

# Shared Problem Solving

## Why Share The Problems?

Teachers often face students who have a negative attitude towards problem solving. Students frequently feel that problem solving is beyond their abilities.

To change this outlook, children need to see problem solving as a fun filled challenge that is possible. The skills to problem solve need to be taught in a positive way from the early grades.

For successful problem solving students need to:

- think objectively
- approach a problem with confidence
- realize that there may be more than one way of arriving at a solution.

Because problem solving can appear overwhelming, especially for students working independently at a young age, the use of Shared Problem Solving is critical for student success.

Incorporating Shared Problem Solving into the Balanced Math Program gives students the opportunity to explore and build the necessary skills for successful problem solving. Shared Problem Solving promotes teamwork and communication while building individual confidence.

Students work together in a comfortable atmosphere to:

- develop ideas for different ways to approach problems
- use math manipulatives
- create drawings to reinforce and clarify their thinking
- become familiar with the use of a problem solving rubric and self and peer evaluations

- become familiar and comfortable using the basic steps to problem solve.

In Shared Problem Solving four to five students work together to solve a math problem. Each student in the group has a responsibility (described later in this chapter) to contribute to the group.

As the group works together towards a solution to the problem, the students also build life skills such as teamwork and cooperation. The students in the group learn to actively listen to the ideas of their peers as well as learn to respect the ideas of others.

Advantages for children working in Shared Problem Solving include:

- more comfort speaking out
- more willingness to pose questions than in a whole class situation
- the creation of a challenging yet friendly environment for learning
- problem solving centered around the students and their own thinking, rather than focused on the teacher's method to solve the problem
- students learning to take the initiative
- freedom to explore different methods and ideas to solve a problem
- students gaining experience using math manipulatives.

For Shared Problem Solving to be effective, the students need to know:

- the basic steps to problem solving (see pages 35-39)
- that each member of the group has responsibility to the group.

Even though all the students contribute ideas, they each need to have a defined job within the group. This prevents arguments such as who will read the question, who will draw the pictures and who will be the presenter. A posted list of the jobs enables the students to rotate through each responsibility allowing equal opportunity for all students.

Prior to beginning the Balanced Math Program, it is important to teach the students what each job entails and model the required actions of each task. When the students know exactly what is expected of them, the program runs smoothly.

For effective group work, it is necessary to not only have the job titles posted, but to have each group of students keep a tracking sheet so they remember what job they are to do. If a tracking sheet (see page 73) is used, the students will know what job they did the previous week and can clearly see which job they will rotate to next. If the students are expected to simply remember what job they did the week before, they often are confused and disputes occur over tasks. The goal is for the students to maximize their time problem solving, and not spend time deciding on their tasks.

### **Five Jobs for Shared Problem Solving**

The number of jobs for the Shared Problem Solving group is dependent upon the number of students in each math group. If there are five students in each group, there are five jobs for *Shared Problem Solving*. To accommodate varying numbers within the groups, it may be necessary to add or delete jobs from group to group.

Students are generally good at doubling up on a job if a student is absent, or sharing the responsibilities of their job with another student if there is an extra student in their group.

The five main tasks in Shared Problem Solving are:

- Reader
- Recorder
- Gofer
- Calculator
- Presenter.

It is important to note, that even though each student has a responsibility, all students contribute their ideas to each job.

A template of these jobs can be found on page 69. This should be posted in the area where the Problem Solving group works. This will remind students of what each job entails.

#### **Reader**

The reader is the student in the group responsible for reading the problem out loud to the rest of the group. This student reads the question several times throughout the Shared Problem Solving session to ensure the students get the important information from the question, as well as ensuring that the question is answered. This is important because quite often students do not focus on reading the question thoroughly and do not actually answer what is being asked.

For example, students may only focus on the numbers that are in the question and try to decide what operation using those numbers will give them an answer.