

# Division

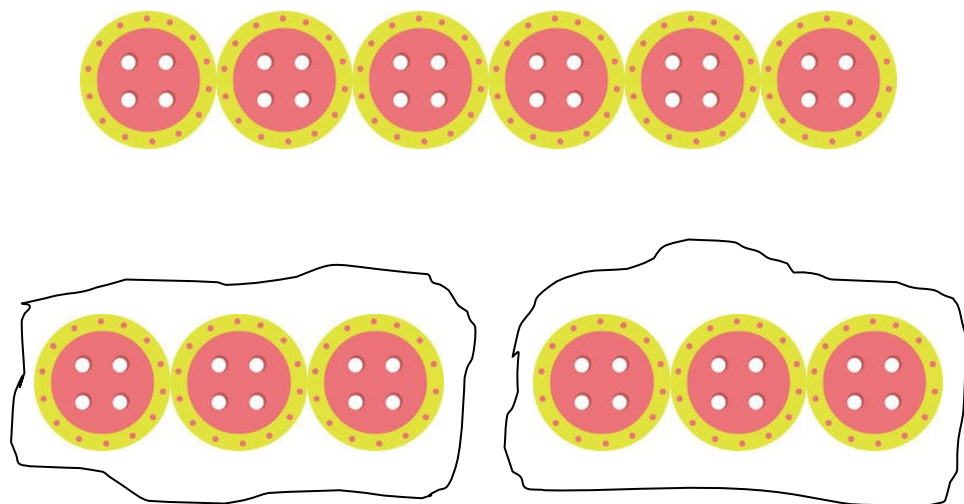
Over the years, the ways of teaching maths have changed, as has the name. We now call it Numeracy, which is about using our maths skills in everyday situations.

This booklet shows the different methods that are used in the teaching of division — one of the four rules of number within computation.



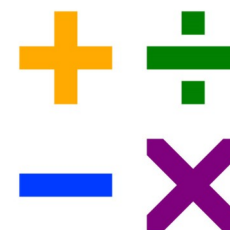
Students find division one of the hardest rules of number to master, and because of this we use a lot of language and equipment at the beginning to help students understand that division just means sharing equally. We also show the students that it is the opposite of multiplication and they can use this to check their answers.

Halving (half of 6 = 3)



When the students are confident in halving and sharing items between two, then we introduce simple written sums. These sums can be read in two ways and we work on both, using equipment before going on to more difficult sums.

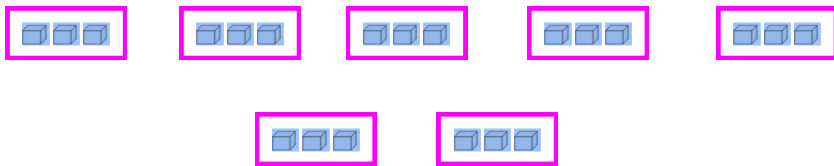
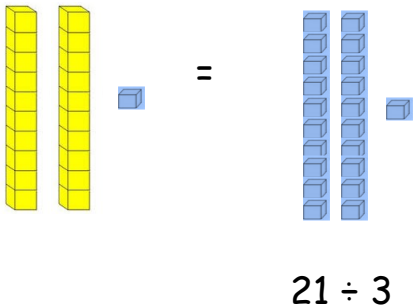
If you have questions about any of the information in this booklet please contact  
Le Murier on 246660



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Le Murier

$$\begin{array}{r} 1 \quad 5 \\ 3 \overline{) 41721} \\ \underline{3} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 1 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{3} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 7 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{6} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 1 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{3} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 2 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{2} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 1 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \end{array}$$

