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Grade Level – 2nd; **Subject** – Math

Topic: Giant Story Problems: Reading Comprehension through Math Problem Solving

Objectives (P.A.S.S.): Grade 2; Standard 1

Students will:

- participate in a shared problem-solving activity
- collaborate in small groups to develop a problem-solving strategy
- use drawings, words, and equations to model solutions to story problems.
- effectively and clearly explain their problem-solving strategies to other students.
- write about and reflect on their problem-solving strategies.

Estimated Lesson Time: One 30-minute & one 60-minute session

Introduction:

This activity focuses on reading comprehension skills as they apply to mathematics story problems, as well as on written and verbal mathematics communication skills. Students use drawings, equations, and written responses to solve single story problems with enlarged print. The end product of this activity is a series of poster-size story problems that can serve as models for later problem-solving work.

Having students collaborate on story problems gives them the opportunity to learn by taking and sharing ideas as they compare pictures, words, and numeric symbols for consistency.

Instructional Process:

Resources

General classroom supplies (chart paper, colored markers, white construction paper, glue, crayons, and pencils)

Preparation

1. Prepare several story problems beforehand. Story problems should be on individual pieces of paper so that each group will receive only one story problem, and each group receives a different problem. Story problems can be written by the teacher, taken from workbooks, or obtained at Web sites such as Teach R Kids.
2. Prepare heterogeneous groups, balanced with student strengths according to problem-solving, drawing, and writing skills.

Instruction:

Session One

1. Post chart paper on the wall and gather students together near it. Inform them that they will work together to solve a math story, and that later they'll work in groups to solve their own.
2. Start with a completely blank chart paper so that students can see the entire process.
3. On the top left corner glue one story problem. Ask for a volunteer to read the problem aloud, or read it to the group. Ask for students to identify the most important information in the story. To do this, ask the following questions:
 - What is this story problem about?
 - How many subjects/objects are there to begin with?
 - What is happening to these subjects/objects?
4. As students identify the information,, highlight or underline the information that will be needed to solve the problem.
5. When important words and numbers have been highlighted, work through the story problem item by item to create a drawing that models the story. Have students volunteer to do the drawings on the chart paper. All important information should be illustrated.
6. When the drawing is finished, review with students the language of the story problem and compare it to the drawing, checking for accuracy: "Does this picture show what it says in the story?"
7. Ask students to find the actual question in the story problem that needs to be answered: "What does this story want to know?" Read it aloud. Ask for a complete sentence that answers the question. When a sentence has been agreed upon that includes specific information, have a student write the sentence under the equation, using conventional capitalization and punctuation, and writing all numbers as words to facilitate correct spelling of number words.
8. Review all parts of the chart, and leave it posted for Session Two.

Session Two

1. Gather students together to review the Giant Story Problem chart from Session One. Have students review each part of the problem-solving process. Ask them to review the step-by-step process and list the directions on the board:
 - glue problem on paper
 - read story problem
 - underline important words
 - draw
 - write equation
 - write sentence

2. Have students get into groups. Each group will need one sheet of white construction paper (12x18), crayons, writing material, and one story problem
3. While students work to solve their story problems, circulate among the groups to ask questions and make sure everyone is participating in the process. If students are having difficulty, try to ask leading questions rather than give them specific help with a strategy. If it appears that students are using an inappropriate strategy, help them refer back to the language of the story problem. As they work, let them know that they will be sharing their work with the class.
4. When all groups are finished, have students share their posters with the whole class, explaining their drawing by referring to their story problem, and telling why their mathematical solution will work to solve the problem.
5. To conclude the activity, have students respond on paper on in Math Journals to each of the following questions:
 - How did drawing a picture help you solve the story problem?
 - What was the most interesting thing about this lesson?
6. Display all the Giant Story Problems on the wall.

Modification/Accommodations:

1. Have students meet in groups to write their own story problems, and then have the groups exchange problems to solve.
2. Prepare additional giant story problems to keep in a basket for students to work on at a math center or during choice time.

Web Resources

"Giant Story Problems"

<http://www.share2learn.com/wlmathgoularte1.html>

Teach R Kids

<http://www.teachkids.com/frotns/curr-2.htm>

Reflection:

I was able to observe whole group participation, small group participation, and student explanations of their strategies. As assessment, I evaluated the quality of the student group work and the quality of individual student follow-up work, including clarity of ideas and details in their written work. The time involved in teaching these two lessons was time well spent as the students were able to develop an understanding of the process of reading for information.