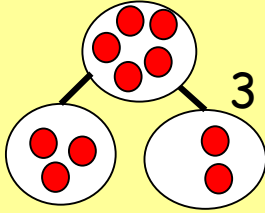


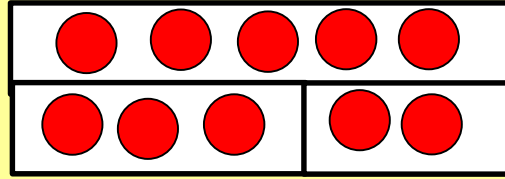
# ADDITION +

EYFS

Counting a variety of concrete resources including everyday objects. Combine groups of objects or pictures and count altogether to find the total.



$$3 + 2 = 5$$

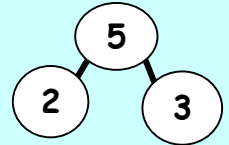
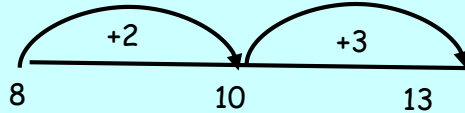


$$3 + 2 = 5$$

YEAR 1

Jumps on a number line by partitioning a 1 digit number using a part-part-whole to support. e.g  $8 + 5 = 13$  or  $27 + 7 = 34$ .

Ensure children receive a diet of concrete, pictorial and abstract stimuli.



YEAR 2

Expanded column method  
e.g  $33 + 8 = 41$

Moving on to adding 2 digit numbers, e.g  $26 + 32 = 58$

See webinar for supporting pedagogy.

$$\begin{array}{r} 33 \\ + 8 \\ \hline 11 \\ 30 \\ \hline 41 \end{array}$$

$$\begin{array}{l} 3 + 8 = 11 \\ 30 + 0 = 30 \end{array}$$

YEAR 3

Compact column method. See webinar for supporting pedagogy.

$$\begin{array}{r} 1 \\ 56 \\ + 65 \\ \hline 121 \end{array}$$

YEAR 4

Compact column method for whole numbers.  
Expanded column method for decimals.

$$356 + 465 = 821$$

$$\begin{array}{r} 11 \\ 356 \\ + 465 \\ \hline 821 \end{array}$$

$$72.8 + 54.6 = 127.4$$

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \end{array}$$

YEAR 5

Compact column method for whole numbers.  
Compact column method for decimals.

$$3259 + 7698 = 11,057$$

$$\begin{array}{r} 111 \\ 3259 \\ + 7698 \\ \hline 11057 \end{array}$$

$$72.8 + 54.6 = 127.4$$

$$\begin{array}{r} 11 \\ 72.8 \\ + 54.6 \\ \hline 127.4 \end{array}$$

YEAR 6

Compact column method. Compact method used with decimals of increasing difficulty, e.g

$$72.8 + 54.6 = 127.4$$

$$\begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \end{array}$$

then...

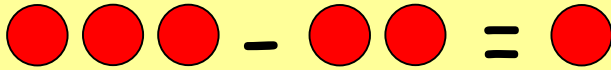
$$13.86 + 9.481 = 23.341$$

$$\begin{array}{r} 13.86 \\ + 9.481 \\ \hline 23.341 \end{array}$$

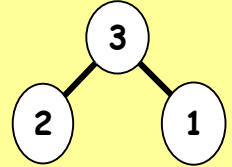
# SUBTRACTION -

EYFS

Taking away everyday objects and count how many are left.

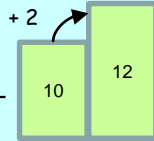
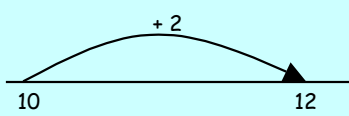


$$3 - 2 = 1$$

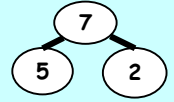
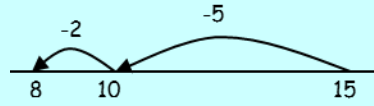


YEAR 1

Using a number line to find a small difference, e.g.  $12 - 10 = 2$



Use a number line and partition numbers to subtract, counting backwards, e.g.  $15 - 7 = 8$



