

Early Math: Math and Literacy - A Powerful Pair



Finding the math in literacy-and vice versa!

By Douglas H. Clements, PhD, with Julie Sarama, PhD | September , 2006

"That's not a triangle! It's too skinny!"

"I'm telling you, it is a triangle. It's got three straight sides, see? One, two, three! It doesn't matter that I made it skinny."

Most people think of mathematics as separate from language and literacy. But, as the conversation between the two children illustrates, there is more overlap between language and mathematics than we might think. Seeing those connections, teachers can help children "double their learning" with math and literacy activities.

Connecting Math and Literacy

As the children's discussion illustrates, talking about mathematics builds language skills. When you discuss and debate about mathematics, you have to be precise in your language and thinking. And you have to explain your reasoning. Also, even more than most other areas, mathematics involves thinking about word meanings. Mathematicians know the importance of accurate definitions and use of terms.

Children develop literacy skills as they think about what words mean and decide which words appropriately describe certain objects and situations. Mathematics is an ideal context in which to discuss exactly what words mean.

Building Skills through Books

We know that building children's vocabularies helps them understand the stories they hear, and, eventually, read. But think about how many mathematical words and ideas are important for understanding stories. Consider "Goldilocks and the Three Bears." There's a number-three-right away. But there is also ordering (small, medium, large and cold, warm, hot), correspondences between ordered sets (the smallest bed for the smallest bear, the next larger for the next larger bear), and patterning (the repeated phrase, too little, too big, just right).

Expanding Their Experience

There are an unlimited number of ways to highlight important math concepts through story sharing experiences. Talk about numbers, orderings, correspondences, and patterns as you read picture books. Read the book through first, and then reread it to discuss the

mathematical ideas. Name groups of things children see on the pages with numbers and shape names, such as, "Look at those three beautiful flowers. What shape are those petals?" After sharing stories that invite children to compare sizes, such as chairs, bowls, and beds in "Goldilocks and the Three Bears," invite children to order sticks or blocks by lengths. Then give them further opportunities to classify by sorting buttons, bottle caps, and leaves.

We know that building language is an important way to support children's learning of mathematics. One characteristic of children who do better than others in math is that they can explain and justify the mathematics they are doing. At the same time, one of the best predictors of later success in school mathematics is how well children understand and tell stories.

About the Author

Douglas H. Clements, PhD, is a professor of mathematics and computer education at the State University of New York at Buffalo. He has developed an innovative curriculum for early childhood education, finding the mathematics in, and developing the mathematics from, children's everyday activities, using old and new technologies.

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