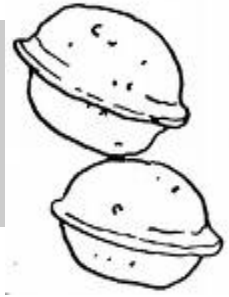




# Math In a Nutshell

Quick Tips For the Hurried Teacher



A Content Elementary Math Newsletter from the Southern Nevada Regional Professional Development Program  
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## Problem Solving? No Problem!

Did you know that every constructed response question on the 4<sup>th</sup> and 5<sup>th</sup> grade Nevada CRT is a problem solving question? Did you also know that approximately 33% of each CRT as a whole is based on problem solving? This is a staggering number when compared with the percentage of time that is spent on problem solving in the average classroom. It is important to point out that when we say “problem solving” we are not referring to basic word problems. What is meant by “problem solving” are mathematical problems that do not have a direct path to the solution (no key words such as *difference* or *total*) and more than one mathematical strategy can be used to arrive at the solution.

Research recommends that reinforcing mathematical vocabulary will aid students in becoming better problem solvers. Be cautious of using more simple vocabulary for mathematical terms and symbols as a way of increasing the students’ understanding. The concern is that use of these simple terms will continue even when they are no longer needed so be sure to teach the correct terms as soon as students are ready. In combination with reinforcing mathematical vocabulary, encouraging students to draw pictures or diagrams can also improve a child’s problem solving skills. Once the idea is introduced, the student must be the one to initiate drawing on their own. The use of published material that already contains pictures or diagrams may contribute to a student’s reluctance to create the diagrams on their own.

Promoting the “process” as well as the “product” in problem solving will allow students to feel safe to take risks and come up with more creative strategies to solve a problem. While we, of course, want a student to produce a correct answer to a problem, the importance should be placed on the path each student takes to get the answer. Strategies can be shared among students so that they can learn and “borrow” from each other. Placing value on every strategy, efficient or not, gives even struggling students the confidence to solve problems effectively. For example, if a student uses repeated addition instead of multiplication, this strategy should be valued despite its inefficiency.

How can you fit problem solving into your math time while sufficiently covering the standards for each trimester? The answer is that no skill should be taught in isolation. Students shouldn’t have problem solving for three weeks then never see it again. Problem solving should be embedded throughout your curriculum, throughout the school year. There are many resources that offer problem solving tasks in all content strands so while you are working on, for example, area and perimeter, tasks can be identified that will reinforce the study of area and perimeter while challenging the students at the higher level of problem solving.



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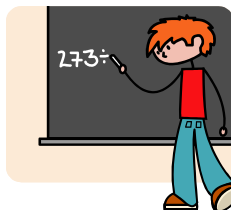
www.rpd.net

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## Great Mathematical Questions to Use in Your Classroom!

1. On a graph about pets owned by children in our class, I counted more dogs than cats. What might the graph look like?
2. I drew a shape with four sides but none of the four sides were the same length. Draw what my shape might have looked like.
3. In my pocket I have 75 cents. What coins might I have?
4. A number has been rounded off to 1,200. What might the number be?
5. My dog is half as old as me. My mother is double my age. How old might we each be?
6. What numbers can you make using 1, 0, 2, 7, 8, and 4?



Adapted from *Good Questions for Math Teaching*  
By Peter Sullivan and Pat Lilburn

## Summer Institute is Coming!

Summer Institute is from June 9–13, 2008 at Greenspun Junior High School.

**Morning Session (8:30–11:30)** includes *Algebra K-5*, *Spatial Reasoning and Geometry K-5*, and *Explain It: Constructed Response*

**Afternoon Session (12:15–3:15)** includes *Mental Math and Algorithms*, *Assessing and Developing Number Concepts K-3*, and *Integrating Children's Literature and Mathematics*

**Evening Session (4:00–7:45)** includes *Connecting the Math Strands K-2*, *Connecting the Math Strands 3-5*, and *Calculator Problem Solving*  
Evening classes run June 9–12, 2008.

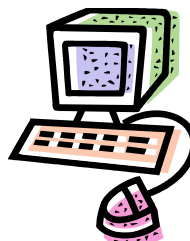
To attend any of these classes, please contact Brenda Pearson via InterAct.

## www.rpd.net Spotlight of the Month:

The current Nevada State Math Standards are at your fingertips!

Go to [www.rpd.net](http://www.rpd.net) and click on the orange tab that says "Nevada State Math Standards."

From there, you can choose any grade level and view all of the current Nevada State Mathematics Standards.



## Don't Forget!!

Enrollment for RPDP classes has changed!

You will no longer use Pathlore to enroll in RPDP classes., you will now register through UNLV's website. More information can be found at [www.rpd.net](http://www.rpd.net).

## Problem Solving Resources

*50 Problem-Solving Lessons: The Best from 10 Years of Math Solutions Newsletters* by Marilyn Burns

*Introduction to Problem Solving: Strategies for the Elementary Math Classroom* by Susan O'Connell

*About Teaching Mathematics: A K-8 Resource, 3rd Edition* by Marilyn Burns

*Read It! Draw It! Solve It!* By Elizabeth Miller