

NEW PATHWAYS TO SUCCESS: A HISTORY OF SINGAPORE MATH

Background: History of the Development of Singapore Maths Textbooks

From 1965 to 1979, many of the primary and secondary textbooks (and all mathematics textbooks) used in Singapore had been imported from other nations. But starting in 1980, Singapore began to take a new approach. The Curriculum Development Institute of Singapore (CDIS) was set up to develop primary and secondary textbooks for the New Education System. This initiative produced new developments in learning that propelled Singapore's math students to the top of the international community.

Implementation of *Primary Maths*

Singapore has a centralized educational system, meaning that the Ministry of Education sets all learning standards. As the CDIS began working to improve textbooks, the Ministry set new goals for math education. Many of the goals focused on problem solving and the heuristic of model drawing.

The goals included:

- acquisition and application of knowledge and skills
- use of math language
- foundation building
- development of a positive attitude
- appreciation of the power of math

Primary Mathematics 1–6, the first Singapore Math program, was published in 1982. In 1992, the second edition of *Primary Mathematics* was revised to include more problem solving, with particular focus on using model drawing as a way of approaching solutions.

The new math curricula led to dramatic improvements in math proficiency. In 1984, Singapore scored 16th out of 26 nations in the Second International Science Study (SISS). Then in 1995, the nation's students placed first in the Trends in International Mathematics and Science Study (TIMSS). This survey, conducted every four years, is designed to provide reliable data on how math and science achievement in the U.S. compares to that in other nations.

A Tighter Focus on Content


In July of 1998, the Ministry of Education initiated another study of mathematics curricula, this time looking at the scope and sequence of their textbooks. The result of the study was a call for tighter content focus. Content removed or reduced from the subject syllabi included concepts that are not fundamental or that rely on plain recall, content covered at other levels or in other subjects, content that focused on technical details rather than conceptual understanding, and content no longer relevant in real-world practice.

More Emphasis on Problem Solving

In 2006, Singapore once again revised the mathematics curriculum, this time placing greater emphasis on developing mathematical concepts and fostering the ability to apply them in mathematical problem solving situations. In addition, the new guidelines:

- emphasize computational skills along with more conceptual and strategic thinking.
- cover fewer topics in-depth and are carefully sequenced grade-by-grade.
- cover concepts in one grade and in later grades at a more advanced level.
- ensure that students master prior content, not repeat it.
- encourage representing problems mathematically, using reasoning, and communicating mathematical content.

Ministry of Education, Singapore 2006



**Math in
Focus**
The Singapore Approach

More Choices for Teachers and Students

In 2001, Singapore privatized production of its primary level mathematics textbooks. Officials hoped that the collaboration with commercial publishers would produce quality textbooks at more affordable prices, allowing more choices for teachers and students. Singapore required all publishers to use the same focused syllabus developed in 1999.

The most widely used and highly rated new textbook series is *My Pals Are Here! Maths for grades 1-6* published by Marshall Cavendish (Singapore) Pte Ltd. In 2007, Great Source— an imprint of Houghton Mifflin Harcourt Publishing Company, one of the leading educational publishers in the U.S., announced plans to develop a new, alternative elementary math program based on *My Pals Are Here! Maths*. The American version is titled *Math in Focus™: The Singapore Approach*¹, and will be available in 2009.

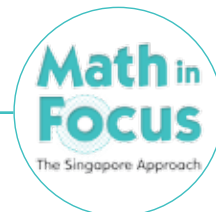
A Nation That Values Learning

Thanks to its remarkable mathematics program and the support of its people, Singapore has placed first on the TIMSS in 1995, 1999, and 2003, and in the top three nations in 2007. Those familiar with Singapore and its education system understand why. Anyone who visits Singapore or interacts with their educators learns quickly that the people of Singapore care deeply about their country and the education of the nation's children. In Singapore the rule is, "No one owes me a job so everyone has to learn for himself."

The government of Singapore devotes 20% of its Gross National Product (GNP) to education. Parents are actively involved in making sure every child is well-educated. From the Ministry of Education to the schools, the principals, the teachers, and the parents, everyone in Singapore believes that education is the answer to the preservation of the nation and its economy. Perhaps this is why the history of Singapore math from 1980 up to the present day is so celebrated, and why it has captured the interest of the world.



Patsy F. Kanter is an author, teacher, and international math consultant. She worked as the Lower School Math Coordinator and Assistant Principal at Isidore Newman School in New Orleans, Louisiana for 13 years. Patsy is the author of a number of mathematics programs, including *Afterschool Achievers: Math Club* (K–8), and *Summer Success®: Math*² (K–8), and co-author of *Every Day Counts® Calendar Math and Partner Games* (K–6) and *Practice Counts*³ (1–6). She is a consulting author on the U.S. version of *My Pals Are Here! Maths*, *Math in Focus™: The Singapore Approach*.



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