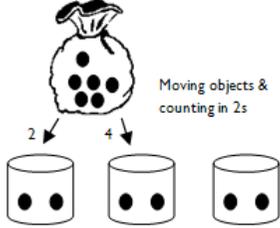


<p><b>Year 1</b></p> <p>Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p> <p>Count in multiples of twos, fives and tens to the tenth multiple.</p> <p><b>Vocabulary:</b>          Odd, even          Count in twos, threes, fives          Count in tens (backwards from)          How many times?          halve          Share, share equally          Group in pairs, threes, etc.</p>	<p><b>Revision from the early years:</b>  <b>Children engage in a wide variety of songs and rhymes, games and activities.</b></p> <p><b>In practical activities and through discussion they will begin to solve problems involving halving and sharing.</b></p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Share the apples between two people.</p> <p>'Half of the apples for you and half of the apples for me.'</p> </div> <div style="text-align: center;"> <p>Counting in pairs              e.g. pairs of children              pairs of socks              eggs in an egg box              pairs of animals</p>  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  <p>Moving objects &amp; counting in 2s</p> </div> <div style="text-align: center;"> <p>Number rhymes such as two, four, six, eight, Ten fat sausages</p>  </div> </div> <p><b>Practical sharing activities</b></p> <p>Use a variety of resources and share objects into equal groups in a variety of situations.          Use vocabulary associated with division in practical contexts.</p> <p>'Share these eight apples equally between two children. How many apples will each child have?'</p> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;">  </div>	<p><b>Progression:</b>          Revision from early years:          Children engage in a wide variety of songs and rhymes, games and activities.</p> <p>Through practical activities children begin to solve problems involving halving and sharing.</p> <p>Year 1:          Practical sharing activities</p> <p>Practical grouping activities</p> <p>Use arrays to support early division</p>
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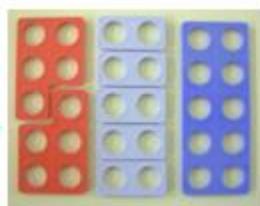
Equal groups of  
Divide, divided by,  
left, left over



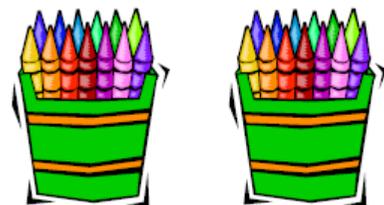
'Share 20 crayons between 2 pots.'

'How many crayons are in each pot?'

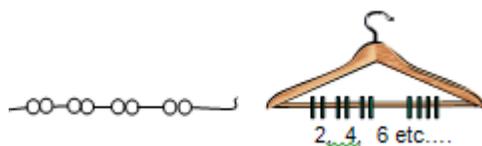
**Practical grouping activities**



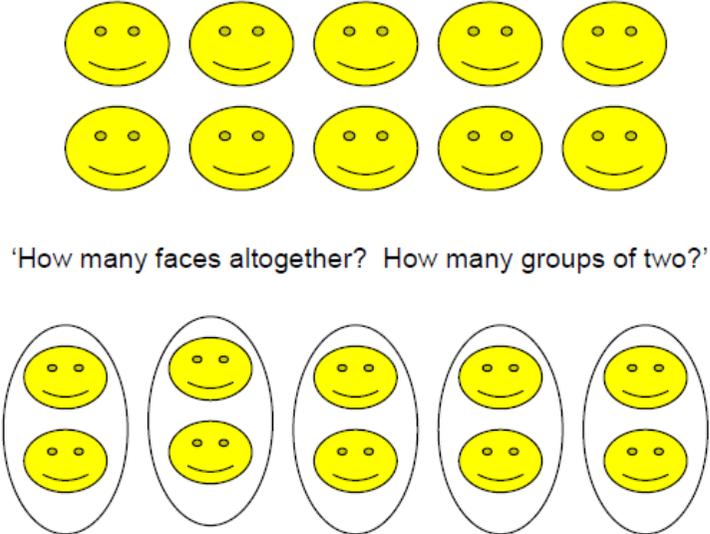
Match groups of Numicon to given Numicon shape.

