Algebra/Geometry Institute Summer 2006
Lesson Plan III: Working with larger arrays
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School: Ruleville Central Elementary, Ruleville Mississippi
Grade Level: 5th

1. Teaching Objective(s)
The students will use arrays to understand and show meaning of multiplication. To connect the area models (arrays) to the computation.
The students will use large arrays to understand that they can be broken down to smaller arrays. The students will understand the sum of the products of the smaller arrays is always equal to the product of the larger array.
(The distributive property of multiplication)

2. Instructional Activities

The teacher will explain that a large array of 2 x 12 can be broken down to smaller arrays. When you push the smaller arrays back together they make the larger array.

The teacher will make a 2 x 12 array using counters.

The teacher will pass out counters of at least 24 per student and activity sheet one.

The teacher will pass out activity sheet 1.

The teacher will say one way to break the 2 x 12 array into smaller arrays is by making two 2 by 6 arrays. Ask students to look at activity sheet 1. Example 1 is a 2 by 6 array which is written 2 x 6 = 12 and example 2 is 2 by 6 array which is written 2 x 6 = 12. Teacher will help students make one 2 by 6 array with counters.
Ask students to keep this array separated by putting their pencil in front of the array. Students will make another 2 by 6 array with their counters. Teacher will say that the two smaller arrays show the distributive property of multiplication.
Teacher will show the students with counters that when you push the two smaller arrays back together they make the larger array of 2 x 12.
The teacher will walk around and monitor students as they make their two arrays.

Students will use activity sheet 2, a 3 by 12 large array to assist them making small arrays.
Students will make two small arrays that equal the above large array using counters.

Teacher will check and see that the students are making their arrays correctly.

Next students will combine the two small arrays using counters.
Teacher will ask if there are any questions before continuing on.
Questions that might be asked are:
What products did you get for your small arrays?
Can small arrays be pushed together to make large arrays?
Do the products of the small arrays add up to the large array?

Students will then use a ruler and draw the large 3 by 12 array and the two smaller arrays that equal the product 36.

3. Materials and Resources:

America Choice (Multiplication) 2002 ed.
Mathematics Instructional Intervention Supplement 2004 ed.
Counters
Rulers
Activity Sheets 1-3

4. Assessment: The teacher will observe the students while walking around the room, as they are using their counters and drawings while working on activity sheets 1 and 2.
The students will answer activity sheet 3.

Activity Sheet 1: Large Array = 2 x 12 = 24

Example 1: Small array 1 =2 x6 = 12

Example 2: Small array 1 =2 x 6 = 12

Teacher will explain that when you add the two small array products they will equal 24. Connecting array 1and 2 will equal the large array.

Activity Sheet 2: Large array 3 x 12 = 36

Activity Sheet 3:

Teacher will check and see that students have the right materials before continuing on. Pencil, paper, and rulers.

The students will draw an array that represents a 7 by 8.

Students will draw two smaller arrays that will equal the product of the larger array.