Dialogue Box

Building a Multiple Tower

The students in this class are building a tower of paper squares as tall as their teacher, using the multiples of 30. As students call out the multiples, one student lists them on the board and another writes them on self-stick notes and puts them on the wall next to their teacher. The tower is about knee-high.

Teacher: Right now we are at 240 and the tower is up to my knee. What number do you estimate we'll land on when the tower is as tall as I am? Write your estimate on a slip of paper.

Sabrina: I think maybe 554.

Teacher: Read out the multiples we have so far.

Bill: 30, 60, 90, 120, 150, 180, 210, 240.

Teacher: Does 554 fit the pattern?

Jake: No, because all the numbers end in a 0. So I don't think it could be 554.

Jill: But it could be 550 or 680.

Luke: If you look at these numbers (referring to the tens place), you add 3 each time.

Teacher: Let's think about which estimates are possibilities and which don't fit the pattern.

The students recheck their estimates, using the pattern as a guide. Some decide to alter their estimates, and the tower building continues until it reaches the teacher's height at 960.

Teacher: So we skip counted by 30s and I am 960. Can you figure out how many multiples are in my tower?

The teacher writes on the board: ____ × 30 = 960

Amelia: Let's see. It's ten 30s to 300, so 20 to 600 and 30 to 900. Plus it's 2 more 30s to 60. So it's thirty-two 30s to 960.

Richard: I did it in the calculator and got 32, too.

Marisol: I broke it into 900 and then 60. Then I said, "How many times does 3 go into 9?" I know it's 3, so it's 30 into 900. Then it's 2 more to get to 960. So it's 32.

In this discussion, students use skip-counting patterns to help them make reasonable predictions about multiples of 30. They also consider what they already know about 30s—that there are 3 in 90 or 10 in 300—to help them solve the problem "How many 30s in 960?" Just as students can break multiplication problems into parts, they can also break division problems into parts that are easier to solve.

Students may not yet be thinking of their work on the multiple towers as division, but the question "How many 30s are in 960?" can be represented as 960 ÷ 30. As they break up the dividend (960) into parts and divide each part by 30, they are developing strategies that they can apply to division problems.