Heather Primary School Calculation Policy

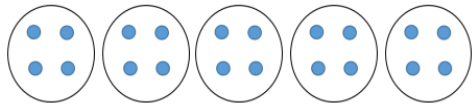
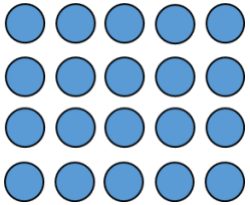
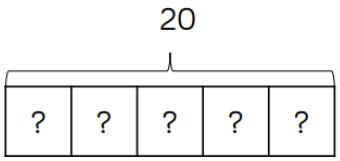
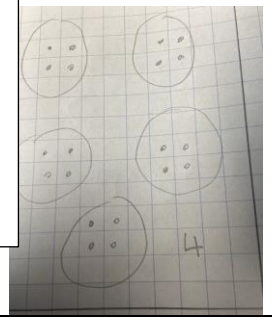
This calculation policy has been created to meet the expectations of the new national curriculum and is linked with the White Rose Scheme of Work and Calculation Policy. Most importantly, it is designed to meet the needs of our children at Heather Primary School.

With our focus on 'Mastery in Maths' for all, we believe that the development in skill from concrete to pictorial and then abstract gives our children a deep understanding of the four operations.

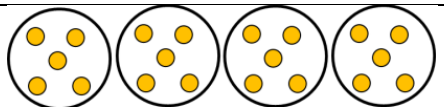
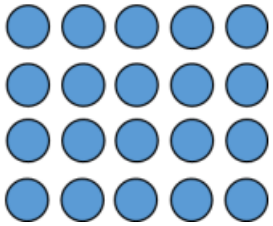
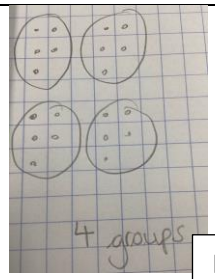
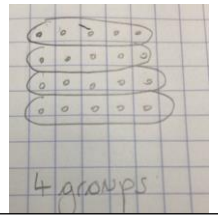
Division

Progression in Division Overview

Vocabulary: divide, split, equal groups, remainder, share, equally, divisible by, divisor, dividend, quotient, array

Objective	Concrete	Pictorial	Abstract
Sharing Share quantities equally (1 step problem)	  There are 20 apples altogether. They are shared equally between 5 bags. How many apples are in each bag?	  In EYFS, Y1 children begin by sharing amounts into equal groups to solve problems. They can do this using concrete objects or pictorially. In Year 2, children are introduced to the division symbol.	20 ÷ 5 = 4

<table>
<tr>
<td>Grouping

Group quantities equally (1 step problem)</td>
<td> 
 
There are 20 apples altogether. They are put in bags of 5. How many bags are there?</td>
<td> 
 
In EYFS, Y1 children begin by grouping amounts into equal groups to solve problems. They can do this using concrete objects or pictorially.

