GRADE 5: Addition/Subtraction of Numbers With and Without Regrouping

The goal is for students to develop computational fluency, learning a variety of strategies to use to solve problems. Students will look at the numbers involved in the problem and will then decide on a method that best fits the situation. The following are some of the strategies for solving addition/subtraction problems in fifth grade.   The majority of these strategies help students develop a strong sense of number and number relationships which are very important life skills.

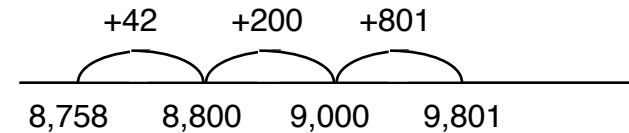| ADDITION	SUBTRACTION
LANDMARK & FRIENDLY #'s: $3,996 + 4,246 =$ • Move 4 from 4,246 to 3,996. The new problem is now a mental math problem: $4,000 + 4,242 = 8,242$	**LANDMARK & FRIENDLY #'s:** $6,831 - 4,988 =$ (+12 to change 4,988 to make 5,000) $6,831 - 5,000 = 1,831$ $1,831 + 12 = 1,843$ (Subtracted 12 too many, add back)
COMPENSATION: • Knowing since $150 + 150 = 300$, $148 + 152 = 300$. (Compensating one number for a change on the other number.)	**COUNTING ON (for small differences):** $5,968 - 5,964 = 4$ just difference between 8 and 4!

DECOMPOSE (break apart) & COMPOSE (put together):
 	
$15,500$
$\underline{+\ 3,546}$
 	
$15,500 + 3,000 = 18,500$
$18,500 + 500 = 19,000$
$19,000 + 46 = 19,046$
	CONSTANT DIFFERENCE (add/remove same amount from each number):
	
	• $5,641 - 3,339 = 5,642 - 3,340 = 2,302$ (+1 to each)
	
	• $1650 - 1348 = 650$ (–1,000 each)
	    $650 - 348 = 350$ (–300 each)
	    $350 - 48 = 302$ resulting in a much simpler problem

Open Number Line: Modeling "leaps" for adding/subtracting numbers by decomposition.

4,542 + 5,509 =

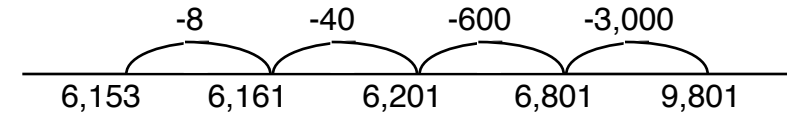+5,000   +500   +9

4,542   9,542   10,042   10,051
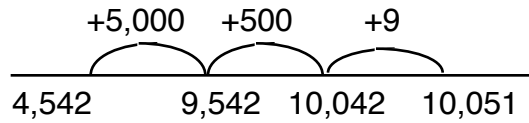
9,801 - 8,758 = 1,043
* start at 8,758, count up for small differences

+42   +200   +801

8,758   8,800   9,000   9,801

9,801 - 3,648 =
*start at 9,801, count back for large differences

-8   -40   -600   -3,000

6,153   6,161   6,201   6,801   9,801

Various algorithms: Calculating sums and differences quickly & accurately.

Addition:
```
   2 21
  5,500
  2.456
  4.389
+ 9,871
 22,216
```
Traditional
(Important for adding lists
of numbers.)

```
 5 9 9 11
\6,001\
- 4,249
 1,752
```

```
 6,001
- 4,249
```
2,000 - 200 = 1800
1800 - 40 = 1760
1760 - 8 = 1,752

Subtraction:

```
 6,001
- 4,249
```
Landmarks (very
strong # sense):
4,249 + 751 = 5,000
5,000 + 1,001 = 6,001
         1,752

Negative & # Sense:
(6000-4000 = 2000
0-200 = -200
0-40 =   -40
1-9 =   -8
        1,752

Traditional
("Borrow 1,000 from 6,000 leaving 5,000.
Regroup that 1,000 as 10 100's. "Borrow"
one 100 so left with 9 100's. Regroup
that 100 as 10 10's. "Borrow" one 10 so
left with 9 10's. Regroup that 10 and add
to 1 so 11 ones. Subtract each place.)