Your Child's Development

Science January 2010

Infants and Toddlers

Babies are motivated, curious and competent learners right from the start. They are natural scientists. Cognitive development is the building of concept knowledge and thinking skills. Children come into the world eager to learn. Through relationships, active exploration and experiences, infants and toddlers make discoveries about the world, figure out how things work, imitate others, try out new behaviors, share meaning, learn social rules and solve problems. Like scientists, young children uncover the mysteries of the world. Through play and self-initiated practice, they build concepts and develop their thinking skills.

Relationships are at the center of early cognitive development. Young infants are fascinated with their caregivers' faces and voices. They learn through give and take interactions. As infants grow older, they use attachment relationships as a secure base for exploration. They also become interested in showing and giving things to adults. At the toddler age, children ask questions and share meaning with their caregivers.

So what does this look like and how can you support it….

Babies start by learning to distinguish between familiar and unfamiliar people. This basic skill grows into learning to group and categorize. Children learn to group people and objects based on their attributes. For example, very young infants demonstrate this by turning toward the sight or scent of a familiar adult. By the age of 18 months, children demonstrate this by sorting familiar items into two categories such as putting cars in one pile and pegs in another.

Children also learn the concept of cause and effect at an early age. Around 6 months or so children learn that eating makes them feel good. They show a positive reaction when a nursing mom or bottle is presented to them. By 18 months a child will demonstrate surprise when interacting with a pop-up toy. Later they demonstrate their understanding by bringing it to a trusted adult to show you what they can do!

To promote cognitive development, caregivers should take cues from infants and be responsive to the children's interests and needs. Responsive care has a positive influence on children's long range cognitive development. In addition, caregivers need to set up an environment that is both appropriate and challenging for the age and stage of each child. The environment should be well organized and predictable. Providing a rich selection of age appropriate, easily accessible materials allows all infants and toddlers to pursue their passion for learning and discovery.

Excerpts from Ohio's Infant and Toddler Guidelines

Preschool

It is instinctive for the young child to search out, describe and explain patterns of events experienced in the natural and physical world. Children develop an understanding of science as they investigate and interact with real objects and phenomena. They are natural scientists – curious, observant and questioning. Their knowledge of science grows out of an attempt to find meaning in their environment and by relating new experiences to prior knowledge and personal experience.

Science content is more than isolated facts such as the stages in the life of a butterfly or the life cycle of a plant. Although scientific facts are important, it is how the information is organized into meaningful concepts and ideas that is of significance for the learner. For example, learning about the development of a butterfly should lead to the big idea that all living things develop in a series of stages called a life cycle.

The science curriculum provides for a balance among the three broad disciplines of life science, physical science and earth/space science. Thematic units or topics of study, arising from the interests of children, are used to plan meaningful experiences in which children explore ideas, manipulate materials and engage in conversations to construct their own understandings of science.

So what does this look like and how can you support it?

The process of science is learned through active engagement. Preschool children learn science by exploring the world around them. When provided an environment with varied materials, they try out things to see how they work, they experiment, they manipulate, they are curious and they ask questions. As they seek answers to their questions, opportunities are provided for hypothesizing and predicting, observing, collecting data over time, formulating conclusions. Through active engagement in authentic and meaningful science experiences, they learn to enjoy and appreciate their surroundings.

Science to a preschooler is anything that can have more than one outcome. The life and physical sciences are areas of natural curiosity for children. For life science, families could grow plants indoor in the winter and garden in the summer. Invite your child to plant other items of curiosity (buttons, coins, etc.) other than the seeds you have chosen. Label them and see which ones grow and how. Help them to observe the life cycle of plants by measuring the amount of water given and how often. Ask questions about the process to guide their exploration.

The world is a place of wonder for children. As preschoolers, children don't understand why a balloon rises if you let go and a ball falls to the ground but bounces. The possibilities are endless. Building ramps out of books or other long, flat items is a great activity. Invite your child to roll cars or balls down the ramp. Once they understand how to use these materials challenge them to predict how far the ball will roll or which item will go the farthest.

