

Little Scientists: Exploring TECHNOLOGY with Infants and Toddlers

Treshawn Anderson: Hi, everyone, and welcome to "Teacher Time." We are so excited to be back with you today. I'm Treshawn Anderson, and I'm from the National Center on Early Childhood Development, Teaching, and Learning, and today we're going to be talking about exploring technology with infants and toddlers. Joining me today is Judi Stevenson-Garcia. Hey, Judi. Can you tell us a little bit more about our plans for this season's "Teacher Time" series?

Judi Stevenson-Garcia: I'd love to, Treshawn. Hi everyone. Welcome to "Teacher Time." As you know, each season we're here to support infants and toddlers and preschoolers, and this season we're focusing on STEAM, which is Science, Technology, Engineering, the Arts, and Math. And what we're going to do this season is, we're going to spend four episodes focused on infants and toddlers in STEAM, four episodes focused on preschoolers in STEAM, and we're going to focus each month on one of those components, and then we're going to weave the arts through every episode because we know the arts are there to help children be creative, and solve problems, and learn to express themselves.

So, as we usually do, we're going to take turns focusing on the different age groups. There are eight episodes all together, and once they're recorded you can find them in the "Teacher Time" community on MyPeers, and then eventually they'll be posted up on the ECLKC.

Treshawn: Thanks for getting this all set up, Judi, and as part of our STEAM focus this season, our team sent every education manager a STEAM celebration box, and this box contains lots of resources to support you in using STEAM all year long. Have you seen your STEAM celebration box yet? If so, great. Go to MyPeers and let us know how you're using it. And if not, ask your ed manager about it. And if they haven't seen it yet, then no worries. We're going to post the materials in a special folder on MyPeers so that you and your education manager can find them there. We'd also like to welcome our Q&A facilitator, Jan Greenberg. Hey, Jan.

Jan Greenberg: Hi, Treshawn. Hi, Judi. Hi, everyone. I'll be here to answer any of the questions you ask through the purple Q&A widget. Looking forward to chatting with you.

Treshawn: Thanks, Jan. She's so helpful in answering your questions, so be sure to use that purple Q&A widget, and we're also delighted to have Dawson Nichols from I-LABS join us today, and he'll be here later to give us some ideas for supporting technology learning with infants and toddlers.

Judi: That's great. I am really looking forward to what Dawson is going to share with us today, so I'll be looking forward to that a little bit later in the episode. I do just want to take one minute to remind you that at the end of the episode we'll give you a link for an evaluation, and if you've been with us before, you know it just takes a few minutes to give us some feedback. We really appreciate it when you take the time to let us know what you think, what you're interested in. We use that information to inform our decisions on future episodes. So, please take a few minutes to do that. If you're watching with a group of friends and only one of you registered, you can share the link with your friends, and they can complete the evaluation, too,

and then once you do that, you can download a certificate of completion for participating in today's episode.

Treshawn: So, before we begin, I want to go over some information regarding the webinar platform since we'll be using some of the features on this episode. So, at the bottom of your screen, you'll notice these widgets. If you have any questions during this episode, you can submit them through that purple Q&A widget like we talked about, and we'll try to answer your questions before the webinar is over. A copy of today's slide deck, and any additional resources that we'll talk about today, are available in that green resource widget. So, go ahead and download any resources in the viewer's guide or any links that you may find useful. We'll also be using a new widget today, and it's the yellow ideas widget with the light bulb. And it's a way for us to share ideas about the topics that we're going to be discussing, but don't worry, we'll tell you when to use it. You can find additional answers to some common technical issues in that yellow help widget, and one thing that's great about this platform is that each widget is resizable and movable for a customized experience.

So, all you have to do is click on the widget and move it across your screen by dragging and dropping, or you can resize the widgets by using those arrows at the top corners. One thing to remember though, is in order to view the videos that we'll use in today's webinar, make sure you enable that Adobe flash player on your computer so that you can see and hear the videos as we go along. And finally, if you're just having trouble with everything, try refreshing your browser by pressing F5 on your keypad and make sure you log off of any VPNs and exit out any browsers that you may have open, too.

