AMY BURKE: My name is Amy Burke and I am the Teacher on Special Assignment supporting the high school math program here in San Lorenzo Unified School District.

DEIDRE GREVIOUS: I'm Deidre Grevious. I'm the math department co-chair at Arroyo High School.

AMY BURKE: And we're going to be working today in Deidre's fifth-period mathematical modeling class. So these students are 11th and 12th graders.

DEIDRE GREVIOUS: Amy, how do you plan on intentionally integrating in the standard mathematical practice?

AMY BURKE: So, today's lesson is going to use the students compiling a dataset and then fitting a regression curve to model the behavior of that dataset. So we can definitely see the modeling with mathematics is one of the practices that we'll use. They will also be making sense of and persevering in problem solving by just beginning with the conjecture and then coming back to their conjecture to correct it as they move forward. During partner talking table talk, they will be putting forth their own ideas and then critiquing the reasoning of others. And then there's also absolutely the use of appropriate tools within this lesson because students will be doing a bit of work using Desmos.

DEIDRE GREVIOUS: And do you see any or have any foresight into anticipated glitches or anything that you might need to support?

AMY BURKE: Some of the things that I think will be hold ups for students are maybe when they get into Desmos, scaling their axes, determining how to make sure that they can see the correct window so that they can see the dataset. I'm also curious to see if students will know what to choose as their independent and dependent variable. I'm imagining that some students might compare the length versus volume instead of what I'm imagining -- or the independent variables of actually the cut size versus the volume. So, I'm thinking those are two things that students might struggle with.

DEIDRE GREVIOUS: And are there any particular strategies for teaching that the standards are calling out in this lesson? So, do you think there are any specific strategies around your teaching that are getting called out by these standards?

AMY BURKE: So, I think that we've worked to make sure that the students are going to be talking to one another; so, we've built in some pair share. And also we're going to be using the group roles so that all students have a, you know, job to do, and an expectation and a responsibility for the group process and their conversation. There are some questions that I think will elicit conversation around, once we have the dataset plugged in: Will the quadratic function fit it best or will the cubic function fit best? So, I think, and also, of course, the pausing that we'll do to go back and revise the conjecture throughout.

DEIDRE GREVIOUS: And what particular skill sets are the kids supposed to have, previous to this, that you think that they're going to make use of in this lesson?

AMY BURKE: So, I think really the work with Desmos, their facility with that tool is going to be important. So, just being able to put values into the table to set the window for the graph and to use the regression function to get a model for the data — those are some of the skills that they really need.

DEIDRE GREVIOUS: And then, have you planned some probing questions for them to help them articulate their thinking?

AMY BURKE: Yeah. So I'm thinking that while they are working with their table group to determine which function will best fit the data, and also while they're looking at understanding what the x intercepts mean, I have some questions set that just ask them to go further with, Why are they thinking that?, or maybe asking about a different point on the model to see if that can help them to better understand the intercepts.

DEIDRE GREVIOUS: And I know that you've been super-thoughtful about how the lesson is going to pan out; so, do you have some points at which you're going to stop the students for a group discussion or independent discussion with their partner?

AMY BURKE: Yes, yes.

DEIDRE GREVIOUS: And these are marked out for you already?

AMY BURKE: Yes, yeah.