

Here's the text from one of the newsletters I did on Math -

### News From ReadingLady

For some time now our school has had great difficulty getting our students to score well on yearly Math assessments. The children fall down on these tests even though most teachers have spent an entire year doing test prep. I have long advocated that test prep is not necessary if we teach children strategies that they can use when working through problems independently. Yes, we need to teach them test sophistication and the format of these standardized tests, but our instruction should not be based around teaching to the test. In my school many teachers teach to the test from September to April and then in May don't understand why the children don't do well. I would venture to say it is because they have taught to the test and when the test arrived, one aspect of it was slightly different and the children are left with no strategies to fall back on.

We had a meeting in my school this week with our Math Staff Developer who was trying to tell us that the fault in our students solving math word problems lie in the way we teach math concepts. I sat respectfully and listened, but did not agree with her at all. I then spoke up and said that I strongly felt the issue was not a concept issue but a comprehension issue. She of course thought I was referring to the idea that the children can't solve the problem because they can't read it. Not at all what I was trying to say. I told her that I felt the problem lie in the higher order thinking skills, i.e. the interpretation of the problem. The problem to me is a comprehension breakdown and we need to rethink our approach to teaching math. I feel we need to incorporate more of the thinking strategies from Mosaic of Thought and Strategies that Work into our teaching of Mathematics.

Following that meeting, I invited the Math Staff Developer to come to my class the next day and administer a 3rd grade practice math test to my 2nd grade students. I have not taught, test prep to my children, but have taught them strategies to use when solving math problems and my math instruction this year has been strategy based. I have told the children all year, I don't want to know the answer I want to know the strategy you used to get it. We still are fine-tuning this approach but I wanted to see how they would do on a standardized assessment. The Staff Developer gave the test to the children while I was present. My children are in 2nd grade, so the test was a grade above their placement. I was comfortable with this because I have gone above and beyond the second grade curriculum this year.

During the test, we walked around with clipboards and took notes on what we were observing the children do. As they raised their hands and asked questions we had a real

window into their thinking. What began to emerge as, as I suspected, evidence of an understanding of the math concepts, but questions about the interpretation of the wording in the problems. They knew what to do for their interpretation, which at times was not what the question really asked.

The Staff Developer was quite impressed with the sophistication of the children's thinking and immediately realized what I was trying to tell her in the meeting was correct. The problem with the student's scores on standardized assessments in Math was a language, or comprehension problem and not a math concept issue. All of my children in the class got at least 50% of the test correct. No one scored lower than that.

Many got 75-80% of the test correct. This test is one year above their placement and there were concepts that were not yet taught, like trading across 2 zeros when regrouping.

It was quite impressive to see the strategies that these young children fell back on during the 3-hour test. They were boxing out clues and trying to work through the problem, they drew pictures, labeled graphs and developed plans for solving. What I learned is that the tests are very deliberately worded in a way that seeks to trick the students. They also set up the test with the most common interpretation error answer as one of the choices. On a multiple choice test students are either right or wrong. There is no partial credit given for work done or simple computational errors made. It was easy to see how the scores come in the way they do.

The Staff Developer now has a clearer picture of what needs to be done and this is our next step. We are trying to develop a metacognitive approach to teaching Math, much as we have done in reading. We are working to align the thinking strategies outlined in Mosaic of Thought with the math curriculum. I have put out a request for anyone who has worked with these strategies already to share them with the ProfReadingGroup ring. We can work through this together and will all benefit from this change.

I began to incorporate this into my instruction this week. What I found was that the Prior Knowledge piece kept jumping out at me. I have now asked my students to do the following when working through a word problem

Step 1 Read the entire problem

Step 2 Try to access your prior knowledge, what is the problem about (ex. - money, time, calendar, fractions, perimeter, etc.) Write that word below the problem and put a box around it.

Step 3 Reread the problem, sentence by sentence and put a box around the important clues. List the important clues down below the problem. (This will isolate the clues and bring them outside the problem. (Ex. found 10 cents would be listed instead of the boxed out found a dime. Spent 25 cents would be listed instead of the boxed out spent a quarter. This allows them to remove it from the body of the text where they can hopefully see the problem more clearly.) Again, they need to access prior knowledge what do some of the important clue words mean? (Ex. one week- what do we know about a week? it has 7 days. Has a quarter= what do we know about a quarter =it is worth 25 cents,etc.)

Step 4 Think Do you UNDERSTAND the question. Restate part of it below the problem. (Ex. How much money does he have now? Could be rewritten how much money.)

Step 5 Come up with a plan to solve your problem. What will you need to do with the important clues you have collected?

Step 6 Solve the problem.

Step 7 Explain how you worked through the problem in writing. We began this new approach this week using easier word problems. We want them to focus on the process of using the strategies rather than get bogged down in the interpretations of it. Once they are comfortable with the process the problems will become increasingly difficult. I will keep you posted as we work through this.

I'd like to hear what you are doing in your math instruction. Feel free to post your thoughts to the ProfReadingGroup@yahoogroups.com ring, or email them directly to me at readinglady1@aol.com .

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