

NEWS YOU CAN USE

News for Head Start, Early Head Start, & Migrant/Seasonal Programs

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FOUNDATIONS OF SCHOOL READINESS: COGNITION AND GENERAL KNOWLEDGE

Have you picked up a cup an infant dropped on the floor over and over again? Watched a toddler back up slowly and carefully to try and sit in a doll-sized chair? Or had ALL of the children interrupt a story about a dog to tell you about their experiences with dogs? While these experiences may sometimes be funny or frustrating, they involve serious effort for very young children. These children are intensely exploring the world around them. They are taking on the challenging task of understanding how things work. They are developing their abilities in cognition and general knowledge.



“...children are intensely exploring the world around them...taking on the challenging task of understanding how things work.”

Cognitive development for infants and toddlers is “the process of growth and change in the intellectual/mental abilities such as thinking, reasoning, and understanding.”ⁱ

General knowledge can be thought of as information that babies and toddlers gain from their physical environments (home, neighborhood, and community) and their social environments (interactions with important adults, experiences they have, and the culture around them). Infants and toddlers use all their senses to gain this knowledge.

In This News You Can Use, we explore some vignettes about cognition and general knowledge as they relate to school readiness goals. (See School Readiness Goals for Infants and Toddlers in Head Start and Early Head Start Programs.ⁱⁱ)

Cognition and general knowledge, much like all infant and toddler learning, are closely tied to growth in other developmental domains. For example, to be successful in their developing abilities to think and learn, infants and toddlers need a strong foundation in social and emotional development. They need nurturing adults who respond to their needs and support their interests to feel safe and secure in exploring their environment. Additionally, physical development often coincides with leaps in cognition and general knowledge. For example, think of an infant who learns to pull up to stand; suddenly, a whole new world is visible to him! He is now capable of learning new things about gravity (as he sweeps things off tables) and how his body moves in space. As children explore and discover the world around them, they need adults to describe their experiences in order to extend



the children's vocabulary and communication ability. Nurturing adults support general knowledge, especially by reading books, narrating a child's actions, and having interactive conversations that extend their understanding of the world. The "approaches to learning" domain is also related to cognitive development. Both cognition and general knowledge are supported by the ability to pay attention to and remember what you are learning; persist with something, even when frustrated; and, especially, be curious about the world around you in order to seek out knowledge and learn how to learn!



■ Math Concepts

(Example for Goal 1, older infants)

Kaeden (14 months old) toddles around the home of his family child care provider, Yelena. He holds a ball he found outside that is just bigger than his fist. He is going up to everything he can find with an opening to see if the ball fits inside or through. He tries between the slats of a gate, stacking cups, even the space between chair legs. Yelena watches him and notices how intent he is on figuring out what the ball fits into and what it doesn't. When it doesn't fit, he tries banging it into the space or sometimes tries a different direction. When it does fit, he looks up at her and smiles as if to say, "Success!" Yelena supports his discovery along the way by talking with him about what he is doing. She says, "Do you think it will fit in that box? Oh it does, doesn't it! You took it out. Hmm, how about the shape sorter? It doesn't fit into the square or triangle, does it? Is it too big for those little holes?"

Kaeden, like many infants his age, is fascinated—focused and absorbed—with figuring out how things might fit together. He is experimenting with the ball but also with pots and pans, cups, lids, and shoes to see which things go in other things. So far, he has learned a lot from his experiments. He has learned that

- some things are bigger than other things;
- some things fit together (containers with lids);
- some things do not fit together (balls and rocks); and
- sometimes, if you try it a different way, you can get something to fit.

Yelena supports his learning by talking with him about what he is doing. She uses words like "big" and "little," or "in" and "out," and she names some shapes. She is also nearby, watching and cheering on his successes. She is his secure base. Her presence and support give him the security to know that he can safely explore, check back for information and encouragement, and receive acknowledgment of his discoveries.



As Yelena planned the curriculum for Kaeden's day, she thought about his interest in seeing how things fit together and understanding the physical properties of objects. When she sees that he may have run out of ideas, she offers him a softer, foam ball. He is off again to discover the entirely different properties of a squishy ball. When Yelena plans Kaeden's learning experiences for the next day, she thinks about his interests, how he is really exploring the properties of balls, and how things fit together. She decides to offer him a few short tubes, each with a different width. She sets the tubes out in a basket for him and, without showing him what to do, points out the basket. Kaeden quickly grasps the tubes and knows just what to do! He sees which tubes fit inside of each other and soon is finding objects from all over the play space (cars, blocks, play food) and trying to fit them through the tubes.

