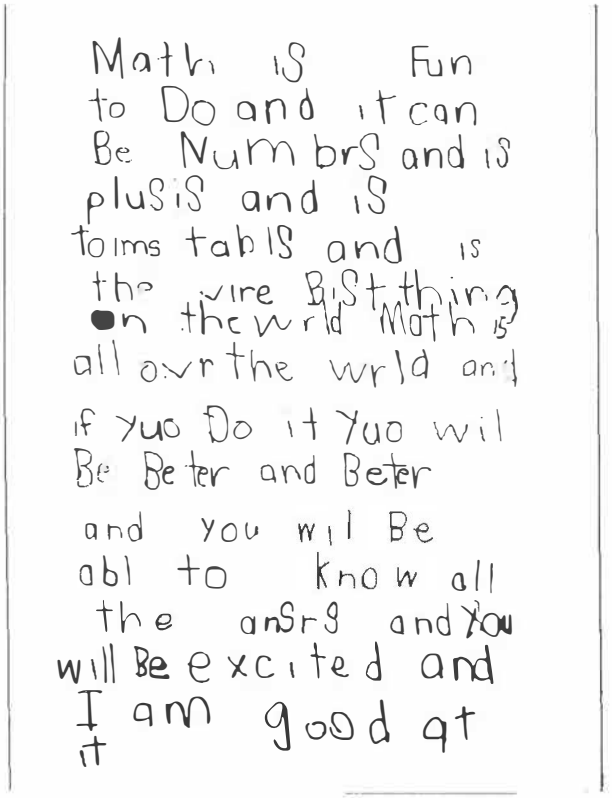
Problem Solving, Blocks, and Young Children

by Marie Innes

By being an observant audience of children's actions, talk, and writing, we get brief glimpses of children's thoughts about many things. The following writing shows one six-year-old's impressions of math.



The views that young children have of math often reflect the views of adults close to them. We generally find that all children, at an early age, are interested in, and curious about, math. Our role as adults, then, should be to provide opportunities for them to analyze and make the connection between the concrete materials that they manipulate and their growing understanding of why certain actions on objects cause them to work as they do.

Children appear to be born with a natural sense of wonder. Early in life, they formulate many ideas about a variety of things. Their interaction with play materials in the environment offers them opportunities to order their world and to form unique views about how things work. This interaction lays the foundation for children's personal interpretations of abstract concepts such as "math."

Through opportunities to order their outer world, children develop their inner worlds. It is this ordering that leads to the development of an understanding of mathematics.

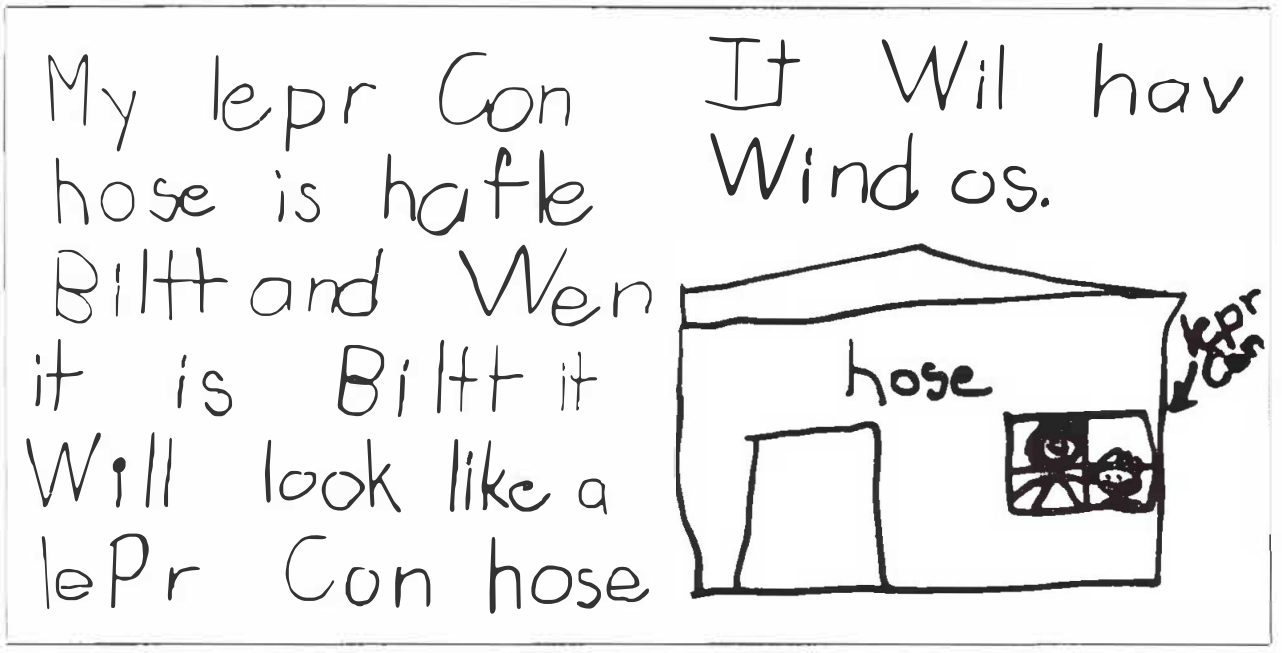
When children play, they handle materials; they are naturally curious. By exploring the physical attributes of objects, children learn as they play. Through encounters with materials, children learn from their actions on the materials. Blocks and other 3-D shapes lend themselves to understandings about size, balance, symmetry, shape, mass, number, and measurement. These basic understandings form a foundation on which further mathematical concepts are developed. A good example of this is problem solving.

Problem solving involves the ability to break down into simpler components available information. The components consist of the processes of collecting, organizing, and interpreting information. Since

problem solving requires a basic understanding of the process involved in sorting different aspects of a problem, block play provides a natural medium for setting the stage for this developing awareness.

By looking at blocks, making plans before building, constructing with blocks, adding to the plans, and then writing about or illustrating what they have done, children proceed through a series of problem-solving processes. Children seem to use the following steps when they are involved in making plans and following them through:

1. Examine the available construction materials;
2. Create an idea of something to build;
3. Draw a plan of the idea;
4. Construct with blocks and add to, or change, the plan as construction proceeds; and
5. Describe orally or write about the plan and structure.



Comparison of Processes

Constructing with Blocks	*Solving Problems*
1. Understand the material —Examine the available construction materials —Identify key materials for the structure	1. Understand the problem —Use actions —Interpret —Identify key words
2. Develop a plan —Create a plan from ideas —Sort out blocks to be used —Experiment with placing blocks together	2. Develop a plan —Look for patterns —Collect data —Act out the plan
3. Carry out the plan —Build the structure —Add to the plan —Illustrate or write about the plan	3. Carry out the plan —Identify objects —Use data
4. Look back —Look over the structure —Tell about the structure	4. Look back —Check —Discuss solutions with others