

PAM BROUSSEAU: [Laughs.] Um, thinking of the true dimension, what, which of these dimensions might your lesson hit the most?

MELISSA NIX: Yeah, um, I'm glad you said the most, because I can see elements of all of these dimensions in the lesson. You know, from access with those number talks. I am going to do an exit ticket so I can, will be able to have some formative assessment by the end of the lesson. Um, but I think because of where we're at right now with the trajectory of how I've been teaching it through the last week and a half, I think today's lesson's going to be a good example of cognitive demand. It's sort of, uh, at that sweet spot where it's going to be challenging for some, and it's going to be, um, more easily accessed for others. And I think they're not going to be totally lost at sea, but they're going to have enough of a push that's -- it's -- that's one leap forward considering what we've been doing. We've done some work already with the distributive property, using some variables and coefficients. But they haven't done a lot of multiplying polynomials in general. So, and certainly working backward to look at the product, and then try to find the factors, is going to be one shift more challenging. So I'm looking forward to seeing what they do with that, and then having students share out where they're at with their learning, so that others can learn from those students.

PAM BROUSSEAU: Okay, so let's talk about the mathematics and the cognitive demand. So talk a little bit about how you sequence the lesson. And then also, what's going to happen, what strategies are you going to use, or what strategies are you expecting them to use when they start struggling?

MELISSA NIX: Um, so the lessons was sequenced -- is sequenced such that, you know, I'll start with my number talk, but that's going to segue way into just letting them look at some, two rectangles, and identify what the dimensions are and how they're related and if they're related, and could they come up with the area of those? Um, and then I'll combine those two rectangles to kind of see, you know, what does area ... What does it do? How does it change? What's the area now of that? And let them try to come up with, um, what that answer would be. I keep, I continuously turn it back to the students to come up with what the work is without me trying to tell them. See what they come up with.

PAM BROUSSEAU: So they have to do the thinking?

MELISSA NIX: Yeah. Um, absolutely. And if they are stuck, then I always turn it back onto, you know, try to do the thinking first on your own, check in with your partner, and then if you need to square the pair or to go to a group of four, we'll do that as well.

PAM BROUSSEAU: And is that kind of built in, where they do the personal think time and then they share with a partner and then they square the pair?

MELISSA NIX: It's depending on the level of the task or how much it is ... In fact, in today's lesson, when I'm doing some of the, kind of the concept development, when I'm building the lesson a little bit, we'll be doing more pair work. So individual, then pair. But when they're in the bulk of the lesson and they're trying the challenge of finding all the different areas and

dimensions of the, um, carnival. Then I will have them work in groups of four. And you asked what do they do if they get stuck?

PAM BROUSSEAU: Mm-hmm. [affirmative]

MELISSA NIX: So throughout that lesson, I'll be popping around and kind of checking. If somebody's already one step further, then I might interrupt the whole lesson and say, hey, you know, our student over here found a really good strategy that's moving him, moving this particular student forward. Let's just look at that and see if that gives you any ideas or suggestions or hints to move you forward. So I'll try to do that accordion of, like, okay, I'm going to let you out a little bit, now I'm going to pull up back in and give you some ideas, and then I'll let you out again. Um, so we'll see.

PAM BROUSSEAU: So facilitating it, and it's not coming from you, it's coming from them.

MELISSA NIX: Right. Um, it, they'll be able to try to work that out, I hope, in their pairs or in their fours. But some students might be on the other side of the room, and might not know that this student did something that moved them forward, and they might still be stuck. So if I see that, as the facilitator, I kind of want to maybe move them forward with that information.

PAM BROUSSEAU: Okay. And what opportunities will they have to engage deeply in the mathematics?

MELISSA NIX: Well, I think ... I mean, the level of the task itself is kind of deep.

PAM BROUSSEAU: Okay.

MELISSA NIX: Um, it's not a very structured, rote practice. It's more open-ended, where they're applying it to an actual problem. So I think seeing how, you know, polynomials are applying to real life is on a deeper level. And then trying to, like, solve this challenge, this puzzle, um, they'll be engaging with the mathematics. And really, trying to manipulate those numbers to see, how does the distributive property work? How does it work in both directions so that I can multiply into and create my product, and I can factor out of, and, and find those factors? So that, just how those are connected. I mean, it's really hitting on, you know, SMP seven and eight, where they're looking for structures and that repeated reasoning that, to kind of look for that, how they're all intertwined and connected. And I -- I'm hoping that the way it's sequenced will make those connections. Um, and we'll find out.

PAM BROUSSEAU: Well, I'm excited to see the lesson.