



## Calculation Policy- Division

Year	FS- 'Maths moments video'	Year 1- 'Maths Moments video'	Year 2- 'Maths Moments video'	Year 3- 'Maths Moments video'
<b>Mental Calculations and Methods</b>	Play experiences using everyday situations. E.g. laying the table.	Count back in 2s, 10s, 5s Halves up to 10 Halve multiples of 10. How many 2s- 5s- 10s- are in? Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Recognising odd and even numbers. Division facts (2 x, 10x, 5 x) Halves up to 20 Count back in 3s Show that division of one number by another cannot be done in any order. Solve problems involving division.	Review division facts (2x, 5x, 10x) Division facts (4 x, 8 x and 3 x, 6x) Halve two digit numbers Write and calculate mathematical statements for division using the multiplication tables that they know.
<b>Fractions</b>		Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity Children should begin to explore finding simple fractions of objects, numbers and quantities.	Children should be given opportunities to find a half, a quarter and a third of shapes, objects, numbers and quantities. Finding a fraction of a number of objects to be related to sharing. They will explore visually and understand how some fractions are equivalent – e.g. two quarters is the same as one half.	Count up and down in tenths; recognise that tenths arise from dividing an object or number into 10 equal parts. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators. Children should be given the opportunity to further develop understanding of division (sharing) to be used to find a fractions.
<b>Written Methods</b>	Pictorial representations and mark making.	Pictorial representations.	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs	Write and calculate mathematical statements for ÷ using the x tables they know including for two-digit by one-digit progressing to formal written methods.  Informal-Chunking: $43 \div 3 =$ $\begin{array}{r} 14 \text{ r } 1 \\ 3 \overline{) 43} \\ \underline{-30} \quad (10 \times 3) \\ 13 \\ \underline{-12} \quad (4 \times 3) \\ 01 \end{array}$ Formal short division: $98 \div 7$ becomes $\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \phantom{0} \\ 28 \\ \underline{21} \\ 07 \end{array}$

## Calculation Policy- Division

### Developing conceptual understanding

Understanding the notion of fairness and its application in equal sharing.

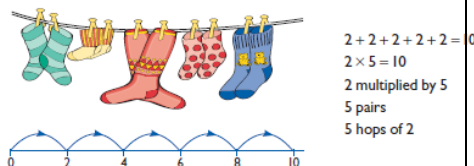
Use real-life experiences, e.g. sharing fairly pieces of fruit at snack time, sharing out cards before beginning a game of dominoes etc.

Share quantities of items into appropriate sized groups for practical purposes (e.g. Lego wheels into groups of 4) and talk about how many children will be able to have a set. Sharing spots onto two ladybirds.

Halving e.g. a piece of cake, sandwich.

Finding two matching Numicon pieces to make a whole number.

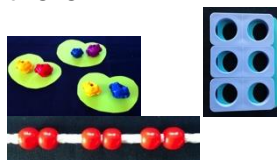
Children should begin to understand division as both sharing and grouping.



Sharing – 6 frogs are shared between 2 lily pads. How many frogs are on each?



Grouping- How many 2's are in 6? Two frogs sit on each lily pad. How many Lily pads are there?



Jumps on a number line:



Use real life experiences such as sharing raisins, money, and biscuits.

Bar model:



Pupils decode a problem first, then use manipulatives and jottings and finally record symbolically.

Understand division as sharing and grouping

$15 \div 3 = 5$  in each group (sharing)



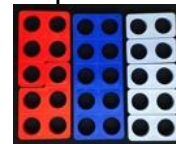
$15 \div 3 = 5$  groups of 3 (grouping)



Use language of division linked to tables

$10 \div 2 = 5$   $10 \div 5 = 2$

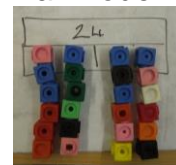
Represent using Numicon:



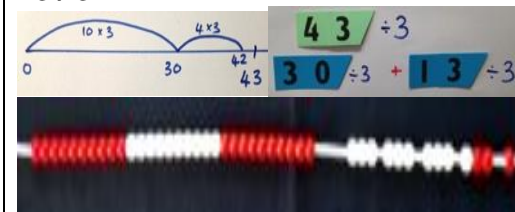
How many 2s?



