Thomas Eaton Primary School

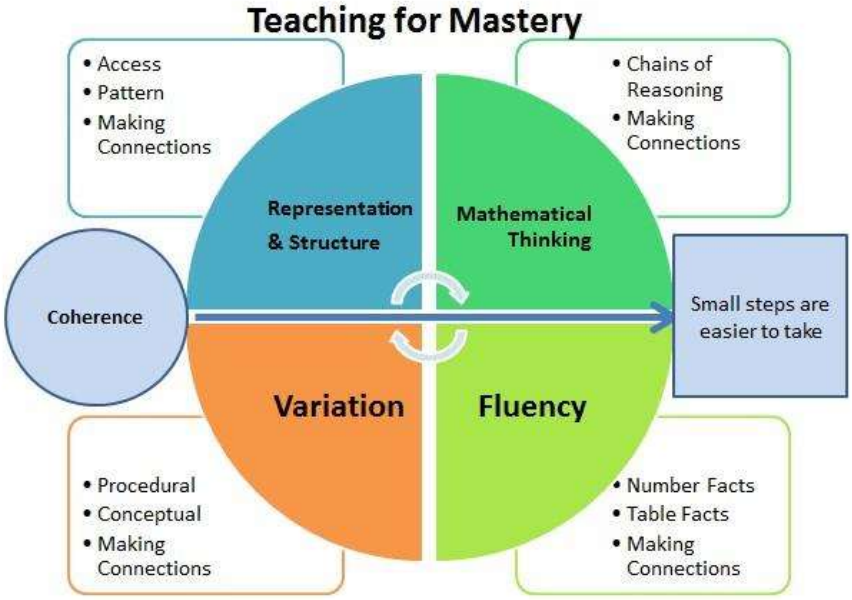
Calculation Policy

"To understand the universe, you must understand the language in which it's written, the language of mathematics."

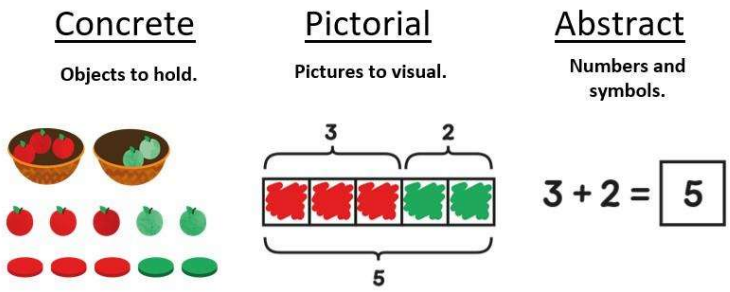
Galileo Galilei

Calculation Policy Updated 2023

At Thomas Eaton, we have adopted the mastery approach to mathematics. This means that our lessons will focus on helping the children to become fluent in their calculations, confident in their understanding of number and place value and apply this through reasoning and problem solving.



Our calculation policy is structured using the mastery approach focusing on the three main elements: concrete, pictorial and abstract.



The children need to use manipulatives (such as place value counters, multi-link, Dienes, Numicon, number beads and Cuisenaire rods) to fully understand number and place value. This will lead onto pictorial representations where children use drawings or models to deepen their understanding of concepts. Finally, they will use more abstract methods focusing more on number representations.

It is essential that children deepen their understanding of concepts within their year group and apply these to more complex problems. They should be given the opportunity to find patterns in numbers and make links between concepts. The teaching of number should be intertwined with other areas of mathematics such as ratio, algebra, measures, fractions, decimals, percentages and money.

Aims

Foundation Stage

In Foundation Stage, we follow the Early Learning Goals.
In Maths, these are split into two categories:

- Number
- Numerical Patterns

Children need to have a deep understanding of numbers from 1-10, recognising number bonds to at least 5 and finding patterns within the numbers. This needs to be applied to many different contexts to allow the children to subitise (recognise without counting) to at least 5.

Key Stage 1

In KS1, the children need to gain confidence and mental fluency with whole numbers, counting and place value.