We now have 21 units which was made up of the 2 tens and the 1 unit



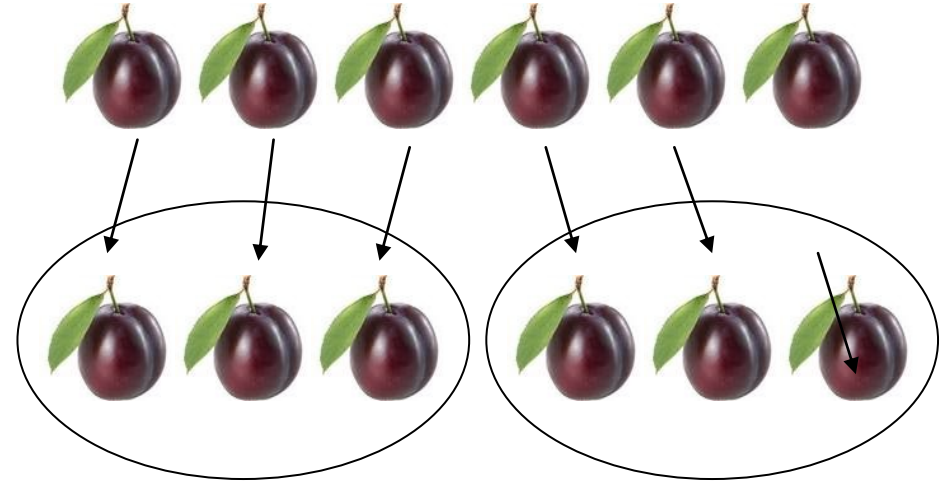
When you divide 21 units by 3, there are 7 groups of 3 with 0 left over. In the sum we put the 7 groups above the 1 unit.

$$\begin{array}{r} 1 \quad 5 \quad 7 \\ 3 \quad 4 \quad 7 \quad 1 \end{array}$$

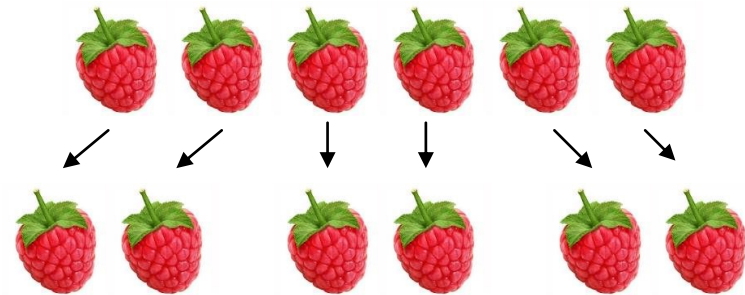
So  $471 \div 3 = 157$

## Sharing equally ( $6 \div 2 = 3$ ) 6 shared between 2

This is when the number of items is shared between a number of groups;  $6 \div 2$  means that 6 is split between two people or two groups.



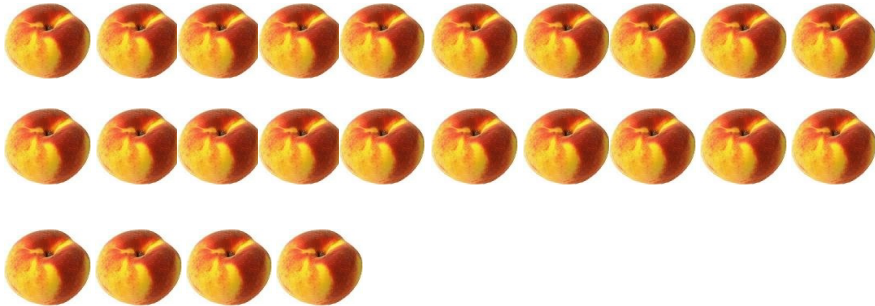
## Grouping ( $6 \div 2 = 3$ ) 6 divided into groups of 2's



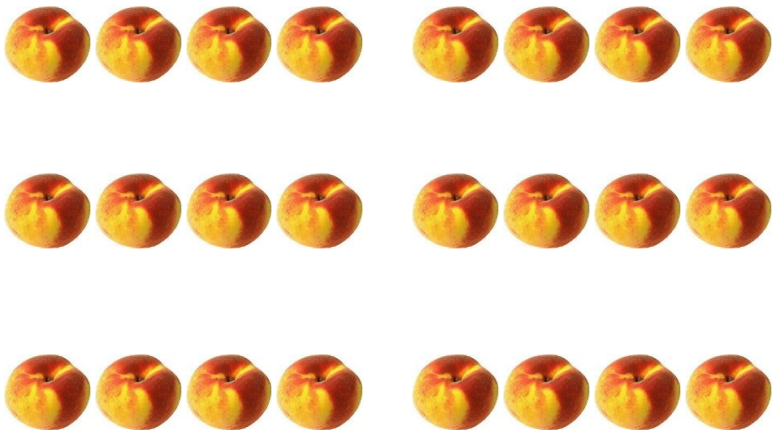
When the students understand the two ways to interpret the division of the sum, they then move on to chunking.

