, and we did nature brush paintings. So instead of like with paintbrushes, we used some natural materials for that.

Again, tiny collections, and then this piece called ephemeral art. But basically what I did here on this little matrix is I thought about how did we encourage analysis and reasoning with reading nature books? Well, we predicted what the book might be about, we thought about what do you think we might see when we go to that same place, right? So we always started with a book before we went on a field trip. So if we were going to go on a field trip to kind of a forested area, we read a book about a forest and then made some predictions. What do we think we might see? And of course Molly with her magic magnifying glass helped us make that bridge as well. You know, we brainstormed all of the plants and animals we might see. It was so easy to connect what we were doing outside to what we had read about inside, so that integration. Remember, we read about these insects in the book, and, oh, and here they are out in the -- living on the log.

And then connections to the real world, so easy when you're out in the real world, right? It's a lot easier to do that when you're out there engaging with real things that they see. But you could also connect it to their real experiences. "Do you have a plant like this around where you live?" Those kinds of things. And tons of opportunity for advanced language. And again, I didn't know a lot, and I learned so much, so that was so fun, you know, to think about new words for dirt and insects and parts of the insects. You know, "exoskeleton." Kids love to use that word. "Thorax," those kinds of things. So there it is. So we did -- we were able to, I mean, like easily really do a lot of instructional interactions that we would measure with the CLASS outside in the natural world with some intentionality.

Kristin: I was thinking, four activities right there, and you've even talked about some more, so think about how much can be brought into your planning form and thinking about tying it into CLASS. I mean, it's directly what teachers are being looked at for.

Dawn: Well, and we've showed you a number of activity matrices over the course of the year that we've done the show. This is -- and it's in one of the 15-minute in-services suites. It's in the -- on the 15-minute in-service suite page on NCQTL, it's the Activity Matrix suite, and there's a blank one in there that you can do either by their classroom day, by the times of day that you have, or activity or by child. So look there if you're looking for a blank form. There's one ready for you.

Gail: That's right. Pretty easy to make there. I would say one of the other things is this idea of the ephemeral art, because I know we have art pieces, too, and so we did a lot with Andy Goldsworthy books; we brought in these great art books. I know that you know a lot about him, Dawn, and so we just used those as inspiration. And so I think we get really -- I know I did as a teacher -- hung up on something that they had to be able to take home and kind of create with glitter and glue and paper, and I think that that's -- of course that's really fun, but it was really fun for them to also see that you could make something and leave it, and it might not stay there forever, it might be kind of temporary, but what a beautiful experience in just that putting something together. And nowadays, you know, you've got a digital camera everywhere you go, so we could capture it there. So that's a picture where the artist, the actual artist's picture is the spiral, and then the child's creation with the rocks kind of imitating that. I think it looks kind of like a face. Another fun one.

Kristin: Well, Gail, we are thrilled with all that you have presented with us today and all the activity. It's really, really good. I think it really just helps teachers to get a start of, you know, maybe I'm not very comfortable out in the dirt, maybe I'm not very comfortable having bugs crawl on my hands, right? And so there's lots and lots of ideas to get teachers started and to kind of get over that fear.

Gail: Right, and to just kind of get outdoors and embrace it as another learning opportunity, another place where you can learn and not be hiding inside, wiping down the tables like I was before. So, yeah.

Dawn: Oh, thank you, Gail.

Kristin: Thank you, Molly, too!

Gail: Yes, yes, she's downstairs.

Kristin: So, Gail, we're going to see you in a little bit for Behavior Management and Resiliency and Wellness, so don't go anywhere, don't go anywhere.

Dawn: Our next segment is going to be Try It Out!, but before Sam Dolan joins us, we have a chat question for you. What are your favorite nature-based learning activities? We love when you guys share about these things in chat. There's people watching all over the country, so please share your ideas, because it's another great way that you're getting more activity ideas. We'll be right back.

[Music]

Kristin: All right, welcome back, teachers. We are now into our Try It Out! section, and we have Sam Dolan here with us. Hi, Sam.

Sam Dolan: Hello.

Kristin: Thanks for coming.

Sam: Thank you for having me.

Kristin: Oh, we're so excited you're here today.