Addition and subtraction

Children in KS1 should develop their fluency in mental methods such as bridging to the nearest 10 and understanding the rules of commutativity. They should use a variety of models and images to add and subtract with increasingly larger numbers, begin to use related facts and understand how to use symbols such as + - = < > . Written methods should begin with a focus on part/ part/ whole and move onto more formal methods of number lines and column method.

Multiplication and division

Children in KS1 should link multiplication to addition with the concept of repeated addition. They should learn about grouping and sharing for division and begin to use more formal methods such as arrays. They should extend their understanding of doubling and halving from Foundation Stage with numbers beyond 20. They will begin to use symbols such as x ÷ and will begin to use terms like commutative to show the relationship between numbers.

Times Tables

By the end of Year 2, children are expected to know and recall:

- 2 times tables
- 10 times tables
- 5 times tables

Lower Key Stage 2

In Years 3 and 4, children should become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.

Addition and subtraction

Children in Years 3 and 4 should increase their confidence with mental calculations and develop efficient written methods. They need to perform calculations accurately, checking their answers using the inverse operation.

Multiplication and division

Children in Years 3 and 4 should develop their knowledge of mental calculations using related facts, commutativity and distributive law. They should develop their confidence with using arrays for multiplication and begin to use this for division. They should extend this to using more formal methods for multiplication (grid method and short multiplication) and division (short division). They will be introduced to the idea of remainders.

Times Tables

By the end of Year 3, children are expected to know and recall all of the times tables from Year 2 along with:

- 3 times tables
- 4 times tables

- 8 times tables

By the end of Year 4, children are expected to know and recall all of the times tables from Year 2 and Year 3 along with:

- 6 times tables
- 7 times tables
- 9 times tables
- 11 times tables
- 12 times tables

Upper Key Stage 2

In Years 5 and 6, children should extend their understanding of number and place value. Methods will becomes more complex and there will be greater emphasis on problem solving and reasoning.

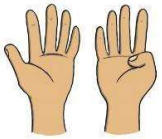
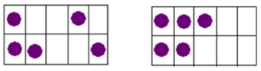
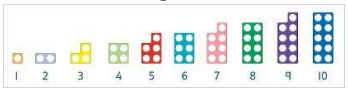
Addition and subtraction

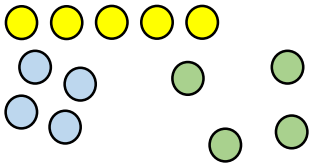
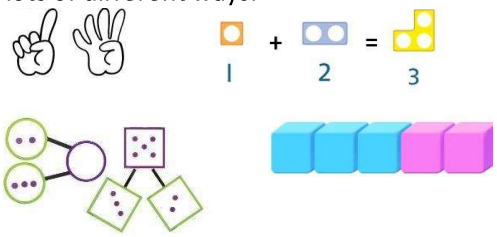
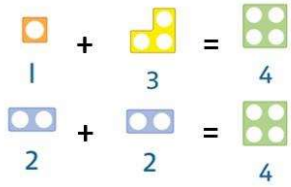
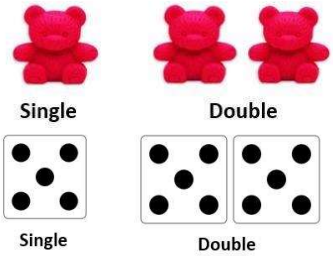
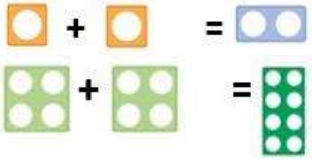
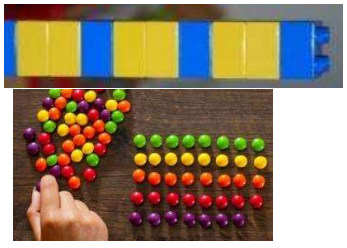
Children in Years 5 and 6 should develop their ability to solve a wider range of problems, including increasingly complex properties of number and arithmetic. They need to choose the most efficient methods for mental and written calculations.

