

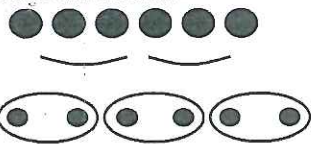
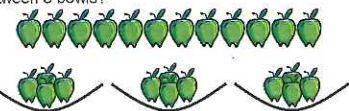


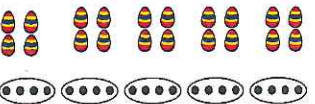
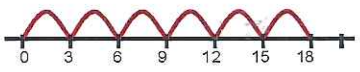

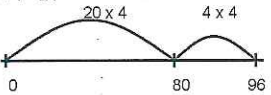


## DIVISION

### STATUTORY EXPECTATIONS

### Rapid Recall/Mental Calculations

### Non-statutory guidance

YR	<p>Children ... solve problems, including doubling, halving and sharing. [Expected] They solve practical problems that involve sharing into equal groups. [Exceeding]</p>	<p>Practical / recorded using ICT (eg digital photos/pictures on IWB)</p>	<p>Pictures/Objects</p> <p>6 cakes shared between 2 </p> <p>6 cakes put into groups of 2 </p>	<p>Symbolic</p> <p>6 cakes shared between 2 </p>	<p>There are 8 raisins. Take half of them. How many do you have? Share the 10 grapes between 2 people.</p>			
Y1	<p>Solve one-step problems using concrete objects, pictorial representations and arrays (with the support of the teacher)</p>	<p>Practical/recorded using ICT</p> <p>There are 14 people on the bus. Half of them get off. How many remain on the bus?</p> <p>There are 20 people in the class. One quarter are boys. How many boys are there?</p>	<p>Pictures/Symbolic</p> <p>How many apples in each bowl if I share 12 apples between 3 bowls? </p>	<p>Visual (modelled using bead strings)</p> <p><math>15 \div 5 = 3</math></p>  		<p>Recognise/find/name <math>\frac{1}{2}</math> as one of two equal parts of an object, shape or quantity. Recognise/find/name <math>\frac{1}{4}</math> as one of four equal parts of an object, shape or quantity.</p>	<p>Find simple fractions of objects, numbers and quantities</p> <p>Count on/back in 2s, 5s and 10s</p>	
Y2	<p>Calculate statements within the multiplication tables and write them using the division and equals signs. [Show division of two numbers cannot be done in any order.] Find <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of a length/object/quantity. Write simple fractions eg <math>\frac{1}{2}</math> of <math>6 = 3</math></p>	<p>Pictures/Symbolic</p> <p>Four eggs fit in a box. How many boxes would you need to pack 20 eggs? </p>	<p><b>Pupils use a variety of language to describe division.</b></p>	<p>Visual (modelled using bead strings)</p> <p><math>18 \div 3 = 6</math></p> 	<p>Arrays</p> <p>Find <math>\frac{1}{4}</math> of 24 <math>24 \div 4 = 6</math></p> 	<p>Partitioning</p> <p><math>32 \div 2 = 16</math> <math>20 \div 2 = 10</math> <math>12 \div 2 = 6</math></p>	<p>Recall &amp; use division facts for the 2, 5 and 10 multiplication tables, Recognise/find/name/write fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of a (length, shape), set of objects or quantity. Write simple fractions eg <math>\frac{1}{2}</math> of <math>6 = 3</math> and recognise equivalence of two quarters and one half.  Use commutativity/inverse relations to develop multiplicative reasoning (eg <math>4 \times 5 = 20</math> and <math>20 \div 5 = 4</math>).</p>	<p>Begin to use other multiplication tables/recall facts, including related division facts to perform written/mental calculations. Work with materials/context where division relate to grouping/sharing quantities. They begin to relate these to fractions/measures (eg <math>40 \div 2 = 20</math>, <math>20</math> is a half of <math>40</math>). They connect unit fractions to equal sharing and grouping, to numbers and to measures</p>
