

The Problem With Word Problems Is the Words!



International Reading Association
Annual Convention
Wednesday, May 11, 2011

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To Take the Problem Out of Word Problems, We Can...

1. Use a "cloze" approach as a way to improve students' reading mathematical word problems:

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Machine A fills bottles faster than Machine B. Machine A fills bottles at a rate of _____ per minute. Machine B fills bottles at a rate of _____ per minute. Both machines can fill _____ bottles in _____ minutes.

2. Anticipate student errors, by sharing an incorrect solution to a problem, asking the class to explain what is wrong with the solution:

Carolyn passed 70% of the questions on her math test. If there were 30 problems on the test, how many questions did Carolyn not answer correctly?

Carolyn's solution: $0.7 \times 30 = 21$

What's wrong with her solution?

3. Use Singapore's model drawing approach to solving word problems:

- a) Emily had 2 blocks. She found 3 more. How many total blocks does Emily have?

Emily now has a total of _____ blocks.

- b) Max had 5 cookies. He gave 2 of them to Fred. How many cookies did Max have left?

Max had _____ cookies left.

- c) Jerome has 30 baseball cards. Ryan has 18. How many more baseball cards does Jerome have than Ryan?

- d) There are 4 cages of rabbits in the pet store. If there are 2 rabbits in each cage, how many total rabbits are there?

- e) Brittany has 6 peanut butter cookies that she wants to share. She wants to divide them evenly among 3 friends. How many cookies should each friend receive?

- f) Brittany has 12 chocolate chip cookies. She wants to put them into small bags, with 3 cookies in each bag. How many bags will she need?

- g) Drew had 4 baseball cards. Anna had twice as many cards as Drew. How many baseball cards did they have altogether?

REFERENCES & RECOMMENDED RESOURCES

1. American Institutes for Research (Alan Ginsburg, Steven Leinwand, Terry Anstrom, and Elizabeth Pollock). *What the United States Can Learn from Singapore's World-Class Mathematics System (and What Singapore Can Learn from the United States): An Exploratory Study*. Washington, DC: US Department of Education Policy and Program Studies, January 28, 2005. Also available at www.air.org/news/documents/singapore.htm.
2. Forsten, Char. (2005) *Math Strategies You Can Count On!* Peterborough, NH: Crystal Springs Books.
3. Forsten, Char and Torri Richards. (2009) *Math Talk*. Peterborough, NH: Crystal Springs Books.
4. Forsten, Char. (2009) *Step-by-Step Model Drawing*. Crystal Springs Books.
5. Forsten, Char. (2008) *Solving Word Problems Using the Model Drawing Approach. CD Rom Series*. Peterborough, NH: Crystal Springs Books.
6. Kuhns, Catherine. (2009) *Building Number Sense*. Crystal Springs Books.
7. Lee, Peng Yee (Edited by) (2007) *Teaching Primary School Mathematics*. Singapore: McGrawHill.
8. Ministry of Education, Singapore. (2009) *The Singapore Model Method for Learning Mathematics*. PanPac.
9. Polya, George. (1945) *How to Solve It*. Princeton University Press.
10. Walker, Lorraine. (2010) *Model Drawing for Challenging Word Problems*. Crystal Springs Books.

WEBSITES

1. Crystal Springs Books - www.crystalsprings.com
(Grade level workbooks available for model drawing practice.)
2. Staff Development For Educators www.sde.com
3. Singapore Math - www.singaporemath.com
4. Great Source – (Math in Focus) www.greatsource.com
5. National Council of Teachers of Mathematics - www.nctm.org
6. Thinking Blocks – www.thinkingblocks.com