

HILLARY LEWIS-WOLFSEN: In the beginning of the year, um, every year for my class I don't use a textbook and that's a big deal at my school. Um, sixth grade they've had the textbook at the beginning, first week for every year before they got to me, and then suddenly they're in sixth grade. Their parents are expecting the textbook the first day of school and I don't let them touch the textbook for a couple of weeks, and we play games, and we do things where they have to listen to each other. They can't solve the puzzle on their own kind of thing -- they have to work together and it forces them to ask questions, and, um, respect one another to be able to...um, solve a puzzle or whatever it is that we're working on that day. Just letting go of that textbook.

ANTOINETTE VILLARIN: Well, I know in my classroom, um, a lot of culture building in the beginning of the year, too, where you learn to talk to each other and listen to each other, but I teach middle school, so it's easy for them to get to talk to each other. But when they're in front of the class, they're less...they're more hesitant to actually raise their hands and ask questions or volunteer an answer, um, so we do a lot of think-pair-share, and I find that to be a really amazing thing. So if I only get one student with their hand up, like, I'll tell them "Oh, I only have one student with their hand up, I need more hands. Go talk to your partner." So even just stopping, just stopping the lesson and say, "Talk to your partner," or "I keep getting the same hand up, talk to your partner." I do that a lot and I find that walking around while they're talking to their partner, I get a lot more in terms of what their misconceptions are than if I just get the one or two students with their hands up. So I think think-pair-shares which are very easy to implement, um, have been very useful in my own classroom, um, and I love using them, so.

FRAN DICKINSON: I think, um, oh, I lost my thought. Sorry. I did this last time, too. I would like to agree with what Antoinette said with regard to think-pair-share. I think it's a really great strategy for, um, ensuring that all of your learners in your class are really talking math, and really getting on that same page. Um, and I'd also like to agree with both Cecilio and, um, I'm sorry, Hillary and Antoinette that at the beginning of the year, you do as much culture building in your class as much as you can. Um, one of the things that I feel helps build culture in the math classroom -- a culture around discourse is embracing misconceptions and really highlighting how much you can learn from a misconception. And often times I will spend more time on a misconception or exploring how did somebody, or how could somebody have come up with their misconception, and exploring the mathematics behind how they were thinking. Because often misconceptions really are mathematical reasoning and there's just something about a story that has gone astray that they just didn't pay attention to the little detail or...so it's often not very wrong, the mathematical thinking that's there, it's just incorrect in the situation of the problem.

CECILIO DIMAS: So definitely think-pair-share is something that we use, shoulder partners, um, making sure we have our teams, and giving the kids the freedom to work within their teams, within parameters and guidelines. Um, but also as stated already, just taking time in the beginning of the year to have conversations that the very second day of school after we went through all the syllabus stuff on the first day, we talked about order of operations. And I wanted the kids to share with them...with each other and with me, how did they remember order of operations? And what I wanted to get at was this is a...many of them relied on the memory trick of using PEMDAS but they really have not gone deep

enough to truly understand it. And so from the very second day of school, we had the statement up on the board, um, "Did PEMDAS mislead you or how was PEMDAS misleading you?" And, so then it set up the frame work for us to continue to revisit that idea of "Have you been taught a memory trick or relied on a memory trick that is simply just a memory trick that's not working for you, and so have you been misled? And if you've been misled then how do we lead you to the correct place or to another way of thinking that will work for you?" Because it seems like our kids are often taught memory tricks to remember mathematics but they don't understand the mathematics, so the memory trick is just this other entity that exist but they don't understand it. And so that's another misconception or another area, is to go and make the connection and the bridge between the mathematics behind the shortcuts and the tricks, and the memory devices that we use to help kids.

FRAN DICKINSON: So much of what you were just talking about, too, reminds me, Cecilio, of how important the tasks are that we do with our kids versus, um, or just how we choose...I'm sorry, how important the tasks are, um, if they're deep enough that we can go there. Um, if they're not deep tasks then we're not going to get there with our kids. And also, how much discourse is going to come out of the deep tasks, and how passionate we feel about something when there is that disequilibrium. So if you and I see something very differently, um, we're more apt to argue about it -- we're more apt to really dig deep and try to understand each other, or just prove that we're right.