approach. Yes, basics should be the major emphasis in the junior high school mathematics program and also in any mathematics program at any level for that matter. Incidently, basics are the major emphasis at our school.

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This Skill of Writing Mathematically!

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Before any of us began to write anything, we learned a set of symbols, twenty-six of them called the alphabet. Similarly before we commence to write mathematically we need the tools of the trade, another set of symbols called the numerals, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. Just as all words are combinations of the letters of the alphabet so are all numbers combinations of numerals.

Soon we become interested in putting words together to express a thought and thus make a sentence. Mathematical sentences can be made too, but to express a complete thought we need more than just numerals. Other symbols that are important for the composition of number sentences are $=$,$+$, $-$, $\times$, $\div$, $>$, $<$, $\neq$, $\ngtr$, $\nless$. Undoubtedly we could find more as there are alternate methods for expressing multiplication and division, for example, but these mentioned will suffice for our purposes.

Of course, later we are introduced to Algebra and with this introduction comes a need for a new set of symbols in order to make more complex number sentences. We usually adopt the letters of the alphabet as the necessary new symbol but in lower grades you will often notice the use of the □ and the △ and sometimes just the simple ____.

The use of our mathematical symbols usually comes quite easily to young children. Even in the first year of school a child will have no problem telling you that 5 = 5 reads "five equals five." The conversion from a number sentence to a grammatical sentence seems automatic. Similarly the student will easily read 2 + 3 = 5 as "two plus three equals five." Why then the difficulty with problems? Why then the difficulty in converting a "word" sentence to a "number" sentence?

The problem would not appear to be in the symbolism since the child has already shown his ability to recognize symbols. Instead, perhaps, we can discover the area of difficulty by examining some sample problems. Let us examine #1, P. 171 of *Modern Algebra Book 1:* The sum of two consecutive integers is 57. Find the numbers. I agree, a mess of mathematical terminology meaning nothing at first glance! We notice in the first sentence that there are some words of considerably more importance than others. "The" has little importance other than making the sentence sound complete. "Of two consecutive integers" is a prepositional phrase modifying or providing detail about "sum." "Sum" is the subject of the sentence;

it tells with what we are concerned in this sentence. "Is" is the verb and can always be represented mathematically by =. "57" is the object of the sentence and in number sentences the object always follows the =. Sometimes it helps to cross out the unimportant words and phrases. Blanking them out mentally for a moment while you find the subject, verb, and object is usually better as often the detail is useful as in our example:

subject	verb	object
sum	is	57
+	=	57

We do not have a meaningful mathematical sentence yet until we consider "of two consecutive integers." Then our expression becomes

$$x+x+1 = 57$$

This one-variable equation is then easily solved.

Another example from this same book is #6, P. 382: The units digit of a two-digit numeral is twice the tens digit. The sum of the digits is 12. Find the number. For each complete thought of information we have one complete number sentence. Looking back we see that "digit" is the subject, "is" the verb, and "twice the tens digit" the object of the first sentence. Before we can make a number sentence we need to know more about the subject "digit." The word "units" tells about it. Now we can write

Let u represent the units digit.
Let t represent the tens digit.

$u = 2t$.

On to the second sentence. "Sum" is the subject, "is" the verb, and "12" the object. The result: $u + t = 12$. Most students will easily solve this system of equations by the substitution method.

The problem seems to lie in the determination of what in the problem is important or, indeed, just what in a problem needs to be coded mathematically. The skill of recognizing the subject, verb, and object in a sentence seems to greatly simplify problem-solving for my students. Repeated practice and reward reinforces their efforts and encourages attempts at more difficult problems. I agree that problems appear to enjoy being complicated and even try to hide their subject, verb, and object at times. But a student with a firm background in sorting out information he needs will not flinch even when he is faced with this. (#34, P. 393, *Modern Algebra Book 1)*

If you add 1 to its denominator, a certain fraction becomes equal to 5/8. If you subtract 4 from the numerator, that fraction becomes equal to 2/5. Find the fraction.

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