## Introduce chunking TU ÷ U ( $24 \div 4 = 6$ )

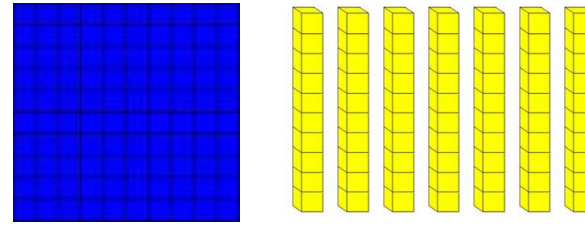
Chunking is a way of using multiplication to help with division. In the sum  $24 \div 4$  we are looking at how many 4s (groups of 4) go into 24.



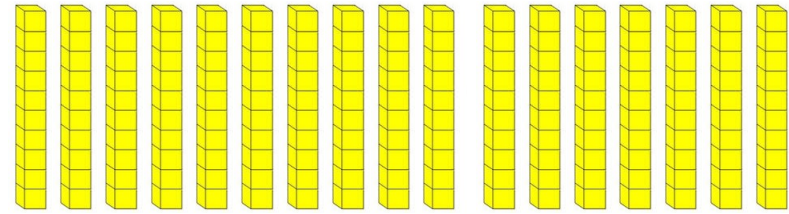
Split 24 into groups of 4



There are 6 groups of 4 in 24  
so  $24 \div 4 = 6$

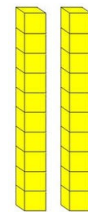
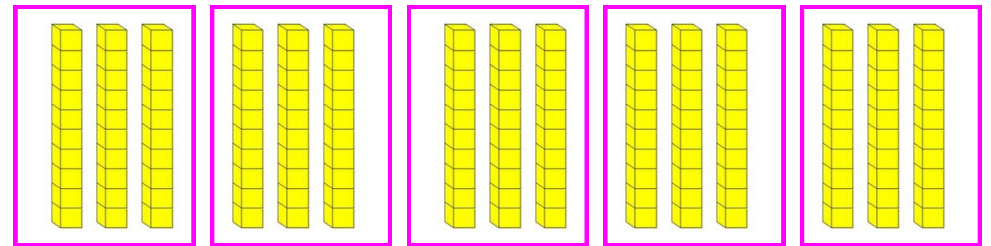


=



1 hundred and 7 tens is the same as 17 tens

$$17 \div 3$$



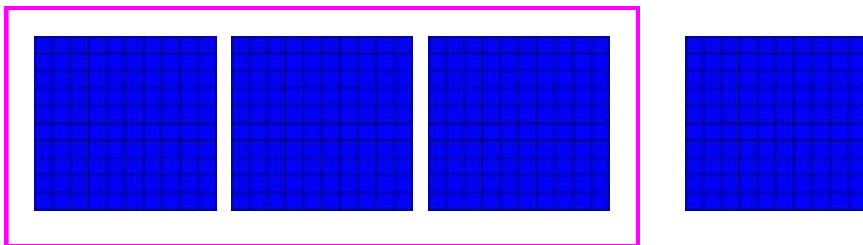
When you divide 17 tens by 3, there are 5 groups of 3 with 2 left over. In the sum we put the 5 groups above the 7 tens and carry the 2 tens by adding it to the units. 2 tens and 1 unit = 21 units.

$$\begin{array}{r} 1 \quad 5 \\ 3 \overline{) 471} \\ \underline{15} \phantom{1} \\ 21 \phantom{1} \\ \underline{21} \\ 0 \end{array}$$

When the students are confident with the traditional method without carrying, and are beginning to complete these sums without using the equipment, they then move onto the traditional method with carrying. Equipment is again used when this is introduced.

### Traditional Method with carrying (471 ÷ 3 = 157)

$$3 \overline{) 471}$$



When you divide 4 hundreds by 3, there is one group of 3 and 1 hundred left over. In the sum we put the 1 group above the 4 (which is in the hundreds column) and carry the 1 hundred by adding it to the 7 as 1 hundred and 7 tens = 17 tens.

