Useful mathematical vocabulary

+	
plus	more
altogether	combine
total	add
makes	increase
and	count on
sum of	

-	
take away	difference
minus	subtract
count back	how many left?
leaves	less
decrease	

x	
repeated addition	multiply
groups of	product
lots of	pairs
times	double

÷	
share	share equally
divide	divisible
group	divided by
split	

=	
is the same as	makes
totals	balances
equals	

November 2014

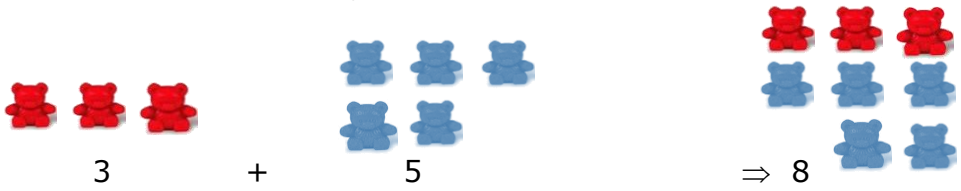
Addition

Stage 1

Count all

3 + 5

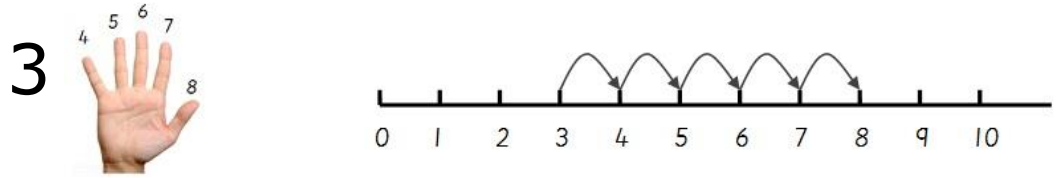
Count out three counters and then five counters and then find the total by counting all the counters.



Count on from the first number

3 + 5

Count on from the first number: 'four, five, six, seven, eight'.



Count on from the larger number

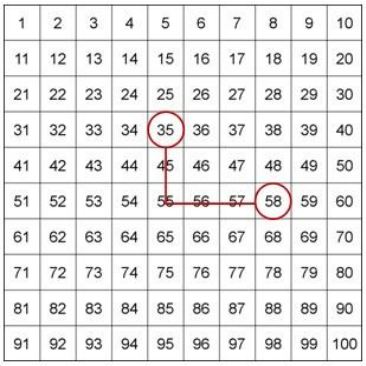
3 + 5

Count on from the larger number: 'six, seven, eight'.

Count on from the larger number

35 + 23

Count on 2 tens, then 3 units

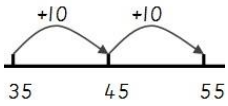


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

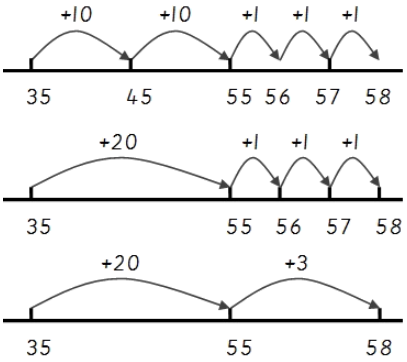
Stage 2

Counting on – number line

35 + 20



35 + 23



Partitioning

Partition the number into tens and units. Add the tens, then the units.

30	+	20	=	50	+
5	+	3	=	8	
50	+	8	=	58	

Expanded Addition

To understand the value of each digit, partition the number and place them into columns.

40	+	7			+
70	+	6			
110	+	13	=	123	

Stage 3

Compact Addition

3 5 8 7	6 5 8 4	3 . 6 8
6 7 5 +	5 8 4 4 +	4 . 2 3 +
4 2 6 2	1 2 4 2 8	7 . 9 1
1 1 1	1 1	1

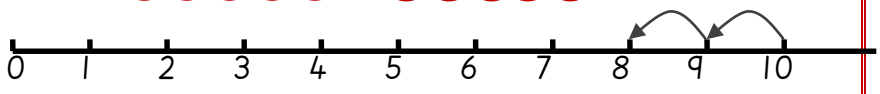
Subtraction

Stage 1

Counting back (take away)

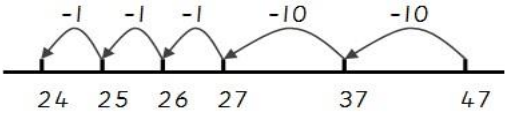
10 - 5

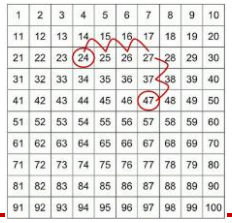
2 less than 10



How many have we got left?

