

When Children's Books Also Tell Stories About Math

By Jackie Zubrzycki on May 4, 2017 3:51 PM



Curriculum Matters

When Allison Hintz, a professor of math education at the University of Washington, reads children's literature, she sees math everywhere. An illustration of footprints offers a chance to practice counting by twos; a book about generosity offers a chance to think about addition and subtraction. In some cases, an entire book centers around a mathematical idea: A 1993 book called *Two of Everything*, for instance, involves a magical pot that doubles whatever is placed inside it.

That means that one of many teachers' and students' favorite classroom activities—reading aloud—can also be a time for learning about math.

As part of a new project called Story Time STEM, Hintz, a former elementary school teacher, and Antony Smith, an associate professor of educational studies at the University of Washington, are developing toolkits that help adults identify such mathematical themes in books and teach young children about them—a process she refers to as "mathematizing literature." They're working with teachers and librarians in the King County libraries, Highline Public Schools, and the YMCA in Washington state.

Hintz is a co-author, along with University of Washington professor Elham Kazemi, of *Intentional Talk*, a book that guides teachers looking to have more in-depth conversations about math with their students. Her work has focused on helping children develop more positive dispositions towards math, in part through discussion.

The Story Time STEM project aims to help early-childhood educators and children's librarians use existing children's books to teach the early numeracy and math skills that are laid out in the Common Core State Standards.

In a pilot in Yakima, for instance, teachers were given a tool to help them "mathematize" books: Teachers were asked to lay out the main plots, themes, and ideas in a book, and then lay out key mathematical concepts. They then identify stopping points and key questions they can ask during a read-aloud that will guide a mathematical discussion.

"Our greatest hope is that children and adults can see the mathematical potential in any story," Hintz said in an interview.

Hintz said books can be powerful tools to help students engage in mathematical thinking. She said they're potentially richer than word problems, which some students sometimes simply skim in order to gather the numbers they need to do an equation.

"Mathematicians...solve complex problems, they work through mistakes, they spend a lot of time on one problem," she said. She said books can help teachers model that process to students.

She said talking about math in reading can also help teachers and students find enjoyment in a subject that many—especially many early-childhood educators—approach with trepidation.

Other educators have also found lessons for other subjects in children's books: Financial literacy advocates suggest using children's books to teach about economics, and as far back as 1993, the National Council of Teachers of Mathematics have suggested using literature to teach complex mathematical skills.