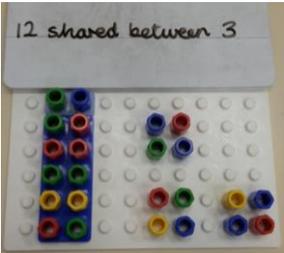
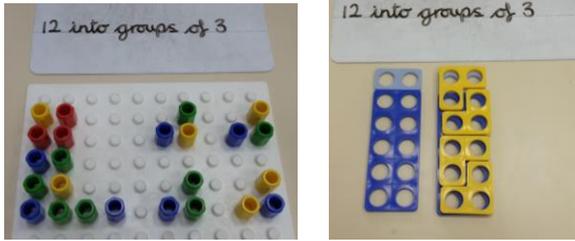
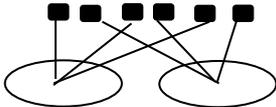
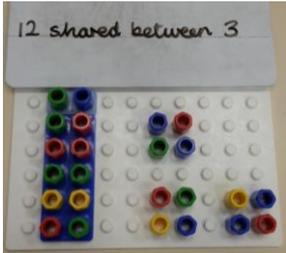
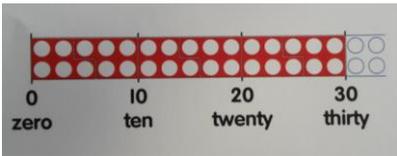


# DIVISION STRATEGIES

	<b>Strategy</b>	<b>Key concepts and resources</b>
<p><b>Foundation Stage</b></p> <p><u><i>Aim by end of year:</i></u></p> <p><i>- All understand sharing as giving everyone the same amount and solve problems including doubling, having and sharing.</i></p>	<p>Understand sharing as giving everyone the same amount e.g. 6 grapes are shared equally between 2 people. How many grapes does each one get?</p> <p>Solve practical problems in a real or role play context e.g.</p> <ul style="list-style-type: none"> <li>• How many pairs of socks are there in the drawer? Can you cut the cake in half? How many pieces are there?</li> <li>• Share objects into equal groups and count how many in each group - e.g., ask three children to share 6 sweets - can you share these sweets between you?</li> <li>• How many smaller Numicon pieces fit over a larger piece, eg. 2s over a 10 piece?</li> </ul> <div style="text-align: center;">  </div>	<p><b>Key resources:</b></p> <p>Variety of practical objects for grouping and sharing, eg. Sweets, cubes, fruit, counters</p> <p>Hoops , boxes etc for grouping and sharing into</p> <p>Group children into groups of 3s, 4s etc.</p> <p>Numicon shapes</p> <p>Numicon pegs and baseboards</p> <p>Numicon IWB software</p> <p>Numicon tens number line</p>
<p><b>Year 1</b></p> <p><u><i>Aim by end of year:</i></u></p> <p><i>- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</i></p>	<p>Understand <b>sharing</b> as giving everyone the same amount e.g.</p> <ul style="list-style-type: none"> <li>• 6 grapes are shared equally between 2 people. How many grapes does each one get?</li> <li>• You have 12 wheels, how many cars can you make? (draw a car to go with each group of 4 wheels until 12 wheels have been used)</li> </ul> <div style="text-align: center;">  </div> <p>Using Numicon pegs on the baseboard to investigate, encouraging children to build Numicon patterns as they share the pegs.</p> <div style="text-align: center;">  </div> <p>Link to arrays.</p> <p>Model number sentences in context.</p> <p>Pupils to also begin to explore the concept of grouping, taking away groups of the Numicon pegs to solve a problem, eg. Rabbits can live in 3s in a hutch, how many hutches with 12 rabbits need?</p>	<p><b>Key resources:</b></p> <p>Variety of practical objects for grouping and sharing, eg. Sweets, cubes, fruit, counters</p> <p>Hoops , boxes etc for grouping and sharing into</p> <p>Hundred squares</p> <p>Bead strings for grouping</p> <p>Numicon shapes</p> <p>Numicon pegs and baseboards</p> <p>Numicon IWB software</p> <p>Numicon tens number line</p>

