What is so Different About *Korean Mathematics*?

Generalizations made in the report to the NSF about *Korean Mathematics* point up the connections that mark the series with coherence, and clear, in-depth conceptualizations for every construct in the series. Three of those connections illustrated here are:

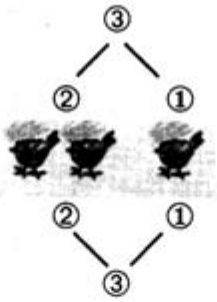
A. Focus on the Inverse Relationships in Mathematics
B. Focus on the Base 10 Decimal System in Mathematics
C. Multiple Models and Strategies in every Lesson

A. Focus on the Inverse Relationships in Mathematics

All operations in *Korean Mathematics* are systematically and coherently linked to the inverse relationships of addition & subtraction, and of multiplication & division.

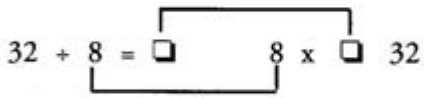
<u>On Addition and Subtraction</u>

From the very beginning of study on numeracy, addition and subtraction are not separated but taught from the beginning as the inverse of one another. That is, in the very first numeracy lesson in Book 1-1, objects are put together and taken apart to demonstrate that 2 & 1 put together are the same number as 3, and that 3 separated into 2 & 1 are the same number.



Instruction on the operations of addition and subtraction begin in Grade one with one chapter titled "Merging and separating number", in Book 1-1, and four chapters named "Addition and Subtraction," two in Book 1-1, two in Book 1-2. The concepts of putting together, taking away, and even comparing two sets to see how many more, are treated together, alternately one after the other.

<u>On Multiplication and Division</u>



The inverse relationship between multiplication and division is treated in Grade 2 in *Korean Mathematics*, with:

1) an array,

How many ?

5 x 3 = 15

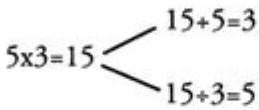
2) a two-part word problem focusing on division of 15 by the two multiples illustrated in the array above,

If 15 are bundled by 5, how many bundles?
15÷5 = ❑ ❑ *bundles*

If 15 is divided by 3 bundles, how many in a bundle?
15÷3 = ❑ ❑

and

3) a diagram demonstrating that the multiplication fact can be written as 2 division expressions.



From *Korean Mathematics*, Book 2-2-6