The New York Times

EDUCATION FRONT PAGE STORY

Making Math Lessons as Easy as 1, Pause, 2, Pause …

By **WINNIE HU**SEPT. 30, 2010

Students learning Singapore math, like these fourth graders at Quaker Ridge School in Scarsdale, N.Y., use many hands-on and visual aids.

CreditJennifer S. Altman for The New York Times

FRANKLIN LAKES, N.J. — By the time they get to kindergarten, children in this well-to-do suburb already know their numbers, so their teachers worried that a new math program was too easy when it covered just 1 and 2 — for a whole week.

“Talk about the number 1 for 45 minutes?” said Chris Covello, who teaches 16 students ages 5 and 6. “I was like, I don’t know. But then I found you really could. Before, we had a lot of ground to cover, and now it’s more open-ended and gets kids thinking.”

The slower pace is a cornerstone of the district’s new approach to teaching math, which is based on the national math system of Singapore and aims to emulate that country’s success by promoting a deeper understanding of numbers and math concepts. Students in Singapore have repeatedly ranked at or near the top on international math exams since the mid-1990s.

Franklin Lakes, about 30 miles northwest of Manhattan, is one of dozens of districts, from Scarsdale, N.Y., to Lexington, Ky., that in recent years have adopted Singapore math, as it is called, amid growing concerns that too many American students lack the higher-order math skills called for in a global economy.

For decades, efforts to improve math skills have driven schools to embrace one math program after another, abandoning a program when it does not work and moving on to something purportedly better. In the 1960s there was the “new math,” whose focus on abstract theories spurred a back-to-basics movement, emphasizing rote learning and drills. After that came “reform math,” whose focus on problem solving and conceptual understanding has been derided by critics as the “new new math.”

Singapore math may well be a fad, too, but supporters say it seems to address one of the difficulties in teaching math: all children learn differently. In contrast to the most common math programs in the United States, Singapore math devotes more time to fewer topics, to ensure that children master the material through detailed instruction, questions, problem solving, and visual and hands-on aids like blocks, cards and bar charts. Ideally, they do not move on until they have thoroughly learned a topic.

Principals and teachers say that slowing down the learning process gives students a solid math foundation upon which to build increasingly complex skills, and makes it less likely that they will forget and have to be retaught the same thing in later years.

