Math Strategies We Use in 3rd Grade

Jason's Remove Method

```
  327
- 118
```

1. Sketch 327.
2. Cross out 100.
3. Cross out a 10.
4. Split up the other 10 into 1s and cross out 8 of them.
5. Count what's left: 209 pages.

David's Constant Difference Method

```
  327
- 118
```

Add 2 to each number to make the problem easier.

327 + 2 = 329
118 + 2 = 120

```
  329
- 120
  209 pages
```

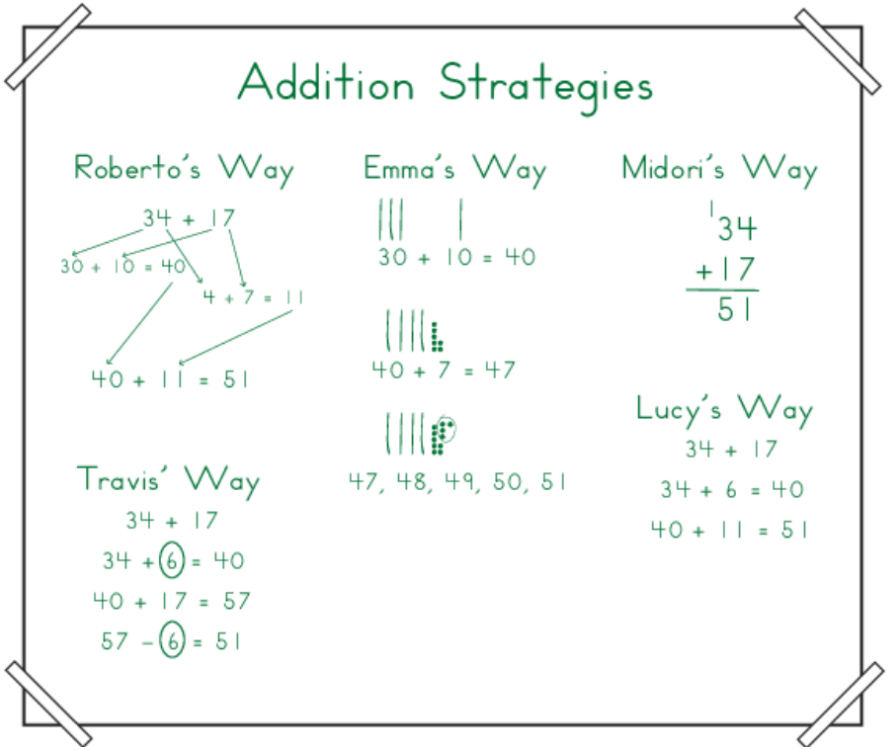
Shari's Start with the 1s Method

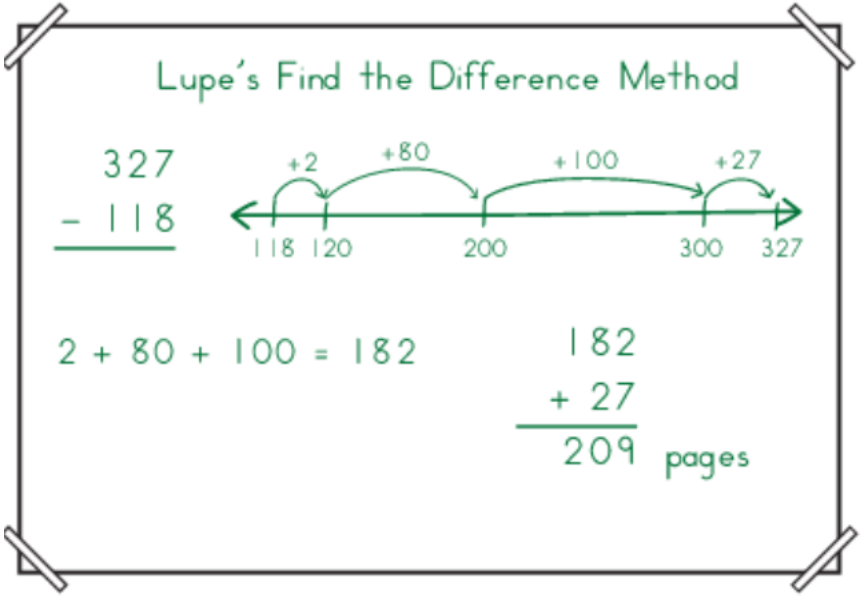
```
   1
  3̸2 17
- 1 1 8
  2 0 9 pages
```

