

# Teaching multiplication essay



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In order for students to begin learning multiplication, they will need a strong foundational grasp of addition facts. It is this strong understanding and mastery of addition facts and concepts that multiplication will build upon. The three major steps for learning/teaching multiplication facts are developing an understanding of the operation and related number relationships, developing efficient strategies for fact retrieval, and drilling for rapid and accurate recall of facts. The strategies for developing the concepts of multiplication include repeated addition, the commutative property of multiplication, using zero and one, doubles, five facts, and some special helping facts. Teaching these strategies will consist of using concrete experiences (real-world problems), pictorial materials, and some drilling practices with clearly defined parameters.

To develop an understanding of the multiplication operation and related number relationships, real-world problems should be modeled using manipulatives. This in turn can lead to a well-developed understanding of mathematical representation. Students can solve multiplication problems using beans and cups, story boards, unifix cubes, arrays, and fact finder grids. Students will also benefit from making up their own real-life multiplication problems, modeling them, and solving. Students might resonate with multiplications problems that could encounter in the real world. For example: If there are 12 students in a class and each eats 3 pieces of pizza during a class party, how many pieces did they eat altogether? When students use manipulatives to solve problems, they are making powerful connections from concrete ideas (12 rows and 3 columns make 36) to abstract mathematical concepts ( $12 \times 3 = 36$ ).

Efficient strategies for fact retrieval should also be developed which include equal groups, commutativity, using zero and one, doubles, and fives facts. Equal groups can be demonstrated using arrays. Commutativity ( $3 \times 5 = 5 \times 3$ ) is an extremely valuable concept for students to grasp when learning multiplication facts because it effectively cuts the number of facts to be memorized in half. Using zero and one, doubles, and fives facts can be reinforced using beans and cups and/or fact tables. The helping facts include double and one more set (3's), double and double again (4's), half then double, the nifty nines, and add one more set.

Once a student has a firm understanding of multiplication concepts and strategies for solving problems, he or she is now able to comfortably move from concrete into more abstract problem-solving. Drill can also now be introduced to increase the speed of fact recall. Effective techniques for drilling include using short, regular time segments, talking about strategies, games, and teaching methods for individual practice to students and parents. Flashcards are most effective when used in short, regular time segments. Useful flashcard strategies include identifying known and unknown facts, working on 1-3 new facts at a time, practicing combined new and known facts, tracking progress with raw scores, using game-like activities, and utilizing guess and check language for children who fear making mistakes.

Teaching multiplication is much more than simply writing facts and doing flashcards. Taking the time to develop strategies for solving problems is an excellent way to ensure that students connect mathematical concepts to real life. Developing number relationships is the foundation for strategies that

help students remember basic facts. Guiding strategy development is a way to promote students' conceptual understanding of numbers and will encourage students to apply problem-solving strategies to other areas of the real world. Helping children to make meaningful connections between math and other areas of their lives is worth the extra effort.