3

# How shall I add?

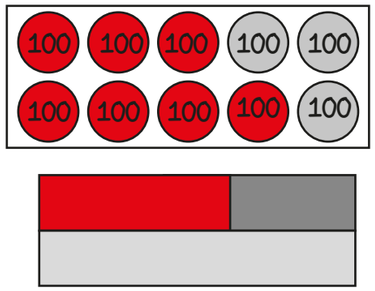
## 8 + 7, 9 + 9, 14 + 3
Number facts
Single digit numbers
Doubles
Tens to make 100

I just knew it!

## 243 + 7
Use known facts
300 + 700

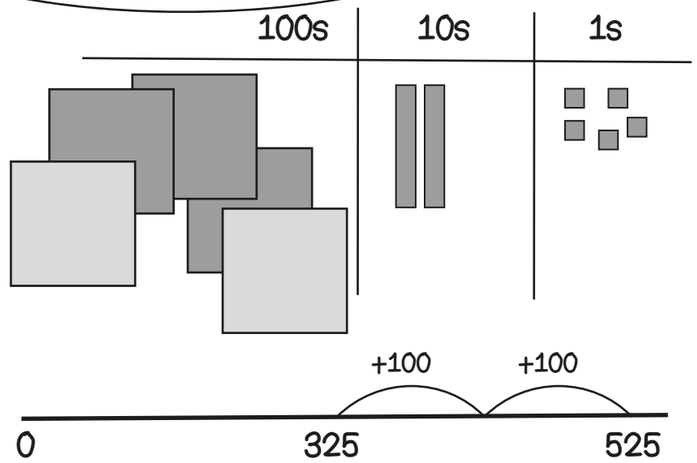
If I know 3 + 7 = 10
then I know
3 hundreds + 7 hundreds
= 10 hundreds

