

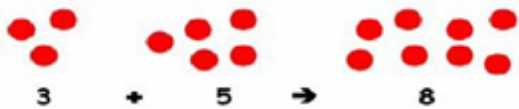


**Bournmoor Primary School**  
**A Visual Guide to Calculating Methods.**

**ADDITION METHODS**

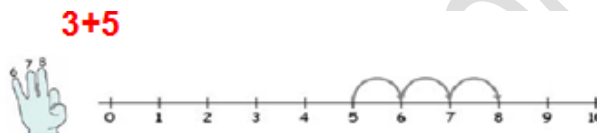
**Counting**       $3 + 5 = 8$

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



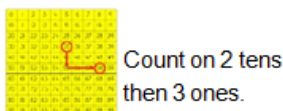
**Count on from the largest number**       $5 + 3 = 8$

Count on from one of the given numbers e.g. '6, 7, 8'. (either by putting the largest number "in your head" and counting on the smaller number, or using a number line)



**Using a hundred square**       $35 + 23 = 58$

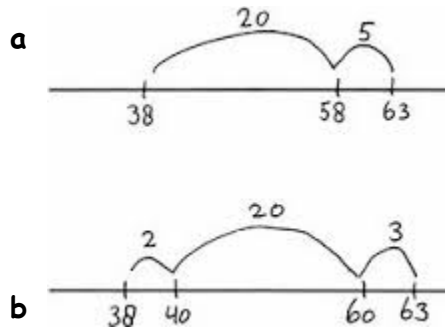
Find the largest number and then count on in tens and then ones e.g. Find 35, add on 2 tens and then 3 ones.





### Using a blank number line

$$38 + 25 = 63$$



a - using a blank number line, put the largest number first then add the tens then the ones.

b - putting the largest number first, +2 to make it up to the next tens number then adding on the remaining amount (23 in this case)

### Expanded Column Addition

$$35 + 23 =$$

$$\begin{array}{r} 30 + 5 \\ 20 + 3 \\ 50 + 8 \\ \hline \end{array}$$

The two numbers are partitioned into tens and ones. The units are added together followed by the tens.

### Column addition (Always begin by adding the ones first)

Carrying

$$\begin{array}{r} 34 \\ + 25 \\ \hline 59 \\ \hline \end{array}$$

Carrying

$$\begin{array}{r} 358 \\ + 273 \\ \hline 631 \\ \hline 11 \end{array}$$



## SUBTRACTION METHODS

**Take away**       $13 - 5 = 8$

Have 13 counters and take 5 away from it.



4 less than 10

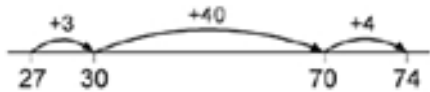


**Using a hundred square**       $47 - 24 = 23$

Find the largest number (47) and find the smallest number (24). Start at 24 and count on until to reach 47. The amount you count on will give you the answer.



**Counting on using a blank number line**       $74 - 27 = 47$



Draw a number line

Place the smallest number at the beginning and the largest number at the end

Count to the next 10, then the next 100 or a multiple of 10

Add on the rest

Add up the differences found

**Expanded column subtraction**

$$\begin{array}{r} 47 - 24 = 23 \\ \underline{40 + 7} \\ - \underline{20 + 4} \\ \underline{20 + 3} \end{array}$$

The numbers are partitioned into tens and ones to make the subtraction easier. The ones are subtracted first and then the tens.



**Compact method** (Gradual progression from Year 2 -Year 6)

Always begin by subtracting the ones first.

$\begin{array}{r} 98 \\ -53 \\ \hline 45 \end{array}$	$\begin{array}{r} 765 \\ -433 \\ \hline 332 \end{array}$	$\begin{array}{r} 7 \\ \cancel{8}^1 2 \\ -58 \\ \hline 24 \end{array}$	$\begin{array}{r} 4^1 3 \\ \cancel{5}^4 \cancel{4}^1 3 \\ -268 \\ \hline 275 \end{array}$	$\begin{array}{r} 199 \\ \cancel{2}^1 \cancel{0}^1 \cancel{0}^1 8 \\ -689 \\ \hline 1319 \end{array}$	$\begin{array}{r} 18^1 4 \\ 5 \cancel{9}^1 \cancel{5}^1 4 \\ -23.96 \\ \hline 35.58 \end{array}$
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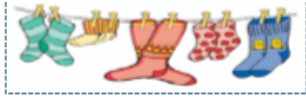


## MULTIPLICATION METHODS

Counting on in equal steps (twos, threes, fives, tens etc.)