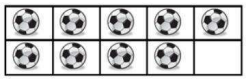
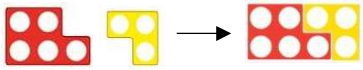
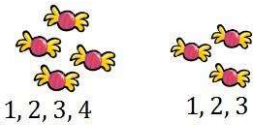
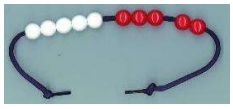
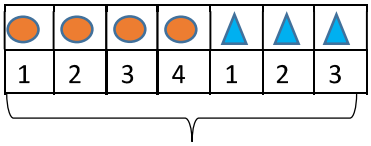
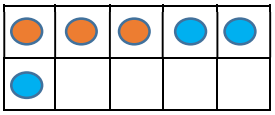
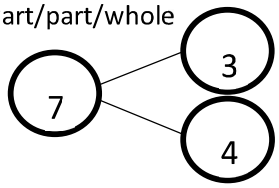
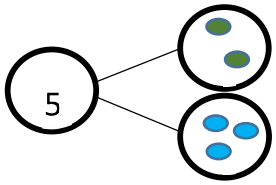
Multiplication and division

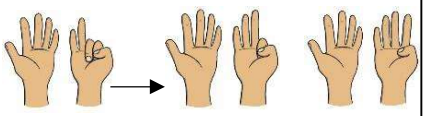
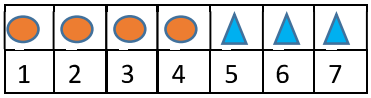
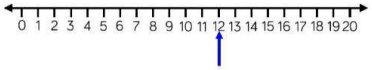
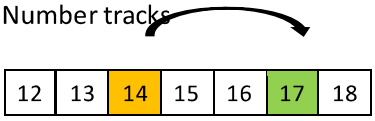
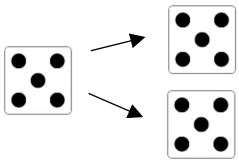
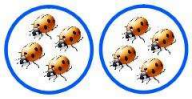
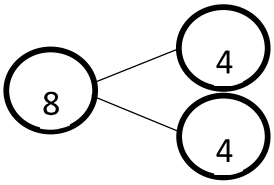
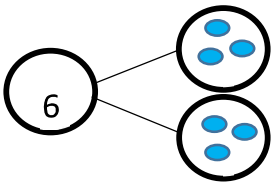
Children in Years 5 and 6 should develop their confidence with mental calculations, using increasingly larger numbers and decimals. Written methods should become fully integrated: short and long multiplication (including decimals) and short and long division. Children should select the most efficient methods for calculations, checking these using the inverse operation. Remainders should be interpreted using decimals, fractions and rounding.

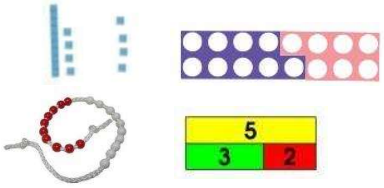
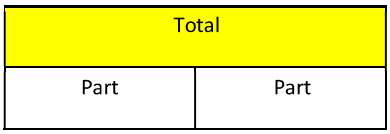
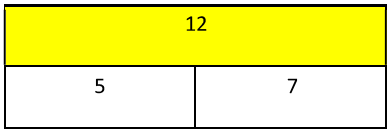
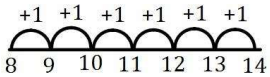
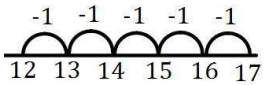
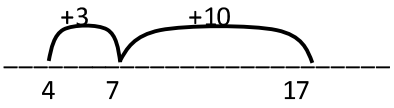
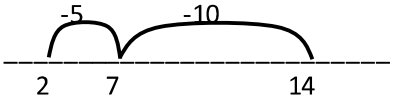
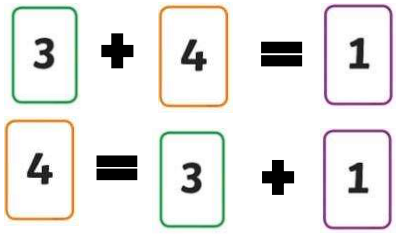
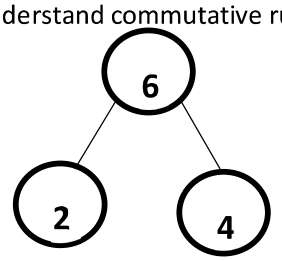
Addition and Subtraction