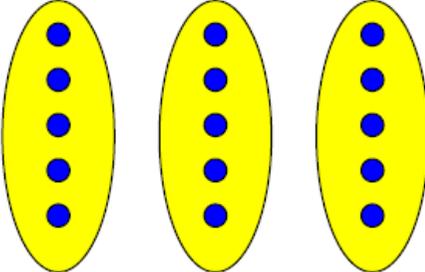


'Put 20 crayons into groups of 10. How many pots do we need?'



Grouping on bead string/ pegs etc

	<p><b>Use arrays to support practical division</b></p>  <p>'How many faces altogether? How many groups of two?'</p> <p>'Five groups of two'</p> <p>Continue to solve problems in practical contexts throughout Y1, and develop the language of early division, with appropriate resources.</p>	
<p><b>Year 2</b> Recall and use division facts for the 2, 5 and 10 multiplication tables, including</p>	<p>Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.</p> <p><b>Introduce the ÷ sign in practical contexts</b></p>	<p><b>Progression:</b> Introduce the ÷ sign in practical contexts</p> <p>Consolidate understanding of sharing and</p>

<p>recognising odd and even numbers</p> <p>Calculate mathematical statements for division within the multiplication tables and write them using the division (<math>\div</math>) and equals (=) signs</p> <p>Show that division of one number by another cannot be done in any order</p> <p>Solve problems involving division, using materials, arrays, repeated subtraction, mental methods, and division facts, including</p>	<p><b>Sharing and grouping</b></p> <p><b>Ensure children understand that division cannot be done in any order.</b></p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>'30 crayons shared equally between three pots.' (Sharing)              'We have 30 crayons and put ten crayons in each pot.              How many pots do we need?' (Grouping)</p> <p>'30 divided by 10 = 3'              '30 divided by 3 = 10'</p> </div> </div> <div style="text-align: center; margin: 20px 0;"> <p><math>30 \div 10 = 3</math>  <math>30 \div 3 = 10</math></p> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>'How many groups of 5?'              '15 shared equally between 3 people is...?'</p> <p>'15 divided by 3 equals 5'              '15 divided by 5 equals 3'</p> </div> </div> <div style="text-align: center; margin: 20px 0;"> <p><math>15 \div 5 = 3</math>  <math>15 \div 3 = 5</math></p> </div> <p>Also use Numicon</p>	<p>grouping through practical activities.</p> <p>Use arrays to develop understanding of division.</p> <p>Use empty number line to count forward.              (May need to use bead string then marked number line to consolidate this)</p> <p>Use empty number line to count backwards              (repeated subtraction)              (May need to use bead string then marked number line to consolidate this)</p>
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problems in contexts.

**Vocabulary:**

Odd, even  
 Count in twos, threes, fives  
 Count in tens (backwards from)  
 How many times?  
 halve  
 Share, share equally  
 Group in pairs, threes, etc.  
 Equal groups of  
 Divide, divided by,  
 left, left over, count forward/backwards

, Groups of

**Use arrays to support division**

$$15 \div 5 = 3$$

$$15 \div 3 = 5$$



How many groups of 3?

How many groups of 5?

15 shared between 3 people is...?

15 shared between 5 people is...?

$$15 \text{ divided by } 5 = 3$$

$$15 \text{ divided by } 3 = 5$$



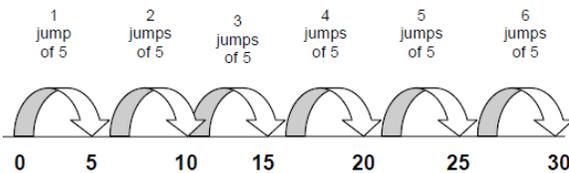
Numicon could also be used to demonstrate this.

