

TEACHING MATHEMATICS

KINDERGARTEN THROUGH GRADE EIGHT

THE GOAL The development of students who can think mathematically, And, therefore, solve problems that they are likely to face in their future.

It is not enough to carry out operations with 90% accuracy. If students are to apply what they have learned, they must be taught to reason mathematically and be encouraged to use any of a variety of strategies to find a solution to a problem. Then they must decide if their solution is reasonable—does it make sense? It is this process of learning that prepares them to solve problems they may face without being dependent on someone to tell them how.

HOW TO MEET THAT GOAL

Students may memorize information long enough to pass a test, but unless it was understood it is not likely to be retained. Therefore, math experiences should include the following:

- € Experiences with math manipulatives to gain a real understanding of concepts.
- € Emphasis on and training in problem solving: making up a problem as well as solving problems given, and experience using a variety of strategies.
- € Specific training in mathematical reasoning: inductive, deductive, spatial, and proportional.
- € Regular practice in estimation.
- € Practice with procedures (*algorithms*) until they become automatic.
- € Practice solving problems mentally, using pencil and paper, with a calculator, and with a computer.

Mathematics has its own language, so students must learn to read, write, and translate the signs, symbols, and terms in order to accomplish all of this.