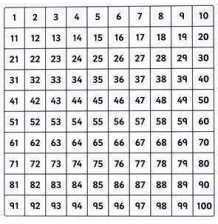
Foundation Stage			
Outcome	Concrete	Pictorial	Abstract
Know numbers to 10	Using familiar items to count to 10 and recognise up to 10 items.      	Tens frames  Numicon images 	Number formation 

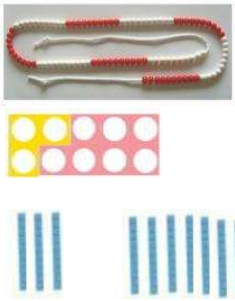
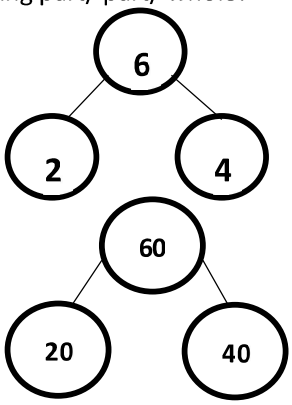
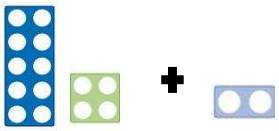
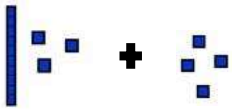
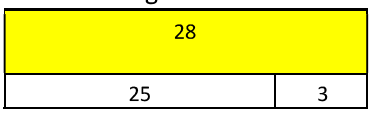
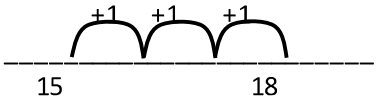
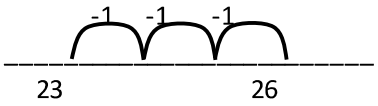
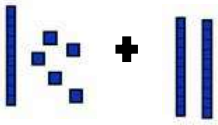
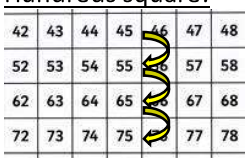
Subitise (know without counting) numbers to 5	Need to subitise numbers to 5. 	Begin with linear representations, then circular then scrambled. 	
Numbers bonds to 5	Using familiar items to create numbers up to 5 in lots of different ways. 	Numicon images  Five frames 	
Know some double facts to 10	Using familiar items to double numbers 	<u>Numicon images</u>  <u>Tens frames</u> 	
Compare quantities to 10	Using familiar items to identify quantities. Consider which has the greater amount, fewer or the same quantities. 	Identify quantities to 10 from images. 	Match up numbers to quantities.
Identify patterns	Using familiar objects to create or identify patterns in number and sorting objects into equal groups. 	<u>Explore patterns in drawings and images.</u> Looking at positional images, e.g. first, second, third, etc.  Look at patterns in size, shape, colour, position or quantity.  Odd one out 	Focus on odd or even numbers.