Repeated addition

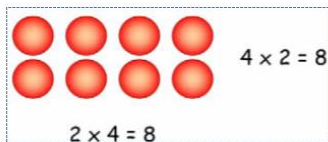


$$2 + 2 + 2 + 2 + 2 = 10$$

$$2 \times 5 = 10$$

2 multiplied by 5

Describing an array



**Grid method** (partition into tens and ones before multiplying each section. Add the total from each row)

$$38 \times 7 =$$

$$\begin{array}{r} 210+ \\ 56 \\ \hline 266 \\ \hline \end{array}$$

x	30	8
7	210	56



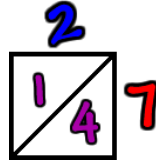
### Lattice Method (Italian Grid Method)

Each box has got a spot for tens and a spot for ones:



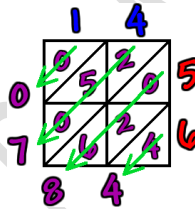
The 1 (the tens digit) in the top spot and the 4 (the ones digit) in the bottom spot:

$$2 \times 7 = 14$$

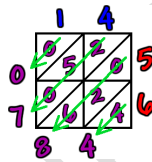


So for  $14 \times 56 =$

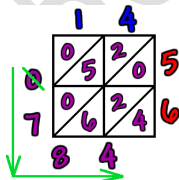
Step 1 - complete the multiplication for each box.



Step 2 - Now, just add down the diagonal stripes... Start at the bottom and work your way up the stripes:



Step 3 - We get our answer by reading down the left side and across the bottom. (Just ignore the first zero!)



$$14 \times 56 = 784$$



**Grid method** (partition into tens and ones before multiplying each section. Add the total from each row)

**38 x 7 =**

210+	<table style="border-collapse: collapse;"><tr><td style="border-right: 1px solid black; padding: 5px;">x</td><td style="padding: 5px;">30</td><td style="padding: 5px;">8</td></tr><tr><td style="border-right: 1px solid black; padding: 5px;">7</td><td style="padding: 5px;">210</td><td style="padding: 5px;">56</td></tr></table>	x	30	8	7	210	56
x	30	8					
7	210	56					

210+	56
266	

**Short and long multiplication** (Always begin by multiplying ones first and carry underneath)

E.g. 38 x 7	<table style="border-collapse: collapse;"><tr><td></td><td style="text-align: right;">53</td></tr><tr><td style="text-align: right;">x</td><td style="text-align: right;">24</td></tr><tr><td></td><td style="text-align: right; border-top: 1px solid black;">212</td></tr><tr><td></td><td style="text-align: right; border-top: 1px solid black;">1060</td></tr><tr><td></td><td style="text-align: right; border-top: 1px solid black; border-bottom: 1px solid black;">1272</td></tr></table>		53	x	24		212		1060		1272
	53										
x	24										
	212										
	1060										
	1272										
<table style="border-collapse: collapse;"><tr><td style="text-align: right;">38</td></tr><tr><td style="text-align: right; border-top: 1px solid black;">x 7</td></tr><tr><td style="text-align: right; border-top: 1px solid black;">266</td></tr><tr><td style="text-align: right; padding-top: 2px;">5</td></tr></table>	38	x 7	266	5							
38											
x 7											
266											
5											

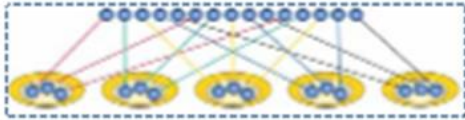
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## DIVISION METHODS

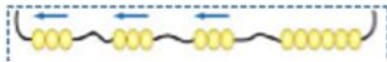
### Sharing

15 marbles are shared out equally among 5 children



### Grouping

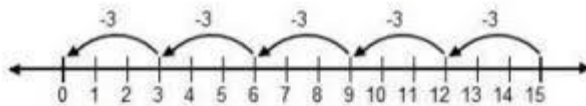
15 marbles put into groups of 3



### Repeated Subtraction

#### Repeated Subtraction

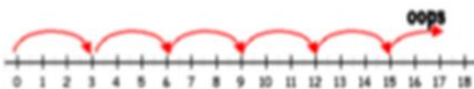
$15 \div 3 = 5$  is the number of times  
you can subtract 3 from 15 before you get to 0.



$$15 - 3 - 3 - 3 - 3 - 3 = 0$$
$$15 \div 3 = 5$$

### Division using a number line

$$17 \div 3 = 5 \text{ r } 2$$







### Short division (Gradual progression from Year 3 - Year 6)

No remainders

With remainders

Fraction remainder

Decimal remainder

$$75 \div 5 =$$

$$\begin{array}{r} 15 \\ 5 \overline{) 75} \end{array}$$

$$95 \div 4 =$$

$$\begin{array}{r} 23 \text{ r}3 \\ 4 \overline{) 95} \end{array}$$

$$783 \div 4 =$$

$$\begin{array}{r} 195 \frac{3}{4} \\ 4 \overline{) 783} \end{array}$$

$$783 \div 4 =$$

$$\begin{array}{r} 195.75 \\ 4 \overline{) 783.00} \end{array}$$

### Long division

$$504 \div 21 =$$

$$\begin{array}{r} 024 \\ 21 \overline{) 504} \end{array}$$

$$\begin{array}{r} 024 \\ 21 \overline{) 504} \\ \underline{42} \phantom{0} \\ 84 \\ \underline{84} \\ 00 \end{array}$$

Begin to write out multiples of 21:

21  
42  
63

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