Post Lesson Discussion:

KRIS ACQUISTI: I'm Kris Acquisti, math coach for Jefferson Elementary School District.

MICHELLE KIOUS: And I'm Michelle Kious, 5th grade teacher in Jefferson Elementary School District at Woodrow Wilson School.

KRIS ACQUISTI: So thinking back, what were students doing and communicating during the lesson that you hope would happen?

MICHELLE KIOUS: Um, I did hear them using some of that fraction vocabulary and I did hear some people that were being really specific about justifying why they were choosing cards that matched with the fractions. Um, there were sometimes where I had...where students were really getting to a point where they weren't as confident with their match, and at that point, um, they had a little bit of a struggle. They had a little bit of a discussion with their partners about why, and needed a little bit more of a push. Some of the questioning seemed to help them move forward a little bit. Um, but of course you can't get to every group and do that questioning with each group, so.

Um, just in general the goal for the lesson of having them recognize, um, equivalent representations of fractions, I think was partially met. Um, I do think that a lot of the students really looked at that measurement model over the number line and were placing their idea of area model on top of that, and looking at those sections as pieces and, um, instead of distance between one point and another. So I think that's something that we need to work on a lot more. Um, but I did see a lot of students that were getting the idea, or were able to get to the idea of, um, which I was looking for, whether they could recognize fractions that were more than one whole or less than one whole, more or less than one half, and having that help them decide on which cards to match. Um, there was definitely some confusion where they had, um, it was marked for a certain fraction that wasn't on there, that was less than one whole, um, that wasn't an equivalent fraction to one that was on the card. And some of them did a good job using a pencil and actually dividing that number line into segments that would match with the equivalent fraction. And then there's some others that, "This doesn't make sense. I'm not quite sure what it is," and had a hard time kind of diving in and getting into that.

KRIS ACQUISTI: And I noticed also, a lot of them using, I heard that several groups I was focused on, using that one half as a benchmark, the one half and the one whole. And then discussing about where should it go and then using the word, um, "It is between one half and one-fourth, uh, one half and three-fourths, where do you think, um, what fraction do you think that is?" So that discussion I thought was very powerful. Um, what did you think about your sentence frames?

MICHELLE KIOUS: I think that, um, they were very useful for ones that they were not struggling as much with. Maybe they were able to get their thinking to the point where they were pretty confident about a match. When they were confident enough to describe it, using the sentence frames really helped them justify that to their partner and not just say, "Oh, I think these two match," but giving a reason why. So I think it kind of forced their thinking because they knew that when they were sharing, they had to have a reason. They couldn't just say that they match, they had to have a reason that their partner would, um,

be able to understand. But when it got to the point where they saw some cards that they had absolutely no idea which cards matched, the sentence frames kind of evolved and they ended up having more of a discussion about, um, "Well, I don't know what this is," and kind of just talking together and doing that productive struggle together, instead of using the sentence frame.

KRIS ACQUISTI: And were there any, um, things you saw your students doing or communicating that you didn't expect?

MICHELLE KIOUS: Well, I saw a few of the students, um, that maybe weren't as confident with some areas of math, that were able to show a little bit more of confidence than they usually did, that were able to express themselves a little bit better, so I was happy about that. Um, in the beginning of the lesson where we were doing the whiteboard, um, I knew that, you know, finding fractions on a number line or using measurement models for fractions was a difficult concept. Um, but that first whiteboard activity, I saw so many misconceptions. Um, a lot of kids that were drawing three lines to divide the length into thirds, or starting one-third at an endpoint instead of that being zero. So I did see more misconceptions right at the beginning and that kind of made me a little hesitant about, "Okay, we're going to start this card sort. If you don't have the concept of an endpoint as zero, that's going to be an area of difficulty." Or some of the students that had marking, you know, two-thirds as in the middle of a section, really equating that to an area model rather than a distance. And so I didn't intervene at that point. Um, I did try to have one on the board that showed his thinking about, that made, um, distance the focus of that model, but not everybody bought into it at that point, and I didn't want to intervene too much because I didn't want them to go through that struggle. So that's something that tomorrow when we do, usually we do a re-engagement at the beginning, we are going to do a re-engagement about some of those issues that came up.

KRIS ACQUISTI: We talked a little bit about your goals. Do you feel your goals today were met and what evidence supported that?

MICHELLE KIOUS: So I think that the goals were partially met. They did, um, they recognized a lot of them and we see that at the end when they're talking about what they noticed, um, that this was a different representation of a fraction because it was also a lot more difficult than yesterday's area model, which is something that they're a lot more comfortable with, that they've seen a lot more. Um, I think they did recognize that it was a different representation, um, but I don't think that all of them really got that concept of what that representation, what really that representation meant, that we're talking about, um, distance rather than, um, than area. So that's something we'll need to get into some more.

KRIS ACQUISTI: Okay. And then what are your next steps?

MICHELLE KIOUS: So again, a re-engagement tomorrow, um, which I will have to think about this evening, about how I'm going to maybe put up a misconception and have a couple of representations of what this measurement model could be. And then some agreeing and disagreeing, and some justification just so that we can kind of clarify that. So I do want to do some clarifying with that and then we're going to move on. And the next card sort is fractions of a set, which I've also, um, the kids have

also found difficult in the past. Um, they understand what one-third is but if they're asked for one-third of the number twelve and that kind of seems like a foreign concept, so I actually think that the measurement model is usually a little bit more difficult. So going back to that, I think they will have more of a connection to that set model, but it provides its own challenges, too. And then the next step is a sort of based on number stories and which number story matches with that.

KRIS ACQUISTI: The situational models, right.

MICHELLE KIOUS: And so we'll see how those connect. And then at the end we're going to do that, um, post assessment again and see if they actually can place fractions on a number line and give a justification about the location of those fractions.

KRIS ACQUISTI: Okay. And in your summary, you're closing with your students, um, I did ask Kurt and Maria, who I was focusing on today, um, what they learned. And Kurt, who had struggled at the beginning said, "I learned many ways that shows nine-fifths." And I thought that was interesting because that's...

MICHELLE KIOUS: Well, I remembered that that was one of the things that they struggled with yesterday, was that improper fraction and thinking about, um, you know, nine-fifths being greater than one whole...

KRIS ACQUISTI: Right.

MICHELLE KIOUS: ...and what that represented. So, um, I'm really glad that that happens.

KRIS ACQUISTI: Right, right. And they self-corrected, too when you gave them that opportunity, um, to self-correct the five-eighths and the one half that wasn't correct, um, when you paired up the two partners that were paired up. So are there any other questions or comments that you have about the lesson, the formative lesson so far?

MICHELLE KIOUS: Um, I think it's been really, um, valuable for the students to have that experience of trying to justify their own thinking, and also to go through a task that is not just straight forward, step by step, this is how you do fractions, or this is how you put fractions on a number line, but have them really struggle with that thinking. And hopefully by the end of this formative assessment lesson, um, they'll have a little bit more ownership of some of these fraction concepts rather than just having something that they memorized.

KRIS ACQUISTI: Thank you.

MICHELLE KIOUS: You're welcome.