ANTOINETTE VILLARIN: We’re going to move along. Our timing is pretty good. We're going to get to some activities in just a little bit. I want to show you a progression using this sentence frame. Okay? So I'm going to be using this sentence frame to describe the next slide. So now I'm going to throw liquid in. Okay? And here in this liquid -- can I have somebody at the front tell me how many centimeters are here in the bottom? John?

STUDENT: One.

ANTOINETTE VILLARIN: One centimeter in the bottom and then, John, how many are in the top?

STUDENT: Five.

ANTOINETTE VILLARIN: Five. Five and one together is the constraint of six, okay? Andrew, stay with me. Five, six. This graph is just going to represent the liquid flowing out of the top prism. Okay? So I'm not really looking at the bottom, I'm looking at what it's going to be represented in the top prism. Okay, so that's why you see an arrow there, and I want you to see what happens. Okay? Everyone talk to your partner and tell your partner what just happened with the water, and what happened on the graph. Partner A, you go first.

STUDENT: Um, one centimeter from the top container went to the bottom.

STUDENT: I already said mine.

STUDENT: Say it again.

STUDENT: It went down.

STUDENT: So I think it's coming from, like, from a decrease -- from a decrease...decrease graph. So it's coming from the five seconds...from the five height to, like, to the zero.

STUDENT: So, like, it's going down one second.

ANTOINETTE VILLARIN: Can I have a volunteer share what you noticed with the water and what you noticed with the graph? Diana?

STUDENT: The five went down to four, and it added more liquid on the bottom.

ANTOINETTE VILLARIN: Okay, can we add units to that? When you said the five went down to four, what does the five represent?

STUDENT: The height.

ANTOINETTE VILLARIN: The height. And in height in what? What unit are we measuring height? Inches, centimeters?

STUDENT: Centimeters.

ANTOINETTE VILLARIN: Centimeters. Okay, so it went down from five centimeters to four. Does everybody agree with that -- four centimeters?

STUDENTS: Yeah.

ANTOINETTE VILLARIN: And over...what did you say in seconds? How many seconds did it take?

STUDENT: Oh, it went from five to four and then it added more liquid on the bottom.

ANTOINETTE VILLARIN: It added more liquid on the bottom. So did you actually see the decrease?

STUDENTS: Yeah.

ANTOINETTE VILLARIN: Yeah? Okay. All right, let's keep going. Okay, I'm going to ask Diana to use this sentence frame and tell me, at one second, what did you see happen?

STUDENT: At one second, the height of the liquid is four.

ANTOINETTE VILLARIN: Four what?

STUDENT: Four centimeters.

ANTOINETTE VILLARIN: Four centimeters. Okay, so everybody agree with her?

STUDENTS: Yes.

ANTOINETTE VILLARIN: Okay, I'm going to go down again. Can I have a different volunteer tell me using this sentence frame, what happened at three seconds? Oh, are we at three? No, two seconds, two seconds. Okay, Renee?

STUDENT: At two seconds, the height of the liquid is three centimeters.

ANTOINETTE VILLARIN: Three centimeters. So are we keeping that constant rate of a centimeter every second?

STUDENTS: Yes.

ANTOINETTE VILLARIN: A centimeter every second. And can you see that water flowing? Okay, they're taking little snapshots of it, and it's flowing. All right, can I have a different volunteer read this sentence and tell me what's happening at three? Maybe somebody that hasn't gone yet today. Okay, Leo?

STUDENT: At three seconds, the height of the water is two...two centimeters.

ANTOINETTE VILLARIN: Two centimeters? Can you share with everybody, Leo, how you know that?

STUDENT: Because it's going down one centimeter every second.

ANTOINETTE VILLARIN: It's going down one centimeter every second. Okay, and on the graph, when you look at this point, what do you know about that point, Leo, when you look at it? What's your x value?

STUDENT: Three seconds.

ANTOINETTE VILLARIN: Three seconds? Okay. Did you say three?

STUDENT: Yeah.

ANTOINETTE VILLARIN: Okay, three seconds and then what's your height?

STUDENT: Two.

ANTOINETTE VILLARIN: Two centimeters. Okay. All right. Is it still going down at that constant rate?

STUDENTS: Yes.

ANTOINETTE VILLARIN: Okay. All right. Veonna?

STUDENT: At four seconds, the height of the liquid is one centimeter.

ANTOINETTE VILLARIN: At four seconds, the height of the liquid is one centimeter. If you agree with her, thumbs up. Okay, thank you. All right and then the last one. Who'd like to read that out loud? Cecilia?

STUDENT: At five seconds, the height of the liquid is zero.

ANTOINETTE VILLARIN: Zero what?

STUDENT: Oh, centimeters.

ANTOINETTE VILLARIN: Zero centimeters. Okay, always want to add the label. And how many agree with her? Okay, good. Okay. So I want somebody to restate why this is a constant rate of change, okay? So before I do that, though, I want everyone turn and talk to their partner with the purpose of sharing why this is a constant rate of change, and your product is that you are going to be able to tell me if I call on you randomly. Okay because I'm going to call on somebody randomly to tell me, why is this a constant rate of change when you look at it?

STUDENT: It's every second it just goes down one, and the height is decreasing by one, too.

STUDENT: And why you think is proportional is because the line is... Oh, I mean why I think it's a constant rate is because the line is proportional.

STUDENT: You can tell because the line on the graph is straight, which means it's not going fast or slow.

ANTOINETTE VILLARIN: I'm going to randomly call on somebody to share with the class why it's a constant rate of change, or how we know that. Okay? I'm going to have...let's see...how about…Keiko. Can you tell me?

STUDENT: The line is linear and the slope never changes.

ANTOINETTE VILLARIN: Can you expand on that? What do you mean the slope never changes?

STUDENT: Every second you still lose one centimeter.

ANTOINETTE VILLARIN: Okay, say that again loudly.

STUDENT: Every second you keep losing one centimeter.

ANTOINETTE VILLARIN: You keep losing one centimeter. And this line ends up being what kind of line?

STUDENT: Linear.

ANTOINETTE VILLARIN: A linear line. Okay. Does everybody agree with her?

STUDENTS: Yes.