

## Playing to Learn: Benefits of Play in Early Childhood

Sarah Lytle: Hello, everyone, and welcome to Baby Talks. We're so pleased to have you join us today. Baby Talks is a series of webinars for teachers, providers, and home visitors working with infants and toddlers serving Early Head Start, Head Start, and Child Care programs. These webinars will introduce you to some of the research behind the Head Start Early Learning Outcome Framework, the ELOF. I'm Sarah Lytle from the National Center for Early Childhood Development Teaching and Learning. My colleagues and I are from ILABS, the Institute for Learning and Brain Sciences, and we will be presenting these webinars. ILABS is one of the leading infant research centers in the country. This series will provide a deeper understanding of why the subdomains and indicators of the ELOF were chosen. The ELOF stresses the importance of creating stimulating learning environments and using intentional teaching strategies that ensure all children are ready for academic success. This webinar focuses on play-based learning strategies that can help educators and parents achieve this goal across the ELOF domains.

Before I turn it over to my colleague, let me give you a little information about how this webinar platform works. Please connect to the webinar via hard-wired Internet as opposed to wi-fi if possible. Also, you can improve the speed of the connection by closing other programs you may have running, like mail. During the call, your phones will be on mute. We will be using some of the Adobe Connect features to help with Interact. At times, we will ask you to type in a chat box located to the right of the PowerPoint in response to a specific question, and you can see many of your colleagues saying hello in the chat box now. You may also use this box to make comments or ask questions during the webinar. We will be monitoring that box throughout. If for any reason you get disconnected from the webinar, use the same link you used previously to rejoin. If you would like to, please type it into the chat box. If there is time at the end, you will be invited to ask questions. Finally, I wanted to let you know that this session will be recorded, and it will be posted on ECLKC. I'll turn it over now to Amelia Bachleda.

Amelia Bachleda: Well, hello, everybody. Thank you for joining us today. So today, we'll be talking about how children learn through play from birth to five. Though this webinar series usually focuses on infants and toddlers, we've expanded the content to include preschool children so that we can discuss how children learn and grow through play as they develop. After this webinar, you'll be able to explain why play time is an important part of childhood development, describe how play changes and develops as a child grows, understand how different play behaviors can facilitate learning, and identify ways to deepen children's learning through play. In this webinar, we'll cover the latest research on play and young children's development. Today, we will review how children's play changes as they grow and development, discuss how developmental indicators on the Early Learning Outcomes Framework are linked to children's play. And examine how to use playtime to support learning in early childhood. So, what is play?

How is it different from other childhood experiences? We probably all have some idea about what play is. But play is complex and multi-faceted. Researchers commonly use three characteristics to describe play. First, the child often directs the play experience, so it is said to be child-directed. Second, play is a joyful experience for the child. If the child experiences stress or discomfort, they're usually no longer playing. The joyful aspect of play is critical to its success as a learning experience. It means that the child is highly motivated by a very positive force to participate at their highest level of achievement. Third, play is voluntary. If a child is required to do something, even if it's an enjoyable experience, then it is

often no longer considered play. The unique characteristics of play time provide an ideal context for learning. Since play time is both voluntary and child-directed, it is highly individualized. The joyful part of play time motivates children to do their best and often encourages them to explore at the edges of their own knowledge and abilities.

These aspects of play make it an ideal learning tool. In the context of play, children are able to learn new physical skills, take on new social roles, and attempt new and difficult tasks, all while staying within their own comfort zone. Since children set the limits and levels of their play, observing children during their play can be an excellent tool to understand the developmental trajectory of a child in multiple domains. Play offers a myriad of opportunities to practice social skills and communication, build relationships, and to try things out in a safe and protected way. Through cooperative play activities, such as building blocks or trains, children learn how to coordinate their actions with others, and how to navigate social exchanges. When preschool-age children engage in dramatic play, they learn how to take on others' perspectives and practice communicating thoughts and feelings. Through these activities, differences of opinion or planning will arise, which provide excellent moments in which children learn how to solve social problems. During play, children are actively engaged in learning. Play offers children opportunities to solve problems and figure out how things work, whether it's a social situation or a physical object in their environment.

Let's look at one example of this. In one study, researchers showed 2- to 4-year-old children a set of nested cups during a free play session. Then they gave children a chance to play with a set of separated cups. The researchers did not direct the children to nest the cups, but the children who had seen the cups nested in the earlier play session wanted to try it out. The children worked hard to nest the cups. As they played with the cups, they experimented, corrected errors, and developed strategies. For example, a common strategy used by younger children -- younger than about 30 months -- was brute force. When children placed a large cup on a smaller one, they would repeatedly twist, bang, or press down hard on the cups that didn't fit. Another strategy the younger children used was to take apart all of the nested cups and start all over again if one cup didn't fit. Older children from about 30 to 42 months used different strategies when a cup didn't fit. They worked specifically with the non-fitting cup in relation to the set. So for example, they took apart the stack at the point that let them put a new cup into the correct spot. Older children also showed a reversal strategy. So after placing two cups together that didn't fit, the child would immediately reverse them and try again. During their play, each group of children developed strategies that were tailored to their own developmental trajectory.