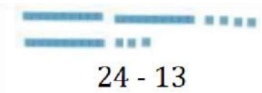
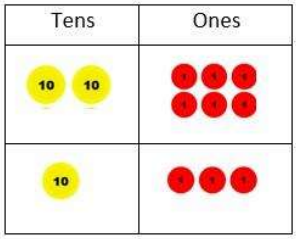
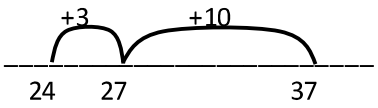
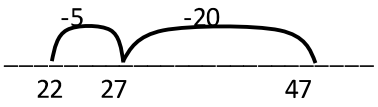
Year 1			
Outcome	Concrete	Pictorial	Abstract
Identify one more or one less of a given number.	Counting on and back using familiar objects and resources. One more  One less 	Introduce tens frames and number tracks.  One more than 15  11 12 13 14 15 16 17 18 19 20	Introduction to + - and = symbols to create number sentences. 5 – 1 = 4 4 + 1 = 5
Use addition to combine groups.	Counting using familiar objects and  resources. Count objects  1, 2, 3, 4 1, 2, 3 1, 2, 3, 4, 5, 6, 7  Using Cuisenaires (links to bar modelling) 	Bar models  1 2 3 4 1 2 3 7 Tens frame  Part/part/whole  7 3 4  5	Using number sentences and beginning to calculate mentally. 7 + 2 = 9 2 + 7 = 9 9 = 2 + 7 9 = 7 + 2

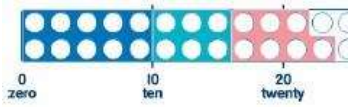
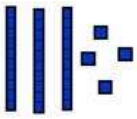
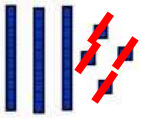
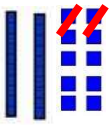
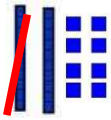
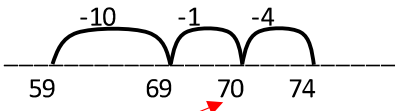
Use addition to count on.	I have 3 sweets. I buy 2 more. How many do I have?  Hold the number in your head and count on.  **7 add 2** Start at 7 Count up to 9  Use objects to count on	Bar models  Empty number lines  Number lines  Number tracks 	Missing number problems. 8 = 3 + □ 9 = □ + 2 9 = □ + 5 4 = 9 - □ □ = 9 - 4
Doubling numbers within 20	Use objects and manipulatives.  Single Double   	Part/part/whole (link to halving)  	Using number sentences and beginning to calculate mentally. 6 + 6 = Double 9 = 14 = Double … Half of 18 = … 10 = half of…. 7 = 14 - □ 4 + □ = 8

Recall and use addition and subtraction facts to 20 ***fluently*** aiming to select the most efficient method.	Addition and subtraction facts  	<u>Bar models</u>   <u>Empty number lines</u> Jumping in ones   Jumping in ones and tens   	Using number sentences and calculating mentally. 13 + 4 = 17 17 = 13 + 4 4 + 13 = 17 17 = 4 + 13 17 – 4 = 13 13 = 17 - 4 17 – 13 = 4 4 = 17 - 13
Know how to use add (+), subtract (-) equals (=) signs.	Use of manipulatives: Number cards  Dienes 	Use of part/ part/ whole to understand commutative rule.  	Missing number problems. 7 = ☐ - 9 ☐ + 4 = 11

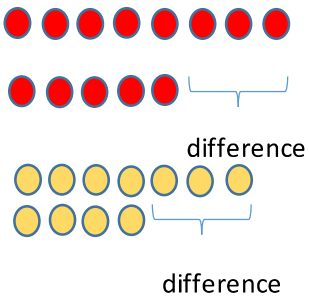
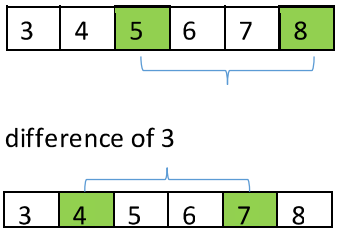
Year 2			
Outcome	Concrete	Pictorial	Abstract
Compare and use numbers to 100 using < > =	Use familiar objects to compare value of numbers: 	Use 100 squares: 	Using number sentences using < > = 15 > 11 41 < 60 16 = 8 + 8

