



PROGRESSION IN DIVISION

<p>Sharing</p>	<p>Practical activities of sharing in class</p>	<p>Can we share these out fairly? How many will each person get? Record pictorially.</p> <p>Sharing equally E.g. 6 cakes are shared equally between 2 people.</p>  
<p>Repeated subtraction</p>	<p>Leading to understanding of grouping.</p>	<p>How many groups of 2 can I make from a pile of crayons/ objects?</p>
<p>Halving quantities to 10</p> <p>Halving and quartering shapes/ objects</p>	<p>Practical work dividing a set of even number objects by 2 use language of halving. Count how many are now in each set.</p>	<p>Colour half of the circles red and half blue. How many blue circles are there? Make number sentences about a practical activity. Cut foodstuffs, etc in half and notice that each piece is exactly the same size.</p>
<p>Grouping</p>	<p>How many groups of a given number can we make from an amount?</p>	<p>How many groups of 4 daffodil bulbs can we plant with 12 bulbs? How can we share these stickers fairly? Record pictorially .</p>

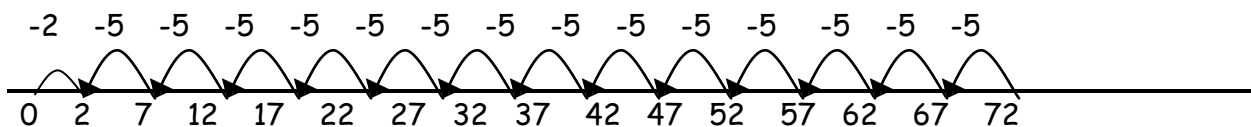


Recognise symbols for division	Understand symbol as sharing equally and as grouping. Say how many groups of 2 can we make from 12? Or 12 shared between 2	Use sign in number sentences $12 \div 2 = 6$
Patterns of repeated subtraction	<b>Take away equal amounts and learn the patterns.</b> 10,8,6,4,2,0 Count forwards and backwards in equal intervals.	Practical work which will lead on to written patterns and learning patterns Fill in missing numbers in a sequence.
How many groups in an amount?	Use apparatus such as a bead bar to understand how many groups of 3 in 12? Or 12 divided between 4.	
	How many 2 tiles can we fit on the 6 tile? 	
Division on a number line	Understand $\div$ as grouping into constant amounts. How many groups of 3 can I make from 12?	$12 \div 3 = 4$ 
Know tables and their relationship to division	Use arrays to show that division is the inverse of multiplication	 $5 \times 2 = 10, 2 \times 5 = 10$ $10 \div 2 = 5, 10 \div 5 = 2$
Children should be able to utilise their	This can be part of mental maths sessions or as starters and can be adjusted	If I know $3 \times 7 = 21$ , what else do I know? $30 \times 7 = 210,$

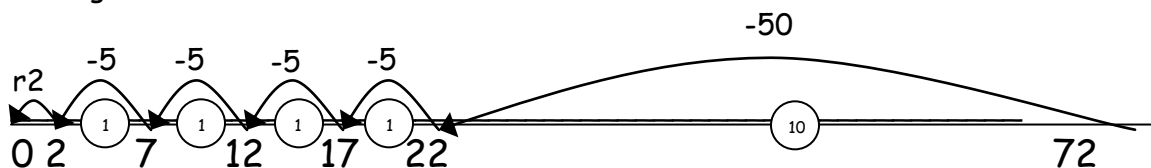
<p>tables knowledge to derive other facts.</p>	<p>according to needs.</p>	<p><math>300 \times 7 = 2100</math>, <math>3000 \times 7 = 21\ 000</math>, <math>0.3 \times 7 = 2.1</math> etc</p>
<p>Use symbols to stand for unknown numbers to complete equations using inverse operations</p>	<p>Using symbols/ algebra encourages children to use their knowledge in different ways and to show understanding.</p>	<p><math>\square \div \triangle = 4</math></p> <p><math>\square \div 2 = 4</math>      <math>20 \div \triangle = 4</math></p>
<p>Write number sentences Divided by shared by</p>	<p>Understand when division is the required operation in a number problem. This can be difficult as there are various elements to division and children need to recognise these....sharing and grouping and the inverse of multiplication.</p>	<p><b>Lots of practice needed with this especially where there is a remainder.</b></p>
<p>Halving larger numbers</p>	<p>Partition the numbers. Start with even numbers where the tens divide easily ie 10, 20,40, 60, 100. These need to be known by heart. Then move onto numbers where the tens need to be broken up ie. 10, 30, 50, 70,90, These all need to be learnt thoroughly</p>	<p><math>46 \div 2</math></p> <p><math>\swarrow \searrow</math></p> <p><math>20 + 3 = 23</math></p>