Play is an important learning tool where children are motivated to engage in complex problem solving. There's even evidence that children retain information longer and explore more in play-based learning context than in non-play-based learning context. Children may even seek out ways to play that push their learning and growth in a new direction. For example, some researchers showed 4- to 6-year-old children how a toy works, and then let them choose between playing with the researcher's toy or brand-new toy that they hadn't seen yet. If the children thought it was obvious how the researcher's toy worked, they didn't want to play with it. They chose to play with a new toy. But if they thought the researcher's toy was confusing, they wanted to use their playtime to explore that toy more, and they picked to play with the experimenter's toy. When have you noticed a child playing to learn? What skill or idea were they trying to figure out? How was their play tailored to help them learn? Please take a moment to think about this question and share your responses in the chat box. So that question was

again, when have you noticed a child playing to learn? What skill or idea were they trying to figure out? And how was their play tailored to help them learn?

Sarah: All right, it looks like a lot of people are typing in the chat box here. Maybe while we're waiting, Amelia, you can share a time when you've seen a child playing to learn.

Amelia: Yes, so I think -- Often, children are trying to maybe explore situations that are new to them. So for example, maybe a child has recently gone to the doctor's office. And maybe they had to get a cast, and this was a new situation for them. So then during their free play time, maybe in a dramatic play area, they decide that they want to play doctor's office. Try and figure out what that experience is like. So what is it like to be the doctor? What is it like to be the patient? Maybe I know a little bit about the patient. Maybe I can share that information with somebody else. What sort of tools might I see at a doctor's office? This sort of thing, so really, exploring a new idea or a new experience that they've had and trying to figure out, what does that mean? What's my role in this situation as I'm playing along?

Sarah: I think that's a great example. The doctor's office, potentially something that's unfamiliar to a child, or something that you don't experience every day. So certainly, a situation where they might have to learn about it. We'll let other people type. We can continue with some of this content, and we'll swing back and loop in some other people's ideas as we move forward.

Amelia: Sure, that sounds great. And I also saw a note that we're working on closed captioning, if that's something that you're hoping to have as part of this webinar. All right, so in the pictures above, you can see a young baby just figuring out how to grab, lift, and place a block on another block. These motor skills will develop into more complex block-building behaviors, which will eventually incorporate more advanced cognitive skills such as spatial thinking and planning. Those skills associated with children's future academic achievements. Like a giant pyramid, baby's play experiences lay the foundation for later learning. Through play, children build their first skills.

Those skills grow, and then they play to build on those skills. In this section, we're going to look at how children's play develops as they grow. Note that while the general developmental progression will be similar for all children, when we talk about certain behaviors appearing at approximate ages, keep in mind that the age ranges are flexible and often have a wide range of typical development. How children play in the first year of life reflects what they need to learn. Play for infants in the first year of life involves a lot of sensory play because the first year of life is when the brain is fine-tuning many of its sensory regions. In the perception subdomain, the ELOF indicates that by 9 months, infants use perceptual information to organize basic understanding of objects when given opportunities to observe, handle, and use objects, including recognizing differences in texture and how things feel. Toys that have an interesting sensory feature, such as bright colors or a fun texture can be great, and giving infants time to look and touch and nibble helps them to build this sensory development. But play in the first year is not all about sensory development. Infants are building physical skills, like reaching and grabbing, or learning about cause and effect. Infants use their hands for exploration, play, and daily routines.

The fine motor subdomain of the ELOF indicates that from birth to 9 months, infants will develop the use of increasingly refined grasps, matching the grasp to the task, such as using an index finger and a thumb to pick up a piece of cereal, or using the whole hand to bang objects together. Infants are also learning social skills. The ELOF social and emotional developmental domain includes goals for the development of relationships with both adults and other children. The ELOF indicates that in the first 9

months, infants develop different kinds of relationships with adults and children. Infants develop expectations of consistent, positive interactions to secure relationships with familiar adults and respond to another child's actions or sounds during play with a toy by watching attentively, touching the other child, or reaching for and taking the toy. As children get a little older, you start to see new types of playing. Between 1 and 2 years of age, children start to pretend.

The ELOF perception subdomain notes that by 18 months, children use perceptual information about properties of objects in matching and associating them with each other through play and interaction with an adult. Such as using a play bottle to feed a baby doll. This kind of pretend play is different from later pretend play in that it is usually directed at a toy or using a toy. Later in development, children will start to pretend play with other people. Also, while children play a lot at this age, they don't really play together yet. As the ELOF subdomain of relationships with other children notes, by 18 months, children start playing next to other children with similar toys or materials. This is called parallel play. As the ELOF describes in the fine motor subdomain, you may also see children using hand-eye coordination for more complex actions, such as releasing objects into a container or stacking cups, rings, or blocks, or picking up pieces of food one by one. At this stage, the ELOF also describes in the cognitive self-regulation subdomain that children show willingness to repeat actions to solve problems, even when encountering difficulties. In this way, they learn to master the physical and social skills they are just starting to discover.