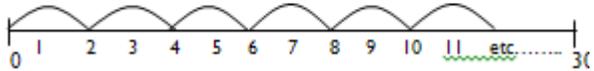
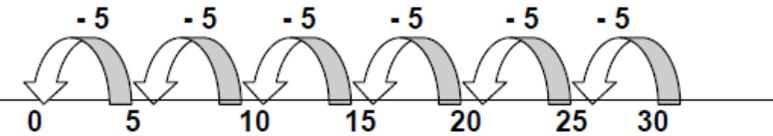
**Use empty number line to count forward**

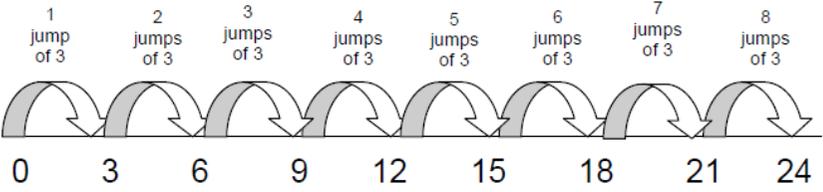
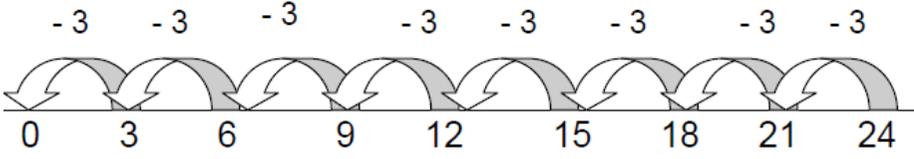
Only use if children have developed a secure understanding of previous topics.

$$30 \div 5 = 6$$

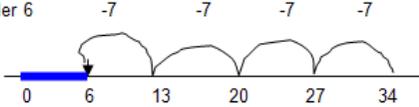
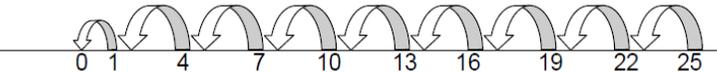
'How many jumps of five make thirty?'



	<p><b>If children are not secure demonstrate on bead string/ marked number line first</b></p> <p><math>16 \div 2 = 8</math></p>  <p>Using numberline If you have 30 sweets, how many children could have 2 sweets each?</p>  <p><b>Use empty number line to count backwards (repeated subtraction)</b></p> <p><math>30 \div 5 = 6</math></p> <p>'How many groups of five?'</p>  <p><b>If children are not secure demonstrate on bead string/ marked number line first</b></p>	
<p><b>Year 3</b> Recall and use division facts for the 3, 4 and 8 multiplication tables</p>	<p><b>Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.</b></p> <p><b>Continue to use practical resources, pictures, diagrams, number lines, arrays and the <math>\div</math> sign to record, using multiples that they know, as appropriate (see Y2 guidance).</b></p>	<p><b>Progression:</b> Continue to use practical resources, pictures, diagrams, number lines, arrays and the <math>\div</math> sign to record, using</p>

<p><b>Write and calculate mathematical statements for division using the multiplication tables that they know</b></p> <p><b>Vocabulary:</b>          Odd, even          Count in twos, threes, fives          Count in tens (backwards from)          How many times?          halve          Share, share equally          Group in pairs, threes, etc.          Equal groups of          Divide, divided by, left, left over, count forward/backwards          ,          Groups of</p>	<p><b>Use the empty number line to count forwards</b></p> <p><math>24 \div 3 = 8</math></p> <p>'How many threes in 24?'</p>  <p>Also jump backwards to consolidate link with repeated subtraction</p>  <p>'How many groups of three in 24?'</p> <p><b>Introduce the formal layout</b></p> <p><b>Only use multiplication/division facts that the children know</b></p>	<p>multiples that they know, as appropriate (see Y2 guidance).</p> <p>Use empty number line to count forwards/ backwards – <b>repeated subtraction.</b></p> <p>Introduce the formal layout using multiplication/division facts that the children know:</p>
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	<p><math>24 \div 3 = 8</math></p> <p>This can also be recorded as...</p> $\begin{array}{r} 8 \\ 3 \overline{) 24} \end{array}$ <p>'Twenty four divided by three equals eight.'</p> <p>'How many threes are there in twenty four?'</p>	
<p><b>Year 4</b> Recall division facts for multiplication tables up to <math>12 \times 12</math></p> <p>Use place value, known and derived facts to divide mentally, including: dividing by 1;</p> <p>Divide two-digit and three-digit numbers by a</p>	<p>Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.</p> <p><b>Continue to write and calculate mathematical statements for division using the multiplication tables that the children know</b></p> <p><math>32 \div 8 = 4</math></p> <p><b>Continue using the formal written layout for division using multiplication tables that they know</b></p> $\begin{array}{r} 4 \\ 8 \overline{) 32} \end{array}$ <p>'How many eights are there in thirty two?'</p>	<p><b>Progression:</b> Continue to write and calculate mathematical statements for division using the multiplication tables that the children know</p> <p>Continue using the formal written layout for division using multiplication tables that they know</p>