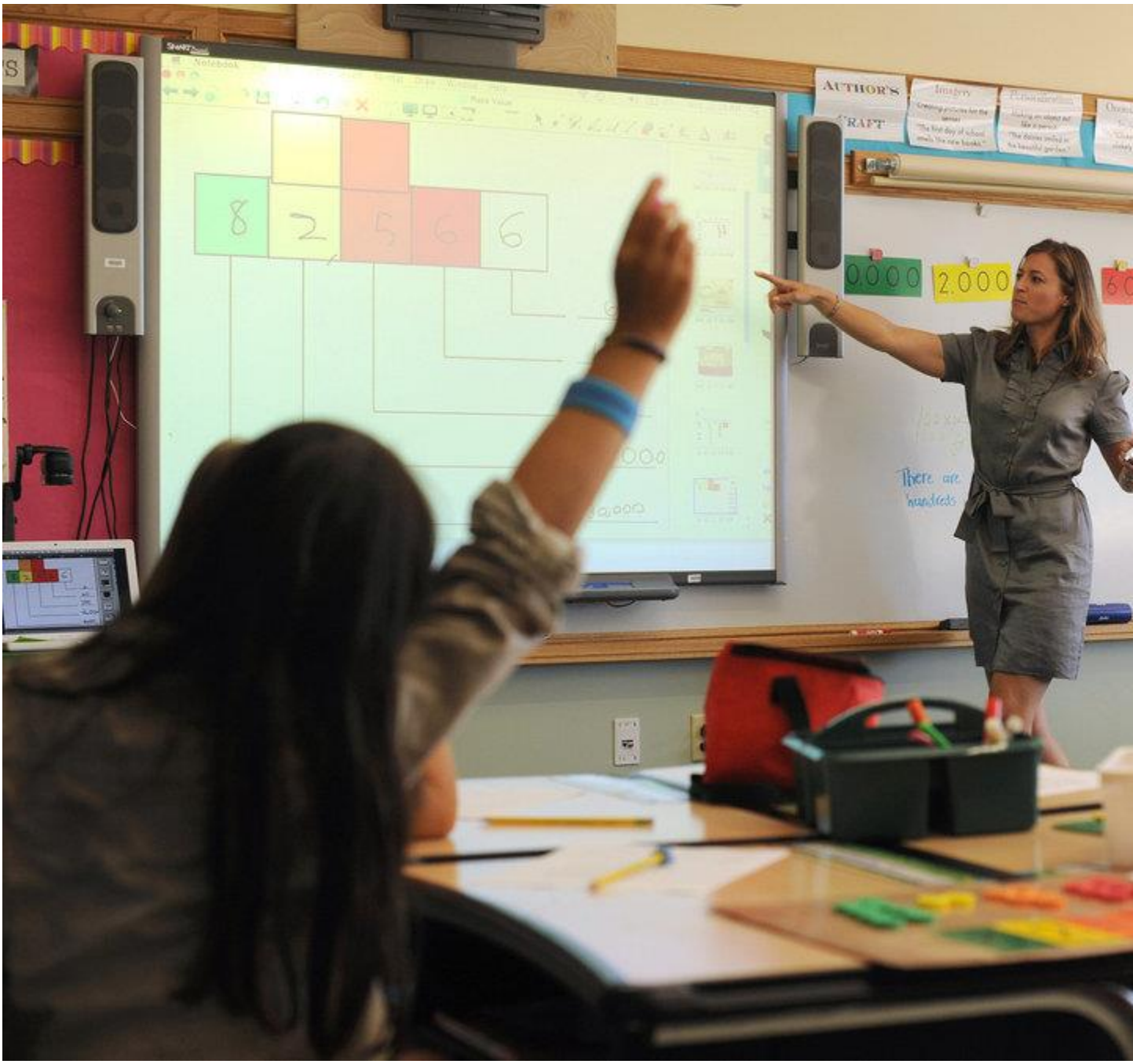
And with Singapore math, the pace can accelerate by fourth and fifth grades, putting children as much as a year ahead of students in other math programs as they grasp complex problems more quickly.

“Our old program, Everyday Math, did not do that,” said Danielle Santoro, assistant principal of Public School 132 in Williamsburg, Brooklyn, which introduced Singapore math last year for all 700 students in kindergarten through fifth grade. “One day it could be money, the next day it could be time, and you would not get back to those concepts until a week later.”

Singapore math’s added appeal is that it has largely skirted the math wars of recent decades over whether to teach traditional math or reform math. Indeed, Singapore math has often been described by educators and parents as a more balanced approach between the two, melding old-fashioned algorithms with visual representations and critical thinking.

In Franklin Lakes, teachers are learning the new math system as they pass the knowledge on to their students. One morning last week, Ms. Covello and six other kindergarten teachers worked with a consultant on how to reinforce the number 8 for students. First came a catchy tune about eight oranges; then they counted off one by one while throwing up their arms in a wave.

Singapore math was developed by the country’s Ministry of Education nearly 30 years ago, and the textbooks have been imported for more than a decade. The earliest adopters in the United States were home-school parents and a small number of schools that had heard about it through word of mouth.



Kerri Gega teaching Singapore math in Scarsdale, N.Y. The district initially spent $145,632 for books and teachers' materials. CreditJennifer S. Altman for The New York Times

Today it can be found in neighborhood schools like P.S. 132, which serves mostly poor students, as well as elite schools, including Hunter College Elementary School, a public school for gifted children in Manhattan, and the Sidwell Friends School in Washington, a private school attended by President Obama's daughters.

SingaporeMath.com, a company that has distributed the "Primary Mathematics" books in the United States since 1998, reports that it now has

sales to more than 1,500 schools, about twice as many as in 2008. And Houghton Mifflin Harcourt's Math in Focus, the United States edition of a popular Singapore math series, is now used in 120 school districts and 60 charter schools and private schools, the publisher says.