By the time children are 2 to 3 years old, you'll notice their expanding play repertoire. Their gross motor and fine motor movements will continue to improve, and their social skills will drastically change. The ELOF subdomain on relationships with other children describes that, by 36 months, most children will join in play with other children by sometimes taking turns or doing joint activities with a common goal, such as building block structures with others or pretending to eat together. They are working on skills like taking turns, and their pretend play is becoming more complex. The ELOF creativity subdomain also indicates that by 36 months, most children will start to use their imagination to explore possible uses of objects and materials. Blocks become a birthday cake. A stick becomes a fork. Spoon becomes a brush for a doll's hair.

This is called symbolic pretend play. For older children, play is all about coordination. Physical actions like jumping, skipping, swinging, and catching balls require coordinating the movement of multiple body parts at once. In the social realm, older children actually prefer to play together rather than alone. Pretend play becomes more coordinated, cooperative, and imaginative. Children play big, complex games with many players and many roles. They also become interested in board or card games that can follow simple rules. The ELOF cognitive and self-regulation subdomain indicate that between 48 and 60 months, children hold an increasing amount of information in mind in order to successfully complete tasks, and that they can demonstrate some flexibility in thinking and behavior at times. And frequently, they persist on preferred tests. These skills are important to playing complex games with rules or multiple roles. From exploration of the world through bodily sensations in infancy to complex theory building in preschoolers, children use play to learn about the world. As adults, we can use open-ended toys and objects to engage with children at a variety of levels. Think about the stages of play that we've just discussed and consider how you might use the same toy to engage children in each age group. For example, take this picture of stacking cups. How could you use these stacking cups to engage children of different ages in age-appropriate play time? Please take a moment to think about this question and

share your responses in the chat box. So that question was again, how could you use these stacking cups to engage children of different ages in age-appropriate play time?

Sarah: All right, as people are typing, people have a lot of great responses to your last question, Amelia, about observing the child playing to learn. People talked about learning to swing on a swing set, dressing Barbie, creating structures, block towers, learning either how to knock block towers down or learning how to build them so that they wouldn't fall down. The importance of modeling, et cetera. Some people have some really great ideas. And that as far as -- People are thinking about using the same toy to engage children at different ages, people are suggesting maybe you can separate by color, shapes, sizes, building towers, perhaps with older children.

Amelia: Seeing a lot of maybe some building math skills there.

Sarah: Mm-hmm. Yeah. I love the idea, too, of stacking these blocks from largest to smallest, and then maybe switching it around and doing smallest to largest. Somebody suggested water play, that's a fun idea.

Amelia: Oh, yeah. Absolutely.

Sarah: That's a great idea. Maybe using the cups to hide small objects or sorting them. Turning them into drums. So a lot of great ideas here.

Amelia: Absolutely. For the littlest infants and toddlers, play might look like just handling the cups or maybe banging them a little bit, working on early motor skills, or even if I bang a cup, does it make a sound? Some early puzzle learning.

Sarah: Absolutely. As you were saying that, Chelsea actually wrote, offering two smaller nesting cups for baby's grasp to work with fine motor skills. I think people are really aligned on this one. I think these are great ideas.

Amelia: Wonderful.

Sarah: A fun one. One more, very quickly, because it's so good. Asking children, maybe children 4 to 5, how many beans do you think will fit into the cup? So asking for some prediction there.

Amelia: I like that. Well, thanks so much, everybody, for your responses to this question. Please feel free to continue adding your thoughts to this fantastic conversation, and we will continue on to the next section. So we've reviewed what play is and what it looks like. Now we're going to review why play is important and explore how play time can contribute to development in multiple domains of early learning. We'll then end with a discussion of how to use play time to enrich children's development. The Head Start Early Learning Outcomes Framework is a resource designed to show the continuum of learning from infants, toddlers, and preschoolers. It's grounded in comprehensive research around what young children should know and be able to do during their early years. The ELOF covers five broad early-learning areas or central domains.

These are approaches to learning, social and emotional development, language and literacy, cognition, perceptual, motor, and physical development. We'll discuss how play and play-based learning support development within each of these five central domains. The approaches to learning domain focuses on the development of skills and behaviors that children use to learn about the world. This domain includes

the four subdomains of emotional and behavioral self-regulation, cognitive self-regulation, initiative and curiosity, and creativity. This domain covers the development of skills that are necessary to acquire new knowledge. During play, children exhibit behavior in these subdomains as seen in their emotional reactions, their behavioral choices, and their ability to focus their attention. For example, the ELOF indicates that by 36 months, children will have learned to use strategies such as seeking contact with a familiar adult or removing oneself from a situation to handle strong feelings and emotions. And should be able to maintain focus and attention on a simple task or activity for short periods of time.

Play time, especially role play and pretend play build and promote the development of children's self-regulation. Pretend play may appear to be a relatively simple activity, but it actually requires a lot of self-regulation. Children have to inhibit their behavior to stay in character. They also have to remember the context that they have created and are playing in. Toddlers begin to learn to coordinate with others through play by adjusting their own behavior. During play, older toddlers and preschool children work to find solutions to social problems. In addition, when children are trying to create solutions for social problems, they have to be able to regulate their own emotions. This is an advanced skill at any age. In fact, research looking at curriculum add-ons that incorporate play-based instruction have been found to out-perform other, more traditional programs in measures of self-regulation such as self-control, working memory, and mental flexibility.