Dawn: We are, and we have Sam on because she's been doing a lot of work around the NatureBased Learning and Development work group that we have. It's a multi-center work group that's been working on the website that's there and doing lots of webinars and presentations, so maybe if you were at NHSA or some other place, you might've seen them presenting. And Sam is also getting her PhD, and her focus is on nature-based learning and development, so we're so glad you're with us today. And our first question is why is nature-based learning and development so important for children?

Sam: For so many different reasons. Talking to teachers and parents, you'll hear a lot of stories about how children act differently when they're in nature and they engage differently when they're spending

time in nature. And now we're having more and more research that's backing that up. So people are looking at what happens when children are exposed to nature. One of the things that we've seen is that vision is impacted. So when young children spend more time outside, by the time they hit adolescence, they have a much lower rate of nearsightedness. So when the eye is developing and it's exposed to natural light and it's able to focus on long distances, you're training the eye. So down the road, there's better vision for young children.

Kristin: That's new to me. That's fantastic. I mean, what a great, easy way to improve children's vision, right? Or prevent --

Sam: Absolutely. To prevent those problems that can be so costly and have so many problems with learning.

Kristin: Absolutely. Okay. Good. What else do you have?

Sam: We also know about motor skill development. So if you think about traditional playground activities and equipment, how you have a lot of smooth, flat surfaces and artificial surfaces, when you're adding nature to a playground, children are grasping things differently. So think about the skills it takes to pick an uneven branch and to hold onto things that are different shapes and to walk up a grassy hill or balance on a bumpy log. And they're very different experiences. So kids who are exposed to those experiences tend to have quicker motor skill development and are able to master their movements.

Dawn: Oh, gosh, I just think about kids who are learning to walk for the first time and they're getting those steps but they're feeling the different surfaces and getting used to that, I mean, that's just going to be a different level of exposure than you'll get if you're inside.

Kristin: That's right, picking up rough leaves and twigs...

Sam: And different size rocks and just the different grip as opposed to uniform surfaces.

Dawn: Yeah, coming from the parent perspective, I'm always like, "Okay, are their shoes fitting well, are they going to step on anything that's going to hurt them?" And I'm thinking of preventing all that, but maybe I should take some more risks and do some things that are a little bit, I mean, it's not like walking up a hill is that much more riskier, but as a parent you think about how to keep them safe, but it's not so bad. It can actually help them.

Sam: Yes, risk is a whole nother topic. I think we can move forward here a little bit and talk about vitamin D as well. So this is something that we're seeing is becoming a common deficiency with young children, and vitamin D is essential in processing calcium and other nutrients for bone development. One of the best ways of getting vitamin D is through sunshine. It's free, which is wonderful. And it's something that doesn't have to be really added in, just exposing children to the sun and making sure that you have proper sun protection when you're doing that is another thing to consider. But it's a wonderful way to help combat some of these deficiencies that come when children are spending more and more time inside.

Dawn: Right, right.

Kristin: That's good.

Sam: And physical activity is a big one. So getting kids outside into spaces where there is more freedom to run -- grassy spaces, open spaces -- opportunities to climb and to jump and to balance. We're seeing higher levels of that moderate to vigorous physical activity than in a playground that is all artificial surfaces or just an indoor space where there isn't enough room to run around.

Kristin: So I know you had talked about parks and just kind of kids being near parks, living near parks or even having a center near a park or an open space, as to just improve children's physical activity just being near that park.

Sam: Absolutely. So neighborhoods where there are more parks present, we see kids are at these parks, they're moving, they have these opportunities that you just don't otherwise have if you don't have a large play space, if you don't have a yard.

Kristin: Right, okay, that's good. Okay, this is one of my favorite photos!

Sam: So this is a young child who is in her first potato dig, which is a very exciting experience. If you've never done it, I highly recommend it. It's like a treasure hunt where you're able to find these really exciting pieces of food. And we know that kids who are involved in growing food and gardening eat more fruits and vegetables. If they're involved in the process -- not just the fruits and vegetables that they're growing, but in general, having that understanding and having that investment and knowing how these things grow, kids will try new things, and it's always a good thing when we can get infants and toddlers and preschoolers to eat more fruits and vegetables.

Dawn: Well, and this just makes me think about the activities you could be doing in the classroom. Like there's, we've talked about the life cycle of plants and how maybe you connect some of those things to STEAM. So you're doing so many different topics at the same time when you're doing that.

