

CECILIO DIMAS: You gave the pre-assessment to this formative assessment lesson a few days ago, and we sat together to take a look at the student work. Also unique to the schedule is that this is the last period of the day.

ANTOINETTE VILLARIN: Yes.

CECILIO DIMAS: And you have two other periods of the same content, and so we have had an opportunity to learn lessons from those previous periods as we get to fourth period. So let's talk about the pre-assessment, and maybe some decisions that were made, and modifications to the lesson that we're about to engage in.

ANTOINETTE VILLARIN: So I...we gave the pre-assessment about three or four days ago. I can't remember anymore, but it was about three or four days ago and, on the pre-assessment they were given what we called almost like a double graph. So there were two graphs being presented on the same axes.

And kids struggled with that and what that meant, and they couldn't read the graph, or if they did, it was either backwards or they were off on the scaling. They had trouble with what it meant to be faster. And I think it's because we'd given it maybe three or four days ago, and we were still developing this idea of what it means to be rate of change and what that might look like on a graph. But what I found the most surprising was they had trouble describing the story to back that up. If you move to the back of the pre-assessment, it had students writing equations or taking an equation and then graphing it, which I know they weren't ready for. So when I think of the goals of the FAL [formative assessment lesson], it was like two-part -- to either interpret the slope or to interpret the slope and what that means in a real-life situation, but then also to have students take graphs and write equations for them.

So I had to really make a decision as a teacher what I wanted to focus on, and of course I want to focus on both as a whole unit. But when I think about this lesson, I really want to focus on them interpreting the slope correctly, and what that means in the real-life context. So when I designed the lesson, I think originally we...you were supposed to match the graphs, and then match the equations, and then match the real-life pictures of the prisms after, in the FAL as it's written. But I decided to switch that and have them match the graphs first, and then the prisms, and then the equations at the end because I know they don't have enough background yet to fully do it successfully. And I'm curious to see where all that divergent thinking that we talked about comes from -- or comes into play when they actually start to do the equation. So that part I feel like is something that is going to transition me to kind of the next steps for this lesson.

CECILIO DIMAS: Some other modifications that we talked about and have made was again -- classroom conversation really anchored on what the starting situation is when we have two lines on the same plane, what intersection means, and also constantly reconnecting the graph to the context that it represents.

ANTOINETTE VILLARIN: And we did do a re-engagement, too, based on the pre-assessment of taking that, that... I keep calling it a double graph, but it's a graph that's graphing two runners at the same time. So we did a re-engagement of looking at -- also at -- the scaling, because I believe the scaling was off, too...or not off but different than what they're used to, seeing it as either one unit or two units. So I think that brought in a lot of, like, SMP [Standard for Mathematical Practice] six of being precise and making sure that we're reading graphs correctly. Yes, that was definitely a modification.

CECILIO DIMAS: Some additional modifications that we made based off of the pre-assessment were to label the different parts of the container, so that then it was very clear for the students, but the top prism...what we were referring to in the bottom prism.

ANTOINETTE VILLARIN: I think that was also for me too, because I kept calling them...I was backwards in calling them bottom and top. But, yeah, definitely labeling it and then making sure that we were really precise about calling the whole thing a container, and then that there were two parts to the container. I think that was definitely a modification. The sentence stems I think were a modification. I think we realized that they needed more language with how they were telling me how things were moving faster on the pre-assessment, that when we were going into the FAL, we wanted them to make sure that they discussed the rate of change using a quantity. So I made sure that we had a sentence stem for that.

CECILIO DIMAS: And we also noted that the inclusion of the stems and frames, as well as some key vocabulary, was one of the ways in which we could support students with building a strong argument so that then, when they're having conversations with their classmates, they could either compare and contrast the ways in which they were analyzing and justifying, but were helping them, definitely with...I'm looking over at the wall...with Practice number 3 of constructing arguments and critiquing others.

ANTOINETTE VILLARIN: Yes, that was definitely a big SMP that I think we're focusing on, because it is the learning goal that they are able to build an argument. And I think that came in after the pre-assessment, like, "Wow they...they can't justify what this graph means well enough to describe it using quantities." Like, a lot of times it was just Maggie won the race, or Emma won the race, and who went faster, and that was like the extent to it. So it's really the focus of this FAL.

CECILIO DIMAS: One of the things that the students engage in regularly as far as a tool...a classroom tool is the use of a dry-erase board. And you've made some decisions as we're planning for this lesson to have them use a dry-erase board, but you also have given them specific handouts that you want to collect, so that you can further analyze connections that students are making. So can you tell us a little bit more about that?

ANTOINETTE VILLARIN: Yeah. So we did two handouts, or I...when I checked in with Cecilio to see what he thought about some ideas, there's one slide during the whole class lesson where students are supposed to take four of the cards and decide which two are a match. So it's almost like a preview of what they were going to do as...in pairs, but what they were doing as kind of a whole class. I noticed that the slide might have been too small or might have been hard to really decide which two match, if they didn't have it in front of them. So what I did is I photocopied that slide and I'm giving it to every pair so that they have something to look at. And I am going to ask them during that time to circle the two that they believe is a match, and then somewhere in the margin write why they think that. So it could be, like, kind of a starting point. So that was a modification I did because I think in the original FAL, it was just to talk about it and use a slide.

The second handout that we decided to do was the gallery walk. Like, we...we have a gallery walk where students match the cards, but then they're supposed to have one person stay and one person travel. And the person traveling, I originally was just having them write on a white board. Write what your choices are and then go table by table and see how it compares with other pairs. And I felt like the discussions weren't that great because it was just like, "Oh, I got G2 and G6 to match, what did you get?" kind of thing.

So I think that doing it again now for fourth period since I've done it the first and second this -- earlier today, that I think having an actual piece where they write their choices and a justification -- a handout where they're actually writing it out -- and using that to travel with, I think might be better because now there's a column for justification and why they could do that.

CECILIO DIMAS: And then adding on the additional expectation that during the gallery walk, it's not just about comparing answers, it's also about maybe collecting additional ideas to enhance the argument that they originally came up with as a team.

ANTOINETTE VILLARIN: Yeah, yeah. And also... and also to modify any that they can take back to their original partner and change if they need to.

CECILIO DIMAS: And then the slide that you printed out, you wrote a prompt on it.

ANTOINETTE VILLARIN: Yes.

CECILIO DIMAS: And then there was also a discussion that you and I had about the possibility of -- after they've identified the pair -- to also have conversation about two other cards that aren't a match and then justify it. So we're focusing on an example of a match and then focusing on a non-example.

ANTOINETTE VILLARIN: Yes. And I think that will be, like, a really good starting point to help them get started. And I think we were also going to add kind of role playing. So once we've established, like, a G...like, that G2 and G6 as graphs were a match of the same container, we...we had a chance to maybe think about role playing in front of the students of what it might look like when you're now working on your own with your partner. What I might say and what you might say to kind of rephrase what I'm saying, or either challenge what I'm saying. And we're going to use the sentence frames to do that. So I think that'll help once students see it visually as well.

CECILIO DIMAS: Well, I'm really looking forward to this lesson.

ANTOINETTE VILLARIN: I know I am.