And last but not least, if you haven't already, be sure to download that viewer's guide, and you can find that in the green resource widget. We really redesigned it this season with spaces for you to reflect and write down any new ideas and strategies that you'd like to try. And, if you were with us for our previous episode, you'll remember that we stop throughout the episode to give you what's called a "Teacher Time Minute" to reflect on what you've seen or what you've been thinking about, and if you don't have a printer, that's OK. This document can be used right on your desktop. It's a fillable PDF, so all you have to do is just type into the document, and write your notes, and save it to your computer.

Judi: OK, so I think we're ready to jump into today's topic, which is technology. We're going to share some ideas that you as teachers and family, child care providers can use with the infants and toddlers that you work with. Now when we think about technology, I think maybe what first comes to mind is this image that you see on the left, right, like, smart tables, smartphones, tablets, computers, and other kinds of complex machines. But what we know is that new recommendations from the American Academy of Pediatrics and other early-childhood experts really say that limiting technology for our youngest children is the way to go.

So, we want to limit screen time up until 18 months to 24 months, whenever possible. We know it isn't always possible, so if older toddlers are starting to use tablets or maybe watch some TV shows, it's important to make sure that parents are doing it along with them, talking to them about it because that's how they're going to learn about what it is that they're seeing. For the most part though, we want to be avoiding screen time.

So, when we're talking about technology today, we're going to be thinking more about any kind of man-made object or tool that's going to help us solve a problem or achieve a goal. So, what does that mean? When we talk about technology tools, we're going to think about things like wheels or levers, ramps, or even scissors.

If you think about maybe tools that you use in your home, you can think about kitchen utensils or utensils that you use to eat, maybe a flashlight, or even musical instruments can be used as a tool, and containers that we use to scoop and fill or carry things. All of those can be considered kind of simple technology, and that's what's going to help, especially infants and toddlers as they explore the world and find out about how things work. They're going to use these kinds of tools to understand kind of the basic foundation of technology.

So, for example, if you like at the images on the right, do you see any technology there? Kind of hiding, but if you think about the roof that opens and closes on that bus, it requires a hinge, and a hinge is a kind of tool or technology. It helps to connect things, and it allows one part or both parts to move, and infants and toddlers love to work hinges, right? They love to open and close lids or swing open a door. If you have an outdoor playhouse, sometimes they like to open and close the windows, open and close the doors, and so they're learning about how technology works by exploring how hinges can be used.

So, for example, if this child here is exploring opening and closing the lid, they might try to pull the lid off, but they can't because the hinge is holding it closed. If they push it a little, it might close halfway. If they push it hard, it might close all the way. So, this exploration is really important for them for understanding how tools work and how they can use them to solve problems. And as you're sitting close to infants and toddlers as they're exploring, you can use language to support what they're exploring.

So, sometimes we call this parallel talk or sportscasting. So, you watch what the child is doing, and then you describe it, so for example, "Oh, I see you opened the roof of the bus, and it stayed open. Then you pushed it with your hands, and it closed." You can also make observations about the tools that they're exploring, so for example, "Oh, I see you tried to pull the roof off, but it's connected to the box, isn't it? I wonder what holds it there?" So, these are all ways that we can help infants and toddlers just kind of jump into the world of technology. Now that we've defined it a little bit for you, hopefully you see where we're going today. I wonder if we can think a little bit about how we can support children's development and learning as they explore this technology.

Treshawn: Yeah, so let's start with the Early Learning Outcomes Framework, or the ELOF as we like to call it. So, which domains would you look in to find knowledge and skills related to technology? Well, when children explore ideas about technology, they are learning and developing in really all of the domains in the ELOF, but especially those related to approaches to learning, cognition, and perceptual, motor, and physical development. And in each of these domains there are developmental progressions that are supported when you offer opportunities for children to explore technology.