YEAR 2

Expanded column including exchange e.g.  $38 - 19 = 19$ . See webinar for supporting pedagogy.

$$\begin{array}{r} \overset{20}{\cancel{30}} \overset{18}{8} \\ - \quad 10 \quad 9 \\ \hline 10 \quad 9 \end{array}$$

YEAR 3

Expanded column then compact column method. See webinar for supporting pedagogy.

$$238 - 119 = 119$$

$$\begin{array}{r} \overset{20}{\cancel{200}} \overset{30}{10} \overset{18}{9} \\ - \quad 100 \quad 10 \quad 9 \\ \hline 100 \quad 10 \quad 9 \end{array}$$

$$874$$

$$\begin{array}{r} - \quad 523 \\ \hline 351 \end{array}$$

$$\overset{4}{\cancel{95}} \overset{1}{2}$$

$$\begin{array}{r} - \quad 537 \\ \hline 415 \end{array}$$

YEAR 4

Compact column for whole numbers. Expanded leading to compact for decimals.

$$\begin{array}{r} \overset{4}{\cancel{99}} \overset{1}{2} \\ - \quad 7537 \\ \hline 2415 \end{array}$$

$$6.3 - 2.1 = 4.2$$

$$\begin{array}{r} 6.0 \quad 0.3 \\ - \quad 2.0 \quad 0.1 \\ \hline 4.0 \quad 0.2 \end{array}$$

$$6.1 - 2.4 = 3.7$$

$$\begin{array}{r} \overset{5}{\cancel{6.1}} \overset{1}{2} \\ - \quad 2.4 \\ \hline 3.7 \end{array}$$

YEAR 5

Compact column method for whole numbers. Compact column method for decimals.

$$9952 - 7537 = 2415$$

$$\begin{array}{r} \overset{4}{\cancel{99}} \overset{1}{2} \\ - \quad 7537 \\ \hline 2415 \end{array}$$

$$72.8 - 54.6 = 18.2$$

$$\begin{array}{r} \overset{6}{\cancel{72}} \overset{1}{2} \overset{8}{8} \\ - \quad 54 \overset{6}{6} \\ \hline 18 \overset{2}{2} \end{array}$$

YEAR 6

Compact column method. Compact method used with decimals of increasing difficulty

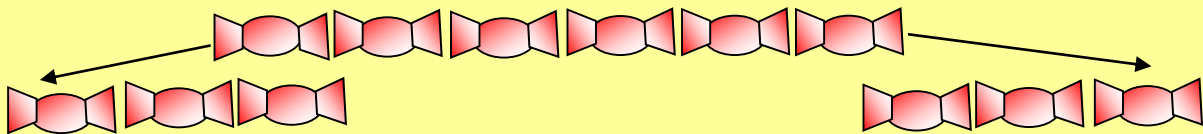
$$2325 - 1568 = 757$$

$$\begin{array}{r} \overset{1}{2} \overset{12}{\cancel{3}} \overset{11}{\cancel{2}} \overset{1}{5} \\ - \quad 1568 \\ \hline 757 \end{array}$$

# DIVISION ÷

## YEAR 1 /EYFS

Sharing. 6 sweets are shared between two people. How many do they each have?

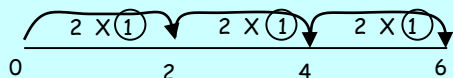


Grouping. Children sort objects into 2s, 3s, 4s, etc. For example, how many pairs of socks are there?



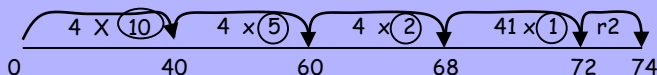
## YEAR 2

Grouping / chunking using a number line, e.g  $6 \div 2 = 3$



## YEAR 3

Grouping / chunking using multiplication facts ( $\times 10$ ,  $\times 5$ ,  $\times 2$ ) with & without remainders.  
 $74 \div 4 = 18 \text{ r}2$



## YEAR 4

Vertical chunking.

