Strategies for Addition with Regrouping

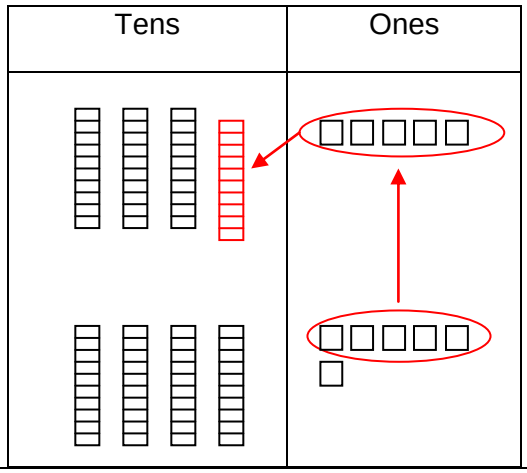
Foundation for Understanding Regrouping:

Students will go through several stages as they learn to understand regrouping in a developmental step by step process. Some of the steps will be modeled below.

Step 1: Students use cubes that break apart to build models of tens and ones. A place value mat is used to set up the two numbers being added together. Students look to see if they can "Make Ten" out of the ones that they have. If they can then they will make a ten and "Regroup". They will form a ten stick and place it into the tens place.

Step 2: Student move to solid "Base Tens Blocks" when they have mastered using cubes. They must understand that there are ten single units inside a "ten" stick before moving on.

Example: 8 tens 1 one = 81



Step 3: Students move to "Pictorial Stage" after successfully using "Base Ten" manipulatives to regroup or "trade" ten units for a ten stick.

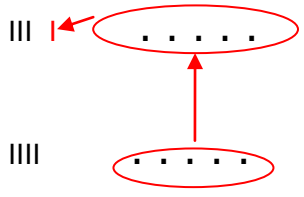
Pictorial: Students use lines to represent a ten and a dot/s for ones. Ones are placed in a ten frame shape.

First build both numbers: III . . . . .

IIII . . . . .

.

Then, add ones together to try to make a full ten frame.



.

8 tens 1 one = 81

Step 4:

Standard/Expanded Form- Decompose numbers into tens and ones. Students can use understanding of place value to add tens and ones. The number sentence is only shown horizontally.

40+30=70 6+5= 11

70+11=81

Making Funny Numbers- Send a ten to the ones place. Students can use understanding of place value to add tens and ones. The number sentence is only shown horizontally.

30+20=50 16+15=31

50+31=81

Step 5: Introduce the algorithm. This does not need to be mastered until the end of the year.

	tens	ones
	1	
	4	6
+	3	5
	8	1

Strategies for Subtraction with Regrouping

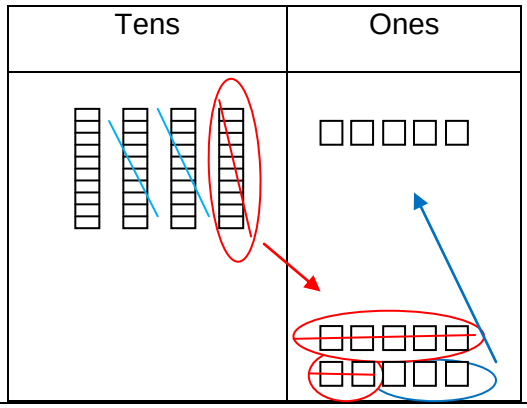
Foundation for Understanding Regrouping:

Students will go through several stages as they learn to understand regrouping in a developmental step by step process. Some of the steps will be modeled below.

Step 1: Students use cubes that break apart to build models of tens and ones. A place value mat is used to set up the largest number first and then the number being subtracted is taken away in steps. Students look to see if they can take the needed number of the ones away first. If they can't then they will take ten from the tens place and break it into ten ones or "Regroup". They will use the broken up ten (10 ones) to take away the number of ones needed. Next they will move to the tens place to take away the amount of tens being subtracted.

Step 2: Students move to solid "Base Tens Blocks" when they have mastered using cubes. They must understand that there are ten single units inside a "ten" stick before moving on. They must also understand the vocabulary "Trade" when trading a ten stick for ten ones.

Example: 45 – 27 = ? 1 ten and 8 ones left

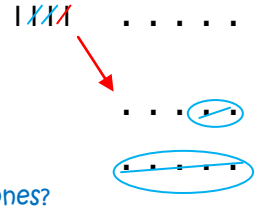


Step 3: Students move to "Pictorial Stage" after successfully using "Base Ten" manipulatives to regroup or "trade" ten units for a ten stick.

Pictorial: Students use lines to represent a ten and a dot/s for ones. Ones are placed in a ten frame shape. Students solve using place value just like step 1 and 2.

First build the largest number: IIII . . . . .

Then use place value to subtract ones. Students may need to regroup a ten into ones if needed if there are not enough ones.



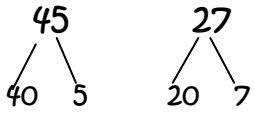
Now, can you take away 7 ones?

How many ones are left? 8 ones

Now can you take away 2 tens and how many tens are left? 1 ten

Step 4:

Standard/Expanded Form- Decompose numbers into tens and ones. Students can use understanding of place value to subtract tens and ones. The number sentence is only shown horizontally. 45 – 27 = ?



45 = 40 + 5
-27 = 20 + 7

Since we cannot subtract the 7 ones from the 5 ones, we know regrouping is necessary. We rename the 40 as 30+ 10. Then we add the group of ten to the five ones. This gives us 15.

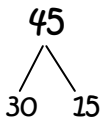
(30 + 15) ** Also know as a funny number.

45 = 40 + 5 subtract the tens
- 27 = 20 + 7

30 + 15 subtract the ones
20 + 7
10 + 8 = 18

Making Funny Numbers- Send a ten to the ones place. Students can use understanding of place value to add tens and ones. The understanding of funny numbers help students to solve regrouping problems.

Example:



Step 5: Introduce the algorithm. This does not need to be mastered until the end of the year.

```
  3
 ¼5
-  27
   18
```