Teaching Multiplication through Skip-Counting to a Student with Special Needs

By Alexandra Berube
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I have a student with a rare condition: Agenesis of the Corpus Callosum (a complete or partial absence of the corpus callosum, the band connecting the two hemispheres in the brain). He struggles with mental math and memorizing facts, and benefits from a more visual and tactile approach. I don't specifically use Touch Math with him, but I do incorporate those concepts. Multiplication through memorization tends to be the main way that students are taught nowadays. They are given drill after drill, hoping that rote memorization will be enough to keep the facts grounded into their heads. But what if they don't understand why they're multiplying, and what multiplication really means?

It is very important to me that my students understand why a math concept works. I introduced multiplication to this student by expanding on what he knew about addition. If we have two of something, and then we have two groups of those, then we have 2×2. He adapted to the concept of multiplication very quickly, but it's another thing to then be able to multiply larger products.

We practiced with skip counting, the concept of 'counting-by,' such as counting by twos (2, 4, 6, 8). If we had one 2, and then we had another 2, we would have two 2s. If we added another 2, we would have three 2s. This looks like 2×2, 2×3, etc. We connected each sum to the concept of multiplication, until he grasped that counting by 2s would give him the multiples of two.

We then worked on 5s, because it's just easy for kids to count by five, and they've been practicing since kindergarten. Then he knew the multiples of five. Next came three, but that was harder for him. He's getting used to the multiples of three enough to memorize them somewhat, but what he tends to do is start at one number, count up three to the next number, and so on, using his fingers to guide him along the way. So he started with six, with his thumb pointed up, then counted up three until he got to nine on his pointer finger, counted up three until he got to 12 on his middle finger, and so on.

With fours, I introduced the idea of actually skip counting as he counted by twos. So this way he would count two, four, six, eight, and omit every other number. We practiced this by verbally counting by twos and whispering every other number while saying louder every other number (say 2 out loud, whisper 4, say 6 out loud, etc.). We also did this visually by writing out 2, 4, 6, 8 and then crossing out every other number. Once he has a better handle on his threes, we will be doing the same thing in order to master sixes (skip counting every other multiple).

When he gets to a multiplication problem, we have a strategy for when one of the two numbers is five or below (if both numbers are above five he has to draw it out--for 6×6 he draws six dots

six times--not the most efficient strategy but we're working our way up). He underlines the smaller number, knowing he's going to skip count by that number the amount of times indicated by the other number. So if it's 2×4, he would underline the two, and count by twos four times (2, 4, 6, 8).

Over time, he is memorizing more and more of the products, and the multiplication drills that he's doing at school will certainly benefit this as well. But it's so important that he understands why he's multiplying and has additional strategies for when memorization fails him. I'm sure all adults have gotten to a mental block at some point where we just can't remember a multiple of seven, or eight. Teaching multiplication through memorization should be a backdrop to a greater understanding of what the student is really doing.

Note: View a previous article at the link below, written by Alexandra, regarding *Introducing Multiplication* to her student with ACC:

http://agenesiscorpuscallosum.blogspot.com/2012/11/teacher-of-acc-student-multiplication.html

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