

Problem Posing Mathematics

Teaching for Mastery of Multiplication by Ann Wallace and Susan Gurganus describes how to teach multiplication in which students understand the foundational concepts of multiplication as they build toward multiplication fluency. By sharing a variety of instructional methods, they inform teachers how to teach multiplication for student success.

Wallace and Gurganus emphasize teaching multiplication with only rote memorization will help students become fluent in multiplication. They define multiplication fluency as, “the deeper understanding of concepts and flexible, ready use of computation skills across a variety of applications” (26). To teach the foundational reasoning behind multiplication they recommend using manipulatives, arrays, pictures, and drawings during instruction. With these tools teachers can teach the types of multiplication models such as repeated addition, scalar, rate, Cartesian product, and area. To begin teaching they recommend using realistic manipulatives in which students can create the groups, arrays, rows, and columns for solving a realistic multiplication problem. After students have mastered the understanding with real objects, real manipulatives can be substituted with representational manipulatives. If a student is figuring out a multiplication problem involving elephants, the elephants can be substituted with wooden blocks. Building on the representational manipulatives technique students move to using drawings of objects, and then eventually to using symbolism, such as tally marks. Another technique students can use is skip counting. Skip counting is taking a basic multiplication fact (3×4) and counting by one particular number the correct amount of times (3,6,9,12). This helps students recognize factors.

Natalie Aschenbrenner

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Math for Elementary Teachers III

Recommended websites for learning about other teaching methods are

www.cofc.edu/wallacegurganus and www.illuminations.nctm.org/tools/index.aspx.

From Wallace's and Garganus' article I learned many techniques for teaching students the basic multiplication facts. Teaching multiplication must include teaching the reasoning behind multiplication before rote memorization. Students have to know and connect to the foundational understandings of multiplication to become successful mathematical problem solvers.

Source:

Wallace, Ann and Susan Gurganus. **Teaching Children Mathematics**. *Teaching for*

Mastery of Multiplication. Aug. 2005. 26-33.