Derive and use related facts to 100	Use familiar objects: Number beads to 100  3 + 7 = 10 30 + 70 = 100	Using part/ part/ whole:  	Using number sentences and calculating mentally. 20 + 80 = 100 100 - 80 = 20 80 + 20 = 100 100 - 20 = 80 100 = 20 + 80 80 = 100 - 20 100 = 80 + 20 20 = 100 – 80 Missing number problems: 70 = 100 - ☐ ☐ + 40 = 100
TU ± O (without crossing tens boundary)	Using familiar objects:  14 + 2 =  13 + 4 =	Bar modelling:  Number lines:   	Number sentences: 34 + 3 = 37 67 = 61 + 6
TO ± T	Dienes:  15 + 20 =	Understand place value: PV chart: 43 + 20 =  Changing the ‘tens’ only Hundreds square:  45 + 30 =	Number sentences: 34 + 30 = 64 82 = 50 + 32 Missing number problems: 44 = 24 + ☐ ☐ + 40 = 72

TO ± TO (without crossing tens boundary)	Dienes:  23 + 15  25 - 13 Including finding the  24 - 13 difference: Place value counters: 26 + 13 =  	Number lines to support mental calculations (always start with ones to link with column method): 24 + 13  47 – 25  $\begin{array}{r} 20 + 6 \\ +\ 10 + 3 \\ \hline 30 + 9 \end{array} = 39$ Moving onto expanded column: $\begin{array}{r} 40 + 8 \\ -\ 20 + 5 \\ \hline 20 + 3 \end{array} = 23$	Compact column method: $\begin{array}{r} 26 \\ +\ 13 \\ \hline 39 \end{array}$ $\begin{array}{r} 48 \\ -\ 25 \\ \hline 23 \end{array}$

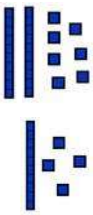
TO ± TO (crossing the tens boundary using bridging)	Numicon:  16 + 7 becomes 16 + 4 + 3 Dienes: 34 – 16 =  Partition 16 into 10 + 4 + 2  Change ten into 10 ones  Take remaining 2 Now subtract 10  = 18 Take 4	Number lines to bridge to nearest 10: 74 – 15 Know how to partition numbers in many different ways: E.g. Some examples of 15 are: 10 + 5 + 6 10 + 1 + 4 9 + 4 + 2 11 + 2 + 3 9 5 + 5 + 5 Partition 15 into 10 + 4 + 1  Bridge to nearest 10 then subtract the rest. Always start with the ones to link to column method.

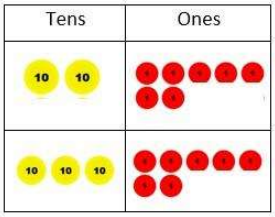
Year 3			
Outcome	Concrete	Pictorial	Abstract
Adjust numbers to	Show the ideas behind the adjustment by linking to finding the difference. 8 – 5 is the same as 7 - 4		Adjustment for subtraction of multiples of 10. E.g. 80 – 46

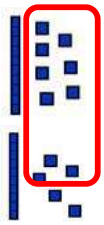
<table>
<tr>
<td>subtract mentally</td>
<td> 
</td>
<td> 

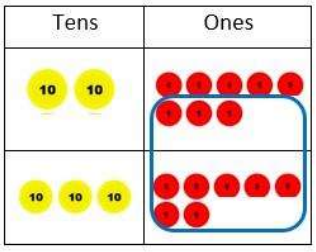
The gap has just shifted.</td>
<td>Adjust by shifting 1

80 becomes 79
46 becomes 45

79 – 45 = 34</td>
</tr>
<tr>
<td>TO + TO (keeping new tens with the ones)</td>
<td><u>Dienes</u>:
27 + 14
T O
 

<u>Place value counters:</u>
27 + 37 =
 
</td>
<td colspan="2">Expanded method:
58 + 34
T O
50 + 8
30 + 4
80 + 12 = 92

Always start by adding the ones then move across to the tens. At this point, keep the tens in the ones column to understand the concepts.</td>
</tr>
<tr>
<td>TO + TO (crossing boundary and adjusting)</td>
<td><u>Dienes</u>:
17 + 15 =
T O
 
Combine to make 10

<u>Place value counters:</u>
28 + 37 =
 

Combine the units to make a ten then exchange this over to the tens column.</td>
<td>Expanded column crossing the tens boundary.

