

Singapore program helps students learn at deeper level

By Allison Rupp features@knoxnews.com

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Students at Knoxville Jewish Day School now learn math the same way students in an Asian country thousands of miles away do.

At the beginning of this school year, the West Knoxville school adopted the Singapore math curriculum.

The slower, basics-driven and more hands-on approach to teaching math began in Singapore in the 1980s but has caught the eye of American educators over the past decade as the country consistently ranks at the top of international math rankings.

Miriam Esther Wilhelm, head of the school, said it caught her eye at a Chicago conference.

The K-fifth grade school was using the Knox County Schools math curriculum and textbooks meshed with some Montessori methods, but Wilhelm said students were still frustrated with math.

"Math was a weak link," Wilhelm said. "It's a weak link across the country."

Teachers found Singapore math to be the missing link.

"They did not try to cover as many topics in a year as we do," she said. "They weren't just introducing subtraction, regrouping, but the students mastered the ins and outs."

The program follows a concrete-pictorial-abstract progression, she said.

In Singapore math, students master basic topics, such as the number 12, said Amie Cottrell, kindergarten and first-grade teacher.

Six bunnies with two ears each equal 12 ears, said one of her students. There are 12 steps from the classroom to the playground.

Cottrell said she spent an entire day talking about "one silly number."

"I thought it was going to be the most ridiculous thing ever," Cottrell said. "But they are able to see numbers in so many ways. I would never equate it to six bunnies."

Before Singapore math, she would just write 1-2 on the board and spell it for them.

"It's almost like we are teaching them a second language that they will be fluent in after they finish with the program," Cottrell said.

Math has become more than rote memorization of multiplication tables and addition facts, teachers said. Students learn why 8 plus 5 equals 13. They are taught to look at numbers and problems as a whole and parts of a whole.

Parents might think some of their children's math homework is too elementary, but Wilhelm said it is helping build a strong foundation.

"When they get it, they get it on a much higher level," Wilhelm said.

"Because a much higher level is expected, it might take a longer time to get through. Teachers are seeing a level of mastery that they haven't seen before."

Even though more time is spent on a concept, Singapore math books from the American publisher Houghton Mifflin Harcourt are thinner and there are less practice problems. The school year is divided into two books.

Houghton Mifflin Harcourt's "Math in Focus" books, the American edition of the Singapore curriculum, is now used in 120 school districts and 60 charter and private schools, according to the publisher. SingaporeMath.com, another company publishing Singapore materials, now has sales to more than 1,500 schools in the United States. Christian Academy of Knoxville is the only other school in Knoxville that Wilhelm knows is using Singapore math.

Teachers have already had to adapt the way they teach as they learn more about the program and do online training. Wilhelm hopes to send teachers to an out-of-state training next year. Teacher training plays a large role in Singapore math.

In Jessica Vose's second- and third-grade classes, she uses more hands-on activities, such as playing cards, building blocks and counting beads, in her classroom.

"It's a lot more fun for me to teach than just teaching from a textbook and worksheets with 30 problems to be done," Vose said.

Wilhelm said she doesn't expect a huge jump in TCAP math scores this year, but in three or four years she expects to see an increase.

Even in a few short months, she and teachers have already seen positive changes. Students can answer questions they have not seen before on tests, because they understand concepts better. There is a more positive attitude toward math.

Wilhelm hopes more students will like math with the Singapore program, because they are more confident.

"We are hoping to restore that confidence, enjoyment in math," Wilhelm said. "If they have this really strong basis, I think that is key."

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