Using **SmartFlash™** Cards

Traditional flash cards can help children memorize basic multiplication facts. **SmartFlash** Cards ensure that children know and become proficient in using these number facts. The difference is both subtle and profound. In addition to seeing the standard symbolic representation of a computation, children are presented with a concrete visualization of the number fact. This visualization provides a unique link between the abstraction of the symbols and their meaning. Children will also build an understanding of the base-ten number system.

With traditional flash cards, children learn to *guess* the answer (product) of a computation such as 5×3. If the child guesses the correct answer, the adult usually says, "That's right, here is the next problem." If the child answers incorrectly, the adult says, "No, that's wrong. Guess again." Although some children quickly learn to translate each symbolic picture into the correct answer, others have great difficulty with the guessing game. This can lead to frustration and a dislike of mathematics.

Using **SmartFlash™** Cards, continued

SmartFlash Cards provide an alternative to the guessing game. Because there is a visual clue for each fact, the child can build a correct response to each number fact. Children immediately understand that multiplying two numbers relates to finding the area of a rectangle.

> **Example:** Present 7×2 and ask for the answer. If incorrect, say, "No, that's not right. Why don't you count the unit (shaded) squares?"

The child can now use counting skills to determine the correct response. As the child advances, (s)he will learn to "skip-count by twos or by sevens" rather than counting all of the shaded squares.

For a correct answer, say, "How do you know that's correct?" or "Can you prove your answer?" These questions will help build the child's confidence and proficiency.

SmartFlash Cards are two-sided and color coded. The first side shows the problem in visual format. The second side shows the reversal of the factors.

> **Example:** Present 8×4 and ask for the answer. If correct, immediately flip the card over and ask the child, "What is the product of 4×8?"

This reversal of the factors (numbers) highlights the Commutative Property of Multiplication. This important property will be utilized many times in children's later study of mathematics.

A subset of the cards presents the multiplication of two equal numbers. The visual representation of 5×5, for example, is as a 5-unit by 5-unit square. This solidifies the meaning of perfect square numbers and also provides the opportunity to introduce the term "squared."

The use of the geometric model is the key to the child's development of both computational proficiencies and useful thinking strategies. The child can validate and prove that (s)he has computed the correct product.

As confidence grows, the child will rely less and less on the geometric model. Put individual cards aside when the child immediately responds correctly without referring to the geometric hint. At this point the number fact has been mastered!