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## School teaches 'Math out of the Box'

New curriculum developed by Clemson emphasizes hands-on lessons

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staff writer

It looks like play, but students in Liz Pannell's kindergarten class are learning about shapes as they build castles and "scary houses" out of brightly colored foam blocks.

"We just put two triangles together to make a square," said Ragan Brown, explaining how her group built its haunted house.

Down another hall, fifth-grade teacher Linda Manley's students use smaller blocks to learn fractions.

"It gives them a deeper understanding instead of surface learning," Manley said. "They can explore it."

The hands-on lessons are part of "Math Out of the Box," a curriculum being developed at Clemson University.

East North Street Elementary is using it for the first time this year. The school is believed to be the only school in Greenville County to use the program school-wide, from kindergarten through fifth grade.

Each "Math Out of the Box" lesson presents math concepts through a four-phase learning cycle – engage, investigate, reflect and apply.

Each kit comes with a teacher's manual and materials needed for 30 students. Rulers, blocks, weights and cardboard shapes are a few of the items that a kit could contain. Each lesson is based on principles advanced by the National Council of Teachers of Mathematics.

"There's a lot of research on how children learn," said Dot Moss, project direc-



Michelle Mogavero/Staff

**BUILDING BLOCKS:** Kindergartener Tyler Braddock stacks foam blocks during a geometry lesson at East North Street Academy.

tor. "But it hasn't been applied in a real way in the classroom."

She said kids need to talk and communicate to learn, but the traditional classroom has the teacher talking and students listening. The "Math Out of the Box" curriculum calls for children to talk about what they're learning in the early

grades and, as they get older, to write more about their mathematical thinking.

The hands-on lessons also promote learning, Moss said.

"It's concrete versus abstract," she said. For instance, the traditional way of teaching geometry to young students is to show them a picture of a cube, she said. "Math Out of the Box" includes a cube that students can see, feel and hold. "It's better to learn about a three-dimensional object than to look at a two-dimensional picture in a book."

Moss said she was teaching a lesson to a fifth-grade class last week when she heard a student say, "I love my math this way."

"How often did you hear students say they loved math when it was taught the traditional way? Not often," she said.

Kara Holley, East North Street's Title 1 facilitator, said although students have not yet taken the Palmetto Achievement Challenge Test, other standardized tests show the new method is working.

The school just finished a second round of MAP testing. The math strands in which students scored the highest were data analysis, algebra and geometry – the same units taught through "Math Out of the Box," Holley said. Those three strands were the ones on which students scored the lowest last year, she said.

"That's no coincidence," she said.

Those results mirror preliminary field testing done by Clemson, Moss said. Third-graders who used "Math Out of the Box" tested better – significantly higher among African-American students – than students who had the same teachers the year before.

Moss said the last of four strands in the program – numbers – is now under development.

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