Think about that hinge example. You know, when children are exploring how hinges work, this helps them develop initiative and curiosity and creativity, which are all subdomains in

approaches to learning. And when children explore technology, they're also discovering, and reasoning, and problem-solving, which you'll find in cognition. Finally, children are using perception and fine motor skills as they explore technology tools like hinges.

Judi: That's right, Treshawn. These early experiences with technology support children's development and learning across the ELOF domains, and one area of the ELOF is the subdomain—creativity, and what it says there is that children use creativity to increase understanding and learning. So, if you think about the "T" in technology as tools to help us accomplish tasks, you might realize that the infants and toddlers that you work with have been using objects as tools to accomplish their goals, and sometimes, actually most of the time, they use them in very creative ways because they're still learning how the technology can and cannot be used. As we move through today's episode, keep in mind the strategy that we're sharing and think about how they support the goals that you have for children's development and learning across the ELOF domains and the subdomains.

Treshawn: Alright. So, let's watch some videos of infants and toddlers using a spoon as a tool. You're going to need your Viewer's Guide, so if you haven't downloaded it yet, now is a good time to do it. Remember it's in the green resources widget. So, as you observe these children using a spoon as a tool, write down what you might say or what you might do to support their exploration.

[Video begins]

[Conversing in Spanish]

[Video ends]

Treshawn: Infants and toddlers are so creative with tools, right? So, we're going to give you a "Teacher Time Minute" to write down in box one of your Viewer's Guide what you might say or do to support their exploration. And when we come back, we'll share with you what we came up with. Go ahead and take a minute. [Music] Welcome back. I hope you had a productive "Teacher Time Minute" and got to write down some great ideas. So, now we're going to share with you what we found.

So, we did notice that children in these videos seem to understand that spoons are connected with food in some way, either to eat with it or to stir with it. Well, here are some things that we might say and do to promote their learning. So first, we can describe how children use the spoon, like sports casting or that parallel talk that we mentioned earlier. We can say, "I see you putting the food on your spoon with your fingers, and then you pick the food up and put it in your mouth." And then, we can encourage children to just hold the spoon and use it. You can say, "Look. There's a spoon you can use to scoop up your macaroni and cheese," or you can say, "You're holding the spoon with your hand. Would you like to try to pick up some food with it?" And then lastly, we can model the different uses for a spoon and use some parallel talk when you're using the spoon.

So, for example, you can say, "I'm using this big spoon to scoop up the food and get it out of the container so that you can have some to eat," or you can say, "I'm using the small spoon now to

scoop up your oatmeal. Here it comes. Should I put the spoon in your mouth so that you can eat it now?"

Judi: Those videos are a great start for helping us to think about how we can support infants and toddlers in exploring technology. Have you ever thought of a spoon as being technology? Maybe not, but we're hopefully expanding what you think about in terms of technology today. Let's talk a little bit more about what it means to support technology learning in infant and toddler settings.

If you were with us for our first episode, you will remember that we talked about three strategies. One is creating an engaging environment, two, providing nurturing and responsive and effective interactions, and then finally providing technology learning experiences and opportunities. These are just a couple ways to think about how you can support STEAM learning in the environment that you're working in. So, let's start with engaging environments and thinking about what that means.

So, first of all, when you think about your environment, you want to think about materials that are open-ended, varied and accessible. So, what does that mean? Well, when we say, "open-ended," that usually refers to materials that can be used in more than one way, and this is a little bit challenging when we're talking about technology because usually most tools are designed for a specific purpose or to solve a specific problem. So, we can think about open-ended materials in terms of letting children freely explore the tools and use them in different ways. Remember they're learning what tools do and don't do, so they may be trying to do some things that you would think won't work, but they have to find that out themselves. So, for example, using a fork to scoop up rice might not work, but they'll figure it out, and as they do it maybe they'll learn about the tool's purpose and use.