Kristin: Where could a teacher start with planting and gardening? I know that this is the time of year to do it, right?

Sam: It is, and also there's never a bad time of year to do it. One of the things that I suggest when you're starting gardens is something like an herb garden. So this is spearmint; you can grow this inside, you can grow it outside. It doesn't require a whole lot of space. And if you smell this leaf, pinch this leaf, it's such a wonderful sensory experience. So you can talk about the life cycle of plants and you can engage in all of the sensory awareness. You could have a gardening center set up inside your classroom where children can practice and use those tools and learn that vocabulary and the words about gardening, and you can also use it for tea. Hot tea in the winter, cold tea in the summer. It's something that if you're growing things like oregano, you can make pizza packets for kids to take home so they can bring home some of the food that they were growing and use it to season different things.

Dawn: Yeah. Do you have any plant recommendations?

Sam: I say children love, for indoor, anything that can be edible. Flowers are great for outside. If you don't have a lot of space, think about vining plants that can grow up fences and grow vertically. One thing to really be considerate of are toxic plants. So if you're thinking about something like tomatoes, the leaves can be toxic, so you want to make sure that you're very aware of the plants that you're selecting for gardening. So there's a resource on our website and on the National Center on Health website that's a list of toxic plants that you can consult. And also you can talk to your Poison Control and talk about just the local plants that would be best and that are nontoxic for children.

Kristin: To feel and touch and smell and possibly eat, you know.

Sam: Yes, you want kids to engage with these plants, and you want the plants to be appropriate for them to do that.

Kristin: Okay, that's good.

Dawn: That's good information.

Sam: And this is one of the most interesting findings that's been documented from children to adults. We know that when you spend more time outside, it's a great way for you to increase your ability to pay attention. So we've got a limited capacity to direct our attention. You can think about times when you just kind of hit a wall and you can't go on.

Dawn: Everybody does.

Sam: Everybody does, and they've done a lot of studies that show nature is one of the best ways to just build the capacity back up. So if you engage in a natural activity, whether it be looking out a window at a garden or actually walking around, bringing in things like plants and fish tanks and water, it raises your capacity a lot more quickly. So after these activities, you can focus, you can pay attention. And think about the applications for that in your classroom. If you are going to be trying to engage children in an activity, why not use nature as a way? I brought in these leaves here as an activity that you can use with children for many different STEAM concepts. Think about seriation and putting these in order by size. You can match them with shapes, thinking about how some are shaped like stars and ovals and triangles. You can do non-standard measurement and see how many cubes or beans or color crayons long each of these are. But when you're doing those things, think about the materials themselves that you're using. The textures in these leaves are so engaging, and those scents and the vibrant colors, as opposed to some of the other materials you might use for those activities. When you're bringing nature in, you're able to increase that capacity to direct attention because it's naturally engaging materials that you're using.

Kristin: Right, rather than created materials of, you know, we have a lot of that in the classroom already, right? This is something so new and novel and pretty and different in the texture.

Dawn: I think somebody in chat mentioned messy mud day. Imagine bringing that in and what you can experience because of that. That was such a great idea.

Kristin: Messy mud day! I love that. So what about some -- you know, talking about STEAM and all of the science, technology, engineering, art, and math concepts for this whole season. I mean, all of these seem to bring STEAM concepts into the activities that you're doing. Do you have anything else that you think of when you think about STEAM?

Sam: I do. One of my favorite activities that incorporates a lot of these is making these sun prints. So you can see here, this is a paper that reacts to solar radiation. So you can choose natural elements or any elements at all that you lay down on the paper, you put it in the sun for five minutes, and then you rinse it off, and there's an imprint of whatever you had on it that was blocking the sun. So you can talk about the chemical reactions that are happening, you can talk about solar radiation and the need to protect your skin from the sun. You can absolutely incorporate art and let children make these as beautiful as they want and express themselves and use whatever materials they want to. They can make great Mother's Day cards and great artwork to decorate your room.

Dawn: Where do you get paper like that?

Sam: I get it off Amazon, but you can get it at art supply stores, sometimes they'll have them at Fred Meyer or something like that, like a bigger department-type store.

Dawn: Could you show it us again?

Sam: Yeah.