<p><b>one-digit number using formal written layout (not explicitly stated in the programmes of study but implied in the non-statutory guidance)</b></p> <p><b>Vocabulary:</b>          Odd, even          Count in twos, threes, fives          Count in tens (backwards from)          How many times?          halve          Share, share equally          Group in pairs, threes, etc.          Equal groups of          Divide, divided by, left, left over, count forward/backwards          Groups of, Division facts, Inverse, Derive, remainders, multiples of,</p>	<p><b>Introduce remainders</b></p> <p>Remainders are not specifically referred to until Y5 in the National Curriculum. However, this may be an appropriate point to introduce them using familiar multiplication facts.</p> <p>Introduce with facts the children know</p> $25 \div 3 = 8 \text{ r}1$ $\begin{array}{r} 8 \text{ r}1 \\ 3 \overline{) 25} \end{array}$ <p><b>It may be necessary to consolidate children's understanding of what a remainder is using the number line</b></p> <p><math>34 \div 7 = 4</math> remainder 6</p>  <p>shown as '4 groups of 7 and 6 left over'          'Eight jumps of three and one left over.'</p> <p><math>25 \div 3 = 8 \text{ r}1</math></p>  <p>Alternatively you could jump forwards in multiples of 3 from 0-24 (“and one more makes 25”)</p>	<p>Introduce remainders (modelled using the number line if necessary)</p> <p>Division using partitioning (using the number line to support understanding)</p> <p>Formal method of short division (2-digit by 1-digit – no remainders)</p> <p>Only if secure 3-digit by 1-digit (no remainders)</p>
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multiplication facts,  
partition, help box,  
chunking,

**Division using partitioning**

Children need to be able to partition numbers in a variety of ways using the multiplication facts that they know.

$$65 \div 5 = 13$$

$$65 = 50 + 15 \quad \text{Partition 65 into 50 and 15}$$

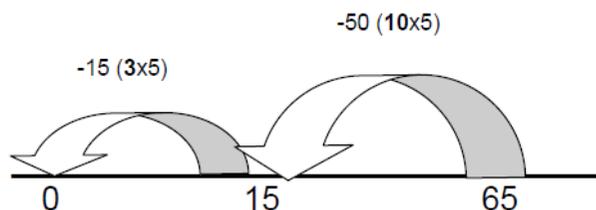
$$50 \div 5 = 10$$

$$15 \div 5 = 3$$

$$10 + 3 = 13$$

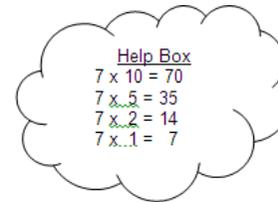
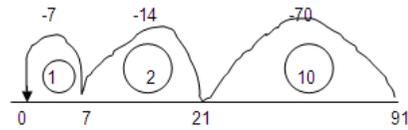
Understanding must be consolidated using an empty number line (chunking on a number line).

