

The more sophisticated mental operations in mathematics of analysis, synthesis, and evaluation are impossible without rapid and accurate recall of specific knowledge.

Learning the arithmetic facts in the first four grades can be pretty hard work for some students. Learning these facts through only rote memorization will make it more difficult than it needs to be for students. Teaching students strategies to help them learn and memorize the arithmetic facts will make life easier on the kids, their parents, and especially on you.

Before any memorization takes place, the concept for each operation should be explained fully so the students are comfortable in their understanding of the operation.

Addition

Thinking Strategies for Learning the Addition Facts

There are 100 basic arithmetic facts, zero through nine. That's a bunch. But if we use more effective strategies to help students learn, then memorizing these facts will become easier for the students. These strategies have been listed in the order we suggest teachers use to teach their own students.

1. **Adding zero:** Students can quickly grasp the rule for adding zero; the sum is always the other number. $8 + 0 = 8$, $0 + 4 = 4$
2. **Counting on by 1 or 2:** Students can find sums like $5 + 1$ or $6 + 2$ by simply counting on. This thinking strategy allows students to check off 18 of the addition facts. That leaves 63 facts to be learned.
3. **Sums to 5:** Students can learn combinations to 5, such as $3 + 2$ or $4 + 1$. Sums to 5 is redundant.
4. **Sums to 10:** Students can learn combinations to 10, such as $6 + 4$ or $8 + 2$. More facts can be crossed off the list of 100 and we are down to 56 facts to learn.
5. **Doubles:** For whatever reason, students seem to be able to remember the sums of doubles. That might be a consequence of skip counting in earlier grades. The consequence of knowing doubles is another 6 facts can be checked off our list. That leaves 50 facts to learn, we're halfway home.
6. **Adding 10's:** Students can quickly see the pattern develop when adding tens, the units digit stays the same.