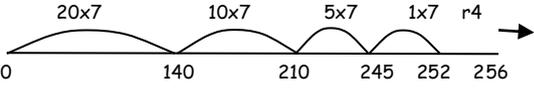
# DIVISION STRATEGIES

		
<p><b>Year 2</b></p> <p><u>Aim by end of year:</u></p> <ul style="list-style-type: none"> <li>- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</li> <li>- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p>Understand division as</p> <p>- <b>Sharing equally</b></p> <p>E.g. 6 sweets are shared equally between 2 people. How many sweets does each one get?</p> <div style="text-align: center;">  </div> <p>Using Numicon pegs to reinforce (as in Year 1), encouraging children to build Numicon patterns as they share the pegs.</p> <div style="text-align: center;">  </div> <p>and as</p> <p>- <b>Grouping</b></p> <p>E.g. There are 15 apples in a box. How many bags of 5 apples can be filled? I.e. How many groups of 5 can you make from 15?</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px; margin-left: 20px;"> <p>Link to arrays.</p> </div> </div> <p>Pupils should explore grouping using the Numicon pieces to see how many fit over a larger piece, helping to build the understanding of the repeated process within division and links to multiplication.</p> <div style="text-align: center;">  </div> <p>How many 5s in 30?</p> <p>Grouping should also be modelled on number lines and hundred squares. Use hundred squares to model jumps, as well as prepared</p>	<p>As a basis for later repeated addition methods, children should be encouraged to <b>count on</b> to solve 'grouping' problems.</p> <p><b>Key resources:</b></p> <ul style="list-style-type: none"> <li>Variety of practical objects for grouping and sharing, eg. Sweets, cubes, fruit, counters</li> <li>Hundred squares</li> <li>Number lines</li> <li>Bead strings for grouping</li> <li>Numicon shapes</li> <li>Numicon pegs and baseboards</li> <li>Numicon IWB software</li> <li>Numicon tens number line</li> </ul>





# DIVISION STRATEGIES

	<p>As with multiplication policy, repeated addition leads on to creating <b>partial tables</b> to support children with making appropriate jumps along a number line (and for later additive chunking methods).</p> <p>Eg. For <math>82 \div 8</math></p> <p>1 → 8 2 → 16 4 → 32 5 → 40 10 → 80</p>	<p>Sound times tables knowledge is essential for supporting division and should be revisited frequently throughout mental oral starters.</p> <p><b>Key resources:</b> Laminated partial tables sheets</p>
	<p>When pupils are <b>ready</b> and can use chunking confidently, the next step is to represent the method of recording in a compact format.</p> $\begin{array}{r} 312 \\ 3 \overline{)936} \end{array}$ $\begin{array}{r} 312r1 \\ 3 \overline{)937} \end{array} \quad \text{Remainders at the end.}$ $\begin{array}{r} 325 \\ 3 \overline{)975} \end{array} \quad \text{Remainders in the middle.}$	<p>Children should describe what they do by referring to the <b>actual values of the digits</b> in the columns. For example, the first step is <math>900 \div 3</math>, not <math>9 \div 3</math>.</p> <p>Children should understand the <b>importance of lining up</b> units digits under units digits, tens under tens etc (squared paper, whiteboards and IWB backgrounds should be used to reinforce this).</p>
<p><b>Year 5</b></p> <p><u><i>Aim by end of year:</i></u></p> <ul style="list-style-type: none"> <li>- <i>multiply and divide numbers mentally drawing upon known facts</i></li> <li>- <i>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</i></li> <li>- <i>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</i></li> </ul>	<p>Understand the different aspects of division (grouping and sharing) and use as appropriate. (see Y2/3/4 examples)</p> <p><b>Continue to use informal methods of recording to support and explain mental methods where the numbers are appropriate.</b> This should include <b>number lines and chunking</b>, progressing to <math>\text{ThHTU} \div \text{U}</math>, 'chunking' <math>20x</math> and <math>30x</math> the divisor, where appropriate.</p> <p>Children should be reminded to first create a <b>partial table</b> with appropriate multiples to support chunking (see Y4 for example). This can be modelled on a blank number line e.g.</p> <p><math>256 \div 7</math></p> <p><b>REPEATED ADDITION METHOD</b></p>  <p><math>= 36 \text{ r } 4</math></p> <p><b>leading to:</b></p> $\begin{array}{r} 140 \quad (20) \\ \underline{70} \quad (10) \\ 210 \\ \underline{42} \quad (6) \\ 252 \\ \underline{4} \quad (\text{remainder}) \end{array}$	<p>Children should be taught to approximate first to gain a sensible idea of what the answer must be.</p> <p>Estimation activities should be taught through mental oral starters to support additive chunking.</p> <p><b>Key resources:</b> Laminated partial tables sheets</p>