One such program is called Tools of the Mind. In Tools of the Mind, teachers play games that promote self-control and develop play plans with children to help develop their planning and memory abilities. In addition to providing many opportunities for dramatic free play, rule-based games like Simon Says or Red Light, Green Light are great ways to help children practice their cognitive skills. These games all require behavioral control, working memory. Children have to remember the rules of the game. Attention. Children have to play attention to what the instructor or game leader is saying and doing. And in fact, recent research has found that how well children played a research game that required these skills in kindergarten predicted growth across all academic domains. For infants, providing opportunities for guided, playful exploration can help build children's initiative and curiosity. It can also help in the development of cognitive self-regulation skills as children work to maintain focus and attention and persist in their actions as they explore. The social and emotional development domain focuses on a child's ability to create meaningful relationships with other people and to express, recognize, and manage their own and other people's emotion.

This domain includes the four subdomains of relationships with adults, relationships with other children, emotional functioning, and sense of identity and belonging. From infancy on, children and adults gain the social benefits of play. Children learn from playing with other people how to take turns, manage and express emotions. Infants, for example, build their social skills through rounds of back-and-forth games like peek-a-boo. Many children will use pretend play to explore social situations with their toys. Emotion talk can be particularly rich during this kind of pretend play. This contributes to children's emotional understanding and the development of positive relations with their peers. As children develop social relationships, they often have to practice dealing with social problems, and they have to learn and develop solutions to help resolve those conflicts. A variety of social skills develop from these interactions, including using words to describe feelings of others, turn taking, demonstration of control over actions, pro social behaviors, and conflict resolution. Several studies have even shown that toddlers and preschoolers who demonstrated pro social attitudes and behavior during play activities were more

likely to make new friends, be accepted by their peers, and form secure relationships with their teachers.

This, in turn, is predictive of later academic achievements. In fact, researchers have found a high correlation between children's ability to create fantasy during play, and their emotional understanding. In one study, children were asked to play on their own with two puppets and some blocks any way they wanted for 5 minutes. Children's fantasy play during this time was evaluated for two things. One, their emotional expression with the toys, and two, the quality of their fantasy play, or how elaborate, organized, and imaginative their fantasy play was. In the second part of the study, children's verbal ability was assessed. Finally, the children were interviewed by a researcher and asked questions about their emotion understanding. The researchers wanted to know, which of the children's skills were most strongly linked to their emotional understanding? Was it the quality of their fantasy play? Their emotional expression during play? Or their verbal ability? Researchers found that a child's emotional understanding was most strongly linked to the quality of their play rather than their verbal ability or emotional expression.

This means that even if a child isn't able to verbally produce words related to emotions, or isn't motivated to express emotions during play time with their toys, that child might still have a high level of emotion understanding. And that a child's emotional understanding is actually best assessed by looking at the quality of their play. The quality of play activity is a better window into a child's emotional development than either verbal ability or expression of emotional content during play. This is important to note because, as adults, we often use verbal ability as a way of assessing children's competence on a particular topic. In the case of emotion understanding, research suggests that this may not be the best measure to use. So, how can we, as adults, support children's social and emotional development through play? One way is to provide materials that encourage social play. Putting out cooperative play materials such as tea sets, costumes for role play, train sets, or turn-taking games are excellent ways at encouraging children to socialize during play time. Older infants and toddlers may need extra support as they begin to learn to play together. For example, as two children are focused on pouring and drinking tea, and another child is nearby, but not yet part of the game, you can ask if there's any food to go along with the tea.

Or if someone could bake something to go along with their tea. You can also model and facilitate open-ended discussions of social knowledge by asking questions about preferences, likes, and dislikes. For example, you could ask the children if the tea tastes good, or if it's too hot or too cold. Disagreements during play can be an opportunity to support children and learning the first steps of taking others' perspectives. Modeling how to do this by verbalizing what another child might be feeling and talking a child through the process can help support their learning. Young infants and toddlers benefit from this modeling, too, even if they may not yet be able to work through the disagreement on their own. For more resources on this topic, check out the Teacher Time webinar entitled *It's a Big*

*Problem: Teaching Children Problem-solving Skills* on ECLKC. The language and literacy domain of the ELOF focuses on the development of a child's ability to listen, understand, and produce language. This domain includes the four subdomains of attending and understanding, communicating and speaking, vocabulary, and literacy. This domain also includes the skills needed to communicate effectively with others. Children's proficiency with language and literacy eventually affects their learning across all domains. Play is also a wonderful way to build language and literacy skills. I'll share this quote from

Vivian Paley, who spent her career teaching and researching early childhood education. "Play is story in action, just as storytelling is play put into narrative form."

