





Berkeley Primary School Written Calculation Policy
Division



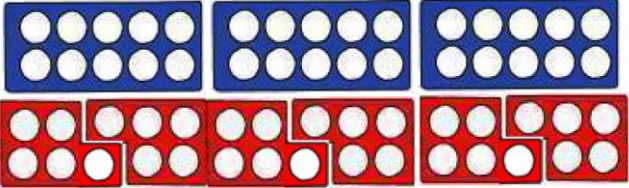




Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
1	<p>Getting children to share out objects to a group. e.g. Can we share these cakes out?</p> <p>When playing the children will share their toys. "I have 4 cars, if I share them with you, we will have 2 cars each"</p>	Sharing Grouping Sorting Set	<p>Practical activities - no formal/informal recording</p> <p>If I share 4 cars, how many will we each get?</p>  <p>I have four socks. How many pairs do I have?</p> 	<p>Children will separate a group of three or four objects in different ways and begin to recognise that the total is still the same. They will move on to solving problems that include halving and sharing.</p> <p>Children will mainly use concrete apparatus and practical activities to divide. They will share objects and items in role play situations and when playing with friends.</p> <p>Resources A range of objects to count e.g. counters, small toys, buttons, cubes, pegs etc, Pairs of socks or gloves, fingers, songs</p>	Nursery and Reception



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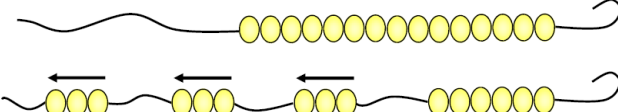
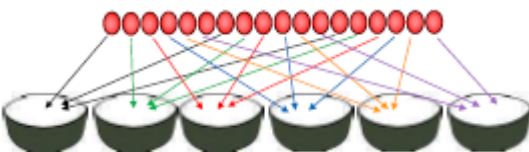



Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
2	<p>If I had 6 cows and 2 fields, how many cows would live in each field?</p> <p>Share 10 carrots between 5 children.</p> <p>If I can see 12 wheels, how many bikes are there?</p> <p>What is half of 12?</p> <p>What is a quarter of 4?</p>	<p>Count out Share out Left over Left How many...? Sort Group Set Sharing Grouping Equal groups Lots of Groups of</p>	<p>Mainly practical activities.</p> <p>Sharing:</p> <p>Can you share the cows <i>equally</i> between the two fields?</p>  <p>Grouping:</p> <p>Organise these children into groups of 3.</p>   <p>How many 5s are there in 30?</p> <p>Recording pictorially:</p> <p>Grouping: 6 into groups of 2. How many groups?</p>  <p>Sharing: Share 6 across 2 groups. How many in each group?</p> 	<p>At this stage, the children will still be undertaking practical work. Children will answer one-step problems involving division, by calculating the answer using concrete objects, pictorial representations with the support of the teacher. The children will progress to recognise, find and name a half and a quarter of an object, shape or quantity. Main focus will be on understanding the language of division. Questions will be given as real life examples and may still include lots of role-play and partner work.</p> <p>Resources Counters, Small toys, Buttons, Cubes, Pegs, Numicon, hoops, everyday objects etc. Gloves and socks to pair up.</p>	<p>BM Steps 1 - 9</p> <p>Year 1</p>



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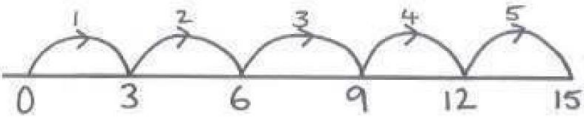


Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
3	<p>Share 18 between 2.</p> <p>How many lots of 3 in 15?</p> <p>Divide 6 by 3.</p> <p>How many groups of 10 will make 80?</p> <p>If $2 \times 10 = 20$, what is $20 \div 2$?</p>	<p>Groups of</p> <p>Divide</p> <p>Divided by</p> <p>Divided into</p> <p>Shared into</p> <p>Multiple</p> <p>Multiplication</p> <p>Array</p> <p>Tables/facts</p> <p>Groups of</p> <p>Equal</p>	<p>Practical activities with recording using pictorial representation and the symbol for division:</p> <p>Grouping: How many groups of 3 are there in 15?</p>  <p>$15 \div 3 = 5$</p> <p>Sharing: 18 shared between 6.</p>  <p>$18 \div 6 = 3$</p> <p>Pictorial representation: $18 \div 6 = 3$</p> 	<p>Children will still use many ideas as above and continue to divide by grouping and sharing. Children should also be given the opportunity to find a half, a quarter and a third of shapes and quantities. Finding a fraction of a number should be related to sharing and division. They will then begin to move on to a simple written forms of division based on early times table facts and recognise the inverse relationship between multiplication and division.</p> <p>Resources Concrete objects if still required (see above) Hoops for sharing Numicon for grouping, bead strings.</p>	<p>BM Steps 1 - 9</p> <p>Year 2</p>



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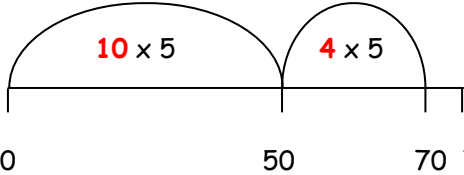


Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014												
4	<p>How many fives make 45?</p> <p>Divide 25 by 5.</p> <p>A baker bakes 24 buns. 6 buns in every box - how many boxes?</p>	<p>Groups of</p> <p>Divide</p> <p>Divided by</p> <p>Divided into</p> <p>Shared into</p> <p>Array</p> <p>Tables/facts</p> <p>Lots of</p> <p>Equal</p>	<p>Informal methods of recording:</p> <p>Blank number lines: $15 \div 3 = 5$</p>  <p>Arrays:</p> <p>$12 \div 4 = 3$ $12 \div 3 = 4$</p> <table border="1" data-bbox="752 756 1346 895"><tr><td>*</td><td>*</td><td>*</td><td>*</td></tr><tr><td>*</td><td>*</td><td>*</td><td>*</td></tr><tr><td>*</td><td>*</td><td>*</td><td>*</td></tr></table> <p>Reinforce the link with multiplication.</p>	*	*	*	*	*	*	*	*	*	*	*	*	<p>Children will begin to make connections between division and repeated subtraction and division as the inverse to multiplication. They may still use pictorial representations but these will take the form of arrays.</p> <p>In Year 3 children will also experience remainders and whether to round up or down.</p> <p>Resources</p> <p>Hoops for sharing</p> <p>Numicon for grouping.</p> <p>Arrays (link to multiplication), numberlines</p>	<p>BM Steps 10 - 15</p> <p>Year 2 and 3</p>
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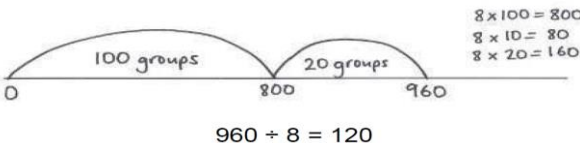
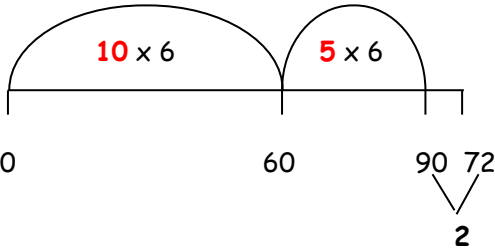


Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
5	<p>There are 64 children in Year 4. How many teams of 6 can be made?</p> <p>I have 62 cakes and 7 boxes. Each box holds 8 cakes. How many boxes can I fill?</p> <p>Pencils are sold in packs of 10. How many packs will I need to buy for 24 children?"</p>	<p>Groups of Divide Divided by Divided into Shared into Array Tables/facts Lots of Equal Remainder</p>	<p>Blank number lines (including remainders)</p> <p>Counting on - $72 \div 5 = 14 \text{ r } 2$</p>  <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><i>Encourage children to make estimations first using their knowledge of table facts ie; $72 \div 5$ will have a remainder as 72 isn't a multiple of 5. It will be more than 10 as $10 \times 5 = 50$.</i></p> </div> <p>Arrays: $22 \div 5 = 4 \text{ r } 2$</p> <pre> * </pre> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Reinforce the link with multiplication.</p> </div>	<p>Children are still developing their instant recall of facts and the relationship between multiplication and division, applying these to solve calculations involving larger numbers.</p> <p>Children need to understand remainders and what they mean in different contexts and whether to answer a problem they need to round up or down.</p> <p>Calculations tend to involve TU ÷ 0 beyond tables facts.</p> <p>Resources Arrays Multiplication squares Number lines Numicon Place value equipment</p>	<p>BM Steps 16 - 23</p> <p>Year 3 and 4</p>



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Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
6	<p>A train ticket costs £7. I have £240. How many tickets can I buy?</p>	<p>Share Equal groups in Divide Divided by Divided into Group Set Remainder Divisible by Quotient Factor Factor pair Divisor</p>	<p>Number line $960 \div 8 = ?$ "How many 8s are there in 960?"</p>  <p>$92 \div 6 = 15 \text{ r } 2$</p>  <p>Move into recording vertically, using the number line to illustrate.</p> <p>e.g.</p> $\begin{array}{r} 15 \text{ r } 2 \\ 6 \overline{) 92} \\ \underline{60} \quad (10 \times 6) \\ 32 \\ \underline{30} \quad (5 \times 6) \\ 2 \end{array}$ <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Encourage children to make estimations first; $92 \div 5$ will have a remainder as 92 isn't a multiple of 5.</p> </div>	<p>Children are still developing their instant recall of facts and the relationship between multiplication and division, applying these to solve calculations involving larger numbers.</p> <p>Children need to understand remainders and what they mean in different contexts and whether to answer a problem they need to round up or down.</p> <p>Calculations of the form $TO \div O$ and $HTO \div O$.</p> <p>Resources Arrays Multiplication squares Number lines Numicon Place value equipment</p>	<p>BM Steps 24 - 27</p> <p>Year 4 and 5</p>



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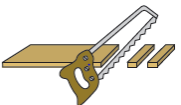
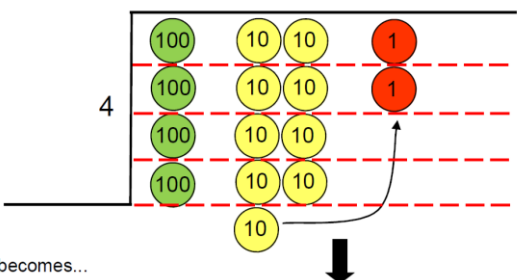
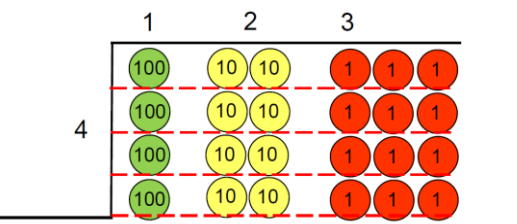


Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
7	Sally's book is 448 pages long. If she reads 4 pages each day, how long will she take to finish her book?	Share Equal groups in Divide Divided by Divided into Group Set Remainder Divisible by Quotient Factor Factor pair Divisor Short division	<p>Short Division</p> <p>Place value counters can be used to illustrate the formal written method for division (without carrying)</p> <p style="text-align: center;">$369 \div 3 = 123$</p> <div style="display: flex; align-items: center; justify-content: center;"><div style="margin-right: 20px;">$3 \overline{)369}$</div></div> <p style="text-align: center;">They should then record it in the formal, short division format.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"><p><i>Encourage children to make estimations first; $369 \div 3$ will be about 100.</i></p></div>	<p>Calculations of the form $TO \div O$ and $HTO \div O$.</p> <p>Commentary for moving from the informal to the formal should focus on the place value</p> <p>Resources Place value resources (counters or Dienes)</p>	BM Steps 28 - 30 Year 5



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8	<p>A 50cm length of wood is cut into 4cm pieces.</p>  <p>How many 4cm pieces are cut and how much is left?</p>	As above	<p>Short Division (with exchanging) 492 ÷ 4</p>  <p>becomes...</p>  <p style="text-align: right;"> $\begin{array}{r} 123 \\ 4 \overline{)492} \end{array}$ </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Encourage children to make estimations first; The answer will be more than 100 because 4 x 100 = 400.</i></p> </div>	<p>Calculations of the form TO ÷ O and HTO ÷ O.</p> <p>Commentary for moving from the informal to the formal should focus on the place value</p> <p>Resources Place value resources (counters or Dienes)</p>	<p>BM Steps 28 - 30</p> <p>Year 5</p>



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Stage	EXAMPLES	VOCABULARY	HOW IT WILL LOOK IN WRITTEN FORM	NOTES	Big Maths NC 2014
9	<p>It cost £165 for a group to visit the theatre. Tickets cost £15. How many people went to the theatre?</p>	<p>Share Equal groups Divide Divided by Divided into Group Set Remainder Divisible by Quotient Factor Factor pair Divisor Common factors Prime factors Composite numbers Short division, Inverse</p>	<p>Short division</p> $\begin{array}{r} 38\text{ r}2 \\ 5 \overline{) 1942} \end{array}$ <p>e.g.</p> <p>Long Division</p> $\begin{array}{r} 13\text{ r}15 \\ 17 \overline{) 256} \\ \underline{170} \\ 66 \\ \underline{51} \\ 15 \end{array}$ <p>(10 x 17)</p> <p>(3 x 17)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Encourage children to make estimations first using their knowledge of table facts ie; 256 ÷ 17 - The answer will be more than 10 but less than 20 because 10 x 17 = 170 and 20 x 17 = 340.</i></p> </div>	<p>Calculations will include: HTO ÷ O and ThHTO ÷ O. The children should also extend these ideas to working with simple decimals.</p> <p>Some children will now be working on calculations in the form of HTO ÷ TO; ThHTO ÷ TO.</p>	<p>BM Steps 28 - 31</p> <p>Year 5 and 6</p>



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10	<p>If 5 DVDs cost £72. How much did each DVD cost?</p> <p>Miriam and Alan each buy 12 tins of tomatoes. Miriam buys 3 packs each containing 4 tins. A pack of 4 costs £1.40. Alan buys 2 packs each containing 6 cans. A pack of 6 costs £1.90. Who gets the most change from a £5 note?</p>	<p>Long and short division with decimals and expressing remainders as fractions or decimals.</p> <p>e.g. $17 \overline{) 256}$</p> $\begin{array}{r} 13 \frac{15}{17} \\ 17 \overline{) 256} \\ \underline{170} \\ 66 \\ \underline{51} \\ 15 \end{array}$ <p>e.g. $5 \overline{) 22.20}$</p> $\begin{array}{r} 4.44 \\ 5 \overline{) 22.20} \\ \underline{20} \\ 22 \\ \underline{20} \\ 20 \\ \underline{20} \\ 0 \end{array}$	<p>Children use the same method as those above but look further at remainders written as fractions and decimals.</p> <p>Use context of money to aid understanding of the decimal element ie £72 divided by 5 each would get £14.40.</p>	<p>BM Steps 32 - 33</p> <p>Year 6</p>
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