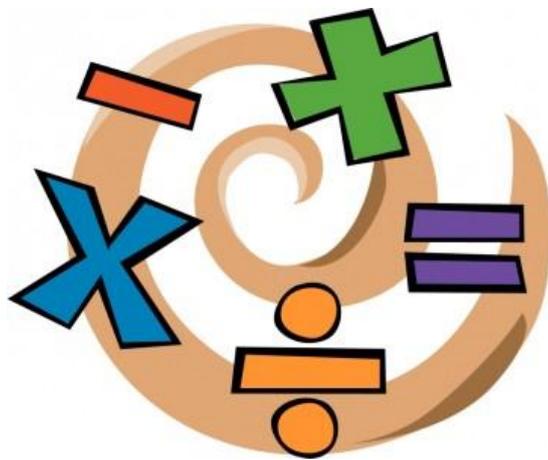


Building Dreams and  
Inspiring Futures Federation



WOODVALE  
PRIMARY ACADEMY

# Primary Phase Approach to Division



## Teacher's Guide

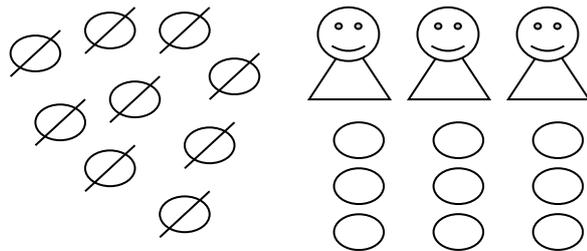
## Division

### Step 1

Children start by sharing objects (given in context) into equal groups. For example: 'I have 9 sweets to share between 3 people. How many sweets does each person get?'

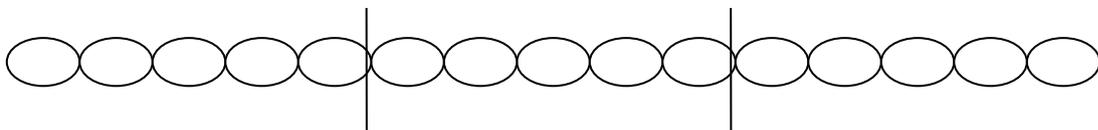
### Step 2 Sharing pictorially (using pictures and then symbols)

$9 \div 3 =$



### Step 3 Linear grouping

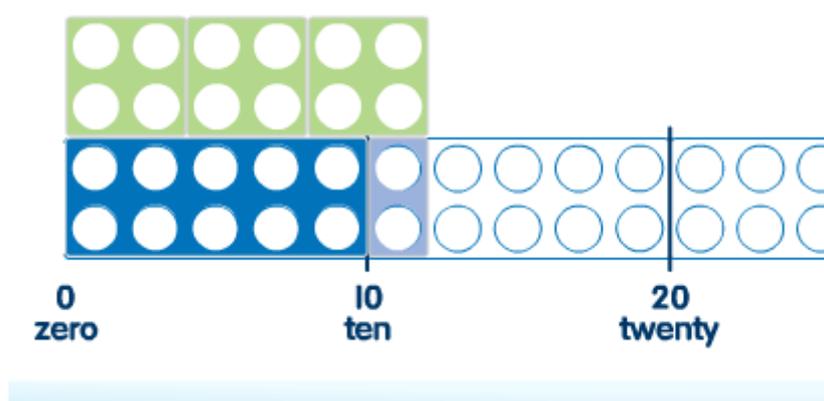
$15 \div 5 =$



### Step 4 Repeated addition to work out division using Numicon

$$12 \div 4 =$$

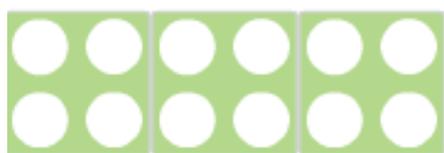
Children start by making the first number with Numicon. They know they are finding out how many groups of 4 are in 12. They should place groups of 4 above the 12 to find out how many groups are needed.



Alongside practically working out division children need to be taught to use repeated addition to solve.

$$12 \div 4 =$$

Explain how 12 is the total number, and the divisor is how many we are putting into each group. Model physically with Numicon, what are we counting in groups of? How do you know? When do I need to stop counting in 4's?



