Dialogue Box

Finding the Number of Squares in an Array

After making sets of Array Cards in the previous math session, students are discussing their strategies for finding the number of squares in arrays. The teacher puts the 6 × 6 Array Card on the overhead.

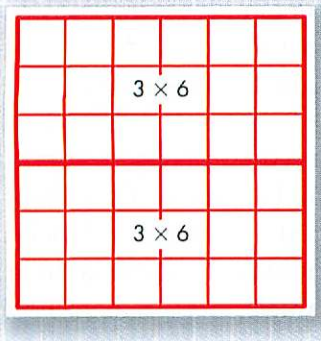
Teacher: What are some ways that we can figure out the number of squares in this array?

Benjamin: You can count every square, but that takes a long time and, like you told us, it's easy to make a mistake that way.

Jung: We can skip count by sixes. 6, 12, 18, 24, 30, 36.

As Jung counts, the teacher records the numbers under each column.

Edwin: I cut it in half. I did three groups of six and got 18 and I knew the bottom part was the same. I added 18 and 18 and got 36.



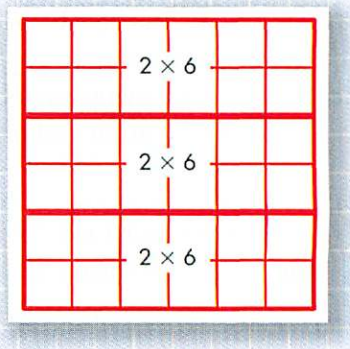
Teacher: So you used a combination that you know, 3 × 6 = 18, to help you figure out the one that you don't know, 6 × 6.

The teacher records (3 × 6) + (3 × 6) = 6 × 6 under the array.

Teacher: Did anyone else use a strategy like Edwin's?

Ines: We saw three groups of 12. We know that two groups of 6 is 12, so we added 12 + 12 + 12.

Adam: We did 12 + 12 = 24, and then 24 + 12 = 36.

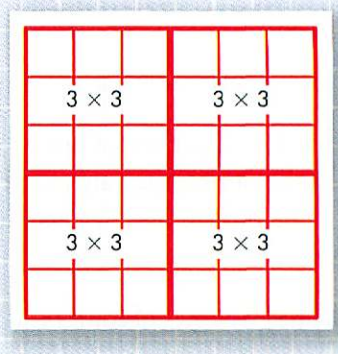


The teacher records 6 × 6 = (2 × 6) + (2 × 6) + (2 × 6) under the array.

Keisha: I used 3 × 3 because I know that that's 9 and then I added the 9s to get 36.

Teacher: Can you show us where you see the 3 × 3 inside the 6 × 6 array?

Keisha goes to the overhead and shows the four 3 × 3 arrays embedded in the 6 × 6 array.



This teacher has encouraged her students to use combinations they know or to count by equal groups to determine the product represented by an array. In discussions, and as students work independently, she asks students to think of ways to begin with a piece of the problem that they know. She wants them to use efficient ways to find the product. She also models how to use mathematical notation to record their strategies. By asking students to explain or demonstrate where they see the smaller arrays within the larger one, she helps all her students visualize how to break a difficult multiplication combination into easier parts.