Children need opportunities to present their view to other children and adults through their drawings, constructions and verbal exchanges. By exchanging opinions with others, children begin to move from an egocentric point of view and compare their views with those of others. Their concepts about the natural world are expanded and enhanced through sharing of experiences.

Excerpt from Ohio's Early Learning Content Standards

Your Child's Development

Emotional Development March 2010

Infant and Toddler

Babies experience emotions right from the start. From their first cry of hunger to their first giggle of delight, their emotional experience grows. Young children learn many ways to express emotions such as happiness, sadness and anger. As they interact with their caregivers, they come to understand and appreciate the uniqueness of their emotional experience. Eventually they gain some control over their sometimes strong emotions. Positive early experiences help a child become emotionally secure.

The child's evolving sense of security and well-being has a profound effect on all areas of the child's development, including cognitive and language development. For example, an emotionally secure infant will more readily explore and learn than an insecurely attached infant. In a secure relationship, the child engages in rich back-and-forth interaction. The "dance" between the caregiver and child fosters increasingly advanced communication and language development.

New research shows how emotions are key in organizing the experience and behavior of young children. Emotions drive early learning. For instance, the pleasure an infant experiences when making a discovery or mastering a motor skill inspires the child to continue to learn and to develop skills. Emotional experiences affect the child's personal health, well-being and school readiness.

The infant's emotions are nurtured in relationships with parents, grandparents and child care providers. Studies of attachment show that children who are in emotionally secure relationships early in life are more likely to be self-confident and socially competent. Sensitive caregivers who read the child's cues and meet emotional, physical and dependency needs help the child become securely attached to them. Caregivers who gently stimulate a baby's senses and share emotional states provide the baby's brain the experiences it needs to grow. Because sensitive, responsive care leads to attachment security, its impact is profound. Secure attachment relationships have a positive effect on every aspect of early development, from emotional self-regulation to healthy brain development.

Excerpt from Ohio's Infant and Toddler Guidelines

Preschool

Emotional development is all the ways a child feels about self and others, what he believes in, what she values and the character traits we exhibit. It involves so much more than emotions and self concept. Emotional development is made visible to others only through a person's words or actions and can be a very personal thing. This makes supporting the young child's emotional development even more tricky.

Engaging your child in daily discussion about their play is a great way to bring out some emotional development opportunities. Teachers use probing questions to try to illicit genuine responses. When we ask 'What did you do today?' most children say…'nothing'. This question is too big and encompasses too much for a young child to answer thoughtfully. *Try… who did you play with? …what did you make/build?.... did you play in the collage area?* Target areas in the room that you know your child is typically engaged in and ask simple questions. Anything that gets your child thinking and talking about how they feel about themselves, others and the world is a good thing.

Another way to support emotional development in children is to help them see themselves as capable , contributing members of the family. Children can do so many things successfully with just a little bit of help. Consider giving your child a couple of weekly responsibilities. Children can dust, empty small trash cans, bring their clothes to the laundry room, sweep the sidewalk, help with dishes, wipe off the kitchen table and help put groceries away. These are a few examples but I'm sure you can come up with many more. Expect them to be excited and rush to complete their task. Take a few minutes to patiently point out the important parts of their task and help them to complete their responsibility effectively.

Children are watching us and are eager to imitate family roles and expectations. Consider what values or characteristics are important to your family. Make a list of those you hope to impart to your child. Pick one or two values each month and shine a spotlight of sorts on it. For example, talk about what it means to be respectful at dinner. Then gently point out when anyone in the family has been respectful.