17 − 8 = 9
10 − 10 = 0
300 − 100 = 200
200 + 9 = 209 pages

If you don't use negative numbers, you can't do 7 − 8. Move a 10 over from the 10s column and split it into 1s. Now you have 17 there.

Here are some example of students using different strategies:





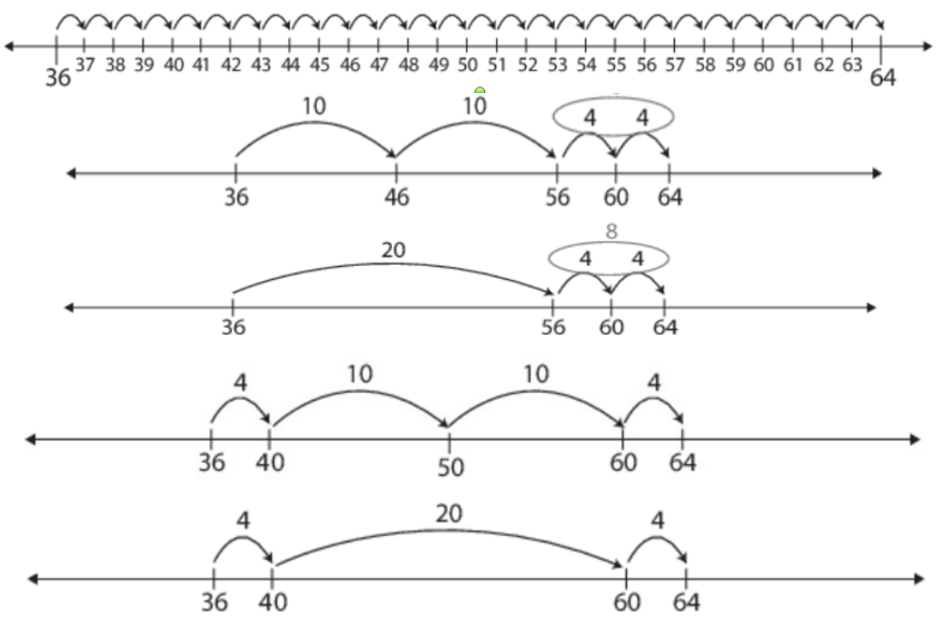
This booklet will show you some of the strategies I have learned to be more successful at solving problems. As I become a stronger mathematician, I learn how and why problems can be solved in different ways. The more I learn and use these different strategies, the more efficient and accurate I will become.

Addition

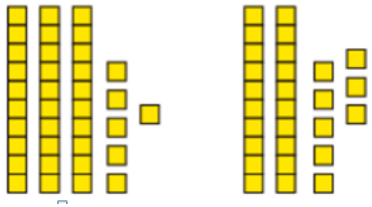
I can add fluently within 1000 using strategies and algorithm.