$$222 \div 6 = 37$$

Number facts:

$$6 \times 20 = 120$$

$$6 \times 10 = 60$$

$$6 \times 5 = 30$$

$$6 \times 2 = 12$$

$$\begin{array}{r} 222 \\ - 120 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 102 \\ - 60 \\ \hline 42 \end{array}$$

$$\begin{array}{r} 42 \\ - 30 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 12 \\ - 12 \\ \hline 0 \end{array}$$

$$6 \times 20$$

$$6 \times 10$$

$$6 \times 5$$

$$6 \times 2$$

Short Division

$$98 \div 7 = 14$$

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}$$

$$432 \div 5 = 86 \text{ r}2$$

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \end{array}$$

## YEAR 5

Short division. Vertical chunking method (see Year 4) transitioning into long division when children are conceptually secure with chunking. Chunking for decimals.

$$496 \div 11 = 45 \text{ r}1$$

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \end{array}$$

$$965 \div 5 = 193$$

$$\begin{array}{r} 193 \\ 5 \overline{) 965} \\ - 9 \phantom{0} \phantom{0} \\ \hline 15 \phantom{0} \\ - 15 \phantom{0} \\ \hline 0 \end{array}$$

$$432 \div 15 = 28 \text{ r}12$$

$$\begin{array}{r} 28 \text{ r}12 \\ 15 \overline{) 432} \\ - 30 \phantom{0} \\ \hline 13 \phantom{0} \\ - 12 \phantom{0} \\ \hline 12 \end{array}$$

$$28.8 \div 1.6 = 18$$



## YEAR 6

Short and long division with numbers of increasing complexity. Methods as Year 5.

# MULTIPLICATION X

YEAR 1

Counting groups of the same size.



Rows:

$$3 + 3$$

3 multiplied by 2

$$3 \times 2$$

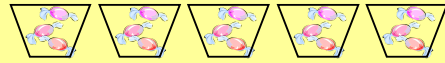
Columns:

$$2 + 2 + 2$$

2 multiplied by 3

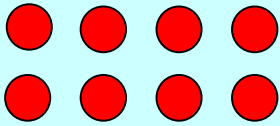
$$2 \times 3 = 6$$

There are 3 sweets in one bag. How many sweets are there in 5 bags?  $3 \times 5 = 15$



YEAR 2

Children use arrays, repeated addition and the number line:



Rows:

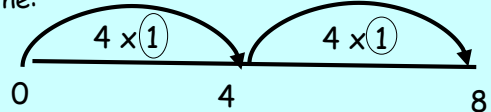
$$4 + 4 = 8$$

$$4 \times 2 = 8$$

Columns

$$2 + 2 + 2 + 2 = 8 \text{ or}$$

$$2 \times 4 = 8$$



Then move on to the grid method multiplying a 2 digit number, e.g  $15 \times 2 = 30$

x	10	5	
2	20	10	= 30

YEAR 3

Grid method. E.g  $84 \times 4 = 336$

x	80	4	
4	320	16	= 336

YEAR 4

Short multiplication (i.e multiplying by a single digit) for whole numbers. Continue to use grid method for decimals.

$$24 \times 6 = 144$$

$$24$$

$$342 \times 7 = 2394$$

$$342$$

$$7.3 \times 6 = 43.8$$

x	6
144	
2	

x	7
2394	
21	

x	7	0.3
6	42	1.8

Encourage pattern spotting with your child, e.g  $6 \times 3 = 18$  so  $6 \times 0.3 = 1.8$

YEAR 5

Long multiplication (i.e multiplying by more than 1 digit) for whole numbers and short multiplication for decimals.

$$124 \times 26 = 3244$$

	1	2	4	
x		2	6	
	2	4	8	0
	7	4	4	
	3	2	4	4
	1	1		

	3	.	2	4	
x			6		
	1	9	.	4	4
		1	.	2	

YEAR 6

Long multiplication of whole numbers and decimals.

	3	.	2	4	
x			2	6	
	1	9	.	4	4
	6	4	.	8	0
		1	.	2	
	8	4	.	2	4
		1	.	1	

	1	3	.	2	4	
x				2	6	
	7	9	.	4	4	
	2	6	.	4	8	0
		1	.	1	.	2
	3	4	.	4	2	4
		1	.	1	.	1