In many ways, symbolic pretend play and literacy share similar mental processes. Both require children to use stand-ins for known items. So for example, a toddler using a banana as a phone to call dad is much like realizing the sound of the word phone is the letters p-h-o-n-e are meant to represent the idea of phone, as well. Playing from infancy on contributes to word learning in the form of vocabulary. Through play, children learn new words from parents, peers, and caregivers. During play, they also begin to develop their oral language skills, moving from simple two-word statements to telling whole stories. Eventually, they use play time to develop their overall narrative skills. Children learn to tell more and more complex, imaginative stories both in cooperation with others and on their own. A recent study examined whether the incorporation of storytelling and story acting practice as a regular component of preschool curriculum could help build key school readiness skills like those in the ELOF subdomains of creativity, the approaches to learning domain, communicating and speaking and emergent literacy, the language in literacy domain, and emotional functioning, the social and emotional development domain.

While pretend play and storytelling are different, they both have narrative elements. Active, child-driven storytelling and story acting can be an opportunity for playful learning. In this study, children in Head Start preschool classrooms were given the opportunity to dictate a story to a teacher during free choice time. The choice to tell a story was completely voluntary and child-driven. As the child told the story, the teacher wrote it down exactly as the child said. Occasionally asking questions like, "What happened next?" Or, "Is that the end?" After they were done, the child got to choose which character they wanted to be and which other students in the class would act out other parts in the story. Later in the day, the teacher read the stories aloud while the children acted them out. Story sessions happened about twice a week for the duration of the school year. At the end of the year, researchers found differences in the children who were in the storytelling and acting classrooms compared to those that were in classrooms that did not participate in storytelling or acting. Children in the storytelling classrooms had improved oral language skills, including narrative comprehension. They built skills in emergent literacy, including print and word awareness and in social competence, including greater self-inhibition, and pretend play abilities, as well as reduced play disruption. Through participating in regular opportunities to create, narrate, and act out stories, children gained school readiness skills across domains. Providing supported storytelling and story acting opportunities in your program can be an excellent way to build language and literacy skills. You can also encourage language and literacy development through open-ended questions about play activities, asking children to describe and explain what they are doing helps them build their language and literacy skills.

Supporting play environments for language and literacy can also include setting up dramatic play areas with props to promote storytelling and retelling a story, such as items found in fairy tales or other favorite books. Placing labels on objects in dramatic play areas also helps build vocabulary and reading skills. By adding labels to novel items, you can draw attention to new vocabulary. Modeling the use of new vocabulary words and incorporating those items into familiar play activities can be especially helpful for infants and toddlers. This is also one way to support dual language learners and dual language learning in the classroom by labeling items in multiple languages. The cognition domain focuses on the development of reasoning, memory, and problem solving. This domain encompasses the subdomains of exploration and discovery, memory, reasoning and problem solving, imitation, and symbolic representation and play, as well as math and play in subdomains. These skills developed within



the domain eventually develop into math and science skills in preschool and beyond. Playtime provides an amazing opportunity to engage in STEM -- science, technology, engineering, and math-related exploration.

Why is this so important? Early math skills turn out to be powerfully predictive of later learning. In fact, measurements of children's early math skills predict both later math and reading scores. Whereas early reading measures only predict later reading scores. For infants and toddlers, math and science-related play can be as simple as playing with blocks, pouring water, racing cars, and digging sand. In the preschool years, make-believe pretend play can also lead to many opportunities to explore math and science topics. These things may not seem like math or science, but they are. These are the foundational skills that children need to develop to do more complex math and science later. Even in activities like playing with blocks, children are learning a great deal about math. They're exploring patterns, making size comparisons, separating the long blocks from the short blocks, and so on. STEM-related exploration is not just for older children. Babies learn the fundamentals of physics, gravity, and force by exploring the world. Toddlers began to understand how substances and objects can combine and separate to form new and interesting things.

Before a child can learn to add and subtract, they learn to count. Before they learn to count, they learn to note that objects are separate from one another. STEM is an integrated trail of information, starting all the way from infancy. In one study, researchers showed 11-month-old children a simple scene. A toy car rolling on a surface. Some children saw a toy car pushed off the side of the table hovered in midair, something a car clearly could not do. Others saw the toy car rolling down a ramp, and it appeared to go through a solid barrier, also impossible. When children were given a chance to play with these mysterious cars, they tended to direct their exploration towards specific features. Babies who saw the car appear to hover in mid-air tended to drop the car, whereas babies who saw the car appear to go through the barrier tended to bang it against the table. Another study found that during unstructured free play, 4- to 6-year-old children spent almost half their time engaged in some form of math or science-related activity.

This was true regardless of gender ethnicity. Children spent approximately a quarter of their time examining patterns and shapes, about 13 percent of their time on comparing sizes and amounts, about 12 percent of their time on counting, 6 percent on exploring change or transformation, 5 percent on spatial relations like position, direction, or distance of objects relative to each other. About 2 percent on classification. Children's play involved math, language, and thinking, even though math was not the primary focus of their play. Children talked about things like, how much is a lot? How little is little? They often use their body to show size, such as stretching their arms wide to show how big a pumpkin is, or holding fingers close together to show that something was a little bit scary. There are many ways to support cognitive development through play. Babies and toddlers learn early math concepts like geometry and spatial relationships when they explore new objects with their hands and mouth. For example, environments that support math development provide opportunities for children to use math as a language to describe the world around them.