Y3	<p>Write/calculate statements using the tables that they know (progressing to formal written methods). TU <math>\div</math> U (divisor is 2/3/4/5/8/10)</p>	<p><math>96 \div 4 = 24</math></p> 	<p>Multiples of the divisor</p> <p><math>85 \div 5 = 17</math> <math>10 \times 5 = 50</math> <math>7 \times 5 = 35</math></p>	<p><math>51 \div 3 = 17</math></p> <p><math>\begin{array}{r} 51 \\ 30 \text{ (3 x 10)} \\ 21 \\ 21 \text{ (3 x 7)} \\ 0 \end{array}</math></p>	<p><math>51 \div 3 = 17</math></p> <p><math>3 \overline{) 51}</math></p>	<p><b>Pupils develop reliable written methods for division, starting with calculations of TU by U numbers (progressing to formal written methods of short division)</b></p>	<p>Recall and use division facts for the 3, 4 and 8 multiplication tables.</p>	<p>Pupils develop efficient mental methods, using commutativity (eg <math>4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240</math>) and multiplication and division facts (eg using <math>3 \times 2 = 6</math>, <math>6 \div 3 = 2</math> &amp; <math>2 \times 6 = 12</math>) to derive related facts (<math>30 \times 2 = 60</math>, <math>60 \div 3 = 20</math> &amp; <math>20 \times 3 = 60</math>).</p>
Y4	<p>Pupils practise to become fluent in the formal written method of short division with exact answers [NS] TU <math>\div</math> U; HTU <math>\div</math> U</p>	<p>Multiples of the divisor</p> <p><math>98 \div 7 = 14</math></p> <p><math>10 \times 7 = 70</math> <math>4 \times 7 = 28</math></p>	<p><math>98 \div 7 = 14</math></p> <p><math>\begin{array}{r} 14 \\ 7 \overline{) 98} \\ 7 \phantom{0} \\ 28 \phantom{0} \\ 28 \phantom{0} \\ 0 \end{array}</math></p>	<p><math>252 \div 7 = 36</math></p> <p><math>30 \times 7 = 210</math> <math>6 \times 7 = 42</math></p>	<p><math>252 \div 7 = 36</math></p> <p><math>\begin{array}{r} 252 \\ 210 \text{ (7 x 30)} \\ 42 \\ 42 \text{ (7 x 6)} \\ 0 \end{array}</math></p>	<p><math>252 \div 7 = 36</math></p> <p><math>7 \overline{) 252}</math></p>	<p>Recall division facts to <math>12 \times 12</math>. Use place value, known/derived facts to <math>\div</math> mentally, including <math>\div</math> by 1. Find effect of dividing U/TU by 10/100, identifying the value of the digits in the answer as units/tenths/hundredths.</p>	<p>Practise mental methods and extend this to HTU numbers to derive facts, for example <math>200 \times 3 = 600</math> into <math>600 \div 3 = 200</math>. Relates decimal notation to division of whole number by 10 and later 100.</p>
Y5	<p>Use the formal written method of short division (interpret remainders appropriately for the context). HTU <math>\div</math> U ThHTU <math>\div</math> U</p> <p>Convert between units of measure (eg km/m; m/cm; cm/mm; kg/g; litre and ml)</p>	<p><math>346 \div 8 = 43 \text{ r}2</math> (estimate <math>&gt;40</math>, <math>&lt;50</math>)</p> <p><math>\begin{array}{r} 346 \\ 8 \overline{) 346} \\ 320 \text{ (8 x 40)} \\ 26 \\ 24 \text{ (8 x 3)} \\ 2 \end{array}</math></p>	<p><math>291 \div 3 = 97</math> (estimate: <math>270 \div 3 = 90</math>)</p> <p><math>\begin{array}{r} 291 \\ 3 \overline{) 291} \\ 270 \\ 21 \\ 21 \\ 0 \end{array}</math></p> <p>This is then shortened to:</p> <p><math>\begin{array}{r} 97 \\ 3 \overline{) 291} \\ 27 \\ 21 \\ 0 \end{array}</math></p>	<p><math>432 \div 5 = 86 \text{ r}2</math> (estimate: <math>400 \div 5 = 80</math>)</p> <p><math>\begin{array}{r} 432 \\ 5 \overline{) 432} \\ 40 \\ 32 \\ 30 \\ 2 \end{array}</math></p>	<p><math>8520 \div 6 = 1420</math></p> <p><math>\begin{array}{r} 8520 \\ 6 \overline{) 8520} \\ 6 \phantom{00} \\ 25 \phantom{0} \\ 24 \phantom{0} \\ 12 \phantom{0} \\ 12 \phantom{0} \\ 0 \end{array}</math></p>	<p><b>Pupils connect <math>\times</math> by a fraction to using fractions as operators (fractions of), and to <math>\div</math>. This relates to scaling by simple fractions, incl. those <math>&gt; 1</math>. Find fractions of numbers and quantities, writing remainders as a fraction.