SPEAKER: So what she did was, she had that chart without triangles on it. And she said -- held up a triangle and said, "I'm going to place this triangle on this grid. Think about where you think it goes. And you may not know, and that's okay, and just guess. Where do you think it goes?" And she'd give them a minute, and they'd write. They had a piece of paper. They'd write it on there. And then she'd place it on the chart and either they'd go, "Yes!" or they'd quickly erase it and change it and put it in the right place. And then she held up another triangle. "Okay, you might not know where this goes, but, you know, think about it. Where do you think it should go?" And then she'd give them a minute to write it down, and then she'd place it on the triangle and then more kids would go, "Yes!" And then, you know -- or they'd change their answer. I think there was maybe “turn and talk to your partner about why you put it there.”

HILLARY LEWIS: Mm-hmm [affirmative].

SPEAKER: So that kind of -- that unfolded slowly with each triangle, and kids were starting to see, like, "Oh, why am I putting this in this column?" Initially, the “acute, right, obtuse” wasn't there. It was just either scalene, isosceles, or equilateral, for the beginning of the lesson. So they just were slowly coming to the, like, "Oh, I can sort triangles by the lengths of their sides." So it was slowly as they were seeing where the triangles were going, they were coming to that understanding of where, how -- and how to classify them.

After they had classified them three ways, then Hillary asked them, "So what's the same about all of these?" So then they actually generated their definitions of scalene, isosceles, and equilateral. “So what's the same about these? And what's the same about these? And what's the same about these?” So even though it is a mathematical convention, they were also identifying and articulating that in their own 4th-grade language, which I thought was really powerful too.

Then she added the additional “acute, right, obtuse” challenge to that. Then she said, "Okay, now I have a second chart, and we're going to move these over from the first chart to the second chart. Where will they go here?" So it added, now they're having to think about two classifications at the same time. Where are these going to go?

PETA ROBINSON: Well, they all knew why right was right. But there was good conversation around the obtuse triangle, because even the classes we worked in before, when they were trying to define what the -- what made an obtuse triangle an obtuse triangle, you still had the kids go, "Oh, we still have these two acute angles. Why isn't it an acute?" They had the conversation about why it's obtuse versus an acute, "Because I have two acute angles in this triangle, it should go under acute." You had some kids argue that. And then turn and talk, and then some kids came up with the, "Well, you have to go with the one who has the biggest angle, so it's obtuse. It takes up the most, so you only have one obtuse angle. It has to be an obtuse triangle." And conversations about that happened.

HILLARY LEWIS: Mm-hmm [affirmative].

They also had some conversations about the notation for a 90-degree angle. And I think we need to move triangle D because we can't see -- so we'll have to do that before we start the lesson. Triangle D almost looks like a right triangle, but it doesn't have the notation, so that we've noticed in a couple of the classes elicited a conversation about how do you know if it's

a right triangle or not. And some kids are convinced that I'm just trying to fool them and that really is a right triangle.

PETA ROBINSON: Or you forgot to put the little mark.

HILLARY LEWIS: Or that I forgot to put it. And so we had that conversation about that convention about how we clarify what makes a 90-degree angle or a right angle.

They generated it and then I kind of modified it a little bit, but it was from their conversations. And I deliberately did not write the definitions down today. So last week I wrote it down on the poster. So today when we start the lesson, as part of them remembering what we did a week ago, I'm going to tell them that because you all weren't there last week, that they're doing this for your benefit. And so they're going to regenerate those definitions again.