Why Singapore Math?

 The math strategies used in the education system in the nation of Singapore have revolutionized Math instruction around the world. The distinctive features of their system can be divided into two foci. The first begins in the early elementary phase in which number sense and the ability to do mental math calculations is built.[[1]](#footnote-1) The second phase is a step-by-step model drawing strategy for solving word problems. I am currently receiving training in the first phase and I hope to be able to share what I have learned soon. I was first introduced to the second phase in 2007 when I began teaching in Alaska. The work that you will find in this wiki will concentrate on this second phase.

 My experience in teaching before I was introduced to the Singapore Math Model Drawing Strategy had been with SPED students who all struggled with math. Usually, they would just skip the word problems without attempting them. In addition, they had particular difficulty transitioning from basic math to thinking algebraically. Using a letter to represent a number was a huge obstacle to overcome. My next teaching assignment was with a 3rd through 5th grade class with a number of students significantly behind in math. It was during my first year of teaching this class that I was introduced to the model drawing approach taught in Singapore Math. I quickly became convinced of the benefits of using this strategy for a number of reasons:

1. Students learn a specific strategy for solving word problems.
2. The drawing of a model instead writing an abstract equation helps students to think algebraically in a manner that appeals to several learning styles.
3. Students quickly learn that there is often more than one way to solve a problem.
4. The strategy focuses on leading students to explain their thinking in solving math problems.
5. If a teacher is attempting to implement a Concrete-Repesentational-Abstract approach to teaching math in keeping with the focus found in the Common Core and other current teaching standards, Singapore Math nails the representational part of that approach.

What you will find in the PowerPoint presentations associated with this wiki is my attempt to go step-by-step through problems found in LPSD resources using the method explained in *Step-by-Step Model Drawing: Solving Word Problems the Singapore Way,* written by Char Forsten. My first installment is from the *Mathematics Course 1* textbook chapter one, lessons 1 through 4. It is my goal to provide an example of every word problem in our resources for grades 4-6 before we purchase new materials. Solving problems as they arise in the textbook is not a systematic approach to learning to use this strategy. For a systematic approach, see the videos and books listed in the footnotes.[[2]](#footnote-2)

There are 7 steps to solving word problems following Forsten’s example. They are as follows:

1. Read the entire problem.
2. Rewrite the question in sentence form, leaving a space for the answer.
3. Determine who and/or what is involved in the problem.
4. Draw the unit bar(s).
5. Chunk the problem, adjust unit bars, and fill in the question mark.
6. Correctly compute and solve the problem.
7. Write the answer in the sentence, and make sure the answer makes sense.

Each slide of the presentations represents one step in the model drawing process. The step being completed on the slide is usually in red. It is my aim to make the strategy easy to understand. Please let me know if there is way in which I can make it easier to decipher.

These strategies are intended to be used throughout the entire math curriculum. I believe it would be good practice to have students in levels 5 and above to write the problem in an expression or equation form in addition to drawing the model fulfilling the abstract part of the strategy.

It should also be noted that as you first attempt to implement these strategies with your students, you are probably going to start with problems that are so easy, some students may be able to find the answer without writing anything down. This will lead them to see little benefit in the strategies. They need to understand that they are learning to use the strategies on less difficult problems first, so that they will be able to use the strategies when they face difficult problems.

If you would like to discuss any of the examples, please contact me at jward@lpsd.com . I hope you find this information useful.

1. For a more formal introduction to Singapore Math including benefits that I do not mention here, see Char Forsten’s 2 part introduction found at <https://www.youtube.com/watch?v=L-QMZ_f9PUg> . [↑](#footnote-ref-1)
2. Forsten, C. (2010). *Step-by-Step Model Drawing: Solving Word Problems the Singapore Way.* Peterborough, NH, Crystal Springs Books.

Walker, L. (2010). *Model Drawing for CHALLENGING Word Problems: Finding Solutions the Singapore Way.* Peterborough, NH, Crystal Springs Books. [↑](#footnote-ref-2)