If I know 3 + 7 = 10
then I know
243 + 7 makes the
next multiple of 10

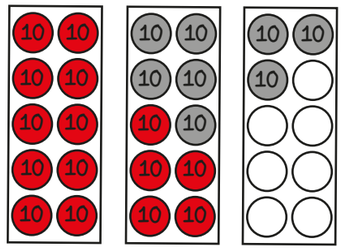


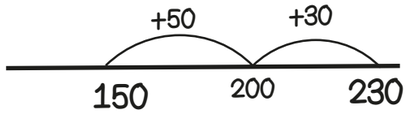

## 325 + 200
Add multiples of ten and hundred

If I know 3 + 2 = 5
then I know
3 hundreds + 2 hundreds
= 5 hundreds

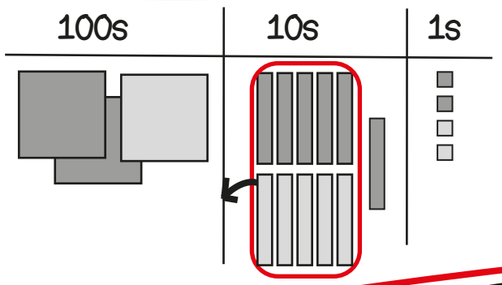



## 150 + 80
Bridging boundaries



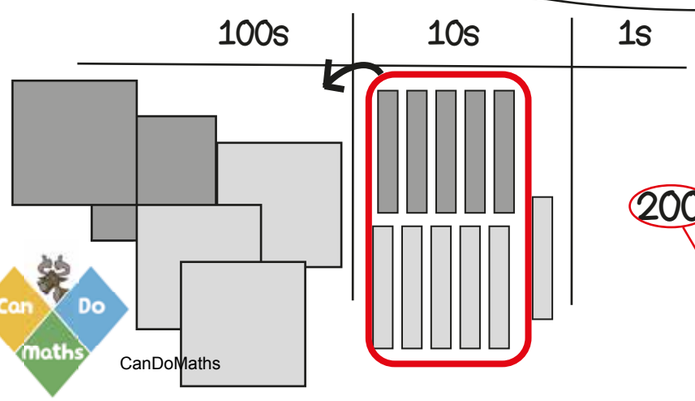

## 262 + 152
Formal written method




6 tens add 5 tens
= 11 tens or 110

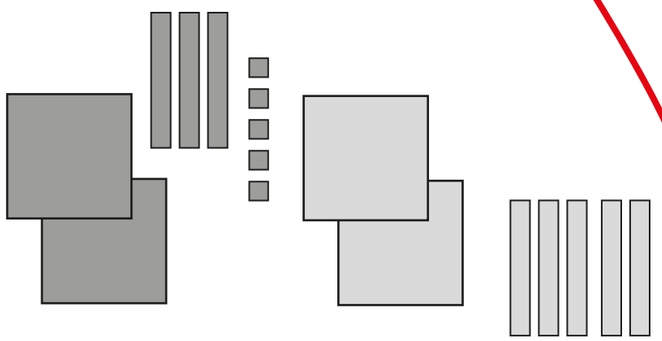
$$\begin{array}{r} 262 \\ +\,152 \\ \hline 414 \\ \hline 1 \end{array}$$

## 250 + 360
Partition and recombine

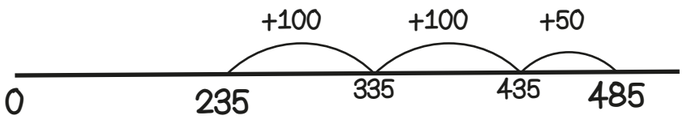



200 + 50 + 300 + 60

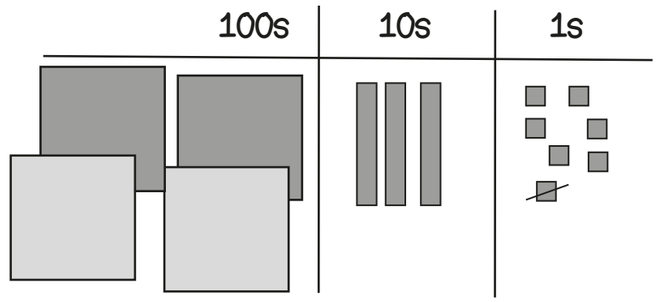
500 + 110 = 610



## 235 + 250
Count on in hundreds then tens




## 237 + 199
Round then adjust




Add 200 then subtract 1

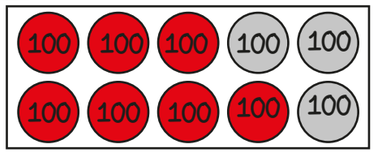
# How shall I subtract?

## 15 - 8, 18 - 5
Number facts
Single digit numbers
Teens and single digits

I just knew it!

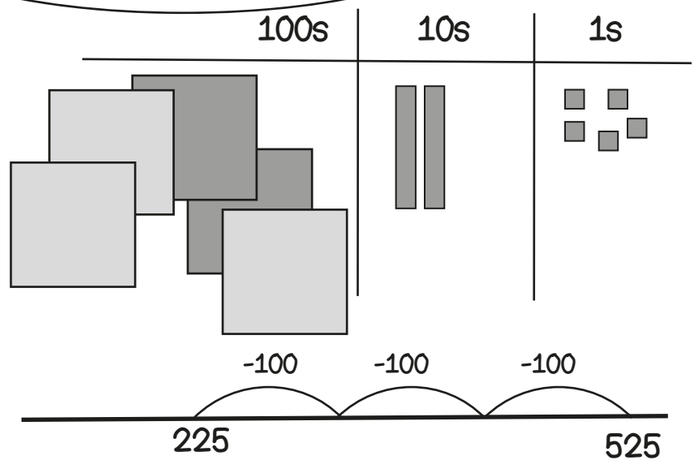
## 240 - 7
Use known facts
1000 - 700

If I know 10 - 7 = 3
then I know
10 hundreds - 7 hundreds
= 3 hundreds

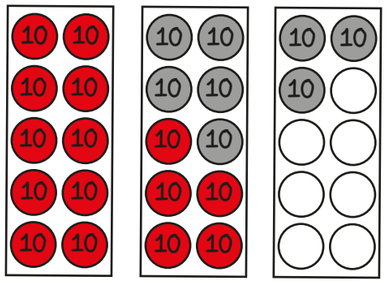



## 525 - 300
Take away multiples of ten and a hundred

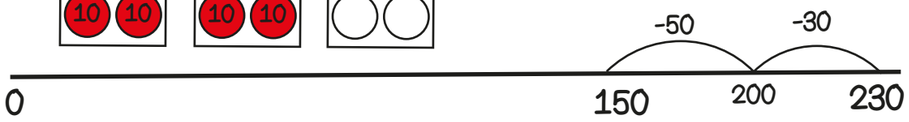
If I know 5 - 3 = 2
then I know
5 hundreds - 3 hundreds
= 2 hundreds