Counting blocks and comparing quantities or sizes is a great way to practice math skills. Putting out baskets of pretend fruit, and talking about the different shapes and sizes helps to practice geometry skills. Counting the number of train cars in a train, creating shapes with train tracks and paths for cars and trains to move around a space are always practicing math and spatial skills. Remember that any

time a child compares amounts, more or less, or sizes, big and little, notices a sequence, plays hopscotch, estimates a difference or counts, they are using math. The perceptual motor and physical development domains include perceptual development, help children engage their senses as they grow, motor development, such as walking, running, and grasping, and physical development, like children's nutrition and hygiene. These are fundamental areas of development and support all other developmental domains whether cognitive, linguistic, emotional, or social. Without proper nutrition, good sleep, or a safe environment in which to develop perceptual and motor skills, neither play nor instruction will do much to help us build children's cognitive, language, and social and emotional skills. Play time is an excellent time to develop these fundamental skills.

Through play in infancy, babies can experiment with varied textures, colors, smells, sounds, and taste. As they grow, play time both on and off the playground gives them the chance to safely probe the limits of their motor ability. On padded floors, they can try to balance one foot without worrying about falling over and hurting themselves. Or jump from pillow to pillow and learn to somersault across the ground. Through imitation and social role play, they will try to act out the hygienic behavior they see adults and other children around them doing, like washing hands or brushing teeth. Paying close attention to the amount of time for physical activity and play is important. Researchers at the University of Washington have found that as recently as 2015, children in preschool were not receiving as much time for physical activity as is recommended to protect against obesity and other health-related issues. Cardiovascular and general health are just as important for children as they are for adults. Play time develops children's perceptual, motor, and physical skills. Enrichment can be as simple as providing infants and toddlers with a variety of toys with different textures and shapes and sounds. Playing music in different languages or finding recordings of stories in different languages can expand children's ability to learn different speech sounds.

Children can also practice moving to music with different rhythms. Allowing for full body play in big, open spaces is important as children learn coordination, strengthen developing muscles, and take calculated, safe risks. For a child just learning to climb, getting up to the slide might feel a little scary, but with support, climbing to the slide can be a safe risk that a child as they begin to learn how strong their hands, arms, and legs are. Even if they don't have access to large outdoor spaces or have to stay inside during bad weather, you can still do vigorous activities indoors. For example, putting circles down on the floor using tape or construction paper, one for each child. And encourage them to stay in the circle as they do exercises. Songs and dances that use many different parts of the body help build muscle coordination, as well as building executive function skills like working memory, tension, and focus, and inhibitory skills. Providing props in a dramatic free play area like large pretend toothbrushes or a pretend sink for hand washing, small blankets to put stuffed animals down for a nap, or play food like fruits and vegetables can help children play to learn healthy habits. Children play to learn across all domains of the Early Learning Outcomes Framework. Even if we don't always recognize children's play as learning, they're often using that time to develop skills. Think back to a recent time when you were watching children play. Based on the information that we've covered today, what skills do you think that they were building that you did not recognize before? Please take a moment to think about this scenario and share your responses in the chat box. So again, that question was to think back to a recent time when you were watching children play. Based on the information that we've covered today, what skills do you think that they were building that you did not recognize before?

Sarah: All right, it looks like we've got some people typing into the chat box. People suggesting math as a language, so understanding that there's a lot of language involved in math. Thinking about volume and capacity when filling a boot with pea gravel over and over. That's interesting.

Amelia: I like that.

Sarah: Maybe even witnessing a child walking away from another child who is bothering her. Perhaps recognizing that as a strategy that that child is using.

Amelia: Absolutely.

Sarah: Other people are suggesting perhaps watching kids balancing blocks as they build a structure, or witnessing kids learning some problem-solving skills. Latasha says as young as my students are, they use a lot of teamwork balance in building each other's vocabulary. They also try to comfort each other. A lot of social learning going on there.

Amelia: Absolutely.

Sarah: Sue suggests watching kids use science and language as they talk about bumblebees, and it had a hurt wing and couldn't fly. That's a great idea. So a lot of great ideas here. Somebody suggesting music as a language. Again, problem-solving skills, language skills, social skills. So people identifying these really core domain areas and interactions they've witnessed with kids over time.

Amelia: Absolutely. A lot of complex things are going on, and much learning is happening as children are playing and exploring the world. All right, well, thank you all for your responses. And again, I encourage you to keep adding to the discussion in the chat box, and we'll continue with our final section here. So what famous developmental psychologist Erik Erikson once said, "The playing adult steps aside into another reality. The playing child advances forward to new stages of mastery." This quote does an excellent job of concisely expressing the idea that play is more than just another form of development. Learning through play can benefit children in ways that other forms of instruction can't. In this section, we're going to discuss how to support learning through play by creating time and space for free play, as well as by scaffolding and guiding our play during more structured play-time activities. Sometimes as adults, supporting learning through play can be as simple as making sure to create time and space for free play to occur. In addition to the elements of play that we discussed at the beginning of the webinar, child-initiated, joyful and voluntary, free play includes two more key elements. Free play involves active engagement on the part of the child, meaning that the child is actively playing, not just watching someone else do something.

