

JIM KARDITZAS: Molly, after the Rolling Cups lesson, how did you -- what's your general impression of how the lesson went today?

MOLLY MCNINCH: I think it [went] really well. I think the students did a lot better than I initially thought, because when you and I first did this, we were completely stumped for like a solid 15 minutes, just like, "What are we supposed to be doing?" And I think the kids did really well and came to some really interesting conclusions, and a lot of students found solutions. Like -- so a lot of them --

JIM KARDITZAS: Let's look at the student work.

MOLLY MCNINCH: So this one right here, the horizontal one, this -- these students did a lot of calculations to prove that their proportion was correct. And they used a lot of information from the three student works [the fictional student work from "Judi," "Gerry," and "Heather"].

Now, the one's that vertical has a lot more of their thought process of just the claims that they're making and how they found their solution from another student work, which I thought was really interesting. But they came up with really, really great ideas, very elegant thought processes.

JIM KARDITZAS: So the -- the anticipation preparation that you did, did that help confirm the misconceptions and the successes that the students had?

MOLLY MCNINCH: Maybe having a slightly larger group, having the needs of focusing them to make a poster, focusing them to make all of their work in one place, I think was a really great idea because it really kind of allowed me to tell them to focus on the *process* that they're doing, versus the solution. I think by anticipating the misconceptions of -- well, I think they're going to have trouble with the diameter and the radius, which none of them had trouble with, but I think anticipating those needs of -- it might be best to put them in larger groups, it might be best to put them in -- or to change what they're producing just so that it's more familiar to them.

JIM KARDITZAS: So modifications from the original lesson. And then you had done this third period, the period previous to this. What modifications did you make from the initial plan that you had for your fifth period?

MOLLY MCNINCH: So from third period to fifth period, the Rolling Cups calculator -- because I forgot it both times, to give it to them immediately -- which I didn't think hurt them at all. I think with third period, they kind of reached a point where they were, like, stumped. And when I pulled in that Rolling Cup calculator, I think it really, like, reengaged them and refocused them.

In addition, too, fifth period, I forgot about it. I was like, "Oh, I need to put that in again," but I thought it actually made for a nice segue into, "Okay. You guys need a little bit extra. Let's give you this tool to use."

I think from third to fifth, I really tried to pull more focus on the [fictional] student work and the student work as "new groupmates" versus looking at it as three separate solutions. Because with third period they thought, "Oh, you're giving me the answers." And so I really tried to focus my fifth period and tell them, "these are not solutions whatsoever, but these are just extra partners you can pull from."

JIM KARDITZAS: Okay. As part of the pre-lesson interview, we talked about how does this lesson fit in with where your students are current -- in your current pacing. After the lesson, how do you think it fit?

MOLLY MCNINCH: So I think that it was a little bit difficult for some students to kind of see the similar triangles relation, which was our previous unit. And I think it was a little bit difficult for them to make that connection. And as you had said, it was hard for them to go from the cup to the cone to the triangle to the circle.

And so I think by helping and really trying to guide them towards a, "Well, what would this cone look like if you drew it, you know, two-dimensional?" I found that once they had an image, it was easier for them to say, "Oh, this looks like similar triangles." So once they made that -- and then there was one group in particular who was really struggling with just, "How do I relate them all?" And so I set up -- I gave them the triangle, and then I gave them the values for that piece, and then I said, "Okay, we're finding this distance between the narrow diameter and the center of the circle. And then that whole piece is giving us our roll radius." So really trying to focus them and make it something they've seen before to help pull that in -- to guide them towards what they are producing.

JIM KARDITZAS: As far as the objective, you wanted them to model with the mathematics.

MOLLY MCNINCH: Yeah.

JIM KARDITZAS: How far did the student thinking advance towards that goal?

MOLLY MCNINCH: I know a lot of students really grasped that concept of modeling. Because I think modeling -- so many students will think *picture*. And I really liked that, you know, there were still some posters who had -- that had no images at all. And so I think that by advancing that student thinking through encouraging the modeling of actually manipulating equations and manipulating the proportions and ratios, that's really helpful. I think with regards to, how did it advance them with modeling as, like, diagrams? I think by advancing their thinking through seeing the triangles, that was a really big jumping-off point for them. Because once they saw that diagram, they -- a lot of them, it just clicked.

JIM KARDITZAS: Okay.