36 +28

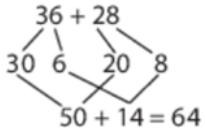
Number Line



Base Ten Models



Place Value Splitting



End of the Year Expectations

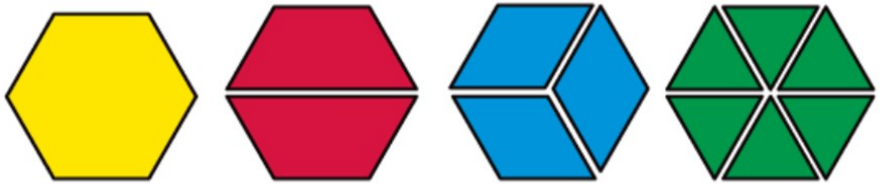
- Fluently add and subtract within 1000 using strategies and algorithms based on place value
- Fluently multiply and divide within 100 using strategies
- By the end of the year, know all products of two single digit numbers (up to 9 x 9)
- Understand that fraction is part of a whole and where it is placed on a number line

Fractions

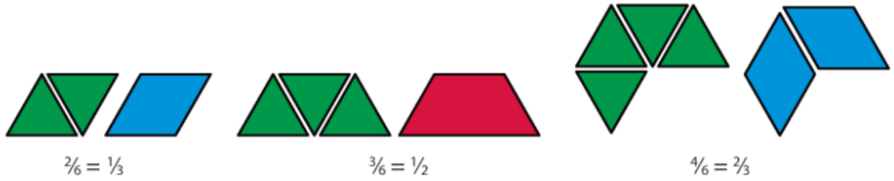
Only denominators 2, 3, 4, 6, 8 are used in 3rd grade.

Pattern Blocks

Help identify fractions as part of a whole

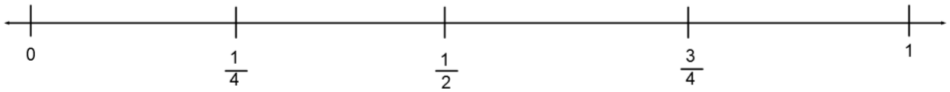


Help students see equivalent fractions.



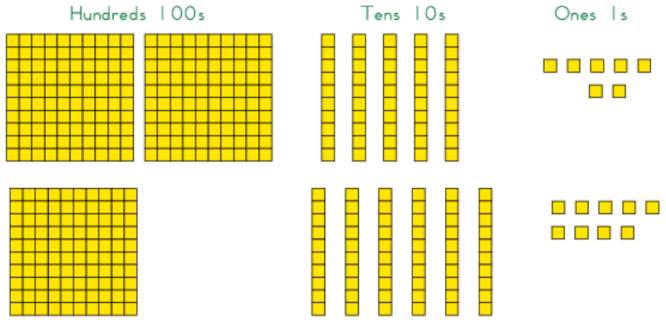
Number line

Helps students see and compare fractions

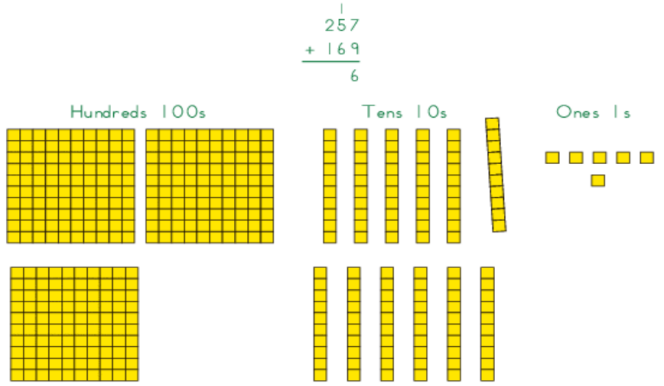


I can use regrouping in addition with base ten models:

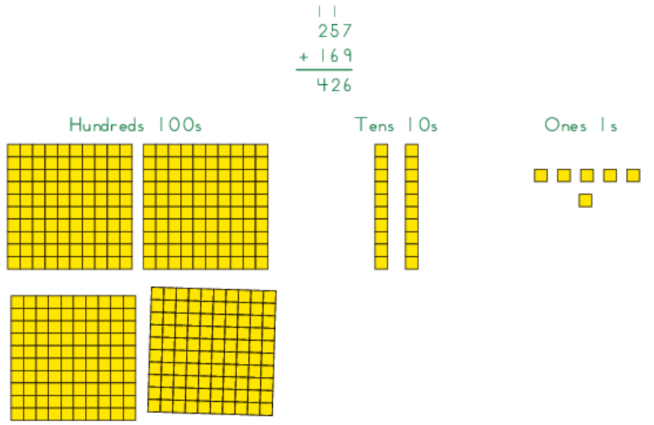
257 + 169



I start with the ones place . Then I combine ones, regroup (or trade in) for a strip of tens as needed.



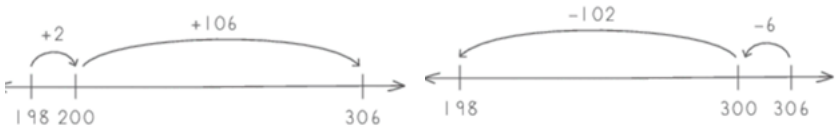
I continue by combining the tens and regrouping for hundreds.



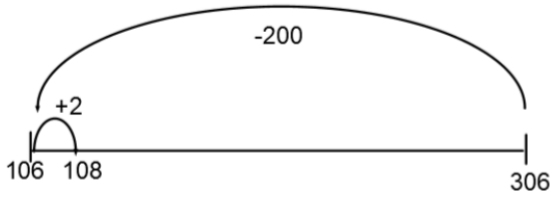
Subtraction

The same strategies used when adding can be used when subtracting because I understand the relationship between the operations.

306 - 198



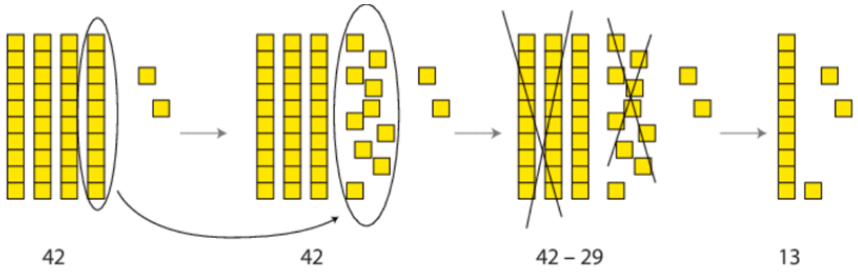
I jumped up from 198 to 306. *I jumped back from 306 to 198.*



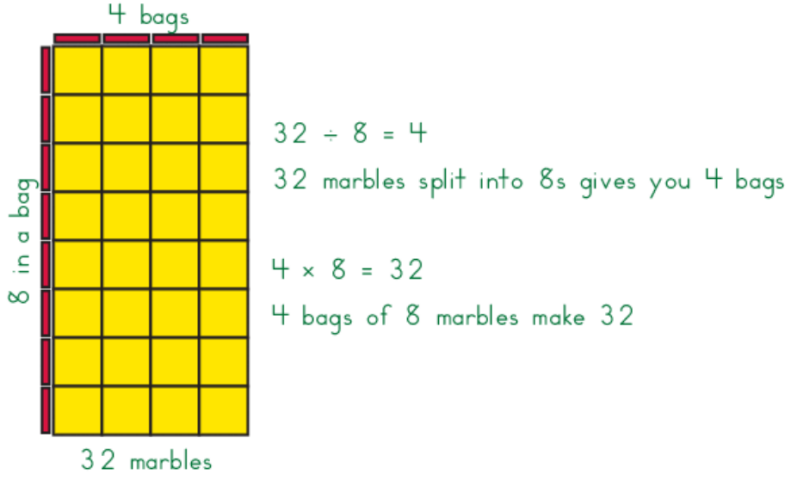
I subtracted 200 because it is easier and then added 2 back.

I started at 306 and subtracted 198 to get the answer 108.

