


Y5	National Curriculum	Multiplication	Division	Models and images	Maths Talk																						
	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers.</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19.</p> <p>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</p> <p>Multiply and divide numbers mentally, drawing upon known facts.</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>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.</p>	<p>Know by heart all the multiplication and division facts up to $12 \times 12/144 \div 12$.</p> <p>Use knowledge of factors and multiples in multiplication. (E.g. 43×6 is double 43×3, and 28×50 is $\frac{1}{2}$ of $28 \times 100 = 1400$)</p> <p>Use knowledge of multiples and factors, also tests for divisibility in mental division. (E.g. $246 \div 6$ is $123 \div 3$ and we know that 525 divides by 25 and by 3)</p> <p>Multiply and divide whole numbers and one-and two-place decimals by 10, 100 to give whole answers with 1, 2 or 3-decimal places, e.g. $4.302 \times 1000 =$</p> <table border="1" data-bbox="389 496 1715 643"> <thead> <tr> <th>100,000s</th> <th>10,000s</th> <th>1000s</th> <th>100s</th> <th>10s</th> <th>1s</th> <th>0.1s ($\frac{1}{10}$s)</th> <th>0.01s ($\frac{1}{100}$s)</th> <th>0.001s ($\frac{1}{1000}$s)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>4</td> <td>3</td> <td>0</td> <td>4</td> <td>3</td> <td>0</td> <td>2</td> </tr> </tbody> </table> <p>Use knowledge of place value and rounding in mental multiplication. (E.g. 67×199 as $67 \times 200 - 67$)</p> <p>Use doubling and halving as a strategy in mental multiplication and division (E.g. $34 \div 5$ is $(34 \div 10) \times 2$) (E.g. $58 \times 5 =$ half of 58×10, and 34×4 is 34 doubled twice, etc.)</p> <p>Double amounts of money by partitioning. (E.g. £37.45 doubled = £37 doubled (£74) plus 45p doubled (90p) £74.90)</p> <table border="1" data-bbox="389 818 741 895"> <tr> <td colspan="2">16.7</td> </tr> <tr> <td>8.35</td> <td>8.35</td> </tr> </table> <p>Halve amounts of money by partitioning. (E.g. Half of £75.40 = half of £75 (37.50) plus half of 40p (20p) which is £37.70)</p> <p style="text-align: center;">  </p> <p>Partition 2-digit numbers, including decimals, to multiply by a single-digit number mentally. (E.g. 6×27 as 6×20 (120) plus 6×7 (42) making 162 or 6.3×7 as 6×7 plus 0.3×7)</p> <p>Reduce fractions to their simplest form.</p> <p>Find unit and non-unit fractions of large amounts.</p> <p>Turn improper fractions into mixed numbers and vice versa.</p> <p>Choose the most efficient method in any given situation</p> <p>Use rounding and approximation to estimate and check answers</p>	100,000s	10,000s	1000s	100s	10s	1s	0.1s ($\frac{1}{10}$ s)	0.01s ($\frac{1}{100}$ s)	0.001s ($\frac{1}{1000}$ s)			4	3	0	4	3	0	2	16.7		8.35	8.35		<p>Concrete apparatus: counting equipment, numicon, multilink, etc.</p> <p>Fingers</p> <p>Bead string/bead bar/beaded line</p> <p>number line</p> <p>100 grid</p> <p>Bar model</p> <p>Arrays</p> <p>Fraction wall</p> <p>Fraction strips</p>	<p>Counting on and back in multiples</p> <p>Clever counting (all tables)</p> <p>Doubling</p> <p>Halving</p> <p>Set/lots of/array</p> <p>Division</p> <p>'undoes' multiplication</p> <p>'Inverse operations'</p> <p>Factors fit into numbers</p> <p>Counting in fractions</p> <p>Prime numbers</p> <p>Prime factors</p> <p>Composite (non-prime) numbers</p>
100,000s	10,000s	1000s	100s	10s	1s	0.1s ($\frac{1}{10}$ s)	0.01s ($\frac{1}{100}$ s)	0.001s ($\frac{1}{1000}$ s)																			
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Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).

Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.

Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction.

Written method: Grid multiplication/ introduce vertical written algorithm (ladder) to multiply a 1-digit number by a number with up to 4 digits, e.g. $936 \times 27 =$

x	900	30	6	
20	18000	600	120	18720
7	6300	210	42	6552
				25272

$253 \times 6 =$

253

X 6

1200

300

18

1518

Choose the most efficient method in any given situation

Find simple percentages of amounts (e.g. 10%, 5%, 20%, 155 and 50%)

Begin to multiply fractions and mixed numbers by whole numbers ≤ 10 , e.g. $4 \times \frac{2}{3} = \frac{8}{3} = 2\frac{2}{3}$.

NB: grid method is default method for all children

Divide larger numbers mentally by subtracting the 10th or 100th multiple as appropriate. (E.g. $96 \div 6$ is $10 + 6$, as $10 \times 6 = 60$ and $6 \times 6 = 36$; $312 \div 3$ is $100 + 4$ as $100 \times 3 = 300$ and $4 \times 3 = 12$)

Written methods:

Efficient chunking, e.g. $465 \div 6 =$

60 (x10) $465 \div 6 = 77\frac{3}{6} = 77\frac{1}{2}$

120 $-420 = 6 \times 70$

180 45

240 $42 = 6 \times 7$

300 3

360

420

Short division (bus stop) to divide a number with up to 4 digits by a number ≤ 12 .

$$\begin{array}{r} 1264 \\ 6 \overline{) 7153824} \end{array}$$

Give remainders as whole numbers or as fractions.

NB: Efficient chunking method is default method for all children

Concrete apparatus: counting equipment, numicon, multilink, etc. Fingers Bead string/bead bar/beaded line number line 100 grid Bar model Arrays Fraction wall Fraction strips

Counting on and back in multiples Clever counting (all tables) Doubling Halving Set/lots of/array Division 'undoes' multiplication 'Inverse operations' Factors fit into numbers Counting in fractions Prime numbers Prime factors Composite (non-prime) numbers