## 230 - 80
Bridging boundaries
by counting back in efficient steps



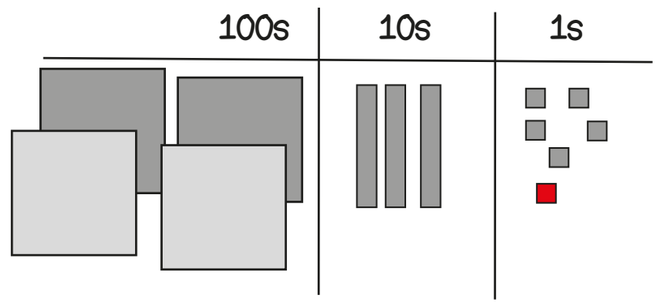

230 - 30 - 50 = 150



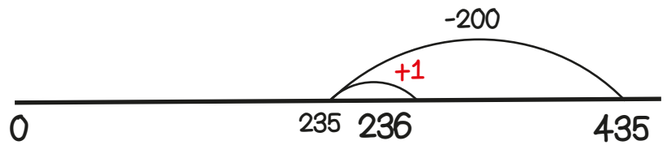

## 0 - 7 = 3

If I know 10 - 7 = 3
then I know
any multiple of 10,
take away 7 leaves
3 in the ones.

## 435 - 199
Round then adjust



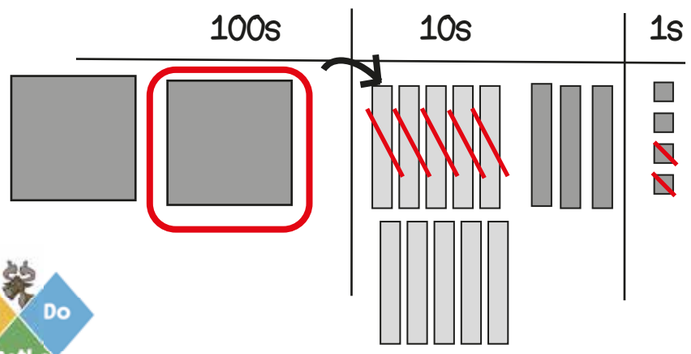

Take away 200 then add 1

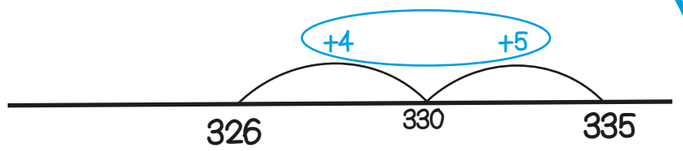



## 234 - 152
Formal written method

$$\begin{array}{r} {}^{1}\not{2}{}^{1}34 \\ -\,152 \\ \hline 82 \end{array}$$

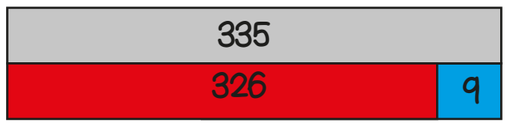
234 = 100 + 130 + 4




## 335 - 326
Find the difference between two numbers

335 is 9 more than 326
326 is 9 less than 335
so the difference between them is 9



# How shall I multiply?

## Rapid recall of 2x, 5x, 10x (year 2) 3x, 4x, 8x (year 3) multiplication tables

## Multiply by 10

| 100s | 10s | 1s | |
|---|---|---|---|
| | | ▪ ▪ | 2 |
| | ▮ ▮ | | 20 |
| ■ | | | 200 |

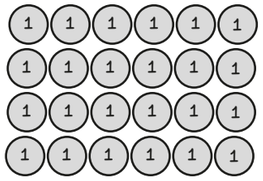
x10 x10

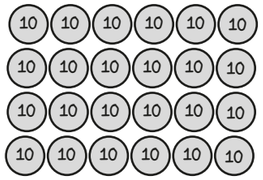
## 6 x 4 Use known facts and place value