$$65 \div 5 = 13$$



**\*\*Children should be able to partition numbers using the multiplication facts they know (the expectation is that they will know up to the 12 x 12 times table by year 4). However if they are struggling to use the partitioning method get the children to produce a help box of key facts (x1, x2, x5, x10) to support them. There is no need to put other facts in the help box as all facts can be derived from these.**

$$91 \div 7 = 13 \quad (10 + 2 + 1)$$



$$98 \div 7 = 14$$

$$98 = 70 + 28 \quad \text{Partition 98 into 70 and 28}$$

$$70 \div 7 = 10$$

$$28 \div 7 = 4$$

$$10 + 4 = 14$$

This could be modelled on an empty number line to further develop understanding.

$$98 \div 7 = 14$$

$$\begin{array}{r} 10 + 4 = 14 \\ 7 \overline{) 70 + 28} \end{array}$$

'We have partitioned 98 into 70 and 28 (98 = 70 + 28).

Seven 'goes into' 70 ten times and seven 'goes into' 28 four times. Ten add four equals 14'

	<p><b>Formal method of short division</b></p> <p>This will lead to the formal method of short division.</p> $98 \div 7 = 14$ $\begin{array}{r} 14 \\ 7 \overline{) 98} \end{array}$ <p>Use the vocabulary of place value to ensure understanding and make the link to partitioning.</p> <p>If children are confident develop further, by dividing three-digit numbers by a onedigit number using the formal method of short division with whole number answers (no remainders).</p>	
<p><b>Year 5</b></p> <p>Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders</p>	<p>Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.</p>	<p><b>Progression:</b> Formal method of short division for whole number answers.</p> <p>Formal method of short division (with remainders)</p>

<p><b>appropriately for the context</b></p> <p><b>Vocabulary:</b></p> <p>Formal written method, fraction, expressed, divisor, Odd, even          Count in twos, threes, fives          Count in tens (backwards from)          How many times?          halve          Share, share equally          Group in pairs, threes, etc.          Equal groups of          Divide, divided by, left, left over, count forward/backwards          ,          Groups of, Division facts, Inverse, Derive, remainders, multiples of, multiplication facts, partition, help box, chunking,</p>	<p><b>Formal method of short division (whole numbers)</b></p> <p><math>184 \div 8 = 23</math></p> $\begin{array}{r} 23 \\ 8 \overline{)18^24} \end{array}$ <p>Use the language of place value to ensure understanding.</p> <p>Make the link to the partitioning method (see Y4 guidance).</p> <p><b>Formal method of short division (with remainders)</b></p> <p><math>432 \div 5 = 86 \text{ r}2</math></p> $\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{)43^32} \end{array}$ <p>The remainder can also be expressed as a fraction, <math>\frac{2}{5}</math> (the remainder divided by the divisor): <math>432 \div 5 = 86\frac{2}{5}</math></p> <p><b>Children must be able to interpret the remainder across a range of contexts.</b></p>	
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<p><b>Year 6</b>                  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</p> <p>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</p>	<p><b>Ensure that children are confident with the methods outlined in the previous year's guidance before moving on</b></p> <p><b>Formal method of short division (with and without remainders)</b></p> <p>Ensure the language of place value is used to consolidate the children's understanding (See year 5 guidance).</p> $496 \div 11 = 45 \text{ r}1$ $\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 4956} \end{array}$ <p>The remainder can also be expressed as a fraction, <math>\frac{1}{11}</math> (the remainder divided by the divisor)</p> <p><b>Formal method of long division to divide by 2-digit numbers (vertical chunking):</b></p>	<p><b>Progression:</b>                  Formal method of short division with and without remainders.</p> <p>Dividing by a 2-digit number using the formal method of long division (vertical chunking).</p> <p>Alternative way of recording formal long division.</p>
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**Vocabulary:**

Formal written method, fraction, expressed, divisor, Odd, even  
 Count in twos, threes, fives  
 Count in tens (backwards from)  
 How many times?  
 halve  
 Share, share equally  
 Group in pairs, threes, etc.  
 Equal groups of  
 Divide, divided by, left, left over, count forward/backwards  
 ,  
 Groups of, Division facts, Inverse, Derive, remainders, multiples of, multiplication facts, partition, help box, chunking,

$$\begin{array}{r}
 45 \text{ r } 1 \\
 11 \overline{) 496} \\
 \underline{- 440} \quad (40 \times 11) \\
 56 \\
 \underline{- 55} \quad (5 \times 11) \\
 1 \text{ (remainder)}
 \end{array}$$

