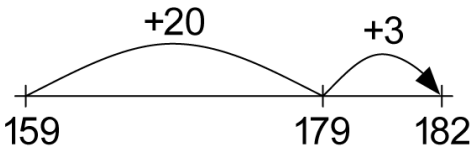
# Addition

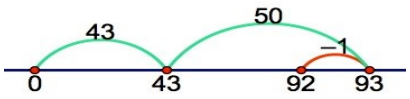
## Year 3

### Number line, bridging through tens, then hundreds.




### Compensating on a number line

43 + 49 = ?




### Expanded partitioning method

***43 + 24***

*40 + 20 = 60*
*3 + 4 = 7*

*43 + 24 = **67***

### Column addition up to 3 digits

```
  367
+  85
 ---
  452
  1 1
```

## Year 4

### Column addition up to 4 digits

```
 4324
+4256
 8580
    1
```

## Year 5

### Column addition (decimals)

| H | T | O | . | 1/10 | 1/100 |
|---|---|---|---|---|---|
| | | 4 | . | 2 | 3 |
| | | 3 | . | 1 | 4 |
| | | 7 | . | 3 | 7 |

## Year 6

### Column addition up to any digits

```
 432438
+ 25653
 458091
   1 1
```

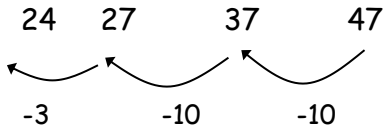
### Add decimals with different decimal places (e.g. 4 . 3 8 4 + 2 . 6 6)

```
 4.384
+2.660
 7.044
   1 1
```

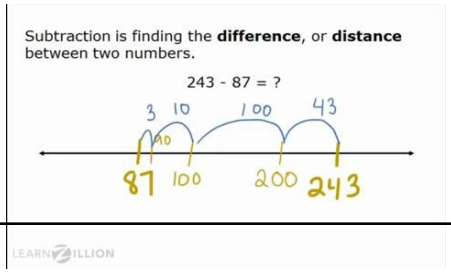
# Subtraction

## Year 3

### Counting back on a number line




### Counting on method




### Partitioning and decomposition

***89 - 57***

*89 = 80 + 9*

*- 57 50 + 7*

*30 + 2 = **32***

### Formal column method

$$\begin{array}{r} {}^{6}\cancel{7}\,{}^{14}\cancel{5}\,{}^{1}4 \\ -\ 8\,6 \\ \hline 6\,6\,8 \end{array}$$

## Year 4

### Formal column method up to 4 digits

$$\begin{array}{r} {}^{6}\cancel{7}\,{}^{14}\cancel{5}\,{}^{1}45 \\ -\ 862 \\ \hline 6683 \end{array}$$

## Year 5

### Formal column method with 4 digits **or more**

$$\begin{array}{r} {}^{6}\cancel{7}\,{}^{14}\cancel{5}\,{}^{1}45 \\ -\ 862 \\ \hline 6683 \end{array}$$

## Year 6

### Formal column method - decomposition (including decimals)

$$\begin{array}{r} {}^{1}2\,{}^{10}\cancel{1}\,{}^{1}\cancel{1}.18 \\ -\ 8.43 \\ \hline 12.75 \end{array}$$

### Subtract decimals with different decimal places

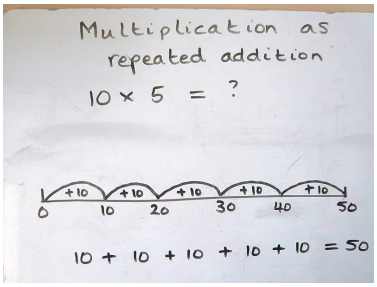
(e.g. 4.984 - 2.66)