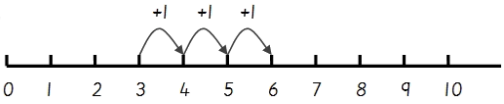
47 - 23



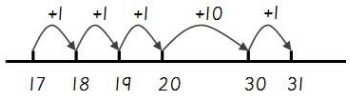


Counting on (find the difference)

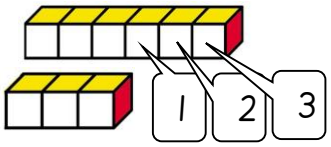
The difference between 3 and 6

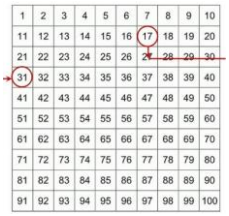


31 - 17



Start at 17 and count on to 31

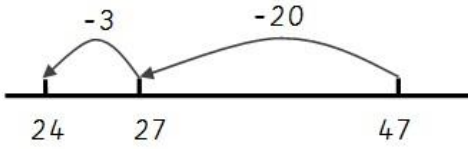




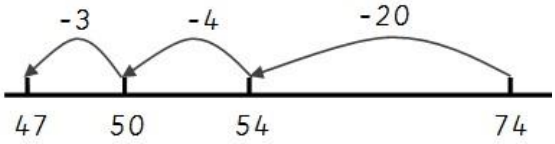
Stage 2

Counting Back

47 - 23

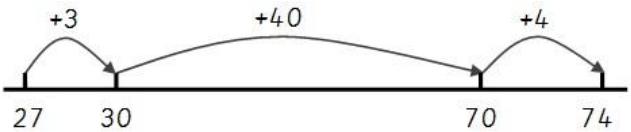


74 - 27

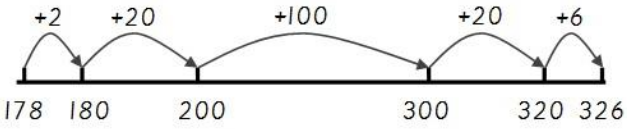


Counting On (find the difference)

74 - 27 = 47



326 - 178 = 148



Partitioning

58 - 23 = 35

58 - 20 = 38

38 - 3 = 35

74 - 27 = 47

74 - 20 = 54

54 - 7 = 47

Expanded Method

47 - 23

40 and 7

20 and 3

20 and 4

=24

182 - 57

100 70 12

50 7

100 20 5

=125

Stage 3

Compact method (with decomposition)

974 - 548

9 6 7 1 4

5 4 8

4 2 6

4 is less than 8

EXCHANGE a ten for 10 new units and add these to the 4 to make 14.

Remember to change the 70 to 60.

5809-2634

5 7 8 1 0 9

2 6 3 4

3 1 7 5

EXCHANGE a hundred for 10 new tens and add these to make 100 – 30.

Remember to change the 800 to 700

£73.79-£45.55

£ 6 7 1 3 . 7 9

£ 4 5 . 5 5

£ 2 8 . 2 4

6 7 9 9 1 0 0 1 2

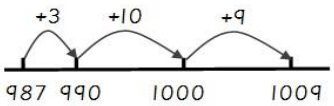
1 4 2 7

5 5 7 5

EXCHANGE a thousand, a hundred and a ten in this example.

