


# 3 Reasons Why Singapore Math Curriculum is Recommended by the NCTM

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Math education in U.S. schools has been broken for many years but now a fix is available.

Students in U.S. high schools have been consistently scoring near the bottom of the list of countries participating in International math tests. Among the 30 nations participating in the 2006 PISA test, only 4 nations had lower test scores. The 2006 results were about the same as the results from the 2003 PISA tests. In other words, U.S. students are near the bottom, barely above developing nations, and showing no signs of moving up.

By contrast, these same math tests consistently show Asian nations scoring at the top. In the 2003 Trends in International Mathematics and Science Study (TIMSS), Singapore ranked number 1 followed by South Korea and Hong Kong. In the 2006 PISA tests, Asian countries took 4 of the top 10 spots.

In the U.S., math standards are set at the state level and curriculum choices are made by local school districts. States and local districts rely on guidelines provided by the National Council for Teachers of Mathematics (NCTM). Based on the research and theories of education "experts", the NCTM published 1989 guidelines which embraced new 'reform math' curriculums. Rather than helping achieve higher test scores, these programs caused many districts to achieve lower test scores. The following programs are examples:

- 'Everyday Mathematics' (Bell, 1988-1996)
- 'Connected Mathematics' (Lappan et al, 1991-1997).
- 'Investigations in Numbers, Data, and Space' (Dale Seymour Publications- TERC)
- 'Interactive Mathematics Program' (National Science Foundation)

After 17 years of poor results on standardized tests plus more recent failures on International tests, the NCTM saw changes were needed. In 2006, they published new guidelines which tossed out much of the research and theories that shaped the 1989 guidelines. Instead, they relied heavily on methods used by Asian countries getting the top test scores.

Francis Fennell, the NCTM's president, says the 2006 guidelines move closer to the curriculum of Singapore. Several key factors were identified to explain why the NCTM followed the Singapore math model:

1. Top Test Scores: Singapore math students outperform the rest of the world.
2. Greater Focus: Singapore math students focus intensely on a handful of topics. This is in contrast to the U.S., where many state standards in set forth dozens of topics to be covered in

each grade. With too many objectives, the NCTM report refers to U.S. math curriculums as "a mile wide and an inch deep". The lack of focus with U.S. curriculums makes it difficult for students to master the most important math skills. The 2006 NCTM guidelines set forth no more than three basic skills for each grade level. Fortunately, some states are already following the new NCTM guidelines and are revising their standards to narrow the basic skills that students should master for each grade level.

3. Emphasis on Math Concepts: Singapore Math emphasizes mastery of math concepts and training students to connect different mathematical ideas using words and word problems. Rather than just teaching kids to memorize math facts, Singapore Math focuses on math concepts to give students something to hang those math facts on. Singapore Math uses traditional math problem solving while also encouraging participation in mental math exercises, solving math problems in their heads without pencil and paper.

Singapore Math is a curriculum modeled on that country's official program. Thanks to the new NCTM guidelines, about 300 U.S. school districts now use Singapore Math. Many school districts and parents regard Singapore Math as the solution to reverse the damage done by "reform math" programs that arose from the math council's earlier recommendations.

Finding a fix for U.S. schools is only half the battle. Implementing any new curriculum in U.S. schools is a slow process because the U.S. has no national math curriculum. About 800 school districts are still using 'reform math' programs.