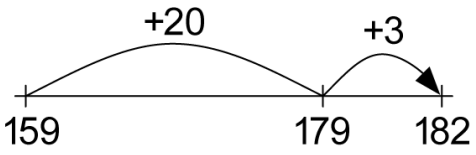
Addition

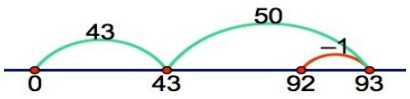
Year 3

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

$$\begin{array}{r} 367 \\ +\ 85 \\ \hline 452 \\ \hline {\scriptstyle 1\ 1} \end{array}$$

Year 4

Column addition up to 4 digits

$$\begin{array}{r} 4324 \\ +4256 \\ \hline 8580 \\ \hline {\scriptstyle 1} \end{array}$$

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

$$\begin{array}{r} 432438 \\ +\ 25653 \\ \hline 458091 \\ \hline {\scriptstyle 1\ 1} \end{array}$$

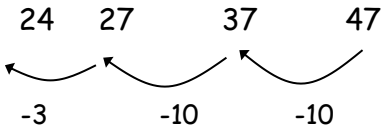
Add decimals with different decimal places (e.g. 4 . 3 8 4 + 2 . 6 6)

$$\begin{array}{r} 4.384 \\ +2.660 \\ \hline 7.044 \\ \hline {\scriptstyle 1\ 1} \end{array}$$

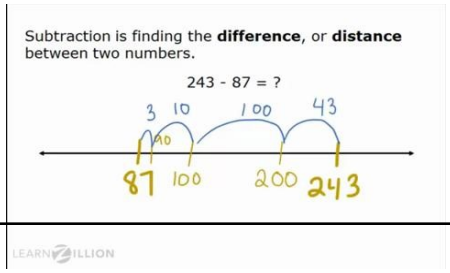
Subtraction

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

$$\begin{array}{r} {}^{6}\not{7}\,{}^{14}\not{5}\,{}^{1}\not{4} \\ -\ 8\,6 \\ \hline 6\,6\,8 \end{array}$$

Year 4

Formal column method up to 4 digits

$$\begin{array}{r} {}^{6}\not{7}\,{}^{14}\not{5}\,{}^{1}4\,5 \\ -\ 8\,6\,2 \\ \hline 6\,6\,8\,3 \end{array}$$

Year 5

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

$$\begin{array}{r} {}^{6}\not{7}\,{}^{14}\not{5}\,{}^{1}4\,5 \\ -\ 8\,6\,2 \\ \hline 6\,6\,8\,3 \end{array}$$

Year 6

Formal column method - decomposition (including decimals)

$$\begin{array}{r} 1\ \ 10\ \ 1 \\ 2\not{1}.{}^{10}\not{1}8 \\ -\ \ 8.4\,3 \\ \hline 1\,2.7\,5 \end{array}$$

Subtract decimals with different decimal places

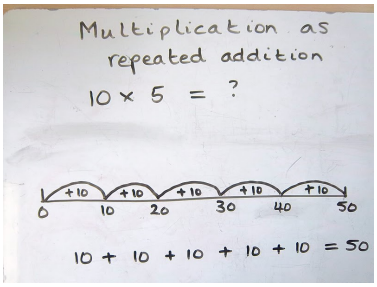
(e.g. 4.984 - 2.66)

$$\begin{array}{r} 4.9\,8\,4 \\ -2.6\,6\,0 \\ \hline 2.3\,2\,4 \end{array}$$

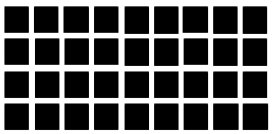
Multiplication

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

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

Expanded method

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

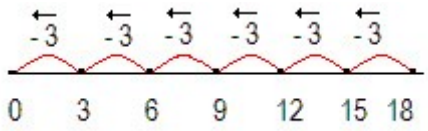
Long multiplication to 4 digit numbers

124
X 56
744
7440
8184
1

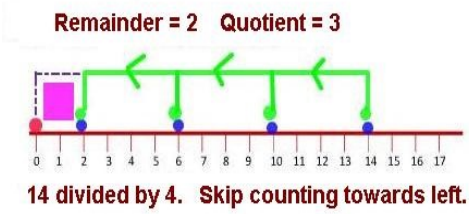
Division

Year 3

Repeated subtraction using a number line

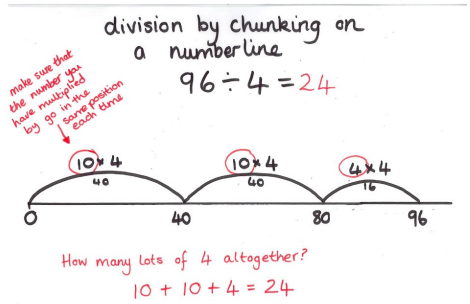


....with remainders



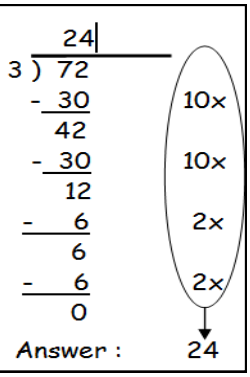
Year 4

Chunking on a number line

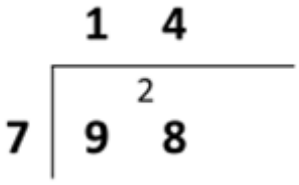


Vertical chunking method

72 ÷ 3



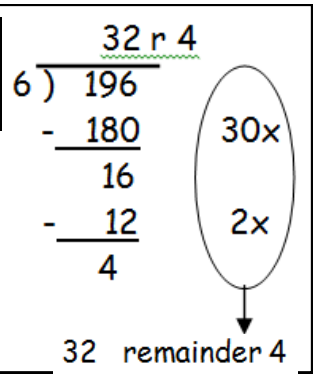
Formal short division



Year 5

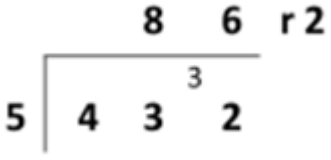
Chunking with remainders

196 ÷ 6



Year 5

Formal short division including remainders



Year 6

Long Division