Open-ended materials also support creativity, and so the children use tools creatively, and they're often similar to tools they see and use at home. This is a great opportunity to encourage families to explore technology thinking with their children during their everyday routines and activities. Remember children often discover creative ways to use tools before we do, and sometimes objects that we think only have one function, they may have more functions than we thought, and we'll look to infants and toddlers to show us the creativity. In addition to engaging materials, we want to make sure that we have a variety of materials, things that will engage children's senses and have defined functions like rattlers or working flashlights, bubble wands.

You'll also want materials that help children learn to use tools to solve problems like safety scissors, maybe different kinds and sizes of paintbrushes, different types and sizes of scoops, plastic sand shovels, and for older infants and toddlers maybe rakes, or child-sized brooms and dustpans. And don't forget toys that have wheels. One idea might be to take the wheels off of some toy cars that you have if possible, and then children can explore what it's like to have a car that has wheels and a car that doesn't have wheels. They'll definitely move differently, and then they'll start to think about how wheels can be used as a tool. This is OK. Watch your children to see how they figure out how the tool works and doesn't work. This helps them pay attention to the best use of a tool and maybe some new ways to solve problems.

Treshawn: That's right. It's also good to think about how you can support dual language learners as they explore the environment. Remember the hinges example we talked about earlier? Look for them in your learning environments and point them out to children. Talk about how they work. Take the time to talk with dual language learners about the actions of the tools and make specific connections between their words in their home language and new words they may be learning in English.

And if you're fluent in the child's home language, that's great. This may be the greatest opportunity for you to have a whole conversation about the hinges in the child's home language. You can talk about what parts move, what parts don't move, and you can use action words as much as possible. Take this firetruck for instance. You can really talk about the hinges then. You can say, "The ladder is up. Now the ladder is down. Up. Down. Now you pull the ladder up," and then they'll give it a try, and you can point out the hinge. "See this hinge right here? This helps the ladder go up and down."

So finally, we want to make sure that all materials are accessible to children. Put the objects and materials on low, open shelves or in baskets and bins on the floor so that children can access them easily and independently and display them in a way that captures their attention and really invites them to satisfy that curiosity that we know infants and toddlers have. And for children with fine motor delays, most electric or battery-operated toys and tools, like flashlights, can be modified to turn them on with a switch instead of that sliding button that's kind of hard to work sometimes. You can find or make simple switches that give all children the opportunity to use these types of tools and toys. And you can help children think about their own bodies and how they work like hinges.

For example, our knees and elbows are kind of a hinge because they open and close in a similar way. You may have a child who is receiving physical therapy in your group, and so you can make comparisons between how their supported physical movements and the hinges you see and use in your environment are similar. And some children with disabilities use assisted technology to accomplish their tasks, and assisted technology really refers to any product, or piece of equipment, that helps to increase or maintain or improve children's functional abilities, and they can be very simple or very high-tech, depending on the child's needs.

For example, some simple technology might mean a toddler with fine motor delays is helped by using a spoon that's larger or smaller or shaped or weighted differently than regular spoons that we use, or you might have an infant or toddler with sensory issues who would benefit from using technologies like tactile toys or fidgets. OK, that was a lot, so now we're going to take some time to see what all of this looks like in action.

Judi: Yes, that's great. Thanks, Treshawn. Now we're going to watch a video of some children exploring tubes and cylinders. As you watch, look for open-ended, varied, and accessible materials.

[Video begins]

Educator: Do you guys want me to get the rings out for you? Boris, is that your hat? I'm going to move this over here. Tyler. I see you. Tyler. Oh, I see his hand. Tyler! James! James. OK, I have another one. James. James. I see you. I see you. I see you. I see you. Oh. My arm is in there.

Tyler? Here, it's heavy. Gabe? Gabe? James? I see you. James. James? You have a curler in your mouth. I see it. Hi, James.

