

# Hall County School System

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1 [COMMENTS](#) Since the 2005-

06 school year, the Hall County School System has been in progressive stages of implementing in its elementary schools the Primary Mathematics program from the country of Singapore. Singapore Math (SM) is a method of teaching math that has over 20 years of proven success in Singapore where students scored at the top of the Trends in International Mathematics and Science Study (TIMSS). Beginning as a pilot at Lanier Elementary School, SM expanded as a pilot study to 10 elementary schools in Hall County in 2006, and it has ultimately been implemented in all 21 elementary schools. Hall County is the largest school system in the United States that is using Singapore Math at this time.

The strengths of Singapore Math are in the areas of number sense, reasoning, and problem solving which provide learning opportunities of 21st century skills for Hall County students. SM supports students in developing a sound understanding and application of mathematics. Many SM strategies begin in the early grades and build to a higher degree of rigor and sophistication in the upper grades. By strengthening and applying these mathematical strategies and skills each year, the foundation is built for the higher level of mathematical thinking that is needed for more sophisticated study of math.

Singapore Math aligns readily with the state's Georgia Performance Standards (GPS), which were developed using the Japanese model. Approximately 98% of the Georgia Performance Standards for math align to the sequence and content of Singapore Math. Number sense and numeration are particularly strong areas of SM. Number Sense is the ability to think flexibly about numbers. Numbers sense increases as students develop an understanding of the value of numbers and their relationships and connections to each other. In order to strengthen and give daily practice in the areas of time, money, data analysis, and measurement, all Hall County classrooms use the Every Day Counts Calendar Math, an interactive bulletin board program that focuses on patterning, time, money, graphing, fractions, decimals, and measurement, in addition to Singapore Math.

The Singapore Math program makes use of detailed teacher guides, manipulatives, and mental math techniques to build strong student understanding for mathematical concepts. The program builds mathematical understanding through the concrete – pictorial – abstract progression and teaches topics in depth and in an established sequence. The goal of the program is to produce mathematical thinkers, not just students who can do mathematical processes. SM guides students to construct mental representations for number concepts and operations. According to Nancy Fields, a Teacher on Special Assignment who works with all elementary schools in the implementation of SM, "Singapore Math teaches students to think the way mathematicians think."

Singapore Math is not built on students' memorization of facts, algorithms, and formulas. Students are taught to take what they know and build on it. With a strong sense of place value, students learn to manipulate numbers in their heads starting at first grade.

According to David Moody, the system's Director of Elementary Schools, "Singapore Math provides mental math strategies used throughout life. In addition, students develop a level of number sense that provides a strong foundation and understanding of mathematics for future studies."

A popular component of SM is the problem solving process referred to as bar modeling or model drawing. This is an organized process of displaying the contents of a word problem while using proportional unit bars to represent quantities. The use of bar-models to teach problem solving, is as old as Book V of Euclid's Elements, written in the 4th century BC, and consists simply in representing arithmetical quantities either mentally or graphically by line segments. Fields says, "When adults see this process of problem solving, they often feel that they would have stronger problem solving skills if they had been taught using this method."

Moody says, "As we researched Singapore Math around the country, we kept reading and hearing how much students liked math being taught this way. Some early student surveys indicate we are heading toward this trend as well. It is very exciting to see students understanding and enjoying mathematics at such an early age." North Georgia College and State University is doing a two-year study of the effectiveness of Singapore Math in Hall County schools. Initial results show that student attitudes are more positive toward math, and they are becoming more confident in mathematics.

Hall County schools have been experiencing success in the use of this program, and teachers are looking forward to continuing the teaching of these 21st century math strategies.