ANTOINTETTE VILLARIN: When we do our matching, this is what we're going to do. I'm going to give you a piece of paper and on the very top of the paper, you'll see G2 and G6 matched up. I'd like you to take the paper I give you and write why you believe that's a match. So take out a pen or pencil and I'd like you to write your name, and then tell me why that's a match.

So write your name at the top -- first and last name. And you'll see on this table that we've matched G2 and G6, so on the right side, can you just bullet point the reason why you believe G2 and G6 are a match? Okay? So take a pen or pencil, and go ahead and fill out the justification that's on the right side for G2 and G6.

So this handout that I've given you is going to be your record sheet for all your matches. And as a class, we did the first two together. Okay? So I'm going to project the directions and while I'm passing them out, I'm going to ask different volunteers to read different parts of it. Okay? So I'm going to ask -- Andrew, can you read the first three directions up at the top? Can you read it out loud?

STUDENT: The graphs represent the flow of liquid either out of the top prism or into the bottom prism of the container. Take turns to match two cards that represent the movement of water in one container. Place the cards next to each other, not on top, so that everyone can see.

ANTOINETTE VILLARIN: Okay, good. Thank you, Andrew. Okay -- Andrew, the other Andrew, can you read the next three?

STUDENT: When you match two cards, explain how you came to your decision. Five, your partner should either explain that reasoning again in his or her own words, or challenge the reasons you gave. Six, some graphs are missing information, such as a scale along an axis. You will need to add this scale.

ANTOINETTE VILLARIN: Can you read that last phrase?

STUDENT: You both need to be able to agree on and explain the match of every card.

ANTOINETTE VILLARIN: So what I just passed out while people were reading...thank you Andrew and Andrew...is a stack of twelve graphs. And these graphs either represent the flow of liquid out of the top of the prism, or the flow of liquid into the bottom. And you have to match the two that represent that movement for the same container. Okay?

Now, parts of it...parts of it are missing information, so you might see some tick marks that don't have numbers, you might see one that might be blank, and you'll going to have to fill that in. So I recommend you do the ones that are first filled in, and then go from there. Okay? Now, this is the part I really want to encourage, because we're trying to build an argument. So when you put a match together, you have to explain to your partner why it's a match.

And your partner has to say, yes, they agree with you and why, or, "No, I disagree with you," and why. Okay? So you're really re-explaining what each other is saying before you put a match together. I don't want you to put the cards on top of each other. I want you to put the cards just like this on your paper. Not on your paper, but on your desk. Right? So your top prism and your bottom prism, and you can even label it.

Sorry, I'm hearing a side conversation. I have a top prism and I have a bottom prism, and I want to make sure that they're on top of each other. Okay? Does everybody understand that? Are there any questions? Okay, now if you don't know what to say, do you have language up there to help you get started?

STUDENTS: Yes.

ANTOINETTE VILLARIN: You also want to consider these things: *starting*, *rate of change*, *constraint*. Is there anything else that you think you want to consider when you're looking at it that we could add? Is anybody looking at time? Is anybody looking at the time factor? Okay, if you are, that might be something that we could, also. If you think of things, let me know, we'll add to that list. Okay? All right, I'll give you ten minutes and then we'll check in in ten minutes. Okay? Go for it. Good luck! You can do it!

STUDENT: So which one do you want to do first?

STUDENT: Start off with the one that's already filled in.

STUDENT: Okay, so this one we'll cancel out. So we need to find the relationship, like, this one is decreasing by, like, two.

STUDENT: Yeah and that one is decreasing by four. So that's not a match. This one?

STUDENT: Yeah.

STUDENT: That one increased by six.

STUDENT: Isn't that a match?

STUDENT: How?

STUDENT: Isn't it going by six, so... Oh, wait. We're not doing... Oh, I don't know. This one…[inaudible] seconds.

STUDENT: Sorry, sorry.

STUDENT: Because this one increased and it reached six.

STUDENT: Because it's six up here and it's decreasing slowly. And then this one has none, which means it's, like, at zero. So the bottom one is zero and the top is six. The constant is.

STUDENT: Constant?

STUDENT: Yes. So it's six and then it says three, three seconds. What do you think it's going at?

STUDENT: What?

STUDENT: Like, how much centimeters are decreasing per one second?

STUDENT: Point five.

STUDENT: No.

STUDENT: Wait, six and three?

STUDENT: Yes.

STUDENT: Two.

STUDENT: Yes, so it's going two centimeters over one second. This one is increasing by four, which means the other one has to have started at two. Yeah, decrease by two, so it's that one.

STUDENT: So which one are you talking about?

STUDENT: This one and this one.

STUDENT: Put them on top of each other. Fine.

STUDENT: Because this one is at four, increasing, so this one would be at the bottom. This one is at two, decreasing, so it equals six.

STUDENT: This is two…Oh, this is G2. This one is with this one.

STUDENT: And why do you think that?

STUDENT: Because we talked about it earlier.

STUDENT: Should we put --

STUDENT: Starting at four, starting at four.

STUDENT: Should we put two here or, like, in the middle?

STUDENT: Two here and four, then there's zero. And then [inaudible].

STUDENT: Can you write it? Because you're confusing me. It's six, four, two -- oh. So where should the line -- should the line go up because it's increasing when this goes down?

STUDENT: The line should go up where?

STUDENT: So it should go up that way because if this goes in...if this is the top, then this has to go up.

STUDENT: Yeah.

STUDENT: Yeah. So you can just draw the line that way.

ANTOINETTE VILLARIN: Hey guys? I'm going to stop everybody.