Strategies for Learning Addition Combinations (for review and fluency) :

To develop good computation strategies, students need to become fluent with the addition combinations from 0+0 to 10+10. These combinations are part of the number knowledge that contributes to interconnections that we call number sense. Knowing these combinations is important and we want to stress again:

➢ Students learn these combinations best by using strategies, not simply by memorization. If you are relying just on memory and you forget- as we all do at times, you are left with nothing. When learning is based on understanding of numbers and their relationships, we have a way to re-think or re-structure knowledge when we don't remember something we thought we knew. The work with this structuring will also serve to connect our fluency with numbers to subtraction, multiplication, & division.

➢ Through repeated use and familiarity, students will come to greater fluency. For example, when a student thinks about 8+5, he doesn't automatically see the total as 13; rather, he sees the 5 broken apart into 2 and 3, the 2 combined with the 8 to make 10, and the 3 combined to make 13. With practice he "sees" this relationship almost instantaneously and he "knows" this addition combination as well as 5+8.

Strategies to improve fluency with Addition Combinations

Make 10:   3+7, 4+6, 5+5, 6+4, 7+3. Students need more experiences building and recognizing all the ways to "make 10" with interlocking cubes or counting objects on ten-frames.

Doubles: from 3+3 to 10+10. Students learn most of the doubles readily and can use the doubles they know to help with the harder doubles: "I know 6+6=12, so 7+7 is 2 more, that's 14."

Near Doubles: 3+4, 4+5, 5+6, 6+7, 7+8, 8+9 and 9+10 are one away from the doubles. Students use the doubles they know; "I know that 5+5 is 10, so 5+6 is 1 more" or "I know that 6+6 is 12, so 5+6 is 1 less."

10+Combinations from 10+3 to 10+10. These follow a place value pattern, students learned them built with cubes or objects on twenty- frames or counted on the 100's chart.

 9+ Combinations: from 9+3 to 9+10. Students think of these combinations as one less than the 10+. To solve 9+6, take 1 from the 6 and add it to the 9 to make 10. The 5 that is left is added to the 10, 10+5 = 15. Or, if this were 10+6, the answer would be 16, but it's 1 less, so it's 15.

5+3, 6+3, 7+4, 7+5, 8+3, 8+4, 8+5 and 8+6. These eight single-digit addition combinations do not fall into any of the strategies above; Strategies can be used for each of these, relating them to doubles plus or minus 2, to combinations that make 10 plus or minus 1, or to the 10+ combinations plus or minus 2.

➢ **Important ! Students should choose whichever strategy makes sense to them and works!**

Some of these combinations have more than one strategy! (9+8 is a 9+ combination and also a near double)