

Addition Strategies:

Break Apart:

Break the numbers apart into their place values and then add like place values (thousands plus thousands, hundreds plus hundreds etc), and then add those numbers to get the final answer.

$$\begin{array}{r} 2,974 + 1,683 = \\ 2,000 + 1,000 = 3,000 \\ 900 + 600 = 1,500 \\ 70 + 80 = 150 \\ 4 + 3 = \underline{\quad 7} \\ 4,657 \end{array}$$

Compensation for Addition:

Compensation is the process of making numbers friendlier to add. You round, but then must adjust your answer. In order to do that, you do the **opposite** operation to the answer. In addition, if you add in order to round, you must subtract the same from the answer. If you subtract in order to round, you must add to the answer.

$$\begin{array}{r} 946 + 288 = \\ \quad \quad \quad +12 \\ 946 + 300 = 1,246 -12 = 1,234 \end{array}$$

$$\begin{array}{r} 852 + 209 = \\ \quad \quad \quad -9 \\ 852 + 200 = 1,052 +9 = 1,061 \end{array}$$

Subtraction Strategies:

Counting On:

Counting on is another way to do subtraction. Start with the second number, add up to a “friendly” number, from that number add up to get to the target (first number).

Add the two numbers you used.

$$\begin{array}{r} 212 - 197 = \\ 197 + \boxed{3} = 200 \text{ (Friendly Number)} \\ 200 + \boxed{12} = 212 \\ \mathbf{3 + 12 = 15} \end{array}$$

Check by adding: $15 + 197 = 212$

$$\begin{array}{r} 516 - 305 = \\ 305 + \boxed{195} = 500 \text{ (Friendly Number)} \\ 500 + \boxed{16} = 516 \\ \mathbf{195 + 16 = 211} \end{array}$$

Check by adding: $211 + 305 = 516$

Counting On is a good strategy when the first number involves zeros. Students have a great deal of difficulty subtracting across the zeros.

$$\begin{array}{r} \$10.00 - \$4.75 = \\ \text{Think: } \$4.75 + \mathbf{\$.25} = \$5.00 \\ \$5.00 + \mathbf{\$.25} = \$5.25 \\ \mathbf{\$.25} + \mathbf{\$.25} = \$5.25 \\ \text{Check by adding } \$5.25 + \$4.75 = \$10.00 \end{array}$$

Compensation for Subtraction:

Compensation works a little differently for subtraction. You round the second number to make a friendlier number. But now you must do the **same** operation to the answer because if you add in order to round, you actually subtracted too much, so you must add some to the answer; and if you subtract in order to round, you actually subtracted too little, so you must subtract some from the answer.

$$\begin{array}{r} 946 - 288 = \\ \quad \quad \quad +12 \\ 946 - 300 = 646 + 12 = 658 \\ \text{Check by adding } 658 + 288 = 946 \end{array}$$

$$\begin{array}{r} 852 - 209 = \\ \quad \quad \quad -9 \\ 852 - 200 = 652 - 9 = 643 \\ \text{Check by adding } 643 + 209 = 852 \end{array}$$