

Learning math Singapore style

By James McGinnis Staff writer | Posted: Monday, November 21, 2011 4:50 am

Inside a sixth-grade classroom at the Newtown Friends Quaker School, students race through two pages of equations while math teacher Meg Young watches the clock.

A timer sounds. Pencils go down, and the aerobics begin. Another series of equations comes after 60 seconds of calisthenics. And students compete only with each other.

This is math, Singapore-style.

The tiny Asian nation leads the world in assessment tests for math, and so Newtown Friends in Middletown has adopted its math curriculum for grades K-6.

"We're always looking for ways to improve the way we teach," said Newtown Friends principal Dana Harrison. "Our students already test very well in math, and Singapore Math will enable them to do even better."

Singaporean students topped the most recent Trends in International Mathematics and Science Study, which was completed in 2007. After Singapore, the United States ranked 11th — behind Taiwan, South Korea, Japan, Hong Kong, Hungary, England, the Czech Republic, Russia and Slovenia.

The Singaporean method stresses problem-solving through questions that become more complex in each grade level.

A typical third-grade word problem is: Florence saves four times as much money as Larry. Maria saves \$12 less than Florence. Larry saves \$32. So, how much does Maria save?

A typical sixth-grade problem is: "A grocer packed two-thirds of his oranges in box one and the remaining oranges in boxes two and three in a one-to-two ratio. If box one holds 56 more oranges than box three, how many oranges are there in the three boxes altogether?"

Answering the questions (answers to these appear at the end of the story) often requires students to draw a picture, identify a pattern, or work backward. It gets easier if the question is broken down into multiple parts.

Other schools in Bucks County have considered adopting this teaching method.

School Lane Charter School in Bensalem wanted to adopt Singapore math, but worried about the impact on state assessment tests, said principal Karen Schade.

"If you're working from this Singapore system then your students simply won't be on the same page as what's being asked of them in the state assessment tests for that year," said Schade.

As a private academy, Newtown Friends isn't mandated to follow state assessments.

A 2005 study funded by the U.S. Department of Education also noted that Singapore math could pose problems for American schools seeking to perform well on state tests. The federal report entitled "What the United States Can Learn From Singapore's World Class Mathematics System" went on to criticize American math programs and textbooks.

"Traditional U.S. textbooks rarely get beyond definitions and formulas, developing only students' mechanical ability to apply mathematical concepts," the report said. "The illustrations make virtually no contribution to helping students understand how to use the mathematics to solve real-world problems."

The Singapore program is "just a better way to teach," said Schade. "The depth that you go into with Singapore math provides students the opportunity to solve problems in so many ways."

Some Newtown Friends teachers said they wish they had learned this way as children.

"This makes sense to me, whereas before, when I was in school, things didn't make a whole lot of sense," said Young. "I could memorize the math and so I knew it."

The program is also more relevant to everyday life, said Kristen Sanchez, Newtown Friends curriculum director.

"Moving students from a concrete to pictorial to abstract understanding enables them to actually see how math works," Sanchez said. "It's very rare in life that when you're applying math you're only using one kind of math. If you're trying to measure the size of a window, you're not just using addition or subtraction or multiplication. You may be using all three at the same time."

(For the record, Maria saved \$116 and there were 126 oranges altogether.)