Multiples of the divisor (11) have been subtracted from the dividend (496)

'40 (lots of 11) + 5 (lots of 11) = 45 (lots of 11)'

'1 is the remainder'

Answer:  $45\frac{1}{11}$

**Help box should be used to support the children if needed**

102 ÷ 6

$$\begin{array}{r}
 102 \\
 - 60 \\
 \hline
 42 \\
 - 30 \\
 \hline
 12 \\
 - 12 \\
 \hline
 0
 \end{array}$$

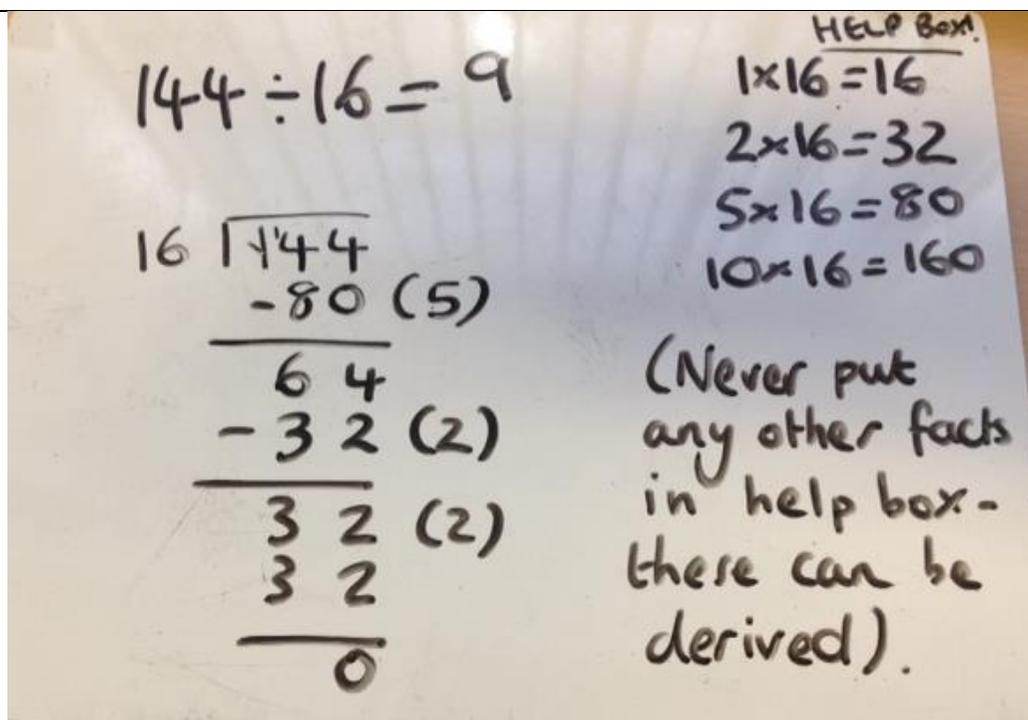
10

5

2

Help Box

6 x 10 = 60  
 6 x 5 = 30  
 6 x 2 = 12  
 6 x 1 = 6



Children need to be able to select the most appropriate method of calculation for the numbers they are given – mental, short written method or long written method.

This is an alternative way of recording formal long division:

$$432 \div 15 = 28.8$$

$$\begin{array}{r}
 28.8 \\
 \hline
 15 \overline{) 432.0} \\
 \underline{30} \phantom{0} \phantom{0} \\
 132 \phantom{0} \\
 \underline{120} \phantom{0} \\
 120 \phantom{0} \\
 \underline{120} \\
 0
 \end{array}$$

**NB** Only teach this method when children are completely secure with the previous method.

The remainder is expressed as a decimal.

Our aim is that by the end of Y6 children use mental methods (with jottings) when appropriate, but for calculations that they cannot do in their heads, they use an efficient formal written method accurately and with confidence.