[Video ends]

Judi: Wasn't that a fun learning environment? What materials did you notice? Did you notice that they had open-ended materials like different-sized cylinders, and tubes, and clear-plastic water jugs? And then there were a variety of materials, including colorful plastic pegs, and plastic curlers. It looked like all of the materials were on the floor instead of the shelves, but did you notice the shelves were low and accessible to the children, even the top shelf? We saw some pegs inside one of the water jugs, so the children are learning that jugs are tools for collecting and holding objects.

One child put a short cylinder on his head, and the teacher asked if it was his hat, so this child is learning that a cylinder maybe can be used as a tool for pretend play, the arts. Then we saw the teacher hold up a long tube to her mouth and say the child's name through it, and when the child took the other end, she looked through it, and she said, "I see you." Did you notice the children's reactions after that? It was priceless. So, now we're learning that tubes can become tools to talk and look through, and did you notice that the teacher's voice was louder when she talked into the tube. That would have been a great thing to highlight for the children. You can use tubes as a tool to make sounds louder. At the end of the video, a child picked up one of the other tubes and held it to his face, so now we see he's ready to explore how to use this tool on his own.

Treshawn: OK, so now it's time for a "Teacher Time Minute." So, in box two of your Viewer's Guide, write down some of your favorite open-ended materials, and remember some of the best open-ended technology materials are those that you can find around the house, like containers with lids, or a paper-towel, or wrapping-paper tubes, or measuring cups, or different eating utensils. Then think about the variety of materials that you have. Do you have materials that support children's home culture and home language? Remember children are more likely to explore materials that they're familiar with. So, write down some areas in your learning environment where you'd like to add some more varied materials that represent the children in your group. And finally, how accessible are the materials in your environment? Write down some things that you're doing really well and maybe write down some areas that you want to improve. Go ahead. Take a minute.

[Music]

Judi: OK, now let's talk about nurturing, responsive, and effective interactions. We know that infants and toddlers are more likely to explore and use objects and materials in their environments when they feel safe and experience consistent, positive interactions with caring adults.

When it comes to technology, teachers and family child care providers like you have an important role to play by actively engaging with children during their explorations. So, in other words, you interact with children and encourage them to explore technology materials and ideas, and that way you nurture their curiosity and creativity. You help them develop skills like inquiry, reasoning, problem-solving. You also help children develop skills in other areas like

language and communication. All of this happens within the context of secure relationships. So, during our previous episode on science, we talked about some strategies that will help you provide nurturing, responsive, and effective interactions.

Today, we'll talk about the same strategies, but we'll think about how to use them to support technology thinking and learning. So, first off, using scaffolding. Do you remember what we said about scaffolding in our last episode if you were with us? It's about observing children as they play and then providing them with just enough support so that they can be successful. Scaffolding helps them to be successful at something they might not be able to do on their own just yet.

So, for example, you might move a rattle closer to an infant so she can reach it and grab it. You might model or describe for a toddler how to push a button on a flashlight to make it go on and then allow him to try it, or you might gently hold a toddler's wrist as she brings a weighted spoon to her mouth to feed herself. Remember giving children time to use a tool before you offer help promotes their curiosity, creativity, and problem-solving, and it also helps you know what kind of scaffolding they need to be successful. When you scaffold, it helps them figure out more than maybe what they would learn on their own.

So, the balance is key. Also, you want to introduce some basic inquiry skills. Now, for infants and toddlers, you can ask good questions that will guide their observations and explorations. So, for example, "You're holding so many things in your arms. What else can you use to carry these toys or these objects from inside to outside?" Or, "I wonder if you could use a fork to fill the cup with sand? Do you think a fork will work?" We talked about forks and spoons and figuring out what they're useful for. What happens when you use the fork? What might work better?" Questions like these can help children notice the relationship between something they want to do and a tool that can help them do it.

Treshawn: That's great. So next, we want to speak technology, and we speak technology by using technology-related language throughout the day with infants and toddlers. Think of this as using the specific names of tools and talking about how they work and how they're used like our examples of spoons and hinges, and for children who are dual language learners, ask parents to teach you words and phrases from the child's home language for the tools and how they're used, as well.