And for example, note the look of concentration on this child's face as he actively engages in play. And free play has no extrinsic goals outside of what the child wants to do just at that moment. Children are often over-scheduled with structured and guided activities, even as early as the first year of life. It's important to remember that while structure and guidance are very important, children learn so much from time spent in free play. Having time to play is not just blowing off steam, but a very important time for children to learn skills at truly their own pace. The unique features of free play are what make it so powerful as a learning context for children. The learning is exactly at the child's own pace. During free play, children may also persist in tasks that they might not otherwise engage in because the task is exactly what the child wants to be doing. Guided play is still led by the child, but an educator or parent facilitates it. Educators can guide play by creating spaces or scenarios that help children build particular

skills. For example, imagine a child in your program is recovering from a broken arm and has a cast for the first time. We talked a little bit about this earlier. You could change the dramatic play area into a doctor's office. In this space, children can play about going to the doctor's office, take turns being patient and doctor, or even all pretend to have casts together. Guided play can also be more active.

Educators can support children in their play by playing the role of an interested onlooker or play partner. Asking children questions to deepen their thinking, or help expand their dramatic play plot line. Educators can also provide suggestions to help guide children during difficult social situations that arise in play. Or when a child is struggling with a goal that they are trying to meet in their play. There's really only one difference between free play and guided play -- the inclusion of adult participation. Both forms of play should be engaging, voluntary, and fun. The child should be motivated by the play context and should be the one leading the action. The adult is there to suggest interesting paths to go down or to boost learning of something by adding more information into the mix, but not to set the exact learning path. The important addition from free play to guided play is the influence of the teacher. But what exactly do we mean by teacher facilitation? Here's some guidelines to help you facilitate play with children. Follow the child's lead. Let the child decide what to explore next. Encourage back-and-forth interaction. Remembering to take turns with the child and creating a bi-directional experience. Co-playing along with children and trying to see play from their level. Asking open-ended questions, modeling a questioning mind-set and exploring together. Exploring materials in ways children may not have yet discovered.

Maybe they haven't noticed that an object is magnetic. Ask them what might happen if they put it against something else metallic, for example. Provide space and time in the day or during more structured lessons for open-ended explorations. It may be helpful to think about the steps and the inquiry cycle as you engage with children and their play. These are observe, question, explore, reflect. As adults playing along, we aren't leading the exploration. Instead, we can be there to be a role model and a source of information. Before diving into play, we can take a moment to observe. Know what objects or toys the child are actively engaging with and know how they are using them. Does the child have a goal in mind or something they're trying to figure out? Think of a question or an observation that you might make to support their learning at that moment. For example, if you see children struggling to get a tower to stay standing up, you could say, "You are really working hard on building that tower." The child may start talking about their goal or their process. Based on their response, you might add, "Why do you think the tower keeps falling over?" Listen to their theory, explore with them. You might ask if they have any ideas about ways to make the tower more stable. If they think it's because the tower's too tall, you might reflect with them on why a shorter tower might be more stable.

Sit back, let them continue to play on their own, observe, and repeat. Scaffolding play provides many opportunities to engage in high-quality interactions with children as outlined in the instructional support domain of the class, including concept development, providing high-quality feedback, and modeling language through extended conversations, open-ended questions, and use of novel words. Another way to guide play is by providing materials that you think might encourage play in a certain way. These general guidelines can be used to help in your planning as you think about materials to provide for play. Putting out objects and toys infused with curricular content can provide experiential learning opportunities. Spaces that are linked by a central theme or linked to something that you're working on in class can help children deepen their learning. For example, maybe your class may be exploring engineering or construction. You might put out building blocks or tool sets, but you could also add hats

or tractor trucks to encourage imaginative play. Having a wide variety of materials that are open-ended can deepen learning during play. Use open-ended materials that can be used in many ways. Allow for creativity, investigation, and problem solving. Varied materials provide opportunities for all children to participate. For example, dress-up clothes near the block area might allow children who are not interested in blocks on that day to choose dramatic play instead. For infants and toddlers, it can be helpful to intentionally group items near others so that children can mix and match them in their play and exploration. For example, a shelf might have nesting cups in one cubby, dolls or figurines in another, and a large basket of bandannas. Children might choose to nest the cups or use them to feed the figurine. Or they could fill the basket with the item, or even use the bandannas to wash the cups. Mixing items like this creates many options for imaginative play and can be especially helpful strategy for mixed age groups. Providing materials that are relevant to the child both culturally and thematically is very important. Asking parents about what types of things their child likes to play with at home is a great way to figure out what items might be good to include in play areas. You may also ask parents if they can bring in empty, clean food containers to use in dramatic play areas. Whether a child shares your dominant culture or not, each child has their own set of unique experiences and items that are familiar to them. Culturally relevant items provide children with the opportunity to play with familiar objects and allow other children to learn about different cultures.

