MIA BULJAN: And most of them can do some pretty interesting strategies. Some of them will still just start counting on their fingers. And so, I'm much more...you'll see me being much more explicit today around, “Which ones are the tens?” “Which ones are the ones?”

You saw them at the beginning of their place value. They're fine with that now. The number talks they've gone from dots and ten frames and all of that, to really thinking about, you know, breaking numbers apart, moving things around to make easier problems. Things like that.

So you'll see some of that. There's a lot of wrong thinking, but I just think it makes it more interesting. They're really willing to talk about it. I love the way that they're willing to just share. And even at the end when we've sort of decided what the actual number is because we'll still get a lot of wrong answers, a lot of my kids are still, like, "Oh, you know, I changed my mind but it was still interesting the way I was thinking of it before." Like, they'll still want to explain themselves, and then they'll explain why it's wrong now.

So their conversations are much more, much more mature now that they're, you know, now that they're seven. They're so old and mature now.

So there's a lot of progress there. A lot of progress in their problem-solving workshop. They've graduated to recording. It's such a wider range, you know. There are kids who are still stuck on problems we've been doing for a long time. Kids who were not stuck that got stuck. I have a student who...we're going to do the Garden problem which is like rows, arrays, and we do rows of flowers in our garden, and he's been using ten sticks to represent the row. So if it's five rows of two flowers, you know, each row has two flowers, he'll put down five ten-sticks and then he'll put two cubes on each one. And it's a great representation except when you ask him how many flowers are in his garden, he counts, "10, 20, 30, 40, 50, 52, 54, 56, 58, 60."

And so he counts 60 flowers because he counts those rows as...so he hasn't...he's still sort of negotiating the tool itself and how he's using the tool. Like, he just reverts back to the way he knows the tool in the past problems versus how he's using it in this problem. So, so he's a funny one. If he does it today, I'll...I'm going to be pushing him on it a little bit.

TEACHER: What's his name?

MIA BULJAN: Giancarlo. He's very bright. They're all bright, but they're just…he's very dedicated, and he's just...but he's also a little bit, like, "Nailed it!" Like a lot of them are, you know? “Okay, well let me ask you a couple of questions.”

And then, we're working a lot on our counting. So I had some students...we're going to have a mini-lesson today for our problem solving workshop where we're going to talk about some efficient ways of counting. A lot of them are still counting by ones when they make their arrays, and I had a student who turned it and said, "I could just count this by fives now." They're doing some really clever things, so I want to bring some of that up and sort of invite the students to try different ways of counting today.

That's one of the things we're going to be working on. So all of the stuff you saw at the beginning of the year is, like, awesome going, it's great. But I'm starting this new thing, and so you're going to see that in, like, its sort of infancy. They will pretty much do that during the things that they're used to, but like I said, we're starting something new.

And so a lot of what you'll see today is me sort of going back to the beginning about "What does it look like? What does it sound like when we're doing this? How do we know it's mathematical? How do we know it's..."

And…we've been talking a lot about *attend to precision* in our vocabulary. You know, we just finished a little unit on geometry and it came up a lot. Just shocking to me that my second graders didn't just sort of say to me, "I know it's a square because the sides are all equal." It's like THE thing that makes it a square. But they were like, "It's a square because it looks like a box." Or it's...so it didn't matter if it was a three by four rectangle. If it looked square-ish, they were like, "Yeah, that's a square." And then I was like, "Well, what makes it a square?" "It looks like a box." "But what else makes it...like, what mathematically makes it a square?" So we spent a lot of time sort of digging into, like, “what's a good mathematical argument for that versus what's just, you know, what it looks like.”

They kept saying, "Well, it's bigger." And so we had to have this whole, "Well, this square is bigger, and this rectangle is smaller." And we looked at all these different sizes and they were like...so they abandoned that. So they finally...we finally got them to be very precise and say, "You had to count the sides and there had to be four sides, and you had to count the units. There had to be the same number of units. You couldn't just look at it. You had to actually count it." So it came up a lot during that unit, and I feel like it's still happening a lot.

Like, about…the more precise we can be, the more mathematical it is. And what makes a mathematical argument versus, just an instinct or a gut feeling, or what's proof. What does proof actually look like? And so, a lot of the times that they're recording on their whiteboards during problem-solving workshop, a lot of that is about, you know, proof. And so, some of them will draw and I'll say, "Well, what does a number sentence look like?" Or some of them will write words and I'll say, "What does a drawing look like?" So it's a little bit about, like, that multiple representations and how to push each kid to the one...away from the one they're comfortable with, to add some more for that precision and also that communication piece.