For example, you might ask parents, "What's the word for stick, bang, and drum?" And help children communicate that they're using the stick to bang on the drum, and you can do this in their home language. Really take the time to explain and demonstrate the connection between the words in the child's home language and the words that you're using to talk about the technology tool and concept. Lastly, use vocal emphasis, gestures, and repeating sentence patterns to give children clues about what your words mean. And for children with hearing impairments or speech delays, you might use sign language to communicate the names of tools and their uses.

So, talk with families about how they communicate with their child at home and ask them to give you some strategies that you can use in your programs. And remember children who will use communication devices, and wheelchairs, and walkers, well, they're also using technology.

So, be sure to include that in your classroom setting, and name the devices and the equipments, and describe what they help children do.

Judi: Yes, that's right, and then finally what we want to do is what we do all day long, is really encouraging children to communicate. Infants and toddlers communicate with their eyes, with their body movements, and with the sounds that they make. Sometimes some beginning words you can hear coming from your toddlers. Older toddlers are learning more and more words, and they're better able to use them to describe their ideas and their experiences and maybe to even ask some simple questions.

So, you want to pay attention to what they're interested in, what they're trying to express, and you can also model problem-solving and the scientific method of observing, asking questions, making predictions, experimenting and then talking about what happened as children explore the tools and the ways that they can be used. You can encourage children to communicate what they're seeing and doing using language or whatever form of expression they know best. Don't forget to use technology-related language that you've learned from families if there are words or technology or tools that they use and encourage families to intentionally use this language with their children at home as well.

Treshawn: OK, so let's put all of these strategies into action. Here is a picture of a teacher supporting an older toddler in exploring technology. We're going to give you a "Teacher Time Minute" to write down in box three of your viewer's guide something the teacher might either say to scaffold the child's learning or a way that she might introduce a basic inquiry skill or a way that she could speak technology or a way that she could invite the child to communicate. And so, we'll be back in a minute to give you an opportunity to share. Go ahead and take a minute.

[Music]

Welcome back.

So, now, we're going to use the ideas widget that we talked about earlier. with the light bulb on it, and it's yellow. It's that widget at the bottom of your screen So, go ahead and open that up and share with us your ideas for what this teacher might say to support the child's technology learning. And as you're sharing, we're going to tell you what we thought. So, here is what we thought. The teacher might use scaffolds by telling the child, "Your fingers are inside of the handles, and I'm going to put my fingers on top of yours, and let's open and close the scissors together, and then I'll let you try by yourself."

And then she might introduce basic inquiry skills too by saying, "You know, there are two different kinds of scissors here. I wonder if one is easier to use than the other. Let's find out." And then next, she can speak technology by saying, "Scissors are a great tool for cutting things like paper and string." And then lastly, she can really encourage this child to communicate with her by asking questions. She might ask, "What other kinds of tools are used to cut things?"

Judi: OK. Well, this is a great lead into our last topic for today, which is using experiences and learning opportunities to support infants and toddlers in exploring technology. So, we have a special-guest expert with us today. Dawson Nichols is here with us from I-LABS, and he's

brought some strategies and ideas that you can use starting right away. So, in box four of your Viewer's Guide, use that box to write down some ideas that you might be interested in trying with your infants and toddlers.

Now, while we've been talking about simpler technologies today that help infants and toddlers understand how tools can help them solve problems and achieve their goals, Dawson is going to give us some strategies for exploring the technology tools that children are probably encountering more frequently daily at home than in the modern world that we live in today. So, let's hear what Dawson has to say. Hi, Dawson. Welcome to "Teacher Time."

Dawson Nichols: Hello, thanks for having me. Hello, everybody. I'm excited to share some ideas about how we can share technology with infants and toddlers. I hope I'll have some good ideas for you.