Your Child's Development

Math April 2010

Infant and Toddler

Math development grows hand in hand with the other developmental domains. Healthy and emotionally secure infants can focus on exploration and learning. Infants' growing ability to move their bodies allows them to explore environments and manipulate materials in increasingly complex ways. As infants and toddlers build concepts, language gives them a means to represent ideas and share meaning with others. Symbolic play not only enables children to experiment with concepts, it also gives them a means to explore social roles and feelings. The knowledge and thinking skills that children build during the first three years of life prepare them to continue to learn during the preschool years and become ready for school.

Math development is difficult to spot in children under 15 months old. Children are keen observers and use this skill to learn about moving about in the world and how to communicate. They watch everything we do. They watch you count, measure, match, sort, use money and many other basic math skills. These interactions support children's natural brain development creating the pathways for future mathematical thinking.

Math looks much different in early childhood than in grade school. Young children are developing skills in matching and sorting. Children need opportunities to freely manipulate items. Play is a natural teacher. Children will take the same set of toys and perform many different skills throughout infancy and toddlerhood. They explore the characteristics of an object as they learn to grasp. They collect items around the room when they begin to move. They line up items they have collected. And they sort and match items based on self selected characteristics.

Supporting math skills can provide fun opportunities for interactions with your child. Take a small collection of related items and place them in a space where the child can access them. Mimic your child's play with these items. Line them up on a ledge or place them in a space they normally wouldn't be. Hide them around the room and set the empty container in plain sight. The possibilities are endless. Basically just have fun playing with your child!

Preschool

Whenever possible, children should have opportunities to learn mathematics through real-world contexts, including practical applications, real data and numbers often associated with situations and problems encountered in play and daily life. All children should be exposed to a mathematics program rich in technology, including calculators, computers and technology applications. The six standards in the Preschool Content Standards are numbers, measurement, geometry, patterns, data analysis and mathematical processes.

At the heart of mathematics is an understanding of number relationships. Children need to make sense of the ways numbers are used in their everyday world. Number senses and concepts develop gradually over time as young children explore, manipulate and organize materials and as they communicate their mathematical thinking. Counting is one of the earliest number concepts; it begins with developing oral counting skills or rote counting. One-to-one correspondence follows rote counting, which means linking one number, and only one, with each item in a set of objects. Other number concepts addressed within the early mathematics curriculum include quantity, comparisons and
number symbols. Quantity is the concept of an entire set: knowing that the last object counted represents the entire set of objects.

Children will begin finding ways to represent numbers. They may make marks or write numerals. Through children's curiosity and involvement in real-life experiences, they come to understand the meaning of number operations and begin making comparisons using terms such as *more than, bigger than, less than* and *the same as*.

There are many ways to support your young mathematician! Make collections of items available with differing characteristics. Children will be most excited to explore math skills with familiar items such as a collection of teddy bears, cars or dinosaurs. Invite the child to take a couple of shoes out of everyone's closet and invite them to classify them by their characteristics. They can sort them by whose shoe it is, by size - big or small, or by tennis shoe or dress shoe. Anything they come up with is great.

Invite older preschoolers to make collections for each number. Start with one and have the child find one object and place it next to the number 1 and so one. Keep it fun and remember that this is tough work for them.

If children are excited, curious, resourceful and confident about their ability to figure things out and eager to exchange opinions with other adults and children, they are bound to go on learning, particularly when they are out of the classroom and throughout the rest of their lives.

– Constance Kamii, 1990

Your Child's Development

Literacy May 2010

Infants and Toddlers

Babies tune into familiar sounds and voices and express needs within minutes after birth. All humans communicate to build relationships, share meaning with one another and express needs. The ways humans communicate include sound, speech, body movements, facial expressions, gestures, signs, pictures, print and Braille. Language competence is one of the most amazing developmental accomplishments during the first three years of life. Infants rapidly learn to understand language, express themselves verbally and use language to get their needs met.

The development of language and communication skills during the infant and toddler years supports development in all areas. It helps infants to learn about healthful routines, to regulate their actions and thinking, to understand their emotional experiences and to get along with others socially. It also lays the foundation for the acquisition of skills necessary to learn to read, write and communicate effectively with others in school.