To many adults, it looks like "play." For Kaeden, this is serious work. He is learning about math, about the physical properties of objects, and about his own ability to manipulate them. He is also learning about the spatial relationships that exist between objects. He has a thoughtful family child care provider who recognizes his desire to explore and thinks about ways to support him. Yelena takes photos of him and notes what he is doing so she can add this to his assessment documentation later. She will share anecdotes and photos with his father when he comes for pick-up. Part of her job is helping parents and family members understand that what looks like play is also learning! Sharing with parents gives them a chance to provide opportunities to extend Kaeden's learning at home and perhaps join in his play, too!



■ Investigating the Environment

(Example for Goal 2, for young infants)

Home visitor, Malia, and mother, Lahela, watch Makai (five months old) hold a rattle. He moves his hand and the rattle to the center of his body, where his other hand also grasps the rattle. With hands together, he shakes the rattle and it makes noise. Makai coos at it and shakes it again. He brings it to his mouth and sucks on it for a bit. Lahela says, "Everything ends up in his mouth!" and Malia responds, "Right now, it's one of the best ways he can explore. He's using all his senses to learn—his mouth and his eyes and his ears and his hands! Did you notice how he held the rattle in one hand first, then in both hands, and then shook it? He's really figuring out how his hands work. And he made the delightful discovery that the rattle makes noise when he shakes it."

Some people think that babies don't start learning until they are older and able to walk or talk. Those who work with infants, toddlers, and their families know differently! Even very young babies are active participants in their own learning. The world is so full of knowledge to discover, and Makai is just beginning this journey. He is figuring out how his body works, how he can move in space, what objects can do (such as make noise), which objects might feel good in his mouth, and so much more. Babies use all of their senses to learn all of the time, and investigating the environment around them is something most babies are very motivated to do.



As mentioned earlier, cognitive development tends to grow along with physical development, especially when it comes to investigating the environment. Physical abilities create opportunities to explore in new ways and learn different things. For example, when babies are able to both grasp and release, they can throw or drop objects. Through these activities, children learn object permanence (understanding that people and objects exist even when they are out of sight) and cause and effect (understanding that actions make things happen). Just dropping a toy out of sight and having someone return it is an experiment in both! A toddler who walks around collecting all of the balls he can find is showing that he understands that the objects he seeks share similar characteristics. They are all round! He may very well pick up an orange or even a rock for his collection while he is figuring out what, besides being round, makes something a "ball."



■ Connecting Experiences and Information

(Example for Goal 3, for toddlers)

Genesis (31 months old) runs into her classroom, bursting with excitement. "Ms. Nita, Ms. Nita, LOOK!" Ms. Anita gets on to her knees to see what treasure Genesis has brought in this morning. Genesis opens her little hand and holds out some seeds. Ms. Anita asks, "What have you found?" Genesis tells her, "Seed from my apple. I ate an apple and it had a seed in it! Like the book!" Ms. Anita says, "Oh yes! We read that book yesterday about planting a seed. What should we do with this, Genesis?" Genesis jumps and shouts, "Plant it! And eat apples!"

Genesis is showing Ms. Anita more than just a seed; she is showing her that she has the ability to understand the meaning of a story, remember it, and connect it to real objects and events. Although Genesis has probably seen many apple seeds in her life, the one she found yesterday had new meaning to her because they had just read a book about seeds. Suddenly, seeds are more than just the part of the apple you don't eat; they are something that can make a whole new apple! Genesis is developing comprehension skills when she makes the connection between the new information learned from the book and her personal experiences. She is also making predictions about what might happen to the seed based on the book. Those predictions may mean further exploration!

By sharing the excitement of her discovery, Ms. Anita is also supporting the connection between learning in their classroom and Genesis's experiences at home. To further support this, Ms. Anita plants a few apple seeds in a cup for their classroom and a few in a cup for home. She talks with Genesis's father, Dion, and offers to lend them the book about how seeds grow to read at home. Finding meaningful ways to help families feel like they are important to their child's learning is one of the ways program staff can support children in lifelong learning and school readiness.