40 is ten times greater than 4

6 x 4 = 24
60 x 4 = 240
6 x 40 = 240

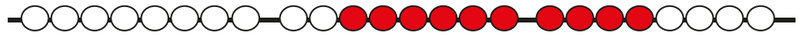
6 x 10 x 4
= 24 x 10

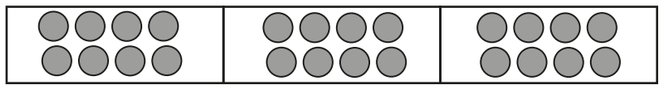




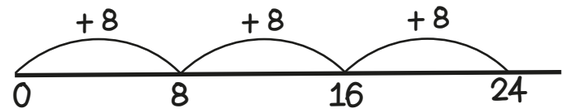
## 8 x 3 Repeated addition

8 + 8 + 8 =
3 + 3 + 3 + 3 + 3 + 3 + 3 + 3



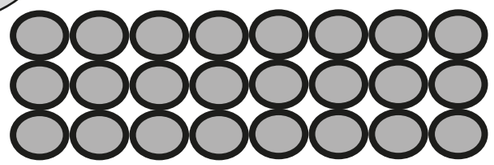


| 8 | 8 | 8 |
|---|---|---|



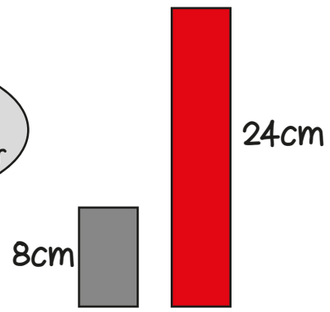

## Arrays

If I know 3 x 8 then I know 8 x 3



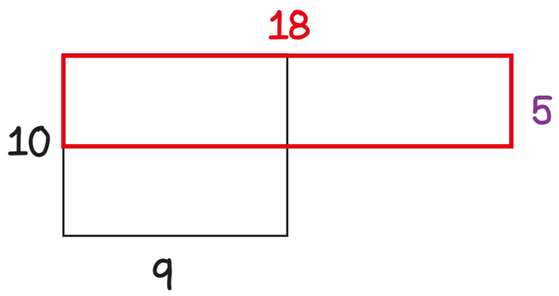
## Scaling

The red tower is 3 times taller than the grey tower



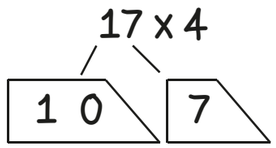

## 5 x 18 Double and halve

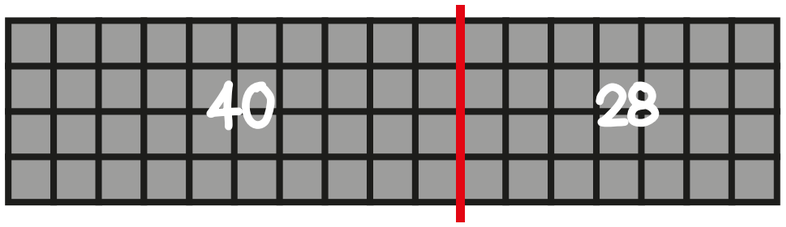
5 x 18
= 5 x 2 x 18 ÷ 2
= 10 x 9
= 90




## 17 x 4 Partition and recombine

10 x 4 + 7 x 4
40 + 28 = 68




## 17 x 4 Formal written method

| | 10 | 7 |
|---|---|---|
| 4 | 40 | 28 |

$$\begin{array}{r} 17 \\ \times\ 4 \\ \hline 68 \\ \hline {}^{2} \end{array}$$

# How shall I divide?

Known facts:
Use 2x, 5x, 10x (year 2)
3x, 4x, 8x (year 3)
multiplication tables to derive division facts

## 24 ÷ 4
Use known facts and place value

240 is ten times greater than 24

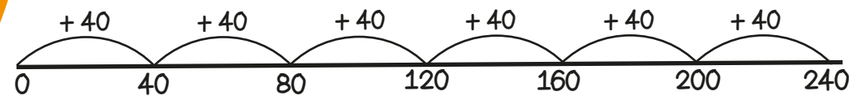
24 ÷ 4 = 6
240 ÷ 40 = 6
240 ÷ 4 = 60

24 biscuits shared between 4 people means they will get 6 biscuits each.
If there are 10 times as many people and 10 times as many biscuits, how many biscuits each now?