So what does this look like and how can you support it….

Your child will demonstrate interest in book reading, story telling, and singing and will eventually understand the meaning of basic symbols. As a young infant, your child may turn toward granny and watch her eyes and mouth while she sings a song to her. They may babble while looking at a book with an older sibling or chew on the corner of a book. As they get a little older, they may reach for the pages of a board book when a caregiver is holding up a book and looking at it or point to animals in pictures of a book after their caregiver asks them, "Where's the cow? Where's the dog?" As a toddler, your child may participate in book reading by making sounds of the different trucks in the story that grandpa is reading to them or see a picture of a flower in a book and pretend to sniff it.

Your child will demonstrate interest in writing and will develop the fine motor abilities required to hold a writing tool and make marks on a surface. Babies do this by grasping a rattle, letting go of it and then trying to grasp it again and by picking up small toys with the tips of their thumb and fingers. Many young children imitate caregivers who are writing, use crayons to make marks on paper and make scribbled pictures and say, "It's a dinosaur" when showing it to you. These are all examples of how your child is learning the foundations for listening, speaking, reading and writing.

Babies and toddlers need rich experiences with language-related emergent reading and writing. Anyone caring for an infant or toddler should read to them frequently, and recite to them songs, rhymes and finger plays. In addition, learning opportunities such as manipulating play materials, playing with short stubby paintbrushes and using eating utensils provides infants and toddlers the experiences they need to become ready to play at writing during the preschool years.

Excerpts from Ohio's Infant and Toddler Guidelines

Preschool

The emergence of language and literacy in young children is a dynamic process. The research is clear: children who enter kindergarten "language rich," that is, using and knowing many different words, engaging in conversations with other children and adults, sharing information and asking questions, come to school ready to participate in reading instruction.

It is also clear from the research that there are "clear and consistent patterns of relationship between children's language and literacy development" (Dickinson and Tabors, 2001). Speaking, listening, reading and writing are bound together as a system that is useful and has meaning for young learners. Language and literacy are interactive processes. When children are immersed in an environment where oral and written communications are valued, they have the motivation, the modeling and the sense of purpose to master language.

So what does this look like and how can you support it?

During the preschool years, with appropriate guidance and curriculum experiences, children turn conscious attention to print. They acquire concepts about print such as linearity and directionality and learn to write their names and recognize and write some alphabet letters. They develop early phonological awareness through hearing stories and rhymes and playing games with rhyming words and alliteration. In addition, young children learn to listen to and talk about books that are read aloud to them. They construct understandings about a variety of kinds of books and print in the environment and begin to develop a concept about story. The young learners' vocabularies grow as they acquire understanding of new words through their experiences, including experiences with books.

Developing a strong foundation for literacy doesn't just happen. Instead, caregivers must thoughtfully and purposefully interact with children and plan experiences that support emerging literacy. Read, read, and read to your child! During these first years of children's reading and writing, wide exposure to print and to developing concepts about its forms and functions should be emphasized. Encourage your child to hold books right side up, read pages from front to back, top to bottom and read words left to right. Identify matching sounds and recognize rhymes in familiar stories that you read to your child. Have them predict what might happen next during the story. Label everything! Name and label objects around the house (e.g. table, door.) and display writing samples and illustrations. Homes and classrooms filled with meaningful print, language and literacy play, storybook reading and writing allow children to experience the joy and power associated with reading and writing. Help your child recognize words in their environments like STOP on a stop sign and encourage them to name items in common categories (e.g. animals, food, clothing, transportation, etc.) A print-rich environment that allows children to engage in hands-on experiences that offer countless opportunities to practice literacy skills in real-life, combined with explicit teaching of key concepts is the foundation of literacy learning in preschool.

Excerpts from Ohio's Early Learning Content Standards