47 + 18

T O
40 + 7
+ 10 + 8
60 + 5 = 65

10

Add the ones first

Show the extra 10 in the tens column.</td>
<td>Compact column method.

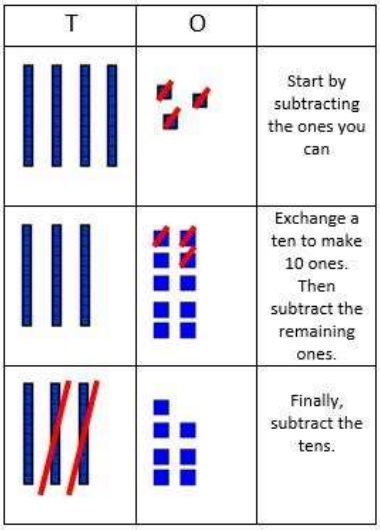
47 + 18

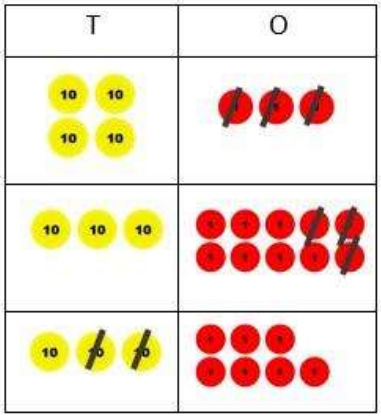
T O
4 7
+ 1 8
6 5

1

Add the ones first.

This time show the extra tens in the compact form.</td>
</tr>
</table>

<table>
<tr>
<td>TO – TO (crossing the tens boundary)</td>
<td><u>Dienes</u>
43 - 26
 

<u>Place value counters</u>
Same as above
 
</td>
<td>Expanded column method with exchange

43 – 26

T O
30
40 + 13
- 20 + 6
10 + 7 = 17

Exchange a ten into the ones column when there are not enough ones for the calculation.</td>
<td>Compact column method.

43 – 26

T O
3
4 13
- 2 6
1 7</td>
</tr>
<tr>
<td>HTO ± TO
HTO ± HTO</td>
<td>Use the same manipulatives as above. Ensure at this stage children only cross one set of boundaries (hundreds OR tens)</td>
<td>Expanded method

156 – 38

H T O
40
100 + 50 + 16
- 30 + 8
100 + 10 + 8 = 118

352 + 165

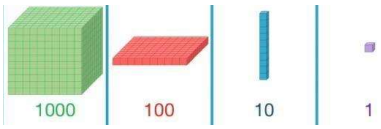
H T O
300 + 50 + 2
+ 100 + 60 + 5
500 + 10 + 7 = 517
100</td>
<td>Compact method

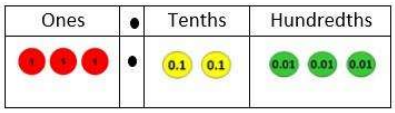
156 – 38

H T O
4
1 5 16
- 3 8
1 1 8

352 + 165

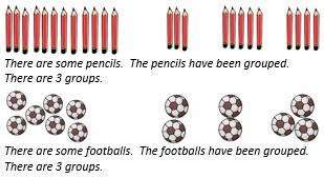
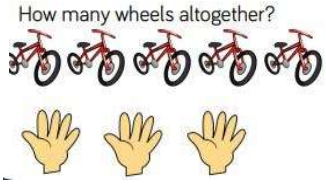
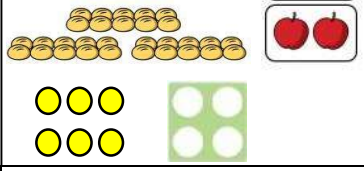
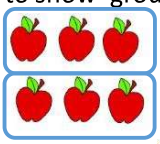
H T O
3 5 2
+ 1 6 5
5 1 7
1</td>
</tr>
</table>