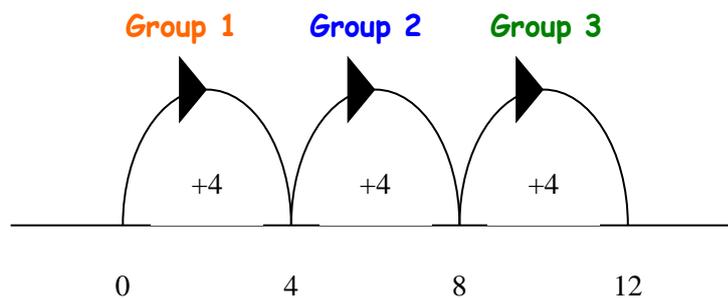
What is my repeated addition number sentence?  $4 + 4 + 4 = 12$

How many groups of 4 have I got?  $12 \div 4 = 3$

### Step 5 Dividing using a number line (Y3-6)

When children are secure with practical methods move onto drawing a number line to work out division. Children will still need to be working this out practically first so they can see how the number line represents the same process.

$$12 \div 4 = 3$$

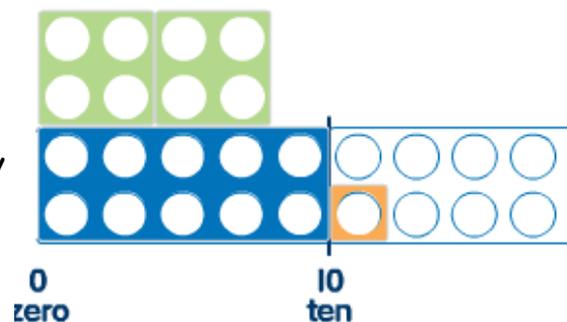


### Step 6 Dividing TU $\div$ U with remainders

Children will need to use Numicon to before completing on a number line.

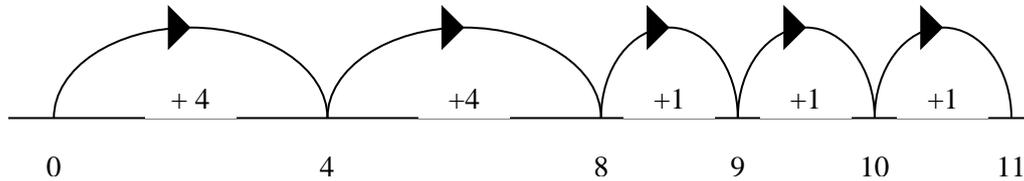
$$11 \div 4 =$$

Build the number (11) first what am I counting in groups of? (4) Can I place on a 3rd group of 4? How many whole groups do I have? What do I call the leftovers? Model how to write 2 r 3.



## Step 7 Dividing TU ÷ U with remainders on a number line

$$11 \div 4 =$$



2 groups of 4 and 3 left over = 2 remainder 3

Extend to higher 2 digit numbers.

## Step 8 Vertical Chunking/Expanded vertical method

$$96 \div 5 = 19 \text{ r } 1$$

$\begin{array}{r} \underline{19} \\ 5)96 \\ \underline{-50} \\ 46 \\ \underline{-30} \\ 16 \\ \underline{-15} \\ 1 \end{array}$	$\begin{array}{l} 10 \times 5 \\ 6 \times 5 \\ 3 \times 5 \end{array}$	$\begin{array}{l} \text{Bank} \\ 10, 6, 3 \end{array}$
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Children use their knowledge of multiples of 5 to reduce down to zero or the remainder.

Children need to 'bank' how many groups of 5 they have found. Then add the 'banked' numbers together ( $10+6+3=19$ ).

Or

$$\begin{array}{r} 50 \quad (10 \times 5) \\ +30 \quad (6 \times 5) \\ \underline{\quad} \\ 80 \\ +15 \quad (3 \times 5) \\ \underline{\quad} \\ 95 \end{array}$$

**Step 8 TU ÷ TU using expanded vertical method**

97 ÷ 24 =

$\begin{array}{r} \underline{4\ r\ 1} \\ 24) 97 \\ -48 \\ \hline 49 \\ -48 \\ \hline R1 \end{array}$	Or	$\begin{array}{r} 48 \\ +48 \\ \hline 96\ r\ 1 \end{array}$
$2 \times 24$		$(2 \times 24)$
$2 \times 24$		$(2 \times 24)$
$4 \times 24$		

Extend to HTU ÷ TU

**Step 9 Compact Vertical Method TU ÷ U**

81 ÷ 3

$$\begin{array}{r} \underline{27} \\ 3) 8^2 1 \end{array}$$

**Step 10 Compact Vertical Method HTU ÷ U**

291 ÷ 3

$$\begin{array}{r} \underline{97} \\ 3) 2^2 9^2 1 \end{array}$$