Helping Students to Become Literate in Mathematics

Marilyn Burgoyne

Marilyn Burgoyne is mathematics coordinator at Bishop Pinkham School in Calgary. The school has an English and a bilingual program. Mrs. Burgoyne has taught for the Calgary Public School Board for 12 years. She is a member of MCATA and presented two sessions at the 1987 annual conference in Calgary.

The goals of the junior high mathematics program are to enable students to

1. use Polya's four-step problem-solving procedures to deal with new or different situations,
2. use mathematics as a tool to deal with everyday situations,
3. recognize the need for mathematics in various future career options,
4. develop a positive self-concept and a positive attitude toward mathematics.

To fulfill these goals, the needs of the individual student must be met. Students need to develop an understanding of mathematical concepts. To do so, a concrete process-oriented approach is to be used. In this manner, the teacher will guide the student from the concrete to the transitional to the formal stages of cognitive development in the understanding of mathematics.

The Junior High Mathematics Program is divided into six strands:

1. Problem solving
2. Number systems and operations
3. Ratio and proportion
4. Measurement and geometry
5. Data management
6. Algebra

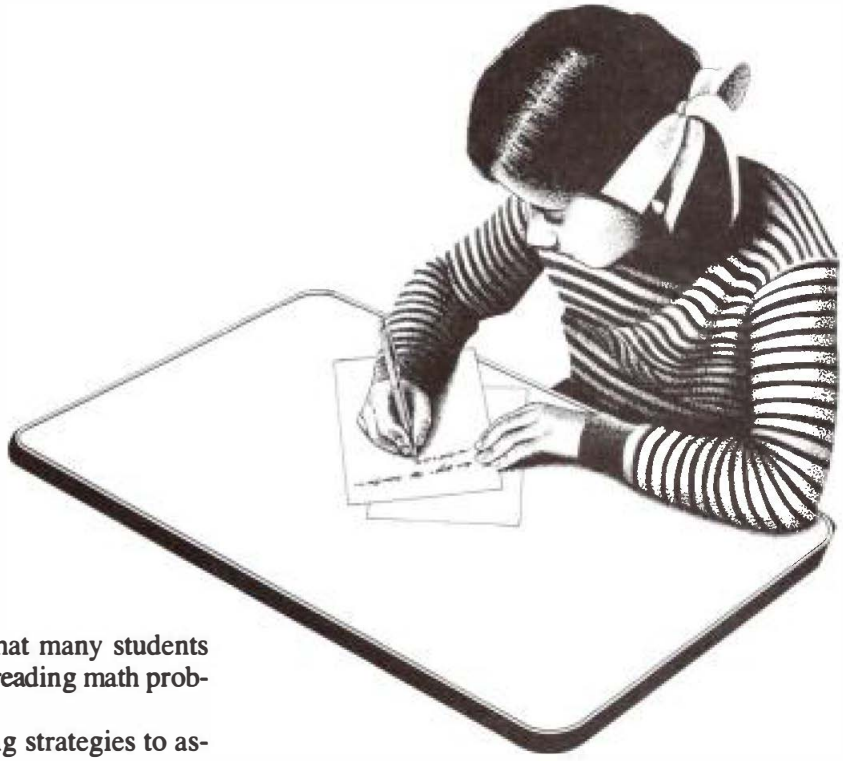
This new program of studies is now at an interim stage. Mandatory implementation will occur in September 1988.

When implementing this curriculum, math teachers must also consider the relationship of math with other subjects such as language arts, social studies, science, art and music. No discipline can or should function in isolation in the school.

When mathematics is taught, the needs of the learner must be respected. Since language is a key element in learning, its effect and use in the math classroom must also be examined. "Language across the curriculum" needs to be addressed.

The mathematics team at each school should consider using some of the following techniques and methods to incoporate language arts into the teaching of math.

1. Teachers should ensure that they use correct spelling, grammar and punctuation in their presentations of math vocabulary and concepts.
2. Teachers should ensure that students' notes have correct spelling, grammar and punctuation.
3. Teachers could have students do "write-ups" to explain math activities and concepts in more detail.
4. Students could use the library to do written reports on mathematical ideas.
5. Students could use computers and word processors to write up mathematical ideas and concepts.
6. Students could do written reports of problem solving activities.
7. Students could present oral reports on math ideas.



8. Teachers should recognize that many students may encounter difficulties in reading math problems and assignments.
9. Teachers should plan teaching strategies to assist students when reading and interpreting technical writing.
10. Math teachers should consult with the language arts department when assigning written work to their students.
11. Teachers should maintain consistency among departments in marking written student work.

In summary, the complexity of the material in most mathematics textbooks stresses the need for good language skills. These skills must be taught. The goal of the math team, consequently, is to teach good language skills when implementing the mathematics curriculum.