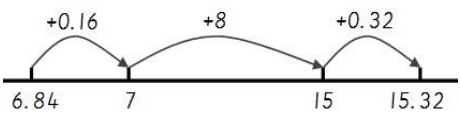
Counting On

1009 - 987



=22

15.32 - 6.84



=8.48

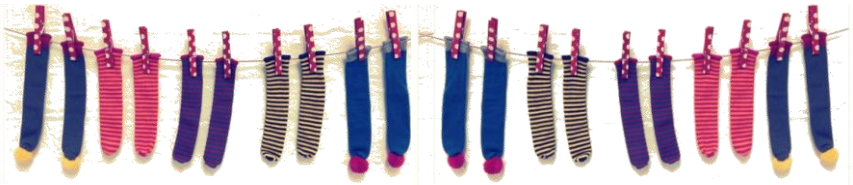
Multiplication

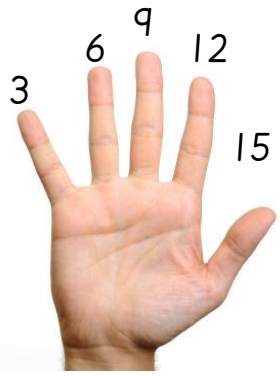
Stage 1

Counting in equal steps

2s, 3s, 4s & 5s

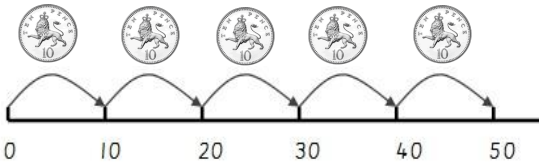
2 4 6 8 10 12 14 16 18 20





Repeated addition

2 + 2 + 2 + 2 + 2 = 10
2 x 5 = 10
2 multipied by 5
5 pairs



10p + 10p + 10p +10p +10p = 50p
10p x 5 = 50p
5 jumps of 10

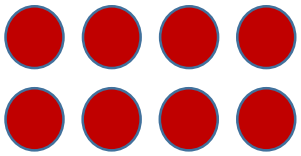
Doubling numbers

+

= 20

Double 10 equals 20

Describing an array



4 x 2 = 8

2 x 4 = 8

Stage 2

Partitioning

36 x 4 = 144

30 x 4 = 120 +
6 x 4 = 24
124

Grid Method

38 x 7 = 266

x	30	8
7	210	56

210 +
56
266

284 x 3 = 852

x	200	80	4
3	600	240	12

600 +
240
12
852

Stage 3

Grid Method

56 x 27

x	50	6
20	1000	120
7	350	42

1120 +
392
1512
1

5.65 x 9

x	5	0.6	0.05
9	45	5.4	.45

45.00 +
5.40
0.45
50.85

Short Multiplication

28 x 4

28
4 x
32 (8 x 4)
80 (20 x 4)
112
1

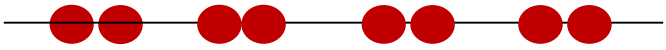
28
4 x
112
3

Division

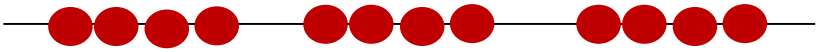
Stage 1

Number tracks/Number lines

8 ÷ 2 = 4



12 ÷ 4 = 3



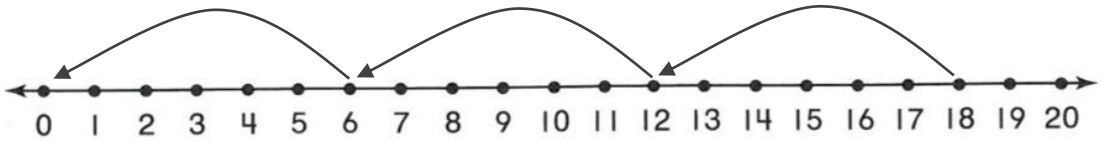
Halving numbers to 20

8 cakes shared between 2 plates

Stage 2

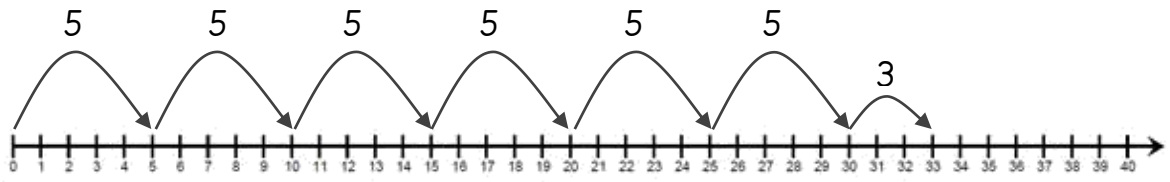
Number lines

18 ÷ 6 = 3



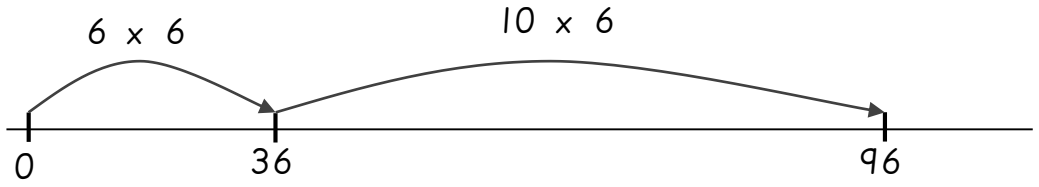
Number lines

33 ÷ 5 = 6 r3



Number lines

96 ÷ 6 = 16



Stage 3

Grouping (vertical layout)

96 ÷ 7 = 16

96
70 (7 x 10)
26
21 (7 x 3)
5

Answer: 13 r5

Grouping (expanded)

6)196
60 6 x 10
136
60 6 x 10
76
60 6 x 10
16
12 6 x 2
4

'Empty' number line (start from 0) may be used to record calculation strategy

Answer 32 r4

Short Division

291 ÷ 3 (estimate: 270 ÷ 3 = 90)

97
3)291