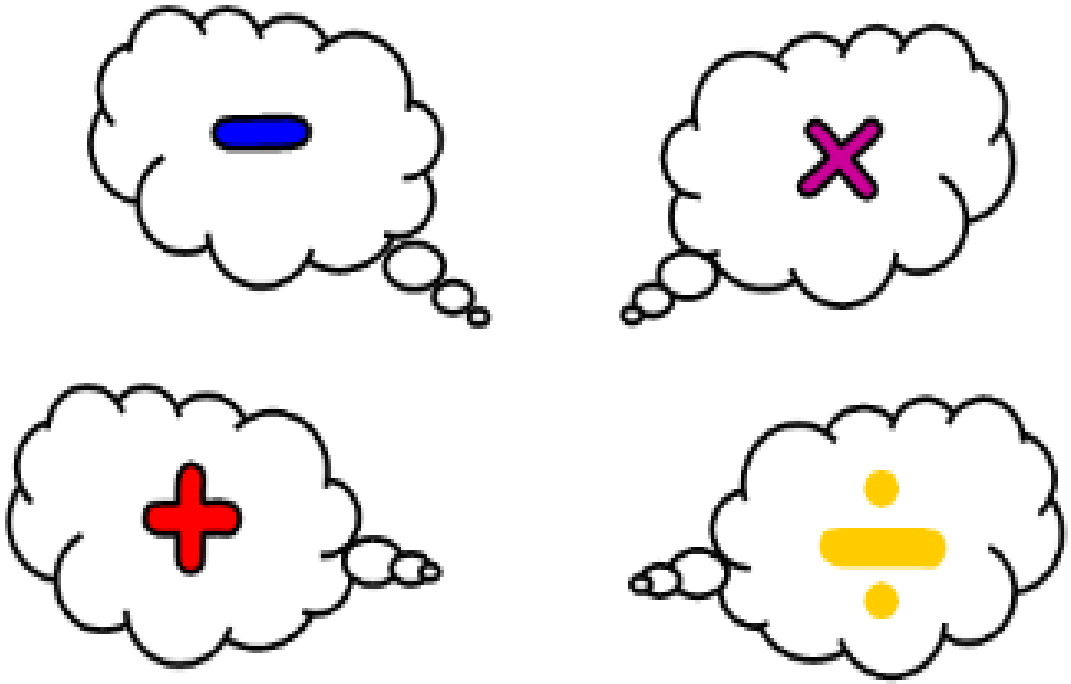
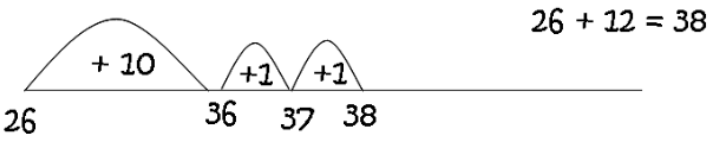
Progression in Calculations Parents' Guide

St Lawrence C of E Junior School



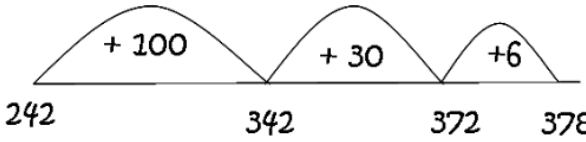
Addition

Number line Method



26 + 12 = 38

add addition and
make count on
sum plus total
more
altogether increase



242 + 136 = 378

Partitioning

48 + 33

40 8 30 3

70 + 11 = 81

T	U
40	+ 8
30	+ 6
80	+ 4
10	

Expanded **Column / Short**

Adding the least significant digits first

358	
+ 33	
11	
80	
300	
391	

→

358	
+ 33	
391	
1	

Children will move on to increasingly larger numbers and/or using decimal place values as well.

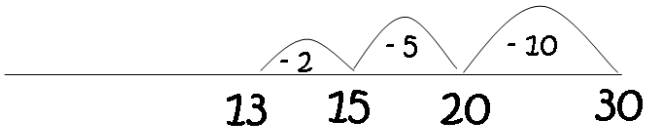
Subtraction

Number line

count back take away
fewer subtract
minus less
difference between

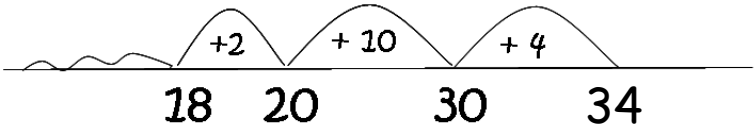
Jumping back

30 – 17 = 13

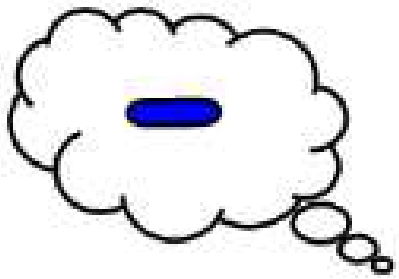


Jumping forward

34 – 18 =



10 + 4 + 2 = 16



Partitioning method

71
- 46

Step 1 70 + 1
- 40 + 6

Step 2 60 + 11
- 40 + 6
20 + 5 = 25

The calculation should be read as e.g. take 6 from 1.

