



Adam Hill, left, teaches subtraction to his daughter Niv, 4, right, at Austin Park in Skokie. Hill uses the playground to teach his children, including his 1 1/2-year-old son, Judah, about shapes, colors and counting. (Keri Wiginton, Chicago Tribune / August 24, 2011)

By Erin Calandriello
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At mealtimes, Adam Hill helps his 18-month-old son count his chicken nuggets or peas. At the playground, his 4-year-old daughter counts the monkey bars out loud as she goes back and forth.

When they get to the park, the youngsters identify the shapes they see.

It might seem like he's just having fun with his kids, but the 29-year-old Skokie man is laying the foundation for them to understand math.

Many parents read to their babies and toddlers, knowing it will help them learn to talk and, later, to read, but fewer caregivers are thinking about math skills before the age of 3, said Hill, a child and adolescent therapist.

But, "This is when children are figuring out space patterns and picking up what's going on around them," Hill said. "Their eyes are developing, and they're learning how to focus."

With the latest research showing that babies' brains are incredibly complex and that infants possess a fundamental sense of numbers, education experts in the Chicago area are stressing the importance of nurturing math literacy in children prior to kindergarten.

Recently, the Chicago Mercantile Exchange awarded National Louis University in Chicago a \$456,000 grant to develop a project called Math Access for Teachers and Home Care Providers. The project is an online professional development center to help family home care providers develop early math skills in kids. The draft site is mathathome.org, but organizers have not set a date when it will become active.

The researchers say that while the primary audience is child care providers, parents will be able to access the online center at no charge too. The site will feature 10- to 20-minute modules of activities and projects that help caregivers teach kids lessons on numbers and number sense, concepts such as space and measurement, patterns and relationships, sequencing and temporal awareness, and problem-solving skills.

First, the project will teach adults how to set up an effective math learning environment, including appropriate materials and equipment, and effective placement of those things.

"No age is too young to set up an environment which is conducive to math skills," said Kathleen Sheridan, associate professor in National Louis' National College of Education and the project's founder. "Babies are pretty amazing, and we need to capitalize on the things they're born with."

Next, the website will teach parents and caregivers how to relay math concepts to children through fun activities.

"We're not saying to use flash cards and drill a baby," Sheridan said. "You look at the knowledge and foundation they have about things like sequencing, patterning and numeracy, and if they don't have that in their foundation, then everything else built upon that foundation is going to be weak."

She said the program will be based on research about what children need to know about math and how it is best learned. And, she promised, it will be fun.

Sheridan said infants possess an approximate number system, in which they can notice when there is more or less of an item, so caregivers can set up games for kids to estimate how many items are in a jar. Children enjoy playing with colorful toys, so parents can provide babies and toddlers large plastic blocks to classify or sort based on size, shape and color, she said.

Beth Mosher, 34, of Naperville, said her 2- and 5-year-old children are exposed to such games at home. They work puzzles, draw or trace shapes on paper, and play matching and sequencing games.

"We don't want them to just memorize numbers or how to count," said Mosher, the director of public affairs for a local company. "We want them to know what numbers are all about and what they mean."

Sheridan said playing with musical instruments such as shakers and drums will help young children develop a sense of rhythm and learn patterns. Exposing them to bright, textured toys will help stimulate motor skills, she said.

"Math is everywhere and it is in everything we do, and we need to be deliberate with illuminating it," said Jennifer Asimow, associate professor of **child development** at **Harold Washington** College, who will be running the Math Access project's daily blog. She said she hopes parents and caregivers will use the blog to share ideas with early childhood experts and each other about how they can develop more math activities inside their homes.

A kitchen is a great location for teaching math concepts, she said, pointing out that words such as "whole," "part," "half," "some" and "a lot" demonstrate math concepts. She said parents can have children match storage containers with their lids and organize them in terms of size and shape.

"It's all about providing math opportunities every day during every part of the day and connecting it to something meaningful in the child's life, like how we incorporate language into everything children do every day," Asimow said. "This allows children to have more opportunities to explore math concepts, to use math language and to have math embedded in every area of their lives."

