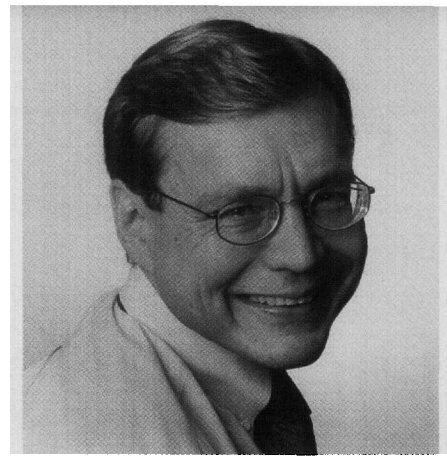


Math Matters

Building math skills leads to language literacy—and lifelong success

by Douglas H. Clements, Ph.D.



IMPROVING EARLY CHILDHOOD MATHEMATICS should be a national priority equal to reading. Why? First, children are curious about and interested in doing mathematics from the youngest years. Second, math is a necessary skill; children who are not mathematically literate will be doomed to second-class status in our technological society—economically, socially, and politically. Finally, learning mathematics supports the learning of literacy and reading. As civil rights leader Robert Moses says, “Mathematics education is a civil rights issue.”

Kids and Math Are a Natural Fit

Because children are internally motivated to think mathematically, they enjoy mathematical problems. However, they need to think and talk about their activities for mathematics to emerge. For example, if your child runs out of long blocks when building and uses two short blocks instead, you could initiate conversation—“You used two short blocks instead of one long block to make that road,” or “How many short blocks do you think it would take to be as long as the long block?” The more you talk about what she is doing, the more she will realize that she is “doing math.”

Mathematics activities such as classifying shapes also help children develop language, vocabulary, and logic. Children can wrap their minds around these features of language when they are challenged to talk about the difference between a rectangle and a triangle, at the same time learning about reasoning and making their point.

Why Everyone Needs Mathematics

All people benefit from higher levels of

mathematical literacy—for example, making smart financial decisions, such as paying off a credit card or understanding the effects of tax cuts. Of course, many fields, from economics to biology, depend on mathematical concepts and demand the ability to understand and interpret statistics. To again quote Robert Moses, “In today’s world, economic access and full citizenship depend crucially on math and science literacy.”

Just as people are becoming more aware of the importance of learning to read and

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write, it is critical to develop a similar awareness about mathematics. As with literacy, we understand how children learn mathematics and how valuable the early years are to that learning. (See “Creative Pathways to Math,” page 34.) We have good research-based resources for mathematics activities but need more time, energy, and commitment on a wide scale to put that knowledge into practice.

Uncovering the Link Between Math and Reading

Early childhood educators often talk of the “whole child” because children do not learn best when subjects are divided into separate “cubbyholes.” So it’s not surprising that learning mathematics also helps children learn to read. The two “literacies” are closely related. Think about the math-

ematics in “Goldilocks and the Three Bears”. There are *three* bears! In addition, the bears and their possessions are repeatedly put in order by size (chairs, beds) and other characteristics (temperature!). Children need to understand the vocabulary from “middle-size” to “three” and to understand the relationships. One relationship is “larger than”; another is that the orderings correspond—the littlest chair for the baby bear, the middle-size chair for the mama bear, and so on.

There is also a pattern that weaves through the story; for example, *too little, too big, just right*. Understanding that pattern helps children gain a sense of the story narrative and use similar patterns to create their own stories. Classification or conditionals (*If* it is raining, *then* we should take an umbrella), which are the foundations of basic mathematical logic, also appear in some stories. And there are patterns of letters and the rhythmic pattern of syllables in words, which are just as much mathematical as language literacy.

It is no wonder, then, that research shows that early mathematics experiences result in later improvements in language and literacy, as well as general intelligence. For all these reasons, we need to connect language literacy and mathematics literacy.

Mathematics is woven into the fabric of the world. When you help your children see the mathematics in their surroundings, you are helping them learn to reason and communicate in many ways throughout their day. This applies to the youngest children—and to all children.

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