

Singapore Teaches the World How to Teach Math, as Success of 'Singapore Math' Curriculum Spreads

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NEW YORK, April 20 /PRNewswire/ -- Start with a small Asian city-state with a national character geared toward problem-solving. Add an innovative math curriculum developed to instill in students a deep understanding of math concepts. Multiply the curriculum approach by hundreds of schools around the globe, including a growing number in the United States. And the sum of the equation? Improved math scores wherever the program is implemented – and exciting potential for American schools at a time of renewed focus on education.

"Singapore Math," as the curriculum has been dubbed, might not be a familiar household name in America, but it is a program that is receiving a great deal of attention from educators across the country. No fewer than 18 separate sessions at the 2010 National Council of Supervisors of Mathematics (NCSM) and National Council for Teachers of Mathematics (NCTM) annual conferences, being held this month in San Diego, are devoted to Singapore Math concepts and methodology.

In addition, the American Institutes for Research published a study for the U.S. Department of Education in January 2005, looking at "What the United States Can Learn From Singapore's World-Class Mathematics System." And an October 2009 report from the Gabriella and Paul Rosenbaum Foundation demonstrated statistically that students participating in Singapore Math classes in the North Middlesex (MA) Regional School District – the first district-wide implementation of the curriculum in the U.S. – scored higher than students from other districts on Massachusetts state exams.

So what makes the Singapore Math curriculum so different and so effective? For one thing, it involves a unique pictorial approach, allowing students to look at problems in a visual way before they move to the abstract. Also distinctive is its consistent focus on problem solving, with specific problem-solving strategies taught in a carefully sequenced manner, and extensive use of word problems as a way to train students to connect different mathematical ideas.

Another key difference between Singapore Math and the majority of current U.S. approaches to math instruction is its focus on concept mastery. A limited number of topics are covered each year, allowing each to be covered in great detail and then reinforced even as a new concept is introduced – as compared to American curricula that tend to introduce dozens of topics each year, resulting in instruction that has been described as "a mile wide and an inch deep."

"Singapore Math is a different way of thinking, the level is much higher – and even after just a few months, we saw clear improvements in the math assessment students take three times a year," says Peggy McKee, Elementary Math Content Specialist for Fayette County schools in

Lexington, KY, which launched the program in nine elementary schools for 2009-10. "We love that the program teaches mastery. In other math curricula, when you're teaching six concepts a day and none to mastery, students are never going to get it. But because Singapore Math builds each year and layers on what's been taught before, even if a student gets stuck, the teacher can go back to earlier lessons until the student understands the concept and can get back up to level.

"It's a very rigorous program and teachers can't just walk in cold without studying the lessons first," McKee continues. "But our teachers love it, and are excited that they're not teaching 'to the test' anymore; they're actually teaching kids to be mathematicians. And the kids love it, too. One little girl who was in the program moved away and wrote to her teacher here, 'At my new school we don't have cool math, we have boring math.' So we can't wait to see the results going forward."

That reaction is typical of schools committed to the program – and the number is rising, as Singapore Math has spread to a sampling of schools and districts in all 50 states, and has even been approved for use statewide in California, Indiana, Oklahoma, and Oregon. It's a response that is echoed in some 40 countries, as well, as educators around the world seek to recreate with their own students the dramatic improvements documented in Singaporean students' math scores since the program was instituted there.

The original Singapore Math curriculum was actually launched in 1982, when the country was less than 20 years old and still charting a course for its place in the world. Students were not performing well in math, and the young nation recognized that underachieving or failing students would not contribute positively to the nation's growth. So the Ministry of Education, which sets curriculum for the entire country, set out to establish new goals for math education, researching the best elements of instruction in other countries, including the United States.

The emphasis on problem solving became the focal point in a revised version of the math curriculum in 1992 – and just three years later, Singapore students jumped to first place in the Trends in International Mathematics and Science Study (TIMSS), a survey conducted every four years to compare math and science achievement among different countries. They remained in first place in 1999 and 2003, and were in the top three in 2007. By comparison, U.S. students were at 19th place in 1999, 15th in 2003, and 9th place in 2007 (a year when five higher-scoring countries did not participate).

That excellent performance by Singaporean students caught the attention of educators from South Africa to Australia to the United States – and put Singapore Math into the world's educational lexicon.

"The methodology is different from what most American teachers are used to. But with a school's commitment to the curriculum, the Singapore Math model can be immensely effective – whether it's a rural school in Bethel, Oklahoma, a suburban school in Scarsdale, New York, or an urban school in New Orleans," says Ms. Duriya Aziz, Publisher and General Manager,

Educational Publishing, for Marshall Cavendish International (Singapore) Pte. Ltd., publisher of the Singapore Math textbooks. "And perhaps the best part besides improved performance? Children in Singapore have one of the highest enjoyment levels for math in the world."

Marshall Cavendish publishes two different series of textbooks for the Singapore Math curriculum that are available in the U.S.: *Primary Mathematics* and *Math in Focus: The Singapore Approach*, an American version of the *My Pals Are Here!* series now used by over 80 percent of students in Singapore. Marshall Cavendish developed *Math in Focus* for the U.S. market in partnership with Great Source, an imprint of Houghton Mifflin Harcourt, which is the books' exclusive U.S. distributor.

More information is available at www.marshallcavendish.com/education, www.greatsource.com/singaporemath, or singaporemath.com.

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