Strategy Instruction: Multiplication - The Multiplication Fact Fluency Learning Progression

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Students must learn to use strategies so they can choose among them—starting with basic facts! Just as the Addition Fact Fluency Flexible Learning Progression builds automaticity through number relationships, the same approach applies to multiplication. The Multiplication Fact Fluency Flexible Learning Progression illustrates an instructional sequence to ensure that students develop automaticity with multiplication facts by attending to the structure of equal groups and using strategies, not memorization.

Shown in red, are the *foundational fact sets*. The foundational facts are required for applying the derived fact strategies, so it is essential that students first develop automaticity with these fact sets. For example, playing games that involve the 2s, 5s, or 10s facts is a great way to practice these facts and develop automaticity.

Once students are automatic with foundational multiplication facts, they are ready to learn strategies. Let's look at 6 × 7. Using the Adding a Group strategy, a student starts with a known fact, like 5 × 7 = 35, and then adds one more group of 7 to get 42. This strategy requires knowing the 5s facts and understanding multiplication as equal groups.

After students have learned to use each strategy, then it is time to plan opportunities for students to choose among strategies. For example, with 8 × 9, a student could choose subtracting a group, or near squares, or they could break apart the eight into five plus three.

Over time, students become adept at using these strategies and eventually develop automaticity with all single digit multiplication facts.

These strategies also grow beyond single digit multiplication! Take 19 × 7, a student might start with 20 × 7 = 140 and subtract one group of 7 to get 133. The same strategies also apply to fractions and decimals! Take 2.5 × 8, where a student might first find 2 × 8 = 16, then add, 0.5, or half, of 8 to get 20.

As you have seen, noticing number relationships and understanding equal groups, can help students learn and use strategies to multiply. This is critical with basic facts and beyond. By teaching through this progression, and focusing on strategies, you help students actually remember their multiplication facts for life and also learn strategies that are going to be useful to them in whole numbers, decimals, fractions,and also prepare them for the problem solving they will encounter in other mathematical areas.