

Using **SmartFlash**[™] Cards

1

Traditional flash cards can help children memorize basic addition facts. **SmartFlash** Cards ensure that children know and become proficient in using their 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 each child with a unique link between the abstraction of the symbols and their meaning.

Using traditional flash cards, children learn to guess the sum (answer) to a computation such as $5 + 3$. If the child guesses the correct sum, 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

2

SmartFlash Cards provide an alternative to the guessing game.

Example: Present the $7 + 2$ and ask for the sum.

If the answer is incorrect, say, “No, that’s not right. Why don’t you count the unit (shaded) squares?” The child can now use counting skills to compute the correct sum. As the child advances, (s)he will learn to count on from the larger number, rather than counting all of the shaded squares.

For a correct answer, say, “How do you know that?” or
“Can you prove your answer?”

These questions will help build the child’s confidence and proficiency.

Using **SmartFlash**[™] Cards, continued

3

SmartFlash Cards help children to develop and understand the structure of the base-ten number system. With the geometric model visible, it becomes natural to make groups of 10. When shown $9 + 3$, a child will learn to say, "Nine is only 1 less than 10, so I take 1 of the three squares to make 10. That leaves 2, which I add to 10 to get a sum of 12."

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 addends.

Present $8 + 4$ and ask for the answer. If correct, immediately flip the card over and say, "What is the answer to $4 + 8$?"

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

Using **SmartFlash™** Cards, continued

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As the child builds knowledge and confidence, s(he) will invent and utilize sophisticated strategies for determining the sum. When explaining the reasoning for the correct sum of $9 + 8$, they may say, “9 is 1 less than 10, and 8 is 2 less than 10. That’s makes the sum 3 less than 20 or 17,” intuitively relating addition and subtraction.

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

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!