Dawn: I want to get a closer shot, because you can even see some of the detail of the veins in the leaves.

Kristin: Oh, my gosh, and this one right here, that one's just incredible. You can see all of the veins. That is -- the sun does that.

Sam: The sun does that, and it's pretty amazing. You can talk about the transparency of these leaves and some of those words as well. And what's the purpose of all those veins that you see? Why are there lines in here? What does that feel like in your hand? Can you feel those different leaves, the different textures in the leaves? So you can take this activity and really expand it to so many different STEAM concepts.

Dawn: That is a great idea. I'm going to get some paper! We're going to try that on a sunny weekend!

Sam: Excellent.

Dawn: So, Sam, we like to ask all our guests what are some messages you'd like to give teachers about nature-based learning and development?

Sam: The big thing that I like to think about is it doesn't have to be a separate activity. So it can be part of your routine. You can replace some of your materials with natural elements. You can use stones for building and practicing some of those engineering things. You can use stones for counting. You can use sticks to demonstrate number concepts and letters and shapes. So it's not always a separate activity. It's something that you can bring inside, something that you can do outside without a lot of added resources. It doesn't have to be something that takes -- it just takes a little intention. It doesn't have to take a lot of supplies and materials.

Kristin: Okay, good. So make it part of the ongoing routine, right?

Sam: Absolutely.

Kristin: Okay, okay, that's good.

Dawn: All right, thank you, Sam. She's staying with us. We're going to transition into Resources, and the main resource we wanted to show you was the Nature-Based and Learning Development work group website that's on the ECLKC. And Sam has been doing a lot of work on that website, so, Sam, could you tell us about that?

Sam: Yes, so we are really excited to have this website up and running and looking beautiful. You can see that the resources are organized into three different categories. So there's Why Play in Nature. We talked about a little bit of the research there, but there's so much more out there that talks about the benefits of getting kids outside, and there are wonderful summaries of that research in that section. Next to that, we see How to Play in Nature. So these are activities and tips and curriculum and all kinds of things that you can do to make it easier if you're just getting started and you don't know how to start playing in nature. And then finally we have Look Who's Playing in Nature. So these are some case studies of centers that have naturalized their playground or they've incorporated nature inside their classroom, and it provides some great examples of how to do it, how to get funding, what materials to use, and some wonderful stories on how to actually use it.

Kristin: Right, where to begin. It can be overwhelming. This is a fantastic resource.

Dawn: Well, another thing that's up there are there's videos of where you're seeing some actual activities and different concepts being done outside in nature, and we want to show you a short clip of a math video where you'll see some math concepts being done outside.

[Videoclip begins]

Narrator: When children have uninterrupted playtime, they make discoveries.

Girl: I discovered mud!

Narrator: Especially when they can experiment on their own with measuring cups and spoons, scales and rulers. Try offering them different shapes that hold the same amount. You can ask, "Is this cup

different from that one? What would happen if you tried to pour the water from one container into another?" Children learn about rulers and measuring tapes.

Teacher: Let's see how tall you are. How tall do you think you are?

Narrator: But what about measuring with other things, including our own hands and feet? Math isn't a separate activity; it's part of everyday life.

Teacher: How many more days do we have left for school?

Children: Two.

Teacher: Two.

Narrator: Young children are learning about time, about clocks and calendars, and how time passes in minutes and hours, days and weeks, months and years. They can learn to observe and record changes for themselves over time.

[Videoclip ends]

Kristin: Hi, everyone. We are back. That was a great snippet of that video, Sam, and I know that people can see a lot more of the video, right, on the website.

Sam: And our other videos as well.

Kristin: Good. Lots of other videos. Thank you so much for being with us today.

Sam: Absolutely. It was my pleasure.

Kristin: Thank you so much. We have a very quick poll before we get to Behavior Management and Resiliency, and...

Dawn: We always want to know who is watching with you for the Teacher Time watch parties, so please complete that poll. And if you happen to be with more than five people, please let us know how many that is in chat. We'll be right back.

[Music]

Dawn: Hi, everyone, we're back. We know we're a little bit behind schedule here, so we are going to still go forward with our Behavior Management Minute and Resiliency and Wellness. Hi, Gail!

Gail: Hi. Truly, this will be a minute.

Kristin: Okay. Well, this is one of our favorite parts, Gail, so we can't cut it, so I'm so glad you're here.

