MIA BULJAN: Okay, so now they're talking about place value. They seem to be able to find the patterns in multiplication, non-10 factors. So now you switch it up to …

ERIKA ISOMURA: The division. This was another morning/afternoon, so they had the partner.

MIA BULJAN: And the posters were next to each other?

ERIKA ISOMURA: The posters were next to each other. They could see the …

MIA BULJAN: Did they use the posters to look for patterns? Or did they sort of go off …

ERIKA ISOMURA: This day, not so much. This day they felt like, because we had done it before, and it was similar enough that most of them said it's kind of automatic. They don't really need it.

MIA BULJAN: Okay, so now they're starting to actually use these patterns?

ERIKA ISOMURA: Right.

MIA BULJAN: So tell me about this. You get down to 30 divided by 10 equals 3. And then the next one here would be, if you removed one of your multiples of 10, it would be 3 divided by 10. And so that's what you did again. You said …

ERIKA ISOMURA: Right. “Take it away. Go think. Go write. If you have some ideas, draw.” This was the day -- well, it was only the second time, but somebody as they're murmuring went, "Can't you cut stuff up?" I told him just, you know, "You go do that," because most of the rest of the 5th graders thought it was impossible.

MIA BULJAN: They still think it's impossible.

ERIKA ISOMURA: Right. But one person was …

MIA BULJAN: Starting to think maybe, “Wouldn't it just be smaller than one.”

ERIKA ISOMURA: Fractions.

MIA BULJAN: Yeah, okay. Can't you just cut things up?

ERIKA ISOMURA: This was back to a 5th-grade lesson where we're investigating Alex's idea. Let me pull -- skip through a couple of pages and then …

MIA BULJAN: So your lessons are still on fractions, even though really you're trying to develop this notion of decimal notation for the number strings.

ERIKA ISOMURA: Mm-hmm [affirmative], and my students at this point in the year understand that the number talks are frequently going to be things that we're leading into. So just kind of priming the well. And then this was …

MIA BULJAN: What are we missing?

ERIKA ISOMURA: Nothing. I'm not sure. It might be from the weekend. But this was the next -- I don't know. This was the next one. This one we didn't really discuss. Was there another one? Oh, there was another one. Sorry. Oops.

MIA BULJAN: Sorry to make it -- oh, the morning. It's another morning/afternoon. So the 18th and the 18th. In the morning …

ERIKA ISOMURA: So this is where we got into the, "You can't do it." So we started -- the other two 10 posters were up, the first ones I had done. We just started. We said, "Oh, we know this because we already did it. Oh, we know this because we already did it. Oh, we know this because how could you not know it?" And then I threw that one out.

MIA BULJAN: Well, it happens.

ERIKA ISOMURA: Yeah, sadly. But we threw that one up, and they were -- I let them pair-share for that one. Instead of calling it out, they had a conversation with somebody nearby. Jerry and Adam wanted to share that they thought it was 1/10th. Because there was one whole cake, 10 people sharing, so they could split the cake.

MIA BULJAN: Just as an instructional point here, so you started with something you knew they knew. Then you presented this. Now you said all along you had heard murmurings or whatever. Were you pretty sure that Jerry and Adam -- were you pretty sure someone would …

ERIKA ISOMURA: Yes, I knew Adam for sure had it, because he's the one who said on the other one, "Can't you just cut it up?" So I already knew who I was calling on.

MIA BULJAN: That's formative though, right? You waited until you were pretty sure somebody could make the connection, before you flat out presented it. And before that it was just think time.

ERIKA ISOMURA: Yeah.

MIA BULJAN: Okay, so that was several days of think time, really.

ERIKA ISOMURA: Right. It was a week, really.

MIA BULJAN: And then a pair-share, so that there was some conversation.

ERIKA ISOMURA: Mm-hmm [affirmative]. Then we went to -- they knew my pattern, so one went here, divide by 10. This went here, divide by 10. And there were two answers. They pair-shared again. Some said 1/100th, and some said 1/20th. Federico wanted to defend the 1/20th. He said it was 1/10th, and then he was going times the denominator by two. And he wasn't sure why he was going to multiply by two.

MIA BULJAN: Well, there's two 10s.

ERIKA ISOMURA: He couldn't remember where he pulled the two from, and that he wanted to think about it some more. While he was thinking about it, Ruchita decided she wanted to defend the 1/100th. She said, each person with 1/10th gives some of theirs to 10 more people, so in the

end there would be 100 people who got a share. So there's ten 1/10ths. Each of those go to 10 people, and that's how she got the denominator of 100. And Diego thought about a picture. He thought if I cut up Jerry's 1/10ths, and then I took that 1/10th and cut it up into 10 pieces, then he said, "I thought mentally 10 times the 10 boxes."

MIA BULJAN: So you have 100 little red boxes.

ERIKA ISOMURA: Now we're …

MIA BULJAN: Okay. So I have two questions as a teacher. The first one is, this splitting the cake reference, this is referring back to an activity that you've done as a classroom. Right?

ERIKA ISOMURA: Yes.

MIA BULJAN: That's some sort of, almost like an anchoring lesson, where it like, they keep talking about …

ERIKA ISOMURA: Cari's birthday cake.

MIA BULJAN: Okay, so then you keep talking about Cari's birthday cake as, like, this idea that we can cut things up. And so when they get new numbers, they can kind of drop it into this idea.

ERIKA ISOMURA: Yes.

MIA BULJAN: Okay. That's giving them some access.

ERIKA ISOMURA: We've talked many, many, many times about cutting up cakes. We will laughingly say things like …

MIA BULJAN: That's your thing.

ERIKA ISOMURA: Somebody will say, "I can't. I don't have enough." And somebody else says, "Go get a knife." And then ...

MIA BULJAN: Nice. The other thing I have is, this sort of notation here. So this happens sometimes. Sometimes this happens -- daily -- in a classroom where a kid is totally off the rails on something and can't -- has an idea, but can't formulate it, so this is just what you did. You literally tried to capture what he said, and then you just left it as a question mark?

ERIKA ISOMURA: Yeah.

MIA BULJAN: Okay.

ERIKA ISOMURA: In the end, Federico said, no, he thought Diego's made sense. And he agreed with Diego's idea.

MIA BULJAN: So he abandoned that eventually.

ERIKA ISOMURA: Right.

MIA BULJAN: But you left it as a question mark.

ERIKA ISOMURA: But we left it for him to puzzle with, while somebody else shared, and then …

MIA BULJAN: So if he could be convinced, it was …

ERIKA ISOMURA: Right. Then he decided, no, that -- this picture made sense.

MIA BULJAN: Okay.