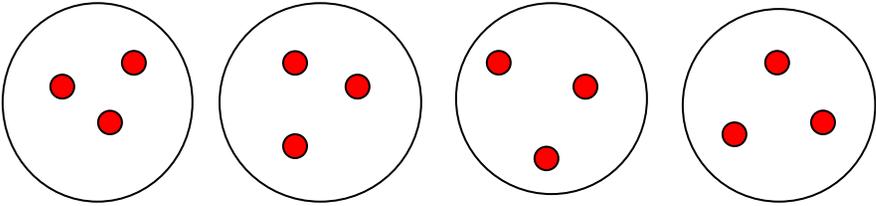
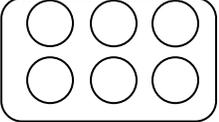
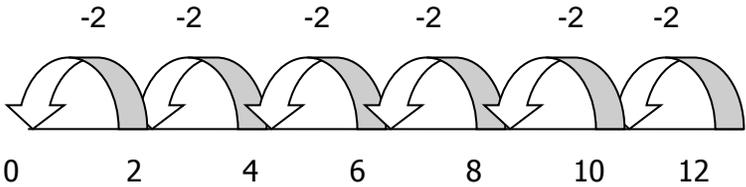
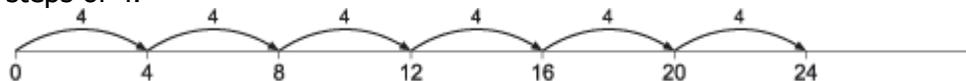
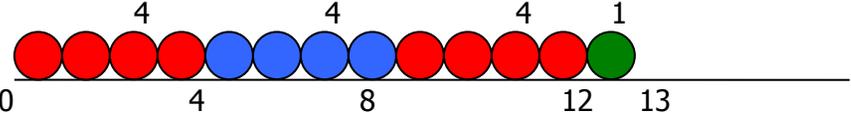


Division

Year Group: Key Objectives	Written Strategies	Representations/Vocabulary
<p>Year 1:</p> <ul style="list-style-type: none"> ✓ Solve one-step problems division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher 	<p><u>Activities/recording</u> Practical apparatus.</p> <p>Children have plenty of practical experience of sharing sets of objects into equal groups. For example, they share a set of pencils equally among three pots and count how many pencils are in each pot. They record their solution by drawing or by modelling it using counters. They share 12 orange pieces on a plate fairly among four children and work out how many pieces each child gets. They understand the difference between divide into and divide between.</p>  <p>Children use arrays of practical apparatus/everyday objects to begin to develop an understanding of the link between multiplication and division</p>  <p>e.g. An egg box has three groups of 2 and two groups of 3 which make 6 eggs (multiplication) or the 6 eggs are split into two groups of 3 or three groups of 2 (division)</p>	<p>Number line, Number track, 100 square, Deines apparatus, Numicon, Coins and notes, Practical apparatus e.g. counters, Number mobiles, Pictorial representations of problems, Dominoes, arrays, groups of, fractions of shapes, fractions of quantities</p> <p>Pictorial representations of calculation methods e.g. number lines</p> <p>Calculation, divide between, divide into, share between, share into, group into half, quarter, whole, equal part, equal share</p>
<p>Year 2:</p> <ul style="list-style-type: none"> ✓ Recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers ✓ Calculate mathematical statements for multiplication and division within the multiplication tables and write 	<p><u>Activities/recording</u></p> <p>Children experience division as grouping. They use practical equipment or objects to answer questions such as: <i>How many 2s make 12?</i> They relate this to the division $12 \div 2$. They use objects or a number line to support, record or explain this. For example, starting from 12, they jump back in steps of 2, or starting with 12 counters, they keep on taking away 2 counters. They record this as repeated subtraction and as division:</p> <p>$12 - 2 - 2 - 2 - 2 - 2 - 2 = 0$ $12 \div 2 = 6$ 12 divided by 2 equals 6</p>	<p>As above plus:</p> <p>Arrow Cards (TU), Column representations of Tens and Units, Models of written and mental strategies used for calculation,</p> <p>Numbers partitioned in different ways e.g. $23 = 20 + 3 = 10 + 13$, meanings of $< > =$,</p>

<p>them using the multiplication (\times), division (\div) and equals ($=$) signs</p> <p>✓ Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p>	 <p>They should also make the link to their developing recall of multiplication facts and may count on in equal steps until they reach the target number e.g. 2, 4, 6, 8, 10, 12 \rightarrow $12 \div 2 = 6$, 'There are six 2s in 12.'</p>	<p>As above plus: tens, ones, change, columns, place value, boundary, partition, method, strategy, inverse, inverse operation, repeated addition, calculate</p>
<p>Year 3:</p> <p>✓ Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to formal written methods</p> <p>✓ Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>	<p><u>Recording</u> Children review multiplication as repeated addition and division as repeated subtraction by counting hops on a number line. For example, they find 6 fours by making 6 hops of 4, or find $24 \div 4$ by counting on from 0 in steps of 4.</p>  <p>Children divide a number of objects by using grouping. They understand that one way to find $30 \div 6$ is to find how many sixes there are in 30. Through practical experience, they understand that some division calculations have a remainder, for example $13 \div 4 = 3 \text{ r } 1$:</p>  <p>They record working on number lines by either counting back, as above, or counting on from 0 using known multiplication tables facts and then counting the remainder, as below.</p>  <p>$13 \div 4 = 3 \text{ r } 1$</p>	<p>As above plus: models of division strategies, Arrays</p> <p>As above plus: Hundreds, tenths, decimal, decimal point, decimal place,</p>

