

AMY BURKE: Okay. Will you please turn to your partner and share your original thinking? We may come back and revise this after we do some data collection. Please turn to your partner and share your original thinking.

STUDENT: I said, "I think the one-cut will maximize volume of the box because it will still have a big size, and it'll only be cut by one square rather than one or more."

STUDENT: Mine is actually kind of similar, because I think one cut will minimize the volume of the box because it reduces the box size and shape.

STUDENT: All right.

STUDENT: And you only take off, like, this much.

STUDENT: I know what you mean.

STUDENT: You know what I mean?

STUDENT: So, you can cut the two out right here on each side, and then how tall it would be, and how wide it would be? You get more.

STUDENT: Yeah. Since you're taking out less, it would, like, have more.

STUDENT: Yeah. I know what you mean.

STUDENT: Yeah. You know what I'm saying.

STUDENT: I mean, I said the five would, because you take out – you pretty much take out five units and it would be kind of taller. Know what I mean?

STUDENT: Mm-hmm (affirmative).

STUDENT: It would be so it could hold more. That's what I was thinking. Or like the same width.

STUDENT: Okay.

AMY BURKE: Okay, please wrap up those initial ideas. And I want to remind you, these are just our initial ideas. We have not gathered any data yet. I want to clarify two things. One thing is a student asked me, What did I mean by a size cut? So, I should have said this before: If I cut out a square like this, I'm going to call this a four-centimeter cut. Why is it centimeters? Because we're using centimeter paper. Okay, so the cut for the square is a four-centimeter cut. The second question that I had was, What did I mean by, "What type of model?" And so over the past couple of days, we've been looking at data sets and using different regression curves to fit those data sets. We've looked at a linear model, we've looked at a quadratic model, and we've looked at a cubic model. So, that was what I was intending there. Again, these are our initial thoughts. Thank you for doing that, sharing with your partners.

AMY BURKE: I should have also said that you may have a camera, like, just very close on your face, so I don't want you to be too startled by that. We're really trying to capture what you're saying and what you're doing. Like if you're pointing at something or if you're, like, turning your paper, even just, "How are students interacting around this?" Okay. So, you guys are great. Thanks for being good sports. Okay, cool. So, you know what, we are going to go ahead and, um — actually, I'd like to hear, maybe, two students who would share their original conjecture with all of us.

STUDENT: I thought of a four-by-four, so I can get the middle to be wide, but the size to also be tall.

AMY BURKE: Good. Thank you. Thank you so much. Alexander.

STUDENT: And I said a nine-by-nine because it's, like, directly half — or almost directly half of nineteen, so then you could use that to spread out the whole thing, and you have, like, a big middle base and then you also have, like, a wide spread.

AMY BURKE: A wide spread. Can you say another sentence about the wide spread please?

STUDENT: Like the wide spread on the grid. So it's like it'd be nine over instead of just, like, small and [inaudible]. So, then there's a longer volume, a longer base.

AMY BURKE: Thank you. One more. Thanks. Vincent

STUDENT: I think the one-centimeter cut will maximize the volume of the box because we're just getting rid of four boxes total.

AMY BURKE: Wow. So I just heard a four-centimeter cut is going to maximize, a nine-centimeter cut will maximize the volume, and a one-centimeter cut.