■ Conclusion

Cognitive abilities allow children to think and use the information they gather from their interactions with adults, other children, and the environment. General knowledge can be thought of as a product (or result) of cognition—the collection of information that infants and toddlers gain through interactions with family members and other important adults, other children, their environment, and materials. What very young children learn is influenced by what they experience at home, in their communities, in the culture where they grow up, and in your program. One of the best ways adults can support the development of cognition and general knowledge, or learning, is by recognizing what learning looks like. Infants and toddlers are naturally capable, curious, and motivated to learn. When you observe young children with that understanding, you will see that learning is happening in everything they do, and you will be able to build and expand on it!

■ Words You Can Use

- **Cognitive development** for infants and toddlers is “the process of growth and change in the intellectual/mental abilities such as thinking, reasoning, and understanding.”ⁱⁱⁱ
- **Cause and effect** is how we describe the understanding that actions make things happen, including pushing a ball and making it roll away, and dropping a cup and having an adult retrieve it.
- **General knowledge** refers to all the information that babies and toddlers gain from adults through responsive interactions, listening to language, their environment, and family and community culture.
- **Object permanence** is the understanding that people and objects exist even when they are out of sight.
- **Secure base** is a nurturing adult (such as a primary caregiver) who has a significant relationship with the child from which the child can explore and then return to for comfort, information, or acknowledgment.^{iv}



ⁱCalifornia Department of Education, *California Infant/Toddler Learning & Development Foundations* (Sacramento: California Department of Education Press, 2009), 59, accessed August 12, 2013, from <http://www.cde.ca.gov/sp/cd/re/documents/itfoundations2009.pdf>.

ⁱⁱEarly Head Start National Resource Center. *School Readiness Goals for Infants and Toddlers in Head Start and Early Head Start Programs: Examples from the Early Head Start National Resource Center* (Washington, DC: Early Head Start National Resource Center, 2012), accessed August 12, 2013, from <http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/ehsnrc/docs/school-readiness-goals-infants-toddlers.pdf>.

ⁱⁱⁱCalifornia Department of Education, *California Infant/Toddler Learning & Development Foundations* (Sacramento: California Department of Education Press, 2009), accessed August 12, 2013, from <http://www.cde.ca.gov/sp/cd/re/documents/itfoundations2009.pdf>.

^{iv}Everett Waters and E. Mark Cummings, “A Secure Base from which to Explore Close Relationships,” *Child Development*, 71:1 (2000): 164-172.

STUDY GUIDE

for

NEWS YOU CAN USE

FOUNDATIONS OF SCHOOL READINESS: COGNITION AND GENERAL KNOWLEDGE

SUMMARY:

This *News You Can Use* (NYCU) describes what cognition and general knowledge are for infants and toddlers and how adults can support these emerging skills. It is meant to be used along with the sample goals in the document *School Readiness Goals for Infants and Toddlers in Head Start and Early Head Start Programs*.



Key Messages:

- To develop and learn, infants and toddlers need caring adults (parents, family members, teachers, home visitors, family child care providers) who provide safe, predictable, and responsive relationships.
- Cognitive skills and general knowledge skills are closely tied to growth in every other area of development.
- Through understanding what learning looks like in the youngest children, adults can offer meaningful opportunities and support for the development of cognition and general knowledge.



Think:

- How do the ideas in this NYCU support the work you do with infants, toddlers, and their families?
- What ideas do you already use in your practice? What might you do differently based on what you read?



Reflect:

- How do you believe infants and toddlers learn?
- Think about a time when you learned something new. What was the process like? How is that similar, or different, to how young children learn?



Discuss:

- Look at the Cognition and General Knowledge Goals in the *School Readiness Goals for Infants and Toddlers in Head Start and Early Head Start Programs* resource. How have you observed infant and toddler learning as described by these goals?
- What are the cognition and general knowledge goals identified in your program? How do they link to the ideas in this NYCU?
- How does the information in this NYCU support individualized curriculum planning in home-based, family child care, and center-based program options?



Next Steps:

- Learn more about cognition and general knowledge by reading an article, your state's (or another's) early learning guidelines, or an online resource.