	<p>They extend their working to numbers beyond the tenth multiple of a given multiplication table by using number lines and known facts e.g. $98 \div 6$</p> $ \begin{array}{cccc} & +60 & (10 \times 6) & & +30 & (5 \times 6) & & +6 & (1 \times 6) \\ \hline & 0 & & 60 & & 90 & & 96 & \end{array} $ <p>$96 \div 6 = 16$</p>	
<p>Year 4:</p> <ul style="list-style-type: none"> ✓ Recall multiplication and division facts for multiplication tables up to 12×12 ✓ Use place value, known and derived facts to divide mentally, including: dividing by 1 	<p><u>Recording</u> When children are confident with this method and can apply it readily, then they will move into standard written methods by applying their mental knowledge and recall of multiplication table facts and their related division facts e.g. $98 \div 6$</p> $ \begin{array}{r} \underline{16} \text{ r } 2 \\ 6 \overline{) 98} \end{array} \quad 98 \div 6 = 16 \text{ r } 2 $ <p>Remainders are placed to the left of the next digit in the number.</p> <p>This may initially modelled as follows, which fits with the informal number line method they will be familiar with, but teachers should move children onto the standard method as soon as possible.</p> $ \begin{array}{r} 98 \div 6 = \quad 98 - 60 = 38 \quad (10 \times 6) \\ \quad \quad \quad 38 - 36 = 2 \quad (\underline{6 \times 6}) \\ \quad \quad \quad \quad \quad \quad 16 \text{ r } 2 \end{array} $	<p>As above plus: Arrow Cards (ThHTU), models of division strategies</p> <p>As above plus: Thousands, hundredths, negative number, round</p>
<p>Year 5:</p> <ul style="list-style-type: none"> ✓ 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 ✓ Divide numbers mentally drawing upon known facts ✓ Divide whole numbers and those involving decimals by 10, 	<p><u>Recording</u> Children should continue to develop and extend their use of the standard written method, using their knowledge of division facts to support their recording e.g. $932 \div 4$</p> $ \begin{array}{r} \underline{233} \\ 4 \overline{) 932} \end{array} \quad 932 \div 4 = 233 $	<p>As above plus: Place value charts to Millions/thousandths, models of division strategies</p> <p>As above plus: Tens/hundreds of thousands, Millions, factors, factor pairs, common factors, square number, squared (2), cube</p>

<p>100 and 1000</p>	<p>They should extend to problems involving division by two-digit numbers, using informal jottings of division facts to support their working e.g. $736 \div 23$</p> $\begin{array}{r} 032 \\ 23 \overline{)7346} \end{array}$ $736 \div 23 = 32$ $\begin{array}{l} 1 \times 23 = 23 \\ 2 \times 23 = 46 \\ 3 \times 23 = 69 \end{array}$ <p>They should also begin to record remainders as fractions and decimal fractions e.g. $783 \div 5$</p> $\begin{array}{r} 156r3 \\ 5 \overline{)783} \end{array}$ $783 \div 5 = 156 \text{ r } 3 \text{ or } 156 \frac{3}{5}$ <p>or</p> $\begin{array}{r} 156.6 \\ 5 \overline{)783.0} \end{array}$ $783 \div 5 = 156.6$	<p>numbers, cubed (³), mixed numbers, improper fractions, percentage (%)</p>
<p>Year 6:</p> <ul style="list-style-type: none"> ✓ Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context ✓ Perform mental calculations, including with mixed operations and large numbers. 	<p><u>Recording</u></p> <p>Children should continue to extend and develop their use of the standard written strategy, using their knowledge of division facts to support their recording e.g. $1271 \div 31$</p> $\begin{array}{r} 0041 \\ 31 \overline{)12731} \end{array}$ $1271 \div 31 = 41$ $\begin{array}{l} 1 \times 31 = 31 \\ 2 \times 31 = 62 \\ 3 \times 31 = 93 \\ 4 \times 31 = 124 \end{array}$ <p>They will also divide decimals by a one-digit integer e.g. $13.6 \div 4$</p> $\begin{array}{r} 03.4 \\ 4 \overline{)13.6} \end{array}$ $13.6 \div 4 = 3.4$ <p>or $42.7 \div 5$</p> $\begin{array}{r} 08.54 \\ 5 \overline{)42.70} \end{array}$ $42.7 \div 5 = 8.54$	<p>As above plus: Place value charts up to Tens of millions, models of division strategies, pictorial representations of division with decimals, Pictorial representations of ratio and proportion e.g. mixing paint/ingredients/recipes</p> <p>As above plus: tens of millions, ratio, proportion</p>

Grading of difficulty		
1. No remainder within 10 x 10	$35 \div 7$	$72 \div 8$
2. Remainder within 10 x 10	$38 \div 5$	$75 \div 9$
3. No Remainder beyond 10 x 10	$112 \div 7$	$195 \div 3$
4. Remainder beyond 10 x 10	$156 \div 7$	$269 \div 4$
5. Division by two-digit number no remainder		$682 \div 22$
6. Division by two-digit number with remainder		$655 \div 21$
7. Conversion of remainder to decimal (where appropriate)		$330 \div 4$
8. Decimal number divided by integer	$12.8 \div 4$	$13.6 \div 5$