This would be recorded by the children as

60
~~70~~ + 11
- 40 + 6
20 + 5 = 25

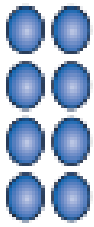
Column - Short

547
– 134
413

1
7 82
- 57
25

Multiplication

Arrays / Groups of



$2 \times 4 = 8$

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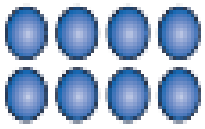

$4 \times 2 = 8$

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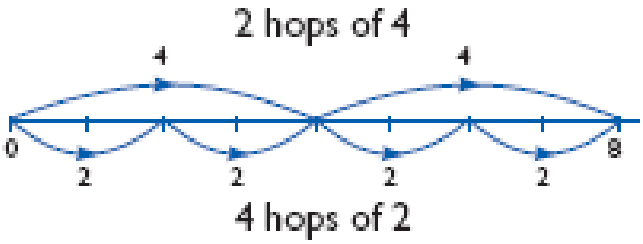
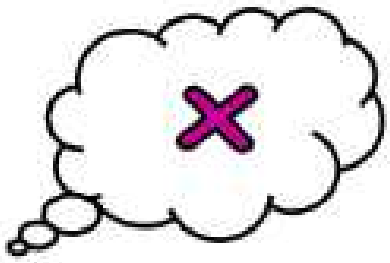
multiplication product
once, twice, three times
double groups of
repeated addition lots of
array, row, column multiply
times multiple

Jumps on a number line





Grid method

4 x 13

×	10	3
4	40	12

40 + 12 = 52

12 x 13

×	10	2
10	100	20
3	30	6

100 + 30 + 20 + 6 = 156

Expanded multiplication

38 x 7

210 (30 x 7)

56 (8 x 7)

266

38 x 27

600 (30 x 20)

160 (8 x 20)

210 (30 x 7)

56 (8 x 7)

1026

Short multiplication

24 x 6 becomes

$$\begin{array}{r} 2\ 4 \\ \times\ \ 6 \\ \hline 1\ 4\ 4 \\ \hline 2 \end{array}$$

342 x 7 becomes

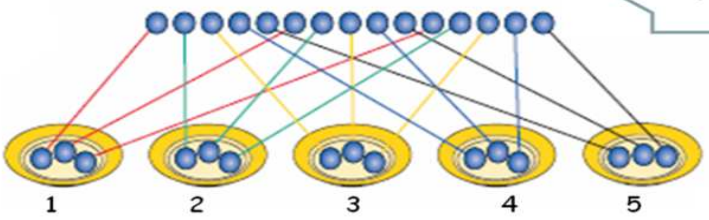
$$\begin{array}{r} 3\ 4\ 2 \\ \times\ \ \ 7 \\ \hline 2\ 3\ 9\ 4 \\ \hline 2\ 1 \end{array}$$

Division

Sharing

15 ÷ 5 = 3

15 shared between 5

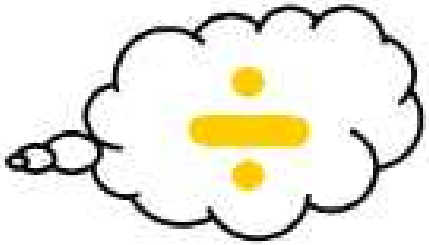


With sharing, it's helpful to draw the right number of plates / circles first

group | groups of | lots of | divide | divided by | quotient | division | factor | remainder | divisible | half | halve | share

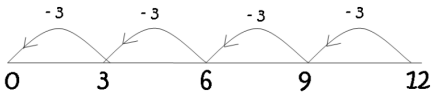
Grouping

15÷5 can mean putting 15 objects into groups of 5. How many groups are there?



Repeated subtraction

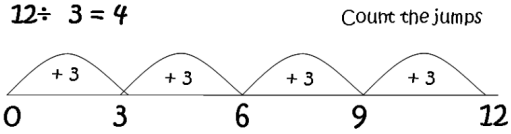
12 ÷ 3 = 4



12 - 3 – 3 – 3 – 3

Jumping forwards on the number line

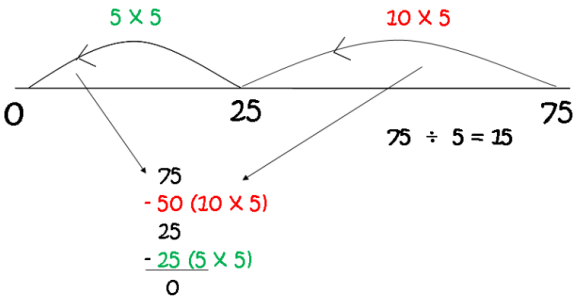
12 ÷ 3 = 4



Chunking on a number line

(You can go forwards or backwards)

75 ÷ 5



Vertical Chunking

(You can add or subtract chunks)

318 ÷ 7

318
-280 (40 X 7)
38
-35 (5 X 7)
3

= 40 + 5 = 45 r 3

Fact Box

2 X 7 = 14
5 X 7 = 35
10 X 7 = 70
20 X 7 = 140
30 X 7 = 210
40 X 7 = 280

Short division

98 ÷ 7 becomes

```
  1 4
 ----
7|9 8
```

Answer: 14

432 ÷ 5 becomes

```
  8 6 r2
 -------
5|4 3 2
```

Answer: 86 remainder 2

496 ÷ 11 becomes

```
  4 5 r1
 -------
11|4 9 6
```

Answer: $45\frac{1}{11}$

Useful Maths Websites

www.mathletics.co.uk

www.whiz.com

www.ictgames.com

www.bbc.co.uk/schools

www.crickweb.co.uk

www.counton.org

www.mathzone.co.uk

www.nrich.maths.org

www.mathsplayground.com

www.lancsngfl.ac.uk

www.childparenting.about.com

www.mad4maths.com

www.maths-games.org

www.topmarks.co.uk

www.themathsfactor.com

www.uk.ixl.com

www.primaryhomeworkhelp.co.uk/maths/index.html