42-29



Arrays and Area Models



Ratio Table

I can see patterns and relationships in a ratio table.

32 ÷ 4 =

Number of squares	1	2	3	4	5		10
Number of sides	4	8	12	16	20	32	40

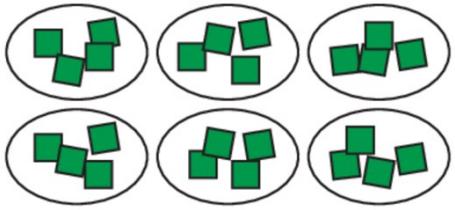
Division

Because I see the relationship between multiplication and division, I use many of the same strategies.

Equal Groups

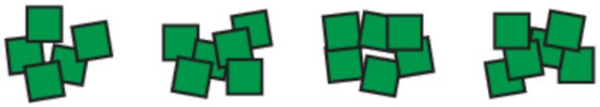
24 ÷ 6

Ms. Rowan has 6 tables in her classroom, and 24 students. If she divides the students evenly among the tables, how many students will sit at each table?



We took 24 tiles and divided them into 6 groups for the 6 tables. We got 4 in each group.

Teresa has 24 stickers in her sticker book. Each page holds 6 stickers. How many pages does her sticker book have?



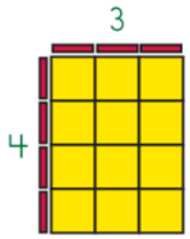
We took 24 tiles and took out a group of 6, and then another, and then another until we used up all the tiles. We got 4 groups.

Fact Families

$4 \times 3 = 12 \quad 12 \div 4 = 3$

3 + 3 + 3 + 3 = 12
4 groups of 3 makes 12 in all.

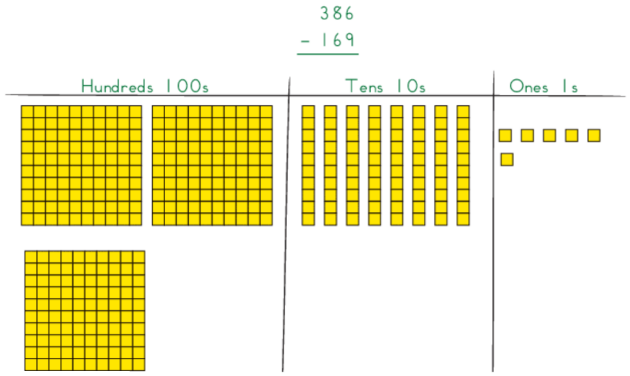
If 12 balloons are shared equally among 4 groups, there are 3 balloons in each group.



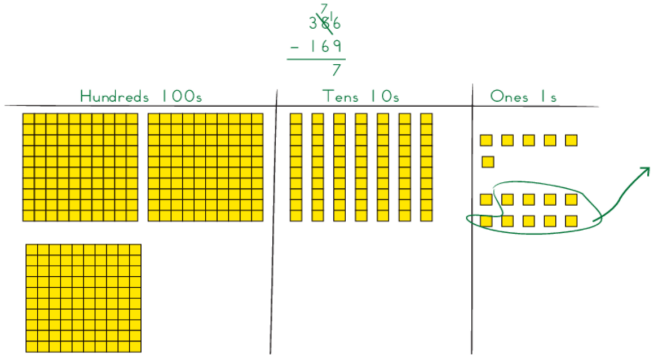
The area of a 4-by-3 array is 12 sq units.

If the total area of an array is 12 and one side is 4, the other side must be 3.

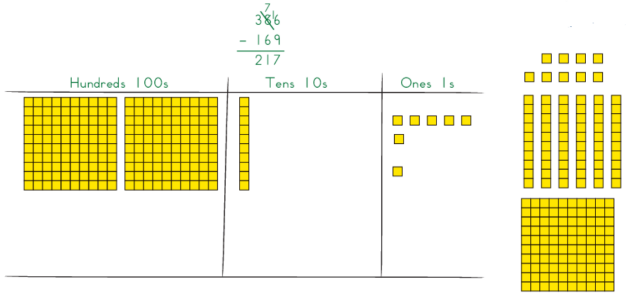
Modeling the algorithm helps build my understanding. I start with by building the biggest number.



