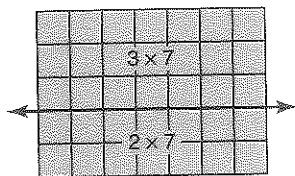


$$4 \times 9 = (4 \times 6) + (4 \times 3)$$



$$5 \times 7 = (3 \times 7) + (2 \times 7)$$

**FIGURE 3.10** .....

Models for the distributive property.

is to try to model  $6 \times 0$  or  $0 \times 8$  with an array. (Try it!) Arrays for factors of 1 are also worth investigating.

### The Distributive Property

It may not be essential for young children to know the *distributive* property in the form  $a \times (b + c) = (a \times b) + (a \times c)$ . But the concept involved is very useful in relating one basic fact to another, and it is also involved in the development of two-digit computation. Figure 3.10 illustrates how the array model can be used to illustrate that a product can be broken up into two parts. Third grade is not too soon to explore this concept.

The next activity is designed to help children discover how to partition factors or, in other words, learn about the distributive property.

### ACTIVITY 3.8



#### Slice It Up

Supply students with several sheets of centimeter grid paper. Assign each pair of students a product such as  $6 \times 8$ . (Products can vary across the class or all be the same.) The task is to find all of the different ways to make a single slice through the rectangle. For each slice students write an equation. For a slice of one row of 8, students would write  $6 \times 8 = 5 \times 8 + 1 \times 8$ . The individual products can be written in the arrays as was done in Figure 3.10.

### More Thoughts About Children

#### Solving Story Problems

Solving word problems of all sorts on a regular basis can be a significant tool in your number and computation curriculum. Your goals for students should go beyond being able to solve story problems. In fact, problem solving per se should not be a strand in your curriculum. Rather, solving problems is a means of helping students learn. At the K-3 level, there are many interrelated objectives that you should have in mind when you pose story problems:

- *Understanding the various meanings of the four operations.* It is primarily through story problems that children will gain a full understanding of which operation to use in any given situation.
- *Development of number skills and concepts.* As students solve problems, they are forced to deal with the numbers involved. Initially, they will use immature counting techniques. Later these techniques will give rise to more efficient skills and eventually will provide the foundations for mastery of basic facts.
- *Computational fluency.* Related to their number skills are the many different methods that students will develop for computing. Place-value ideas will be enhanced and utilized as students find new and better ways to break numbers apart and combine them. The structure of the problem can significantly influence the way students compute.