MIA BULJAN: So when you planned this activity that you did last Friday, you had already done the number talks that we discussed up until the 22nd?

ERIKA ISOMURA: Yes.

MIA BULJAN: Okay. What was the purpose of this particular lesson?

ERIKA ISOMURA: That was to let them see decimals. They had been working with mostly dividing, although some multiplying, where fractions -- I don't know if they're called this, but I call them "decimal fractions" in here, so denominators of 10, 100s, 1000s, and so on. So the number talks had been working with those types of fractions. And I wanted them to see problems that looked similar to what we had done on our number strings, but then the answer looked different, because we had done it in a calculator, and so it didn't have a numerator and a denominator. To start that connection between, "Wait a minute, I know this has a fraction, but it looks like this when I put it in a calculator."

MIA BULJAN: So when you designed the activity itself, and we look at the actual worksheet -- Mark, can it -- is it okay if I show it? Okay. So, you have -- the other side was the main one. It had the numbers that you felt would be most accessible. But since it's scribbled on, because I took notes, I'm going to show this side. Which is the same thing, but the numbers were more problematic in your mind, because it would surface some confusions and maybe not necessarily follow the patterns they were used to, and some things like that.

ERIKA ISOMURA: Right.

MIA BULJAN: So having said that, that the problems will look different, you have these columns both times, which is make a mental prediction of what you think the answer will be, then check on the calculator. So, even if you did this as a fraction -- as a fraction operation …

ERIKA ISOMURA: And some of the kids did. Their "predict" was a fraction.

MIA BULJAN: Okay. So if they thought of this as one-tenth, they would say five-tenths or a half, and they would be writing it here as a fraction. So by having them use the calculator, they'd have to confront this idea of when the calculator says 0.5, is that the same as a half or the five-tenths that they came up with.

ERIKA ISOMURA: Mm-hmm. [affirmative]

MIA BULJAN: Okay. And then over here, you had this idea to -- you really want them to talk to each other.

ERIKA ISOMURA: Right.

MIA BULJAN: And so "This was easy," "This was surprising," "This was confusing," and then a little heart was "We disagree." And the heart was like, "Oh, yay, we disagree."

ERIKA ISOMURA: Right.

MIA BULJAN: So it gives us something to talk about. So they didn't seem to have any problem talking to each other. And they were making notes here. And you noted later that a lot of people were just like, "Easy. Nailed it."

ERIKA ISOMURA: Lots of stars.

MIA BULJAN: Totally.

ERIKA ISOMURA: Almost all stars.

MIA BULJAN: No matter how bad it was.

ERIKA ISOMURA: Yeah.

MIA BULJAN: And so, at the bottom, you have this prompt that says, "What do you know about decimals? What questions remain about decimals?" So do you want to talk a little bit about what kinds of things happened here?

ERIKA ISOMURA: So the prompt on the back was actually a little different from the front. The first prompt was "What patterns do you see, and how did that help you with your predictions and calculations?"

MIA BULJAN: You're right.

ERIKA ISOMURA: So that was meant to be the direct tie-in from here's what I'm doing mentally, here's what the calculator says, and oh, maybe I'm not surprised, maybe it was easy because I have this knowledge from my number talks.

MIA BULJAN: Number talk patterns that you developed.

ERIKA ISOMURA: Right. And so that's -- a couple things came out of that. So Rosa Linda and Federico, they were partners last week, they came up with that -- the idea of, "Huh, if I have a small number divided by a big number, I always seem to get a decimal or a fraction or some sort of *part* as an answer."

MIA BULJAN: Did that come up during this activity or during a number talk?

ERIKA ISOMURA: That came up during this activity.

MIA BULJAN: Okay.

ERIKA ISOMURA: So that actually -- they were puzzling with it, and I went over several times last week to talk to them, because they saw it, but then they didn't think they saw it, but then they did think they saw it. And so they were really pushing that, and that's such a huge thing, the idea of if it's small divided by big you will have a fractional result.

MIA BULJAN: Right.

ERIKA ISOMURA: And I wanted to make sure that they got that solid, because that was something that could be used for, like, later work when we do estimation, when they see a problem they're like, well, obviously it can't be this, or obviously it has to be greater than a whole because -- so I pushed those two really hard, because I wanted that to come back to the group. So they had that. A lot of other kids wrote the pattern they saw was, "Well, we did these number talks. We did these number strings, and so I knew because I kept seeing these." And so it was obviously very easy and obvious. So they didn't really have much to say.

MIA BULJAN: Because I did it in my head.

ERIKA ISOMURA: Right. Yeah, that's essentially what it boiled down to. And then the other person who had something really interesting was Diego. And we haven't come back to his yet, that's on next week's schedule, but he was starting to see how many zeroes were in the problem were related to how many zeroes you saw in the answer. And where the zeroes were in relation to the decimal point had a correlation to where the decimal point was when you got to your answer. He's still fuzzy, and every once in a while in a number talk, he sees something that still catches that idea, and he'll call it out, and he'll say, "Wait, wait, that's …" And I can see him kind of adding to his understanding, but I don't feel like he's ready to put it together yet.

MIA BULJAN: Yeah.

ERIKA ISOMURA: So he's still, like, building little bits. But I think by next week he should have enough that he can throw that out there where they can start doing kind of those shortcuts with decimal multiplication and decimal division that as adults we all do. You know, if these are both decimals, you can just move them over.

MIA BULJAN: Or even a traditional decimal lesson would focus on.

ERIKA ISOMURA: Right.

MIA BULJAN: A textbook decimal lesson typically is all about moving the decimal point, right? And I think her name's Kris Acorelli. She used to work for the San Diego City Schools, and they had that whole number talk thing on their website. And she used to talk about this idea of "mathematical lint." You know like in the dryer, when you get the lint, and then the lint gathers, and then all of a sudden you have, like, a sheet of lint? She used to say that teaching math was like that, because every time there'd be this little bit that would stick, and it's not like a fully formed thing until often towards the very end. And so you're really negotiating that confusion or that fragility of an idea that's a big idea and sort of worth this, like, gathering, but takes a lot longer than we think.