First of all, when we're talking about technology with infants and toddlers, we're really talking about working with tools. We're talking about working with patterns, and we're talking about learning about cause and effect with infants and toddlers. So, the first thing that I want to share with you is the most obvious thing, which is share technology with them. These are old unused devices. We don't use these anymore, and these are cast off all the time these days. You can find them. Just make sure that they're safe for infants and toddlers who will of course want to explore their shapes in addition to pressing their buttons, very fun to press the buttons on things like this. That is one way that you can introduce technology.

But technology again does not mean it's plugged in. It doesn't mean that it has batteries. No, it means that it's tools, and we've already talked about some tools that are very old but still very good, and children need to learn to use these tools so you can help them learn the cause and effect of working with tools, and once they have made a mess you can give them another tool to clean that mess up. Again, these don't have to be elaborate things. This is what learning about technology looks like with infants and toddlers. It's very simple. And again, working with patterns is another thing that we want to do. So with cereal, with toys that you might have around. You can make patterns.

Don't forget to talk to them about the patterns. You can narrate what they're doing as they're doing it. And sportscasting, as we were talking about earlier. So, I love making patterns, and I tend to talk to myself as I'm doing it even. I'm making an "L" shape now. There's a line this way, and there's a line this way, and these alternate, and I can play right along with them. Parallel play is a wonderful thing to do with children. It helps them come to understand that this is an enjoyable activity. It's something everybody does, and you can be modeling for them as you're doing it. But again it doesn't have to be elaborate things.

Even the containers that toys come in can be used, and you can use technological terms. Closed, closed, open, open, there's a good pattern. And I can close another one because this is a tool. This is a tool that helps me close things, and I'm going to close ... Oh, that didn't work. Well, sometimes our tools don't work, and we have to try and try again. Don't jump in too fast. Remember, doing things again and again, figuring things out, involves doing things incorrectly sometimes until you get to do them right. Right?

But again, it can be anything, old tubes, cardboard tubes that you have, clothespins that you have lying around, rulers that you might have lying around. Anything can be used as a tool to help make patterns. This is a wonderful tool. Don't forget the simple tools that we have. This is a great tool for keeping warm, and I can talk to a child about that as they're putting it over themselves or as I'm putting it on them. I can talk to them about that, and I can use it as a different kind of tool. If they're engaged in some tummy time and they have a toy that they're interested in, I can put it on the blanket, and I can pull it toward them and show them how I can use this as a gathering tool, a tool that will bring something to me, and they'll start to do things like that, too. They'll see that this cause-and-effect action is everywhere in the world, which is of course the point. So, those are just a few ideas. I hope that they're helpful, and I hope that you can enjoy having these kinds of experiences with the children in your care. Thanks.

Judi: These are such great ideas. Thank you, Dawson. I love how you connected patterns and technology. I usually think patterns go with math, not so much technology, but if I was still working with infants and toddlers I definitely would want to try some of these ideas right away. So, thanks for joining us, Dawson, and we'll see you next time. We're looking forward to more strategies that you're going to bring us on our next episode.

So, let's take one last minute to think about the arts and how they can be used to support children's exploration of technology and tools. The arts engage children's senses, and just about anything can be used as a tool for children to create art or to explore sounds and make music and to engage in pretend play. Remember the little boy had the tube on his head as a hat? That's just a great way to connect technology with the arts. And as Dawson just mentioned, you can use music to encourage children to think about pattern recognition.

So, think about all of the ways these arts activities support technology learning. As children paint or draw, as they play with Play-Doh or clay, as they use musical instruments or if they're in the dramatic-play area pretending to cook or feed a baby doll, they show us what they know about tools, and this kind of play helps them to use tools creatively and to solve problems.

Treshawn: Here is an example of a toddler using technology to explore clay. His family made ceramic folk art back home in Mexico, and his abuela comes to class a couple times a year to show children how to work with clay. They need slightly different tools for clay, like containers with tight-fitting lids to help keep the clay from drying out, and they need containers with a small amount of water to help keep the clay wet.