Gail: All right, well, I don't know if folks saw my lovely little bracelets here, but this -- oh, did you? This is part of the Behavior Management Minute. So one of the things is that when we're outside, sometimes -- I know that when I'm playing outside with children, sometimes I can hang back a little bit more, I'm not perhaps as intentional of kind of catching kids -- I kind of turn into safety mode a little bit more where I'm just kind of catching kids that are not doing the right thing and, "Hey, get down from there! Oh, that's not safe." And so this is kind of a fun way to redirect your attention as the adult outside as children are engaging in all of this nature-based learning and a fun way to encourage prosocial and good social-emotional connections outside. So it's a way to change your behavior, but it also helps with children.

So these are what we call friendship loops, and so I have a little jar of them. These are just these little potholder craft loops, and you can get thousands of them for not very much. And the good thing about this is you get to use them again and again, so it's not like a sticker that you're giving out you can't get back. And so the idea here is that I stuff my pockets full of them before I go outside with young children, or my fanny pack, whatever I've got. Stuff them full. Yep, apron, yes, good. And I kind of challenge myself to give them all away while we're outside. And so when I catch children that are being safe, being appropriate, taking turns, being good friends, listening, then I give them a little friendship loop. And all I have to do is say, "Wow, Kristin, I saw you get off the swing and give Dawn a turn, and so I just want to give you this friendship loop." And it doesn't interrupt their play, and they can wear it on their -- and then somebody at the door, a teacher, is waiting with the jar, and children just deposit all the friendship loops that they got from outside in, and when we get to the top, we're going to have a friendship loop party. So it's a fun way to kind of bring some good kind of redirection for the adult, like, I'm not looking for just safety things, I'm looking for great friendly behavior, I'm looking for good listening, I'm looking for taking turns, I'm looking for -- so it's a really fun, easy way to do that.

So I kind of want to just go right into Resiliency and Wellness. One of the things that we know from being in the classroom is that it can be kind of a stressful job. And there are moments that we have each day that can kind of create a little bit of stress and anxiety in us, and so I brought you a little something. So I brought you each one, right? And so what these are --

Dawn: I have so many uses for this, I cannot even tell you.

Gail: I know. I'm sure you do. So let me tell you what these are for. These are everyday signs, right? Things you see every day. And one of the things we know is that there is probably something that you see every day that kind of gets your teeth to grit a little bit. So it might be on your way to work that there's a red light, or maybe you see that the bus is really far back and it's not going to get there in time, and so these moments, these everyday signs, can create kind of some stress and anxiety. Maybe it's that, you know, you're trying to check your email really quick before the kids get there in the morning, and that little spiral is happening. So there are signs of things that happen every day that kind of prompt a little bit of stress in you, and so what I'm going to say is use those cues instead to take a deep breath. Take a deep, deep breath. So much of our breathing during the day is just this like really short breathing, and we never get that deep, cleansing breath that can really help us calm down.

I had to do a little -- I was nervous about Teacher Time today. I had to do a little bit of that myself, take some really deep breaths to clean, breathe out all that carbon dioxide and take a real deep cleansing breath that can help us calm down. So think about common things that you see every day. Maybe it's a stop sign that can just be that reminder. When I see a stop sign, just take one deep breath. And each deep breath can help us feel a little bit calmer and more centered. In the classroom, what are the things you see every day that might cause you to be a little bit stressed, right? Maybe it's a child that has a little bit of a whiny voice. Maybe it's that you saw someone that's a little bit too wiggly or something like that. And you want to take that cue, and instead of being one like this, take that cue to be... just going to take a deep breath.

Kristin: So things that happen every day.

Gail: Every day. Everyday signs. Take an everyday common sign and just think, "From now on, that everyday sign I see is going to be a cue for me to take a deep breath, whether it's a red light, a stop sign, a spiral on my computer, or something that happens in the classroom." And then remember, we started, I think, with our Resiliency and Wellness about a really important concept, and I just want to bring it back before we leave, which is gratitude. And so I just want to thank both of you for doing Teacher Time every month. I want to thank all our production staff. I don't know if you can see them out there, but Rodolfo, who's made this better than we ever expected, and so I just want to say thank you to everyone.

Kristin: Well, thank you, Gail.