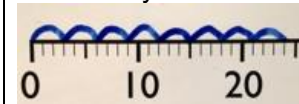
Bar Model:



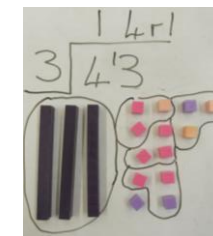
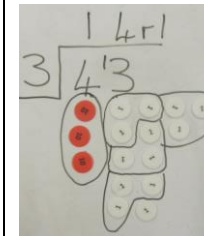
Grouping using partitioning  
 $43 \div 3$  If I know  $10 \times 3$  then I work out  $13 \div 3$



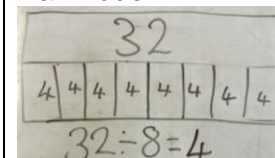
Use language of division linked to tables  
How many 3s?



Represent using place value counters or Diennes:



Bar Model:





## Calculation Policy- Division

Year	Year 3- <a href="#">‘Maths Moments video’</a>	Year 4- <a href="#">‘Maths Moments video’</a>	Year 5- <a href="#">‘Maths Moments video’</a>	Year 6- <a href="#">‘Maths Moments video’</a>
<b>Mental Calculations and Methods</b>	Review division facts (2x, 5x, 10x) Division facts (4 x, 8 x and 3 x, 6x) Halve two digit numbers Write and calculate mathematical statements for division using the multiplication tables that they know.	Review division facts (2x, 5x, 10x, 4x, 8x) 10 times smaller Division facts (3x, 6 x, 12x, 3x, 9x, 11x, 7x) Halve larger numbers and decimals. Use place value, known and derived facts to divide by 1.	Review division facts (2x, 5x, 10x, 4x, 8x, 3x, 6 x, 12x, 9x, 11x, 7x) Divide whole no’s and decimals by 10, 100 and 1000. Partition to divide mentally Halve larger numbers and decimals Partition decimals to divide mentally	Recall prime numbers up to 19 Perform mental calculations including mixed operations and large numbers. Division facts (up to 12 x 12) Partition to divide mentally Halve larger numbers and decimals.
<b>Fractions</b>	Count up and down in tenths; recognise that tenths arise from dividing an object or number into 10 equal parts. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators. Children should be given the opportunity to further develop understanding of division (sharing) to be used to find a fractions.	Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.  Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		Divide proper fractions by whole numbers. Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places use written division methods where needed.



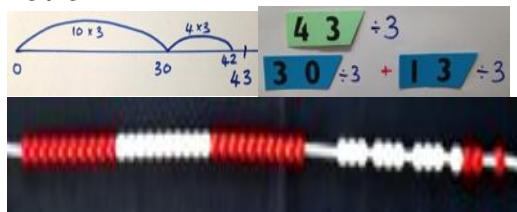
## Calculation Policy- Division

<p style="text-align: center;"><b>Written Methods</b></p>	<p>Write and calculate mathematical statements for <math>\div</math> using the x tables they know including for two-digit by one-digit progressing to formal written methods.</p>	<p>Informal-Chunking:  <math>43 \div 3 =</math>  <math>\begin{array}{r} 14 \text{ r } 1 \\ 3 \overline{) 43} \\ \underline{-30} \quad (10 \times 3) \\ 13 \\ \underline{-12} \quad (4 \times 3) \\ 01 \end{array}</math>            Formal short division:  <math>98 \div 7</math> becomes  <math>\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}</math></p>	<p>Continue to write and calculate mathematical statements for <math>\div</math> using the x tables they know progressing to formal written methods.</p>	<p>Informal-Chunking:  <math>43 \div 3 =</math>  <math>\begin{array}{r} 14 \text{ r } 1 \\ 3 \overline{) 43} \\ \underline{-30} \quad (10 \times 3) \\ 13 \\ \underline{-12} \quad (4 \times 3) \\ 01 \end{array}</math>            Formal short division:  <math>98 \div 7</math> becomes  <math>\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}</math></p>	<p>Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</p>	<p>Formal short division:  <math>432 \div 5</math> becomes  <math>\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \\ \underline{40} \quad 3 \\ \underline{30} \quad 2 \end{array}</math></p>	<p>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division and interpret remainders appropriately for the context.</p> <p>Formal long division:</p>
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## Calculation Policy- Division