</b></p>	<p>Identify multiples/factors, including finding all factor pairs of a number, &amp; common factors of two numbers. Know/use vocabulary of prime numbers, prime factors and composite (non-prime) nos. Establish if a number up to 100 is prime; recall prime numbers to 19. <math>\div</math> nos mentally using known facts. Divide whole numbers and those involving decimals by 10/100/1000.</p>	<p>Pupils ... apply all the <math>\div</math> facts frequently, commit them to memory and use them to make larger calculations. They understand the terms factor, multiple/prime, square/cube numbers &amp; use to construct equivalent statements [eg <math>120 \div 15 = (30 \times 4) \div 15 = 2 \times 4 = 8</math>]</p>
Y6	<p>Divide numbers (up to 4 digits) by TU whole number using the formal method of short/long division (interpret as approp. for the context). Use written division methods in cases where the ans has up to 2dp.</p> <p>[Divide numbers up to 2dp by U/TU whole numbers.]</p>	<p><math>43.4 \div 7 = 6.2</math> (estimate <math>42 \div 7 = 6</math>)</p> <p><math>6 \times 7 = 42</math> <math>0.2 \times 7 = 1.4</math></p>	<p><math>25.6 \div 8 = 3.2</math> (estimate <math>&gt;3</math>, <math>&lt;4</math>)</p> <p><math>\begin{array}{r} 25.6 \\ 8 \overline{) 25.6} \\ 24.0 \\ 1.6 \\ 1.6 \\ 0 \end{array}</math> (<math>8 \times 3.0</math>)</p> <p><math>\begin{array}{r} 25.6 \\ 8 \overline{) 25.6} \\ 24.0 \\ 1.6 \\ 1.6 \\ 0 \end{array}</math> (<math>8 \times 0.2</math>)</p>	<p><math>43.68 \div 7 = 6.24</math> (estimate: <math>42 \div 7 = 6</math>)</p> <p>[Or compute <math>4368 \div 7</math>, then divide the solution by 100.]</p> <p><math>\begin{array}{r} 43.68 \\ 7 \overline{) 43.68} \\ 28 \phantom{00} \\ 15 \phantom{00} \\ 14 \phantom{00} \\ 16 \phantom{00} \\ 14 \phantom{00} \\ 20 \phantom{00} \\ 14 \phantom{00} \\ 6 \phantom{00} \\ 6 \phantom{00} \\ 0 \end{array}</math></p>	<p><math>496 \div 11</math> (estimate <math>500 \div 10 = 50</math>)</p> <p><math>\begin{array}{r} 496 \\ 11 \overline{) 496} \\ 44 \phantom{0} \\ 56 \\ 55 \\ 1 \end{array}</math></p> <p>Answer: <math>45 \frac{1}{11}</math></p>	<p><math>432 \div 15 = 28.8</math></p> <p><math>\begin{array}{r} 432.0 \\ 15 \overline{) 432.0} \\ 30 \phantom{00} \\ 132 \phantom{0} \\ 120 \phantom{00} \\ 120 \phantom{00} \\ 120 \phantom{00} \\ 0 \end{array}</math></p>	<p>Perform mental calculations, including with mixed operations/large numbers. Identify common factors/multiples and prime numbers. Use knowledge of order of operations to carry out calculations. Use estimation to check answers to calculations and determine an appropriate degree of accuracy. Identify value of each digit to 3dp and <math>\div</math> nos by 10/100/1000 (ans to 3dp)</p>	<p>Undertake mental calcs with increasingly large numbers and more complex calculations. Continue to use all table facts to calculate statements in order to maintain their fluency. Explore the order of operations using brackets. Common factors can be related to finding equivalent fractions.</p>