# DIVISION STRATEGIES

	<p style="text-align: center;">256 Answer: 36 r3</p> <p style="text-align: center;"> </p> <p>Formal written method of short division should be continued from year 4, progressing to ThHTU divided by U with remainders in the middle and end.</p> $\begin{array}{r} 2\ 3\ 2\ 5\ r1 \\ 3 \overline{) 6\ 9\ 7\ 6} \end{array}$ <p style="text-align: center;">Remainders in the middle.</p>	<p>Children should describe what they do by referring to the <b>actual values of the digits</b> in the columns. For example, the first step is <math>900 \div 3</math>, not <math>9 \div 3</math>.</p> <p>Children should understand the <b>importance of lining up</b> units digits under units digits, tens under tens etc (squared paper, whiteboards and IWB backgrounds should be used to reinforce this).</p>			
<p><b>Year 6</b> <b><i>Aim by the end of Year 6:</i></b></p> <ul style="list-style-type: none"> <li>▪ <i>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</i></li> <li>▪ <i>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</i></li> </ul>	<p>Understand the different aspects of division and use as appropriate. (see Y2/3/4 examples)</p> <p><b>Continue to use informal methods of recording to support and explain mental methods where the numbers are appropriate.</b> This should include <b>number lines and chunking</b>, progressing to <math>\text{ThHTU} \div \text{TU}</math>, 'chunking' 20x and 30x the divisor, where appropriate.</p> <p><math>977 \div 36</math> is approximately <math>1000 \div 40 = 25</math></p> $\begin{array}{r} 360\ (10) \\ + 360\ (10) \\ \hline 720 \\ + 180\ (5) \\ \hline 900 \\ + 72\ (2) \\ \hline 972 \\ + 5\ (\text{remainder}) \\ \hline 977 \end{array}$ <p>Answer: 27 remainder 5</p> <p>Develop the compact method for short division if appropriate (see Y5).</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-right: 1px solid black; padding: 5px;"> <math>98 \div 7</math> becomes  <math display="block">\begin{array}{r} 1\ 4 \\ 7 \overline{) 9\ 8} \end{array}</math>           Answer: 14         </td> <td style="text-align: center; border-right: 1px solid black; padding: 5px;"> <math>432 \div 5</math> becomes  <math display="block">\begin{array}{r} 8\ 6\ r2 \\ 5 \overline{) 4\ 3\ 2} \end{array}</math>           Answer: 86 remainder 2         </td> <td style="text-align: center; padding: 5px;"> <math>496 \div 11</math> becomes  <math display="block">\begin{array}{r} 4\ 5\ r1 \\ 1\ 1 \overline{) 4\ 9\ 6} \end{array}</math>           Answer: <math>45\frac{1}{11}</math> </td> </tr> </table>	$98 \div 7$ becomes $\begin{array}{r} 1\ 4 \\ 7 \overline{) 9\ 8} \end{array}$ Answer: 14	$432 \div 5$ becomes $\begin{array}{r} 8\ 6\ r2 \\ 5 \overline{) 4\ 3\ 2} \end{array}$ Answer: 86 remainder 2	$496 \div 11$ becomes $\begin{array}{r} 4\ 5\ r1 \\ 1\ 1 \overline{) 4\ 9\ 6} \end{array}$ Answer: $45\frac{1}{11}$	<p>Estimation activities should be taught through mental oral starters to support additive chunking.</p> <p><b>Key resources:</b> Laminated partial tables sheets</p> <p>Children should describe what they do by referring to the actual values of the digits in the columns. For example, the first step is <math>900 \div 3</math>, not <math>9 \div 3</math>.</p> <p>Children should understand the <b>importance of lining up</b> units digits under units digits, tens under tens etc (squared paper, whiteboards and IWB backgrounds should be used to reinforce this).</p>
$98 \div 7$ becomes $\begin{array}{r} 1\ 4 \\ 7 \overline{) 9\ 8} \end{array}$ Answer: 14	$432 \div 5$ becomes $\begin{array}{r} 8\ 6\ r2 \\ 5 \overline{) 4\ 3\ 2} \end{array}$ Answer: 86 remainder 2	$496 \div 11$ becomes $\begin{array}{r} 4\ 5\ r1 \\ 1\ 1 \overline{) 4\ 9\ 6} \end{array}$ Answer: $45\frac{1}{11}$			
	<p>Continue to develop written method of long division through chunking, dividing numbers to 4 digits by 2 digits.</p>	<p>Children should be taught to approximate first to gain a sensible idea of what the answer must be.</p> <p>Estimation activities should be taught through mental oral starters to support additive chunking.</p> <p><b>Key resources:</b></p>			

# DIVISION STRATEGIES

	<p>432 ÷ 15 becomes</p> $\begin{array}{r} 28 \text{ r}12 \\ 15 \overline{) 432} \\ \underline{300} \\ 132 \\ \underline{120} \\ 12 \end{array}$ <p>Answer: 28 remainder 12</p>	<p>432 ÷ 15 becomes</p> $\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{300} \quad 15 \times 20 \\ 132 \\ \underline{120} \quad 15 \times 8 \\ 12 \end{array}$ <p><math>\frac{12}{15} = \frac{4}{5}</math></p> <p>Answer: <math>28\frac{4}{5}</math></p>	<p>Laminated partial tables sheets</p>
<p>When ready, pupils may move to the alternative method of recording, only once completely secure in previous methods.</p>			
<p>432 ÷ 15 becomes</p> $\begin{array}{r} 28.8 \\ 15 \overline{) 432.0} \\ \underline{30} \quad \downarrow \\ 132 \\ \underline{120} \quad \downarrow \\ 120 \\ \underline{120} \\ 0 \end{array}$ <p>Answer: 28.8</p>			