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

When students are confident in using the equipment and understand what the sum is asking them to do, we move on to the written way of showing chunking.

### Chunking TU ÷ U (96 ÷ 4 = 24)

First we use our knowledge of the times tables. We learn the 2x and 10x tables so can use this knowledge to help us. In the 4 x table we know that 2 x 4 = 8 and 10 x 4 = 40

so

$$2 \times 4 = 8$$

$$5 \times 4 = 20 \text{ (half of } 10 \times 4)$$

$$10 \times 4 = 40$$

20 x 4 = 80 (this is 10 times the amount for 2 x 4 so we can just add a zero to the answer 8 to make 80. We then start working towards it being double 10 x 4).

$$\begin{array}{r} 96 \div 4 \\ - 80 \text{ (} 20 \times 4) \\ \hline 16 \\ - 8 \text{ (} 2 \times 4) \\ \hline 8 \\ - 8 \text{ (} 2 \times 4) \\ \hline 0 \end{array}$$

$$\begin{array}{r} 20 \\ + 2 \\ + 2 \\ \hline 24 \end{array}$$

As there are 24 groups of 4 in 96 we can say that  $96 \div 4 = 24$

## Chunking HTU ÷ T ( $882 \div 7 = 126$ )

With bigger numbers we need to use our knowledge of times tables to make bigger numbers.

So

$$2 \times 7 = 14$$

$$5 \times 7 = 35 \text{ (half of } 10 \times 7)$$

$$10 \times 7 = 70$$

$$20 \times 7 = 140 \text{ (this is 10 times the amount for } 2 \times 7 \text{ so we can just add a zero to the answer 14 to make 140. We then start working towards it being double } 10 \times 7).$$

$$50 \times 7 = 350 \text{ (this is 10 times the amount for } 5 \times 7 \text{ so we can just add a zero to the answer 35 to make 350.}$$

$$100 \times 7 = 700 \text{ (this is 10 times the amount for } 10 \times 7 \text{ so we can just add a zero to the answer 70 to make 700.}$$

$$\begin{array}{r} 882 \div 7 \\ - 700 \text{ (} 100 \times 7) \\ \hline 182 \\ - 140 \text{ (} 20 \times 7) \\ \hline 42 \\ - 35 \text{ (} 5 \times 7) \\ \hline 7 \\ - 7 \text{ (} 1 \times 7) \\ \hline 0 \end{array}$$

$$\begin{array}{r} 100 \\ + 20 \\ + 5 \\ + 1 \\ \hline 126 \end{array}$$

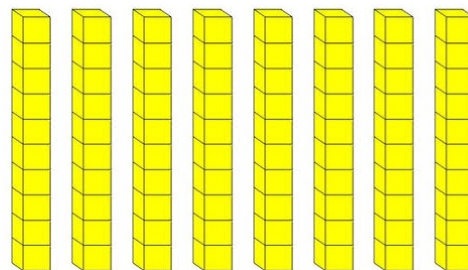
As there are 126 groups of 7 in 882 we can say that  $882 \div 7 = 126$

When the students are confident with chunking, then traditional division is introduced.

## Traditional division without carrying ( $86 \div 2 = 43$ )

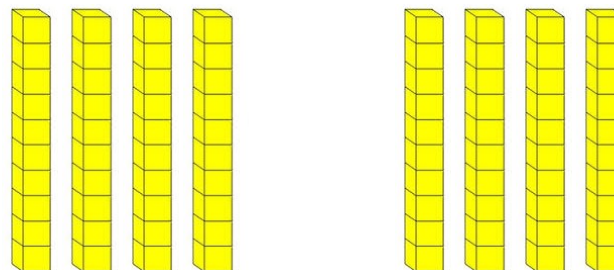
This method is introduced using equipment to start.

$$2 \overline{) 86}$$



$$\begin{array}{r} \text{T} \\ 4 \\ 2 \overline{) 8} \end{array}$$

$80 \div 2 = 40$   
that is 4 tens



$6 \div 2 = 3$   
that is 3 units

$$\begin{array}{r} \text{T} \quad \text{U} \\ 4 \quad 3 \\ 2 \overline{) 86} \end{array}$$

