

DIVISION GUIDELINES – Written Arithmetic

| Year Four | Year Five | Year Six |
|---|--|--|
| <p>÷ = signs and missing numbers Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Written compact method</u></p> <p>Children in Year 4 do not need to learn how to use a formal written method for division.</p> <p>They need to focus on learning division facts up to 12 x 12 and using these when solving problems.</p> <p>Children should also learn how to find remainders using their known facts to help them.</p> | <p>÷ = signs and missing numbers Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Written compact method</u></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 Include calculations that involve missing digits <p>eg. $2,496 \div \square = 6$</p> <p>Example 1: $432 \div 5 = 86 \text{ r}2$</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> $\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><u>Multiples</u> of 5</p> <p style="margin: 0;">5</p> <p style="margin: 0;">10</p> <p style="margin: 0;">15</p> <p style="margin: 0;">20</p> <p style="margin: 0;">25</p> <p style="margin: 0;">30</p> <p style="margin: 0;">35</p> </div> </div> <p>Example 2: A spoonful is 8 ml. How many spoonfuls can you get from a 375 ml bottle of cough mixture?</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> $\begin{array}{r} 46 \text{ r}7 \\ 8 \overline{) 375} \\ \underline{32} \\ 55 \\ \underline{56} \\ 5 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><u>Multiples</u> of 8</p> <p style="margin: 0;">8</p> <p style="margin: 0;">16</p> <p style="margin: 0;">24</p> <p style="margin: 0;">32</p> <p style="margin: 0;">40</p> <p style="margin: 0;">48</p> <p style="margin: 0;">56</p> </div> </div> <p>Answer = 46 spoonfuls</p> <p>Children need to decide whether to round up or down depending on the context of the question. In this case there is not enough cough mixture to make 47 spoonfuls so the answer is 46.</p> | <p>÷ = signs and missing numbers Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Written compact method</u></p> <ul style="list-style-type: none"> Divide numbers up to 4 digits by a two-digit 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. Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. Use written division methods in cases where the answer has up to two-decimal places. Include calculations that involve missing digits <p>eg. $\begin{array}{r} 69. \square \\ 8 \overline{) \square 55.2} \end{array}$</p> <p>Example 1: A spoonful is 11 ml. How many spoonfuls can you get from a 496 ml bottle of cough mixture?</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;"> $\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><u>Multiples</u> of 11</p> <p style="margin: 0;">11</p> <p style="margin: 0;">22</p> <p style="margin: 0;">33</p> <p style="margin: 0;">44</p> <p style="margin: 0;">55</p> <p style="margin: 0;">66</p> <p style="margin: 0;">77</p> </div> </div> <p>Answer = 45 spoonfuls</p> <p>Children need to decide whether to round up or down depending on the context of the question. In this case there is not enough cough mixture to make 46 spoonfuls so the answer is 45.</p> |

□□□□ or 28 □□

$$\begin{array}{r}
 32 2 \\
 15 \overline{)432} \\
 \underline{30} \\
 132 \\
 \underline{120} \\
 12 \\
 2
 \end{array}$$

| Multiples of 15 |
|--------------------|
| 15 |
| 30 |
| 45 |
| 60 |
| 75 |
| 90 |
| 105 |
| 120 |
| 135 |
| 150 |

1215 or 28 45

Example 3: 432 ÷ 15 = 28.8

$$\begin{array}{r}
 320 28 \\
 15 \overline{)432.0} \\
 \underline{30} \\
 132 \\
 \underline{120} \\
 120 \\
 \underline{120} \\
 0
 \end{array}$$

| Multiples of 15 |
|--------------------|
| 15 |
| 30 |
| 45 |
| 60 |
| 75 |
| 90 |
| 105 |
| 120 |
| 135 |
| 150 |

DIVISION GUIDELINES – Mental Arithmetic

| Year Four | Year Five | Year Six |
|--|---|---|
| <p><u>Mental</u></p> <p><u>Mental Fluency</u> Practise mental calculations to aid fluency.</p> <p><u>Division fact knowledge linked with times tables</u> Recall division facts for multiplication tables up to 12×12.</p> <p><u>Place value</u> Use place value, known and derived facts to divide mentally, including: dividing by 1. Eg. Use $21 \div 3 = 7$ to work out $210 \div 3 = 70$ and $2100 \div 3 = 700$</p> <p><u>Commutativity</u> Recognise and use factor pairs and commutativity in mental calculations. Eg Know that factor pairs of 12 are 12 and 1, 2 and 6, 3 and 4 because 12 is divisible by each of these numbers.</p> <p><u>Decimals and place value</u> Find the effect of dividing a one- or two-digit number by 10 and 100 Eg. Divide 74 by 10 = 7.4</p> | <p><u>Mental</u></p> <p><u>Mental Fluency</u> Practise mental calculations with increasingly large numbers to aid fluency.</p> <p><u>Division fact knowledge linked with times tables</u> Recall division facts for multiplication tables up to 12×12.</p> <p><u>Using known facts</u> Divide numbers mentally, drawing upon known facts</p> <ul style="list-style-type: none"> Using division facts for multiplication tables up to 12×12 along with place value knowledge eg $35 \div 7 = 5$ so $3500 \div 7 = 500$. Partition a number into those divisible by a given number Eg. $72 \div 3$ could be done as $72 = 30 + 30 + 12$ $30 \div 3 = 10$ $30 \div 3 = 10$ $12 \div 3 = 4$ So $72 \div 3 = 24$ <p><u>Place value</u> Divide whole numbers and those involving decimals by 10, 100 and 1,000</p> <ul style="list-style-type: none"> Be able to explain the effect on the number by dividing by 10, 100 or 1000. $\square \times 10 = 350.1$ $470 \div \square = 4.7$ $2.4 \times \square = 2400$ | <p><u>Mental</u></p> <p><u>Mental Fluency</u> Perform mental calculations, including with mixed operations and large numbers to aid fluency.</p> <p><u>Division fact knowledge linked with times tables</u> Perform mental calculations, including with mixed operations and large numbers.</p> <ul style="list-style-type: none"> Using division facts for multiplication tables up to 12×12 when solving more difficult calculations. Eg. To calculate $252 \div 6$ partition the 252 into numbers that will divide by 6 $240 \div 6 = 40$ $12 \div 6 = 2$ So $252 \div 6 = 42$ Children may also find other ways of partitioning the number into multiples of 6. <p><u>Place value</u> Divide numbers and those involving decimals by 10, 100 and 1,000 giving answers up to three decimal places.</p> <ul style="list-style-type: none"> Be able to explain the effect on the number by dividing by 10, 100 or 1000. Work out: $17.036 \div 10, \div 100, \div 1000$. <p><u>Identifying factors</u></p> <ul style="list-style-type: none"> Start from a two-digit number with at least six factors, e.g. 72. How many different division facts can you make using what you know about 72? What facts involving decimals can you derive? |