

BURNSVILLE-EAGAN-SAVAGE SCHOOL DISTRICT

Singapore Math focuses on teaching concepts in steps

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District 191

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Elementary students in the Burnsville-Eagan-Savage School District are learning math from a new math program this year. It is called Singapore Math, and it was tested and chosen at the end of the last school year. Administrators, teachers and students who tried it last are all excited to see it tried in K-5 classrooms district wide this year.

“My class last year cheered when we found out that it had been selected,” said Kelly Smith, a third-grade teacher at Harriet Bishop Elementary school who had tested Singapore Math in her classroom last year.

The Singapore Math program is an Americanized version of the national math curriculum used in Singapore.

The concepts and teaching methods are the same, but the examples and vocabulary in the textbooks have been modified to contain content familiar to American elementary students.

“The words and pictures in the textbooks may have changed, but the foundation of Singapore Math is still there,” said Kathy Funston, District 191 director of curriculum. “Its goal is that students understand – not just memorize – mathematics.”

That seems to be the case, at least according to Jade Haugen, a fourth-grade student at Harriet Bishop who used Singapore Math in Smith’s third-grade class last year.

“Before, we didn’t feel like we were challenged enough,” she said. “With Singapore Math, we always feel like we’re learning. Singapore Math is distinct in several ways. Teachers encourage students to understand how they think about math.

In the past students would be asked “what did you get for problem A?” and the teacher would tell students if their answer was correct. Now teachers will ask “are you sure?” or “how do you know?”

Teachers will also ask students to show their work to the class if they solved a problem in a different way than their classmates. “We want to encourage students to arrive at answers in a way that’s right for them, as long as it’s mathematically sound,” said Funston, noting that this makes the teacher more of a facilitator rather than a preacher in a pulpit.

Another key component of the program is teaching concepts in steps: first by moving from concrete models to pictorial representations and then to abstract problems.

The concrete models are often some kind of physical manipulative that students can hold in their hand.

It's the second step in the learning process that teachers and students have been most excited about. It uses bar models to help students solve problems, by letting them visualize representations of parts and wholes to help students make the jump from concrete to abstract problems.

"It's a very effective way for student to learn how to think about math," said Funston. "Instead of numbers on a board, they can see what math looks like."

Bar models are a way of presenting math that makes it easy for all students to see the concepts at work, said Funston. Singapore Math also helps students achieve mastery of the math topics, by going slowly and teaching topics in depth. Material is introduced slowly, in a scaffolding method where one topic builds on top of another.

"Students spend lots of time practicing under the guidance of their teachers in class," said Funston. "Homework does not go home until students can understand – and articulate – the concept"

Ruby Pozorski, another fourth-grader who was in Kelly's third-grade class last year, said this after a week back at school: "I didn't totally forget everything I learned from last year."

She said she has not felt that way in years past.

That bodes well for the curriculum, which was chosen last year by the district's elementary teachers themselves. As a group, they looked at six different programs and narrowed them down to three finalists. Teachers district wide gave the final three in-class testing at the end of the 2011-12 school year.

Then in May the teachers took a vote and the majority picked Singapore Math.

Kelly is glad that her fellow teachers liked the programs as much as she did. "I think Singapore Math picks the best things to teach and the best way to teach them," she said.