Some recent research suggests that students who are taught Singapore math score higher on standardized math tests, and in anecdotal reports, teachers say it helps even young children to develop confidence in their math abilities. But school officials caution that Singapore math is not easy or cheap to successfully adopt.

In some districts, there has also been skepticism from school board members and parents about importing a foreign math program. The books look different from standard-issue textbooks, with fewer pages and brightly colored pictures and diagrams, and early versions contained references to curry puffs and the Asian fruit rambutan.

The books and materials initially cost an average of $40 to $52 per student, comparable to other math programs in the United States. As with other math programs, workbooks might be replaced from year to year. But training teachers can be expensive.

"All along, people have said it's too hard, too demanding for teachers," said Jeffery Thomas, a history teacher who founded SingaporeMath.com with his wife, Dawn, after using the books to tutor their daughter at home in the suburbs of Portland, Ore.

Mr. Thomas said that about a dozen schools had started and dropped Singapore math, in some cases because teachers themselves lacked a strong math background and adequate training in the program.

When the Scarsdale district switched to Singapore math at its elementary schools in 2008, it expanded the number of math coaches to three from one to help the 110 classroom teachers learn the material. The district spent $121,000 on the "Primary Mathematics" books and $24,632 for teachers' materials.

Bill Jackson, one of Scarsdale's new math coaches, scribbled notes the other day as he watched a fourth-grade math class. For nearly an hour, the students pored over a single number: 82,566 (the seats in New Meadowlands Stadium, where the Giants and Jets play football). They built it with chips on a laminated mat, diagramed it on a smart board and, finally, solved written questions.

Mr. Jackson said that students moved through a three-step learning process: concrete, pictorial, abstract. American math programs, he said, typically skip the middle step and lose students when making the jump from concrete (chips) to abstract (questions).

Mr. Jackson began experimenting with Singapore math while teaching at School 2 in Paterson, N.J., in 2000. Test scores were mixed, and the school replaced it four years later. But Mr. Jackson continued to use it when he could. “I learned more math from Singapore math than I ever did in high school or college,” he said.

Here in Franklin Lakes, students in a second-grade class at High Mountain Road School rolled dice last week to build two- and three-digit numbers. Then they lined up together, each holding a different number, and shuffled back and forth to order their numbers from largest to smallest, then smallest to largest.

One student in the class, Lindsey Polevoy, said she liked math better this year. “I don’t like being rushed,” she said. “Sometimes I get really nervous and my fingers sweat and I give the wrong answer.”

"Making Math Lessons as Easy as 1, Pause, 2, Pause ..." The New York Times. New York, NY.Â This interpretation is easy to visualize, with little danger of ambiguity, it is useful in higher mathematics. However, it is not obvious how one should extend this version of addition to include fractional numbers or negative numbers. One possible fix is to consider collections of objects that can be divided, such as pies or, still bet. On Top of the News Making Math Lessons as Easy as 1, Pause, 2, Pause â€¦ The New York Times | 10/01/10. Behind the Headline Miracle Math Education Next | Fall 2006. Winnie Hu writes in the New York Times about school districts adopting Singapore Math, which is thought to provide a better foundation for higher-order math skills by teaching fewer topics in greater depth. Barry Garelick investigated Singapore Math in the Fall 2006 issue of Ed Next. Sponsored Results. Sponsored by. American math programs, he said, typically skip the middle step and lose students when making the jump from concrete (chips) to abstract (questions). Mr. Jackson began experimenting with Singapore math while teaching at School 2 in Paterson, N.J., in 2000. Test scores were mixed, and the school replaced it four years later. But Mr. Jackson continued to use it when he could. â€œI learned more math from Singapore math than I ever did in high school or college,â€ he said.Â A version of this article appears in print on October 1, 2010, on Page A1 of the New York edition with the headline: Making Math as Easy as 1, Pause, 2, Pause Order Reprints| Today's Paper|Subscribe. Continue reading the main story.