A TEACHER REFLECTS

Our class was on Lesson 18, working on subtracting using the number line. In spite of having spent time working with the number line model, a few of my students continued to struggle with the computation of signed numbers. One student in particular, Tammy, was having a hard time, with subtraction. I looked down at her paper which showed the following problems done incorrectly:

$$-4 - 2 = -2 \qquad 7 - 9 = 2$$

I wanted to try something that would help her distinguish between addition and subtraction in a way that would make sense to her and that would also help her be able to recognize when her answer didn't make sense. Using masking tape, I created a number line on the floor in the back of my room. I marked the numbers -6 to $+6$. Then I brought her back to the number line while my students were working on other problems. "I've created a number line here that I'd like to see if you can walk on. There's a piece of tape marking each number on the number line," I explained to her. "Start at 0."

"When you walk a problem on the number line, you begin by standing on the starting number. Now, when I ask you to add a positive number, the rule is you walk this way," I explained as I walked toward the larger positive numbers. "And when I ask you to subtract a positive number, you walk this way," I explained as I walked toward the negative numbers.

She looked at me a little skeptically. "Let's try one," I said, trying to sound encouraging. "Let's see if you can walk $3 - 5$." She paused for a moment, then moved to stand on 3. She thought for a moment and started to move in a positive direction, but stopped herself. After another momentary pause, she moved in a negative direction and carefully took five steps. "And what number did you end up on?" I asked. She looked down. "-2?" she asked, hesitantly. "That's right!" I said. "Let's try another one."

We went on to spend about 5 minutes trying different problems and getting accustomed to how the rules worked for walking the number line. We tried $-1 - 4$, $-2 + 6$, and $-3 - 2$, all successfully. I could see her looking visibly happier as she got each one correct. "I think I get it," she said. "Try one more." We tried two more and she got each one right.

As I thought about it later, I wondered what other students in my class were kinesthetic learners who needed to physically interact in some way to make sense of their learning. I wondered whether Tammy would get to the point of being able to do the problems without walking the number line. I believed she would, but wondered how long it would be before she was ready. It was a real eye-opener for me and makes me now try to think about my kinesthetic learners as we prepare to do other topics in math.