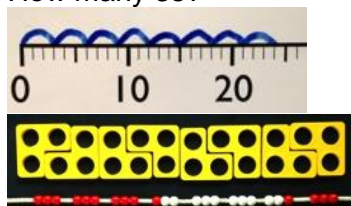
## Grouping using partitioning

43 ÷ 3 If I know 10 x 3 then I work out  
13 ÷ 3

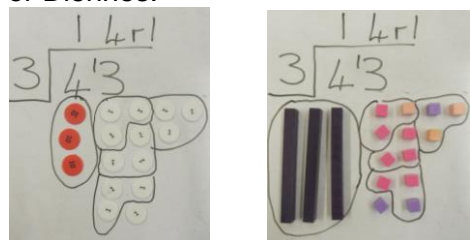


Use language of division linked to tables

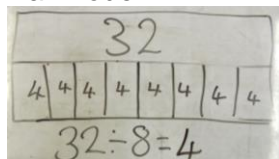
How many 3s?



Represent using place value counters or Diennes:



Bar Model:

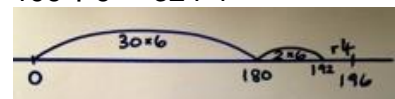


## Grouping using partitioning

196 ÷ 6 If I know 3 x 6 ... then 30 x 6 then I work out 16 ÷ 6

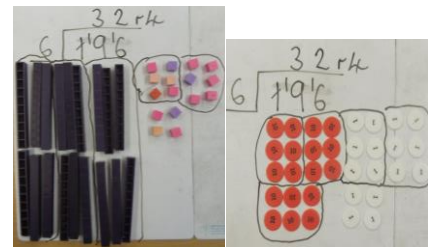

$$=30 \qquad =2r^4 \qquad =32r^4$$

### 'Chunking up' on a number line

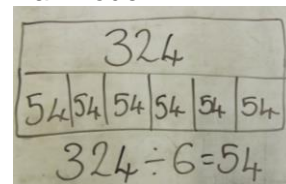
$$196 \div 6 = 32 \text{ r } 4$$


Use language of division linked to tables. How many 6's are in 196?

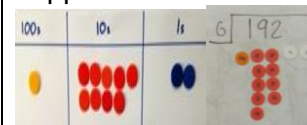
Represent using place value  
counters or Diennes:



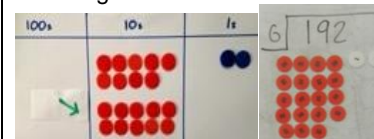
Bar Model:



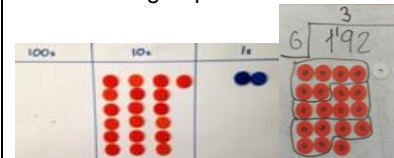
192 ÷ 6 using place value counters to support written method:



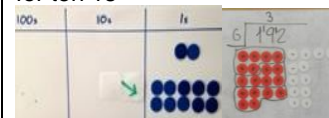
Exchange one 100 for ten 10s



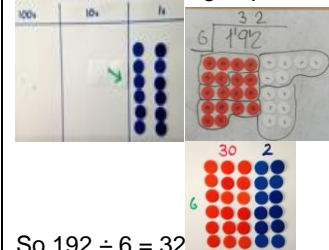
19 tens into groups of 6:



3 groups so that is  $30 \times 6$ , exchange remaining 10 for ten 1s



12 ones split into groups of 6:



So  $192 \div 6 = 32$

Complete calculations in the same way using Diennes:



$$\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{30} \phantom{0} \\ 132 \\ \underline{120} \\ 12 \end{array}$$

564 ÷ 13

	4	3	3	8	...	
13	5	6	4	0	0	...
52						
44						
-39						
50						
-39						
110						
-104						
6						

= 43 r 5 =  $43 \frac{5}{13} = 43.4$  (to 1dp)



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