Abstract of
Problem-Solving is a Reading Problem

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Perceiving Symbols

Perceiving is defined as recognizing and pronouncing. The term "symbols" refers to words essential to mathematical reading, as well as other symbols such as + or =. Thus, perceiving symbols involves *recognition* and *pronunciation*, but it does not involve comprehension.

Paper and Pencil Exercise

Directions: This exercise is designed as a race against yourself in spotting key words quickly and accurately. Look at the first word in each row, then circle that word every time it appears in that row.

1.	Average	Average	Averaged	Average	Average
2.	Minus	Mean	Minus	Minute	Minimum
3.	Add	Added	Add	Add	Adds

Attaching Literal Meaning

Once the reader has recognized and pronounced the symbols essential to a particular task, he is ready to attach denotative or literal meaning to these symbols. Comprehension at this level depends on two basic elements: *symbol meaning* (vocabulary) and *symbol order* (phrases, sentences, et cetera).

VOCABULARY

1. - - $\underline{C}$ - - - -
2. - $\underline{I}$ - - - - -
3. - - $\underline{R}$ - - - - - - -
4. $\underline{C}$ - - - - - - - - - -
5. - - - - - - $\underline{L}$ -
6. - - - $\underline{E}$

Hints:

1. the numbers to be multiplied
2. the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
3. do the operation within these first
4. the sum is the same in either order
5. the symbols used for the numbers
6. used as a grouping number

Analyzing Relationships

This requires a student to grasp and identify important relationships (stated and unstated) among several literally stated facts or ideas and state them in the form of inferences, generalizations, conclusions, or equations. *Caution:* It is easy for the teacher to assume that a simple relationship is obvious.

Example: Circle two words on each line which have something in common, so that when you have done so, the remaining three will also have something in common.

1. INCH   PINT   YARD   GALLON   MILE
2. LITRE   FOOT   GRAM   ROD   QUART
3. OUNCE   GALLON   CENTILITRE   CUP   TON
4. MILLIGRAM   GRAM   MEGAGRAM   DECIGRAM   MICROGRAM

Solving Word Problems

Dependent on all three levels of the reading process previously described, the solution of word problems is the most sophisticated reading task in mathematics. A major goal of instruction in mathematics is to develop readers who can solve problems successfully and independently.

Example: Jack had 50¢. He bought four postcards at 5¢ each. How many postcards at 10¢ each could he buy with the money he had left.

A. In this problem you are trying to find: (check one)

   1. the number of 10¢ cards Jack can buy,

   2. the price of the cards Jack bought,

   3. the money Jack had at the beginning.

B. As you read the problem, write the correct amount from Column B before each space in Column A.

Column A	*Column B*
1. the amount of money Jack had at the beginning: _____	30¢
2. the amount he paid for four cards at 5¢ each: _____	50¢
3. the amount he had left after he bought four cards at 5¢ each: _____	20¢