In Year 2, children are introduced to the division symbol.</td>
<td>20 ÷ 5 = 4

Grouping encourages children to count in multiples. This is an important building block to support understanding of short division methods in KS2.</td>
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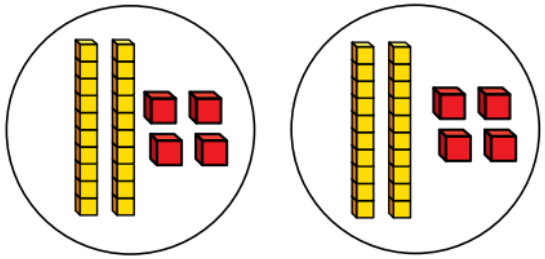
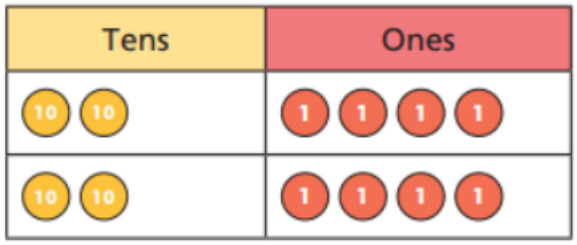
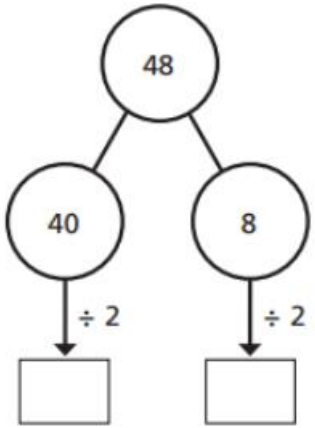
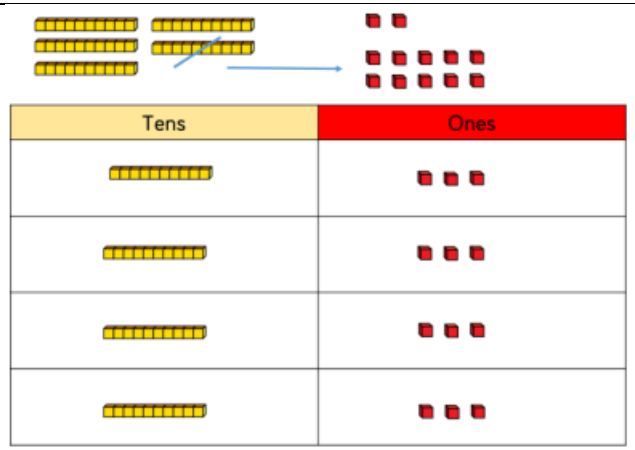
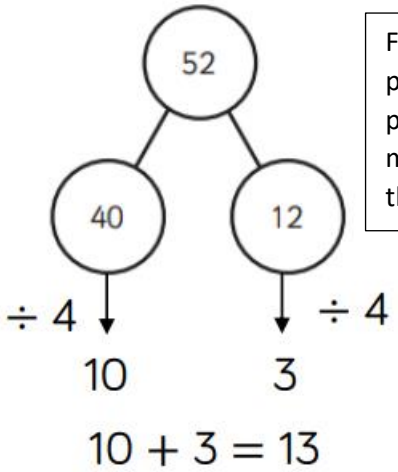
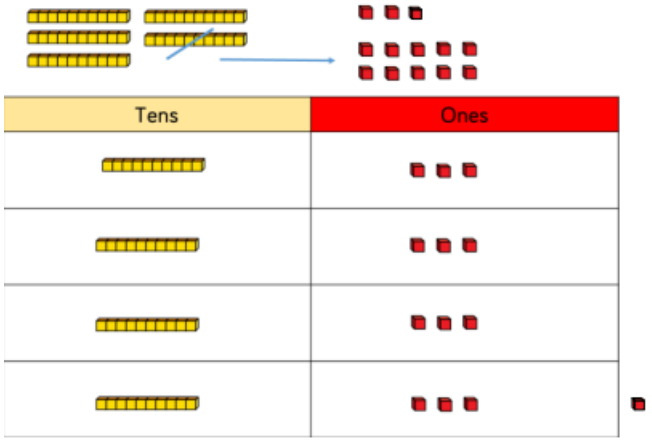
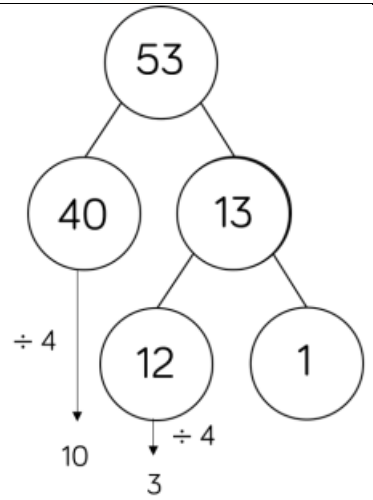
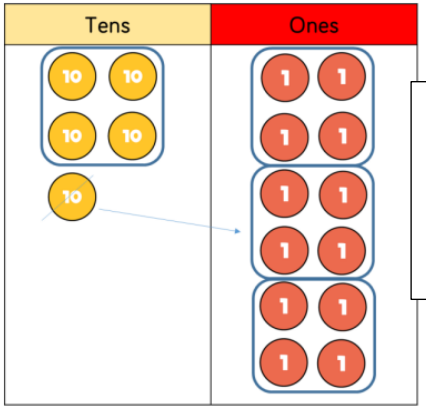
<tr>
<td>Sharing

Divide 2, 3 or 4 digits by 1 digit (no exchange)</td>
<td> 
 
</td>
<td> 
</td>
<td>48 ÷ 2 = 24</td>
</tr>
</table>

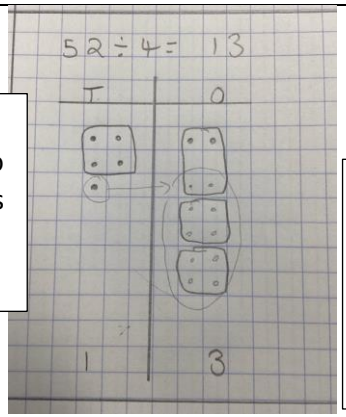
Sharing Divide 2, 3 or 4 digits by 1 digit (exchange)			Flexible partitioning in part-part-whole model supports this method. 52 ÷ 4 = 13 When exchanging, using concrete manipulatives, children should start with the Base 10/ PV counters outside of the PV grid (in order to carry out exchanges) before sharing equally between rows.
Sharing Divide 2, 3 or 4 digits by 1 digit (with remainders)			53 ÷ 4 = 13 r1 Remainders will be highlighted as these will be left outside the PV grid once the manipulatives have been equally shared between rows.

Grouping

Divide 2, 3 or 4 digits by 1 digit



Encourage children to use verbal language to support their methods eg. 'How many groups of 4 tens can I make?'



Remind children to group always starting with the largest PV in case they need to exchange.

		1	3	
	4	5	1 2	

As dividends become larger and multiple exchanges are required, children should be encouraged to use more abstract written methods of calculation.

Grouping

Divide multi-digits by 2 digits

When children begin to divide 4 digit numbers by 2 digit numbers, abstract written methods become the most accurate form of calculation.

		0	3	6
	12	4	4 3	7 2

Grouping

Divide multi-digits by 2 digits with remainders

Children can write out multiples to support their calculations.

Remainders can be expressed as a remainder or converted to a fraction. This will normally depend on the context of the question.

	0	4	8	9	
15	7	3	3	5	
–	6	0	0	0	(×400)
	1	3	3	5	
–	1	2	0	0	(×80)
		1	3	5	
–		1	3	5	(×9)
				0	

$1 \times 15 = 15$
$2 \times 15 = 30$
$3 \times 15 = 45$
$4 \times 15 = 60$
$5 \times 15 = 75$
$10 \times 15 = 150$

			2	4	r	1	2
1	5	3	7	2			
	–	3	0	0			
			7	2			
	–		6	0			
			1	2			

$1 \times 15 = 15$
$2 \times 15 = 30$
$3 \times 15 = 45$
$4 \times 15 = 60$
$5 \times 15 = 75$
$10 \times 15 = 150$

$$372 \div 15 = 24\frac{4}{5}$$