

# Kindergarten

## Making Meaning of Mathematics



Young children come to school already knowing a great deal about mathematics. They have an intuitive knowledge of mathematics which they have developed through their curiosity about the world in which they live and the experiences that they have had in it. For example, babies know that they are small and their mother and father are big before they can express this knowledge in words. Young children know the sequence of their day if it has some kind of routine to it.

Children are motivated to solve problems when they are the real-life problems of daily life at home or in the classroom. Experiences with mathematical problem solving are often connected and integrated into these experiences. For example, children learn many concepts of number, size, shape, and mass during trips to the market. Counting, sorting and spatial concepts can be developed as children learn to put away their toys. When children measure the growth of their bean plants, they begin to see the connections between mathematics and everyday life, and to strengthen their understanding in both math and science. Experiences such as these provide a vehicle for children to apply what they already know, in addition to developing new strategies.

(Adapted from *The Full-Day Early Learning-Kindergarten Program* (Draft 2012) and *Parenting and Family Literacy Centres Resource Binder* (2010) )

*“From birth to age 5, young children develop an everyday mathematics, including informal ideas of more and less, taking away, shape, size, location, pattern and position, that is surprisingly broad, complex, and sometimes sophisticated.”*

“Mathematics Education for Young Children: What It is and How to Promote It” Herbert P. Ginsburg, Joon Sun Lee, Judi Stevenson Boyd in *Social Policy Report*, 2008

<http://www.twigafoundation.org/documents/2008.Ginsburg.EarlyChildhoodMath.pdf> accessed July 25 2012

### When children are engaged in mathematics, you might see them:

- Counting everyday items such as cars, stairs or the number of steps from place to place;
- Estimating the number of steps from the front door to the kitchen and then checking out their prediction;
- Filling containers with water in the bath to find out which holds more, which holds less, and how many smaller containers it takes to fill a bigger container.

### .. or you might hear them:

- Solving problems using numbers: “Four children want to sit at the snack table. There are only two chairs there. How many more will I need?”;
- Identifying different shapes in their environments: “This juice can is a cylinder. The carpet is a rectangle.”;
- Singing songs or reciting stories with a pattern: “Old MacDonald Had a Farm, e-i-e-i-o.” “Brown Bear, brown bear what do you see...”.

## Effective ways in which parents can support children's mathematics learning

### Some sample ideas:

#### At home:

- When children put away their toys, ask them to count how many round blocks they have (counting skills), or to put all of the wooden blocks on the bottom shelf and the plastic blocks on the top shelf (sorting skills, spatial concepts).
- Ask children to predict how many steps it is from their bedroom to the kitchen, or how many scoops of cereal it will take to fill their bowl. Then compare the actual number of steps or scoops. (skills of estimating and comparing).
- Go on a shape hunt in your home and count the different shapes that can be found in each room.

#### In the community:

- Help children to recognize that math is everywhere around them. Look for places where math is used in the neighbourhood such as the different shapes found in both the built and the natural environment; where numbers are used and why; who needs to measure things and the tools that are used to do the measuring.

#### Talking With Children

*When adults engage with children as they solve mathematics-related problems, the dialogue that takes place helps children to develop greater understanding of mathematical concepts. Adults can help children to shape and articulate their thoughts, reinforce oral language, and develop mathematical vocabulary, by listening and responding to what children say. When they provide ample time for children to initiate conversation and respond to questions, adults demonstrate respect for the children's thoughts, opinions, ideas and wonderings.*

#### Parents as partners in learning:

##### Ask the educator(s):

- What are some ways to support my child's mathematics development at home?
- In what ways do you incorporate mathematics into the inquiries the children are doing?
- What are some resources that would help me to understand what my child is doing in mathematics in Kindergarten?

Parents are encouraged to share observations or information about their child with the educator team.

#### Ask a child:

- What are some of the ways you use numbers at school today?
- What shapes were the blocks that you used to build today?
- When reading a story- "What pattern did you hear in the words in the story?"

#### Learn more

For a list of resources, visit

<http://www.edu.gov.on.ca/kindergarten/index.html>

Or call:

Toll-free in Ontario,

1-800-387-5514

From Toronto and from outside Ontario,

(416) 325-2929

TDD/TTY

This toll-free number provides accessible information for the hearing-impaired, in both English and French languages

1-800-263-2892