And these children really love to explore the different types of tools that help them make the holes and the different marks to help decorate the clay, and they use objects that help to roll and press and pound the clay out. Children express their creativity in how they work with the clay and all of the different shapes that they can make. So, what are some ways that you can connect the art and technology in your programs? In box five of your Viewer's Guide, take a "Teacher Time Minute" to write down some ideas that you want to share with others.

[Music]

Judi: Wow, as you can see, there is a lot to say about exploring technology with infants and toddlers. Were you surprised? It's time to wrap up this episode, but before we go we're going to leave you with just a couple of points we want to make sure you remember. So, as you

learned today, and hopefully you'll communicate with your families, technology is not just about smartphones and tablets. That "T" in technology also stands for any type of human-made object or tool that is going to help us accomplish a task and achieve our goals. So, remember to think about that in your daily interactions with children and as you support families in encouraging them to explore technology at home. When you engage children in these explorations, remember also to use the words of technology in their home language, when possible, or encourage families to use technology words in their home language at home. Ask questions.

Scaffold their learning when it's needed. You know that children are just naturally curious about the world around them, and so it's your role as a teacher or a family child care provider to support that curiosity by providing engaging and accessible environments and making sure your interactions are nurturing, responsive, and effective. And then, offering lots of different opportunities for children to explore technology tools and ideas. And remember to be curious about the world with the children that you work with. Explore the world together. When you do this, you support children's development across the ELOF domains. So, thank you for joining us today. Before we go, we're going to leave you with some resources that will support you as you wonder and learn together with the children that you work with each day.

Treshawn: Yes. So, let's talk about how you can use technology to support your own learning now. So, there's two resources up on the ECLKC that we'd like to highlight. The first is the STEAM interactive PDF, and the second is the STEAM 15-minute In-service Suite. And these resources provide an overview of the STEAM components and share ways to engage children, birth to age 5, in STEAM concepts and materials. Both of these resources also offer strategies for supporting families in getting excited about exploring technology at home, as well.

So, we encourage you to take a look and learn more about STEAM. And then next is MyPeers. We talked a little bit about that today, but MyPeers is a virtual, informal social community to exchange ideas and to share resources and to lend support to the early childhood community, and if you haven't joined MyPeers already, you should. You can join through the ECLKC. It's free, and you'll find us there in the "Teacher Time" community where we'll be posting more videos and sharing some strategies related to supporting the little scientists in your programs. There are like 58 communities in MyPeers, along with "Teacher Time," and over 10,000 members. So, in addition to "Teacher Time," you might find some other communities that look interesting. So, we've created a handout for you in the green resource widget that lists some relevant communities that you may want to join.

Judi: OK, and for the last piece of technology you can use to support your work, your smartphone, you have several options. First, you can sign up for Text4Teachers. Text4Teachers is going to send you two free text messages every month with information, and tips, and resources to strengthen and support your practices. Also, we have ELOF2GO. This is an app that will help you learn more about the ELOF. It gives you immediate access to the ELOF goals for children, and it gives you examples of effective teaching practices to support children's growth and development. This app is also available in Spanish.

And speaking of Spanish, we have the Ready DLL app. It's for teachers who work with children who are dual language learners. It gives you ideas for weekly activities, resources and videos to

help you learn more about effective teaching practices with dual language learners, and then also it gives keywords and phrases in Spanish, Arabic, Mandarin Chinese and Haitian Creole. There's some fun games in there to help you practice some key phrases.

Our next "Teacher Time" is going to be in January. We'll be talking about technology with preschoolers. And then make sure to join us—put it on your calendars for February—we're going to be talking about exploring engineering with infants and toddlers. It's going to be a great episode.

And make sure you remember to download, if you haven't already, the resources in the resources widget. Those are there to help you and to continue providing support for you as you work with infants and toddlers on a daily basis. This has been so much fun. I hope you are inspired. I hope you're excited to try out some new technology ideas with your infants and toddlers, and please join us on MyPeers and tell us what you're doing and what you're excited about. We're so glad to have you here.

We're looking forward to seeing you next time.