I see that a ten needs to be moved to the ones place in order to subtract.



Then Is subtract 169.



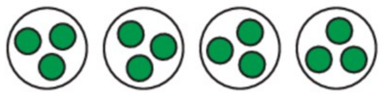
Multiplication

I can multiply using different strategies.

Repeated Addition

4 x 3 = 12 can be seen as **3 + 3 + 3 + 3**

Grouping

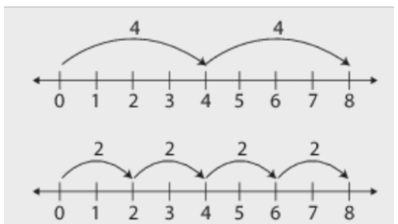


4 groups of 3 makes 12 in all.

Skip Counting

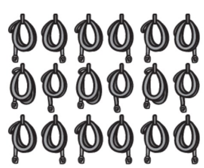
2 x 4

4 x 2



Arrays

3 x 6

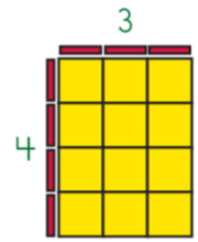


Ratio Table

Number of cats	Number of legs	
1	4	1 × 4 = 4
2	8	2 × 4 = 8
4	16	4 × 4 = 16
8	32	8 × 4 = 32
10	40	10 × 4 = 40
9	36	9 × 4 = 36

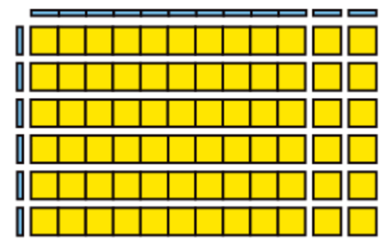
10 – 1 (10 → 9)   40 – 4 (40 → 36)

Tile Array/Area Model

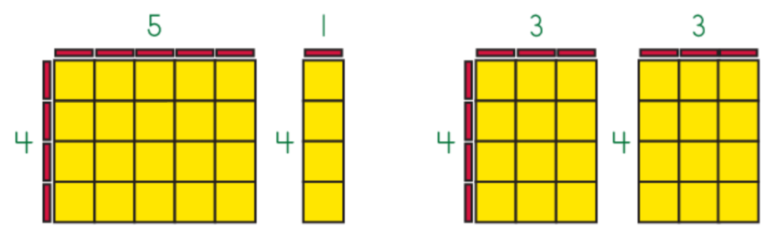


The area of a 4-by-3 array is 12. sq. units.

6 x 12

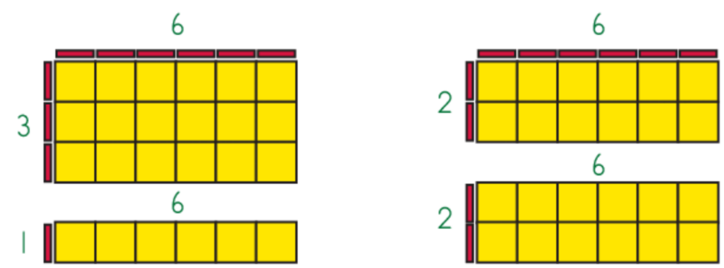


I can use my understanding of the area model and simpler facts to solve to larger problems.



(4 × 5) + (4 × 1)
20 + 4 = 24 square units

(4 × 3) + (4 × 3)
12 + 12 = 24 square units



(3 × 6) + (1 × 6)
18 + 6 = 24 square units

(2 × 6) + (2 × 6)
12 + 12 = 24 square units