

Learning Number Facts
A Message for Parents
By Linda Levi
Director of CGI Initiatives,
Teachers Development Group

Learning number facts holds an important place in today's elementary school mathematics class. When children encounter number facts, they should be encouraged to figure them out in whatever way makes sense to them. When they first solve a problem like 8×6 , they may draw a picture of 8 groups of 6 circles and then count all the circles. Doing many problems like this in Kindergarten and First Grade gives children a foundation for understanding multiplication. As children get more sophisticated, they might solve 8×6 by adding 8 sixes. This strategy gives children an understanding of the relationship between multiplication and addition. As children continue to mature, they will start to use multiplication facts they know to figure out those they don't know. A child might say, 8 times 6 would be 6 times 6, which is 36, plus another two sixes, which is 12, so 8 times 6 would be 36 plus 12 which is 48. This strategy relies on an understanding of the distributive property. Another child might say 8 times 6 would be double 4 times 6. I know that 4 times 6 is 24 so 8 times 6 is 48. Most children will eventually just know that $8 \times 6 = 48$.

When I was in elementary school, number facts played a minor role in my education. Every so often I was given a set of flashcards to memorize and a timed test to assess how well I had done. I was not encouraged to figure out number facts and did not learn the big ideas of mathematics in the process of learning my facts. When I taught high school algebra, I had many students who learned number facts as I did. Many of these students did not understand the relationship between multiplication and addition and most of them did not understand the distributive and associative properties. It was very hard for these students to learn algebra with understanding. They may have studied hard and done a lot of memorizing to pass or even get a good grade in Algebra, but in most cases, they were unable to successfully complete Calculus.

In the end, students who use the big ideas of mathematics to help them learn number facts are as efficient and accurate as students who do a good job of memorizing their facts. They, however, have a great advantage in that they understand the big ideas of mathematics and are well prepared to learn further mathematics. Students who memorize number facts miss an important opportunity to develop an understanding of the concepts that they will need to succeed in mathematics.

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