

MALLORY WILLIAMSON: Well, we did do a height. You guys said that there are 10—will be nine, was your estimated height. So how can we use this information and the information of nine to draw a picture to show how many cubes are in the box?

STUDENT: We could multiply it and do, um, I think show 6 times 3 is 18 right here and then draw a different arrow right here, and then do 18 times nine to get it.

MALLORY WILLIAMSON: So we could do that in number expression. So let's go ahead and do that, and then I want to challenge you guys with a picture.

STUDENT: Numeri—

MALLORY WILLIAMSON: Numerical.

STUDENT: Numerical.

MALLORY WILLIAMSON: So 18 times 9? Or 6 times 3 is 18, times that by nine.

STUDENT: Here, I'll move. Do it from here.

MALLORY WILLIAMSON: Thank you. And the other two of you, what I'm trying to get you guys to do is, it's really hard to see, like, when we see the front layer of a box, it's really hard to see what's behind it, obviously, because it's being blocked. So this is what we put in numbers, and we, we can connect 18 to the front layer, but drawing a picture, because we have grid paper, drawing a picture, how can I then use 18 to show somebody what 162 sugar cubes looks like. And I'm not going to count on 162 and then draw a rectangle around that, so how can I use this layer to help us make a connection between 162?

STUDENT: Just like, right here we draw 18 of these—

MALLORY WILLIAMSON: Okay.

STUDENT: Down here, and then draw the height that we think it is.

MALLORY WILLIAMSON: Which is?

STUDENT: Nine.

STUDENT: Nine.

MALLORY WILLIAMSON: Okay. So what that states is we can take 18 and draw it nine times. And that will show you the nine different layers or nine different groups of 18.

STUDENT: So like, draw like this 18 groups right here, and then draw it nine times?

MALLORY WILLIAMSON: Uh-huh.

STUDENT: I was thinking of, like, do it, do it, and then go like that, put an arrow.

MALLORY WILLIAMSON: Oh, create a more three-dimensional? Yes, you can do that. If you want to try to attempt that, go for it and if you need a ruler, they're in the drawer.

STUDENT: You wanna go grab a ruler?

STUDENT: Okay.

STUDENT: Excuse me.

MALLORY WILLIAMSON: In—we use numbers, so I know how we got 18.

STUDENT: Yeah, I'm confused. Because in this—

STUDENT: You guys, I think we should have put it in half first and then drawn this because—

STUDENT: No, not like that. Because then we could have gotten 10 how we actually do, and [inaudible].

MALLORY WILLIAMSON: Okay, I'm going to focus on Act 2, because that's what I'm asking us to do right now, okay? I'm not worried about Act 1 as of now. So with Act 2, I can see where we get 18 from. So how do I go from 18 to 180? How can I show somebody who's not seeing what we're doing? I'm right here. Where did you get 30 from? Eighteen to 180.

STUDENT: Because I thought there were—

STUDENT: About 10, there's about 10.

STUDENT: Because before we counted this, how many layers there were, we thought there were 10.

MALLORY WILLIAMSON: Okay?

STUDENT: And then we multiply 18—no, we multiplied—

MALLORY WILLIAMSON: And it's okay that you changed your height from this amount to 10, okay? That's okay. So we need to now show somebody who's never seen what we're doing before, how we're connecting 18 to 180. So I can easily say, "Oh, I multiplied 18 by 10 to get 180." However, you guys haven't showed me that work yet. The second thing is how can we draw a visual picture to show them how we're getting 180?

STUDENT: We can do—

MALLORY WILLIAMSON: So any thoughts on how we can draw a visual picture?

STUDENT: 30 times 6.

MALLORY WILLIAMSON: Where are you getting 30 times six? We're doing 18 and 10.

STUDENT: We could draw, um, we could do, um, check in the box, and then just like, break the number up into, like, two digits.

MALLORY WILLIAMSON: So an array model?

STUDENT: Like, you draw a box, and then 10, and then eight, and then 10 and then one.

STUDENT: I did this.

STUDENT: No, because then it'd be 10 and then—

MALLORY WILLIAMSON: But this is the same thing as what you did multiplying it by 10, that's the same thing. Taking this, which I'm still on this part, you guys are still jumping ahead. If you did 18 times 10 numerically and got 180, that's the same thing as what he's doing with this, which is distributive property. What I'm asking is, how can we present that with a visual model? So this is what 18 looks like. How can I show them what 180 looks like using this information?

STUDENT: Use a place value.

MALLORY WILLIAMSON: Place values with numbers.

STUDENT: Draw this 10 times.

MALLORY WILLIAMSON: Yes, that's what I'm getting at, okay? So you can do 18 times 10 numerically, and then you can draw 10 layers of 18 to show how many sugar cubes are packed in, one behind the other, okay?

STUDENT: You want me to draw with a pencil first?

STUDENT: So we have to—