Thinking intentionally about materials that children can use for play is linked to the instructional learning format domain of the class, which involves providing materials that give children an opportunity to experience, receive, explore, and utilize materials. Remember that any material that you provide does not have to be expensive. Recycled, donated, or handmade items provide just as rich a play experience for children as new or purchased ones. Often, these recycled, donated, handmade items provide even better play opportunities, as commercial materials don't usually encourage as much imagination or symbolic use. In the traditional idea of a classroom, the teacher presents knowledge, and the students learn and retain it. But sometimes this can actually stifle children's own exploration and creative discovery. Guiding play can provide an excellent context to help us shift our perspectives from what teaching looks like. It can provide a learning context for us, too, as we move from always teaching specific content to children to listening to children's questions and modeling a questioning mind. We don't always have to view ourselves as experts and recognize that we do not have all the answers. Instead, we can acknowledge and validate the children's thinking and look for answers to their questions together. It's likely that many of you have already given these ideas some thought and strive for a learning environment that lets children take the lead. And sometimes a more traditional teaching method is necessary for particular lessons or standards or goals that a student must meet.

But here's some examples of goals we can have when working with children to shift our thinking about how children can learn and explore. Instead of thinking, "As a teacher, I am the expert, and I need to have all the answers to the questions they ask," we can approach the situation with a different perspective of, "I don't know, let's find out together." Or instead of approaching a lesson with a thought that, "I am going to teach children lots of information about this topic," we can shift to, "I listen to children's questions and model a questioning mind. Let's explore together." Guiding play by providing thematic, varied, open-ended, and relevant materials, or by asking open-ended questions can benefit learners. Let's take a moment to brainstorm how we can use these techniques and interactions with children. Look at this photo. Think about what skills these children might be learning while they're doing this activity. Think about questions you could ask or materials you could provide to further their learning

and encourage exploration, discovery, and creativity. Please take a moment to think about this scenario and share your responses in the chat box. So the question was to think about what skills these children might be learning while they're doing this activity. What questions could you ask or materials you could provide to further their learning and encourage exploration, discovery, and creativity?

Sarah: Great, so there's been a really rich conversation in the chat window. People talking. They're continuing to talk about different activities to encourage children's learning through play. In response to this question, people are suggesting asking questions and thinking about children's cause and effect learning, listening to one another, sharing ideas, cooperative play, turn taking. Perhaps adding different objects to see what falls the best or perhaps fastest. Charise is saying that she likes to have a parent from different cultures come into the classroom and have children dress from their culture, have parents read in their home language, and adding music and dance into the classroom, too. So again, bringing in those cultural components to children's learning.

Amelia: That's wonderful.

Sarah: So, Jackie is suggesting, thinking about fine motor language and science. How long will it take? Why did the sand change? Asking a lot of those kinds of questions to get kids to think about what it is they're witnessing.

Amelia: Yeah, I'm seeing some answers about texture, too. So maybe if we add water, or if we put the sand in the sun for a while, what happens?

Sarah: "What do you think would happen if" kinds of questions, says Ruby. So again, people offering a lot of different ways to sort of change the scenario and ask children, what will happen if something else happens. Kim suggests introducing unique words, perhaps like gravity, liquids, speed, volume. Words that might not be as familiar to these children.

Amelia: Yes, a fantastic opportunity to help build vocabulary skills. All right, well, again, thank you for all of your responses to this question, and for being so actively engaged on the chat box. We really appreciate it. So we're going to go ahead and wrap up here today. Today we've talked about how children's play changes as they grow and develop. We've discussed how children play to learn across domains in the Early Learning Outcomes Framework. And we've discussed ways to support and deepen children's learning during play. Play is central to children's development. It acts as an engaging, individualized learning contact that can be an incredibly powerful learning tool. Play often leads to more abstract learning, longer term retention of information, and even higher achievement. Playtime provides moments for essential skill building through development and, did I mention, it's pretty fun, too. Well, thank you so much for listening. We hope that this information will be valuable to you as you work with children or help programs, consider ways to enrich the experiences for the children and families you work with and serve. If you have thoughts you'd like to share about how this relates to your work or questions or comments, please feel free to leave those in the chat box. And I don't know, I'm not sure if we have time for questions, or Sarah, if you have anything else that you'd like to add as we wrap up this webinar.

Sarah: No, I appreciate everybody joining, and I think the chat box activity was fantastic. So many wonderful suggestions. So somebody is asking about a list of the research that you cited, Amelia.

Amelia: Yeah, so I believe that this Powerpoint may be made available, and we can certainly put together a list of resources. And most of the resources are cited on the Powerpoint slide, but we could put together a list of those references.

Sarah: Okay, and somebody else asking if the webinar will be available for review. And this recording will be posted on ECLKC at a later date, so you can look for it there.

Amelia: And if you're interested in a list of resources, I would say to contact -- if you have contact information for this webinar, contact that e-mail address, and we can get that to you.

Sarah: And don't forget the two files that are available for download in the files box below the chat window. We have the discussion guide and the handout there, too. Wonderful. We are at time, so thank you so much for joining us, everyone, and we will see you at the next Baby Talks.