Singapore Math:
A Problem-Solving Approach

Singapore Math is exciting. The small Southeast Asian nation has set itself apart as the world's leader in math achievement. But that wasn't always the case. Not too long ago, Singapore ranked 20th in nations surveyed by the Third International Mathematics and Science Study (TIMSS). How did Singapore soar to the top?
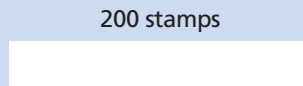
The changes they made to their curriculum have been significant. Singaporean students now cover fewer topics in math each year, but study them in greater depth. Extraneous topics and duplication have been minimized or eliminated. Currently, Singapore Math combines a high level of mathematical content and a strong emphasis on building number sense and higher-level thinking skills. Textbooks present concepts using pictures, numbers, and words. The teaching sequence in Singapore begins with the concrete, moves to the pictorial, and finishes with the abstract.

Problem-solving is the key component in the Singapore Math program. Students learn to use the model-drawing strategy in the primary grades and continue using it throughout the program. With this ongoing practice, students become highly proficient at solving increasingly complex problems.
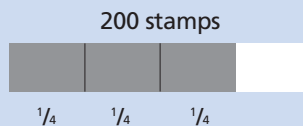
What is the model-drawing approach? Let's use it to break down a sample problem into manageable chunks in order to find the correct answer.

The Problem: Mrs. Smith had 200 stamps in her collection. She gave three-fourths to her granddaughter and half of the remainder to her neighbor. How many stamps does Mrs. Smith have left in her collection?
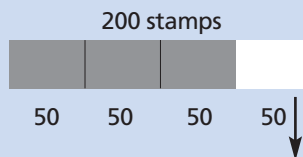
Step 1. Break the problem down into small pieces using pictorial representation. Start with: "Mrs. Smith had 200 stamps in her collection."
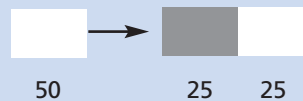
200 stamps

Step 2. Continue breaking down the problem. Label the bar with new information: "She gave three-fourths to her granddaughter…"

200 stamps

$1/4$ $1/4$ $1/4$

Step 3. Apply mental math strategies to determine the value for each segment.
Half of 200 is 100 and half of 100 is 50. Therefore, each segment represents 50 stamps. She gave 150 to her granddaughter.
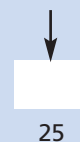
200 stamps

50   50   50   50

Step 4. Continue to break down the problem: "…and gave half of the remainder to her neighbor." The remainder is 50. Half of 50 is 25.

50   25   25

Mrs. Smith gave 25 stamps to her neighbor.

Step 5. The solution: Mrs. Smith has 25 stamps left in her collection.

25

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