## 240 ÷ 40
Repeated addition

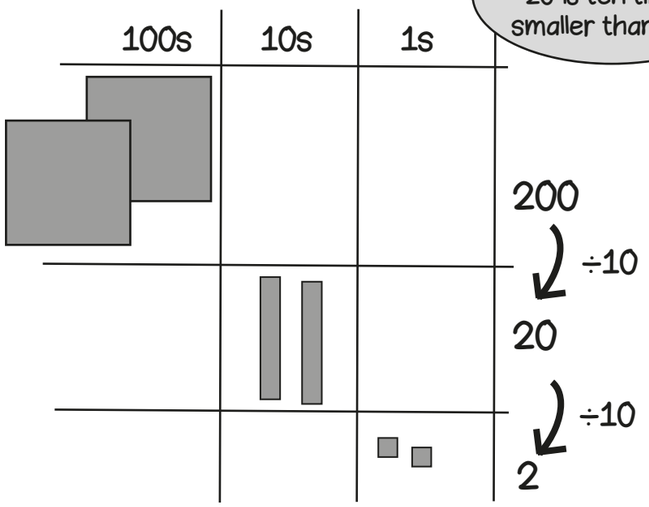
How many 40s are there in 240?

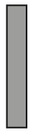
240 ÷ 40 = 6
How many steps of 40 make 240?




## 200 ÷ 10
Divide by 10

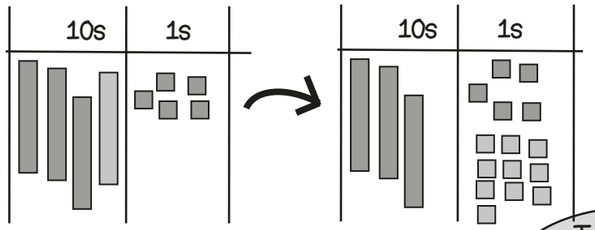
200 ÷ 10 = 20 so 20 is ten times smaller than 200



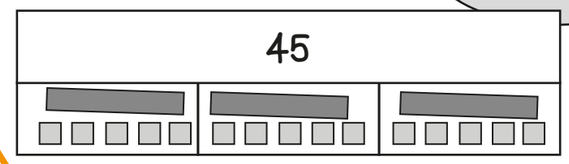

A tenth of  is 

A tenth of 1 is 1 tenth
so $1 \div 10 = \frac{1}{10}$

## 45 ÷ 3
Sharing equally




Ten for you, ten for you, ten for you...

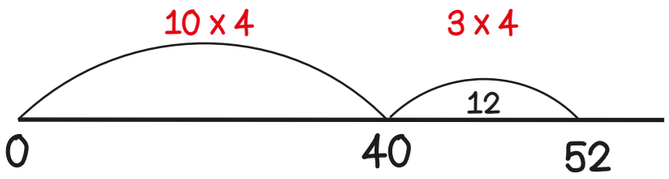



## 52 ÷ 4
Partition and recombine

ten lots and the rest

52 ÷ 4
40 12
÷4 ÷4
10 + 3 = 13

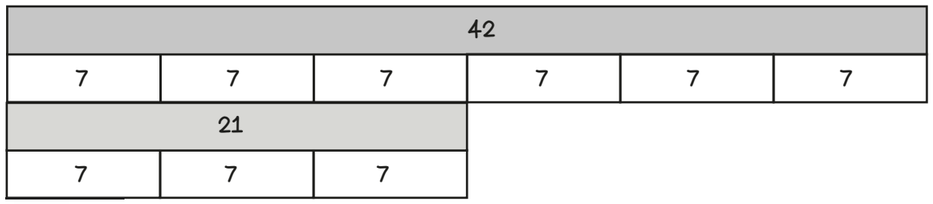
Link to fractions




## 42 ÷ 6
Double and halve

If there are half as many biscuits and half as many people...

42 ÷ 6 = 21 ÷ 3

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