Dawn: Teacher Time wouldn't exist without you.

Kristin: No, it wouldn't! This was Gail's idea. And here we are. So thank you, Gail.

Gail: All right, thank you.

Dawn: All right, we are going to wrap it up. We'll take a short break and be right back with closing announcements.

Kristin: Stay with us.

[Music]

Dawn: All right, we are back with some closing announcements. Before we get into our regular announcements, we do really want to just take a moment and say some thank-yous. Especially to Gail. She was the whole reason we do Teacher Time; it was her idea. It was such a great idea that we could bring this to teachers on a regular basis every month, and there's no possible way we could've done that without her. Rodolfo Sanchez, who you don't get to see every month, is the magic behind all of this. It's the reason it looks so good, it's the reason it's run so smoothly, it's the reason we have the videos. Absolutely could not have done that without him. We thank him. He's over there. It would not be nearly what it is without him.

Kristin: No, absolutely. We want to thank Susan Stewart, who helps us from behind the scenes. She does so much for us, and we never see her face; she's in California. We want to thank Alia Delassandro; she is our camera worker. She is amazing. Prak Nisarath, he's our graphic designer, and he has made everything gorgeous. He has made the set gorgeous, he has been a consultant on everything that we do, and he's just been such a huge, huge part of it. Jody Marx is another graphic designer that we work with.

Dawn: This background is because of Jody.

Kristin: Yes, absolutely. It's so, so, so, so great.

Dawn: Also Sue Cook, who is our copy editor. Everything that we say ends up being better because we get to work with Sue. This is so much more eloquent because of it.

Kristin: She's a developmental editor on all that we send to you, and it just is worded so perfectly because of Sue. Thank you, Sue. And Liz Wimmer, who's one of our curriculum specialists and you've seen on the show, is also behind the scenes every time working on chatting with you all and doing the Facebook postings, and we thank her as well.

Kristin: That's right. Terry Wardrop, who is our webinar support and helped with the set design early on. Joan Davis, she is our tech support. She is here helping us. She doesn't live in Seattle anymore, but she's always, always with us with tech support. And Cole, thank you so much, Cole. Cole is the person that you can talk to with problems with the webinar, and she is easily ready to solve those, so we love that. Thank you, Cole.

Dawn: And we'd also like to thank Rebecca Sims and Paul Stohl, who also were part of the background and making things run smoothly last year and this year as well. So I know we took some more time, but we just had to say thank you to everybody for making this all possible. Okay, wrapping it up.

Kristin: Okay, so even though it's our last show, we would still love to hear what you think, right? We would love for you to stay in touch with us. We answer all the questions and comments personally. Let us know what you thought of this season in science, technology, engineering, art, and math so we continue to make Teacher Time the best it can be, right? You can send us photos to NCQTL.

Dawn: Uh-huh. And all of the follow-up documents will be sent in the email to you. If you haven't had the time, take a moment to sign in and register your attendance. Please go ahead and do that. And also, we will be chatting, I think, on Monday on the Office of Head Start Facebook page about the show that we did today.

Kristin: That's right, join us on Monday. The evaluation and certificate will be open for the whole next hour. So just as a reminder, certificates are only available for today's show. And you can expect your certificate later next week probably in your email.

Dawn: That's right. And you will always be able to find the recordings of other Teacher Time shows on the ECLKC. The follow-up documents are there as well. And in the meantime, they are available on a web platform, [teachertime.org](http://teachertime.org).

Kristin: That's right. All right, so we wish you the best of luck with the remainder of your school year, and we hope you continue to do great work that you've already begun with science, engineering, technology, art, and math, right?

Dawn: Yes. Yes, and as always, here is your moment of awww.

Kristin: Bye, everyone.

Dawn: Bye.

Girl: What the heck? Look at him now!

Girl: We're being really gentle with him.

Girl: Put a baby snail on my hand, please.

Girl: Okay.

Girl: I got a lot! Look at those two right there, the big brother carrying a little sister.

Teacher: Mm-hmm. Do you think kid snails play like kids, like you kids?

Girl: No.

Teacher: You don't think so? You think they play games?

Girl: They play different.

Teacher: How do they play different?

Girl: Because they crawl around and get on each other, and brother's -- see, look at those two, kissing their mother.

[Music]

[End video]