Chunking on a number line

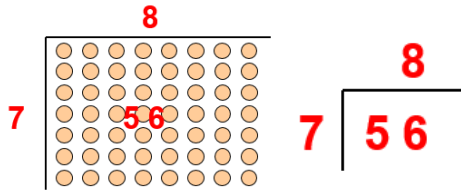
$72 \div 5$



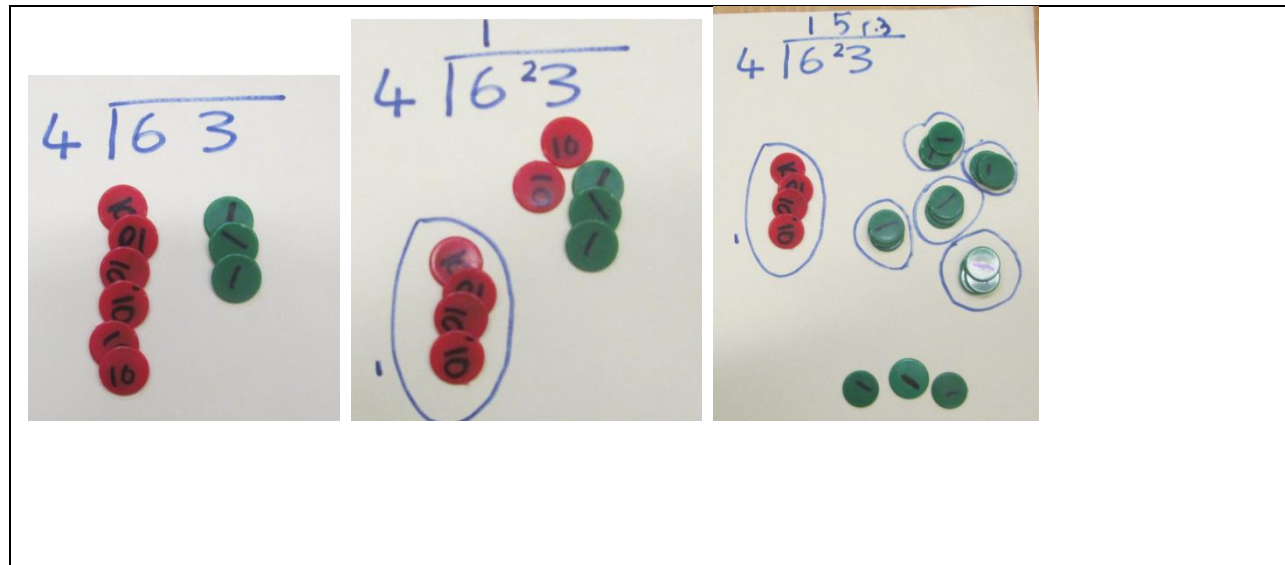
Moving onto:



Continue to use manipulatives and arrays to reinforce understanding of what is happening.



<p>Mental methods of division</p>	<p>Using known number facts and fractions of amounts.</p>	<p>Eg Use dividing by 10 then halving to divide by 5. Halve twice to divide by 4</p>
<p>Using tables facts</p>	<p>Derive and recall quickly division facts for all tables up to 12 x 12</p>	
<p>Use rules of divisibility</p>	<p>These are interesting to investigate.</p>	<p>Eg If last number is even divisible by 2.  If sum of digits is divisible by 3 the number is in 3 times table  Ending in 5 or 0 divisible by 5  The sum of the digits add to nine – divisible by 9</p>
<p><b>Dividing by 10 or 100</b> Knowing that the effect of dividing by 10 is a shift in the digits one place to the right. Knowing that the effect of dividing by 100 is a shift in the digits two places to the right.</p>		
<p>Divide TU by u Using standard method Use manipulatives to illustrate how to use short division..place value counters are useful at this stage.</p>		



<p>Divide tu by u</p>	<p><b>Short division TU ÷ U</b></p>	<p>98 ÷ 7 becomes</p> $\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}$ <p>432 ÷ 5 becomes</p> $\begin{array}{r} 86 \text{ r } 2 \\ 5 \overline{) 432} \end{array}$
<p>Divide HTU by U</p>	<p>Short division</p>	
<p>Remainders in real life contexts.</p>	<p>Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2. Children need to be able to decide what to do after division and round up or down accordingly. They should make sensible decisions about rounding up or down after division.</p>	<p><b>Children need to be able to understand how to deal with problems which have a remainder. Eg. Taxis take 4 passengers, my family of 9 people want to go to the station. How many taxis shall I book?</b></p>
<p>Remainders</p>	<p>Show remainders as fractions, Show remainders as decimals.  Extend to decimals with up to two decimal places. Children should know</p>	<p>Dividing 32 by 10, the answer should be shown as <math>3 \frac{2}{10}</math> which could then be written as <math>3 \frac{1}{5}</math> in it's lowest term.</p>

	that decimal points line up under each other.	
HTU divided by TU using short division		$  \begin{array}{r}  45r1 \\  \hline  11 \overline{) 496}  \end{array}  $
	Halve decimal numbers up to 2 places using partitioning.	
Divide Th HTU by Tu	Use short division for this or mental methods as appropriate to numbers involved	<b>When dividing by TU it is useful to work out a multiplication table of that divisor.</b>
Long division	Use this method of long division if appropriate for numbers being used.	$  \begin{array}{r}  28.8 \\  \hline  15 \overline{) 432.0} \\  \underline{30} \phantom{0} \\  132 \\  \underline{120} \\  120 \\  \underline{120} \\  0  \end{array}  $
Quotient Dividend	when dividing 6 by 3, the quotient is 2, while 6 is called the dividend, and 3 the divisor.	$6 \div 3 = 2$ dividend $\div$ divisor = quotient.