$$\begin{array}{r} 4.984 \\ -2.660 \\ \hline 2.324 \end{array}$$

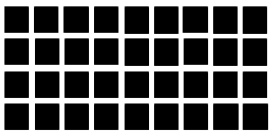
# Multiplication

## Year 3

### Repeated addition




### Arrays



4 x 9 = 36

9 x 4 = 36

### Grid Method TO x Ones 23 x 8

| × | 20 | 3 |
|---|---|---|
| 8 | 160 | 24 |

160
+ 24
184

### Progress to Short multiplication

23
x 8
24 ( 8x3 )
160 (8x20)
184

342
× 7
2394
21

## Year 4

### Grid Method HTO x O , TO x TO

| x | 70 | 2 |
|---|---|---|
| 30 | 2100 | 60 |
| 8 | 560 | 16 |

### Short multiplication to 4 digits

Expanded method

123
x 8
24 (8x3)
160 (8x20)
200 (8x100)
384

342
× 7
2394
21

## Year 5

### Grid method ThHTO x O

| x | 1000 | 300 | 40 | 6 |
|---|---|---|---|---|
| 9 | 9000 | 2700 | 360 | 54 |

9000
2700
+ 360
+ 54
12114
11

Short multiplication to 5 digits (see Y4)

### Grid method O th x O

| x | 4 | 0.9 |
|---|---|---|
| 3 | 12 | 2.7 |

12
+ 2.7
14.7

### Long multiplication of 2 digit numbers TO X TO

24
x16
24 (6x4)
120 (6x20)
40 (10x4)
200 (10x20)
384

24
x16
144 (6x24)
240 (10x24)
384

## Year 6

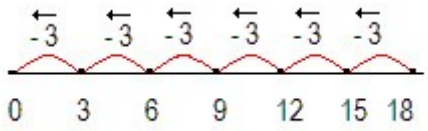
Long multiplication to 4 digit numbers

124
X 56
744
7440
8184
1

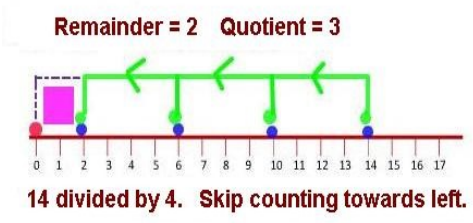
# Division

## Year 3

### Repeated subtraction using a number line

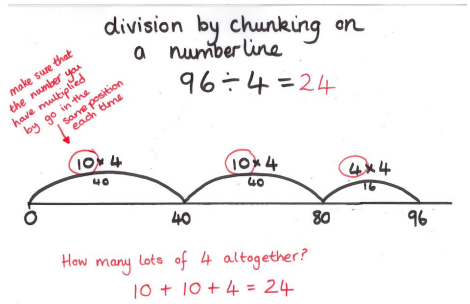



### ....with remainders



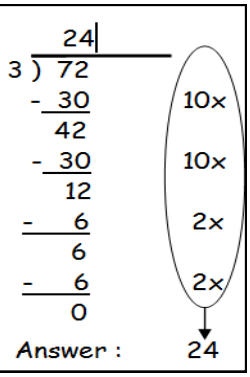

## Year 4

### Chunking on a number line

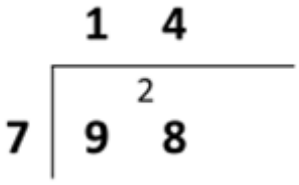



### Vertical chunking method

72 ÷ 3



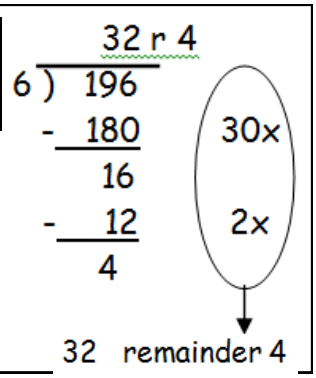

### Formal short division




## Year 5

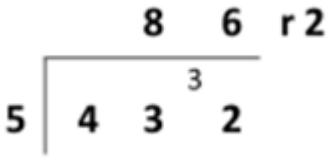
### Chunking with remainders

196 ÷ 6




## Year 5

### Formal short division including remainders




## Year 6

### Long Division