DIALOGUE BOX

Arranging Chairs

Ricardo and Kate are working to find all the different ways to arrange 15 "chairs" for the Arranging Chairs puzzle. They have made 3 rows of 5, 5 rows of 3, 1 row of 15, and 15 rows of 1, as their drawing shows. They are now considering whether they have all the possibilities.

Is that all there is for 15 chairs?

Kate: I think so.

How can you find out?

Ricardo: From experimenting, but nothing is even any more.

What does that have to do with it?

Ricardo: I could do like 14. Let's see, 7 + 7 is 14, so 7 + 8 ... but that wouldn't be even rows, so it has to be two odds or something.

What do you know about two odds?

Kate: They make an even.

Ricardo: So, if we're missing any, it has to be odd + even. 1 + 2 doesn't work. 1 + 3 doesn't. I guess *none* of those work, because that wouldn't ever be even rows.

You see how you're starting at the beginning and making an organized list? [*Ricardo nods.*] **Well, that's what mathematicians do when they want to see if they've found all the possibilities.**

Ricardo: You're kidding!