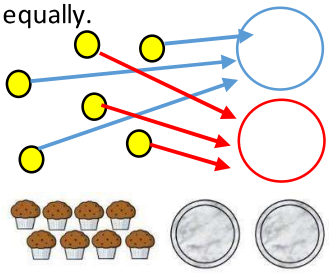
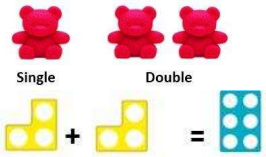
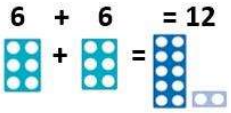
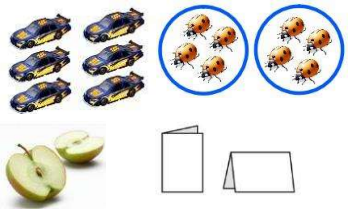
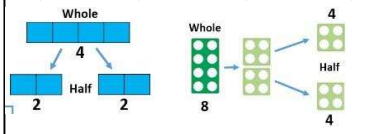
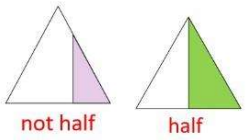
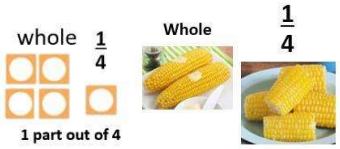
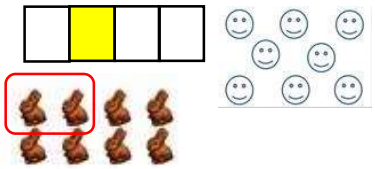
<table>
<tr><th colspan="4">Year 4</th></tr>
<tr><th>Outcome</th><th>Concrete</th><th>Pictorial</th><th>Abstract</th></tr>
<tr><td>Difference with close numbers</td><td>Use bridging from Year 2 for manipulatives.</td><td colspan="2"><u>Question: 304 - 295</u>
Step 1: Decide whether the numbers are close together.
293 294 295 296 297 298 299 300 301 302 303 304 305 306 307
Step 2: Bridge to the nearest 10 or 100 using a number line
+5 +4
295 300 304
Step 3: Add or subtract the remaining numbers.</td></tr>
<tr><td>HTO ± HTO
ThHTO ± ThHTO</td><td colspan="3">Use the methods from Year 3.
Progression is crossing more than one boundary.</td></tr>
<tr><td>HTO ± HTO
ThHTO ± ThHTO
(exchanging through zero)</td><td>Place value counters and Dienes to show that 10 tens make 100, 10
 

hundreds make 1000.</td><td>Expanded method
304 – 137
H T O
200 90
300 + 100 + 14
- 100 + 30 + 7
200 + 60 + 7 = 267</td><td>Compact method
304 – 137
H T O
2 9
3 10 14
- 1 3 7
1 6 7</td></tr>
<tr><th colspan="4">Year 5</th></tr>
<tr><td>Decimals
O.t ± O.t
O.th ± O.th</td><td>Place value counters
 

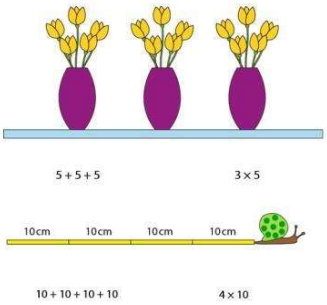
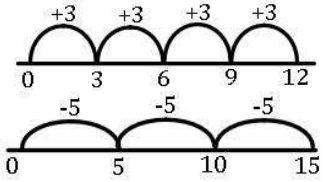
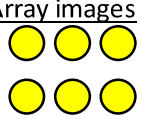
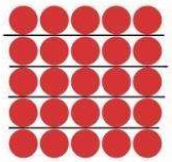
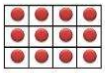
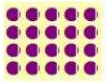
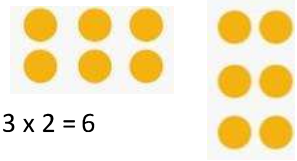
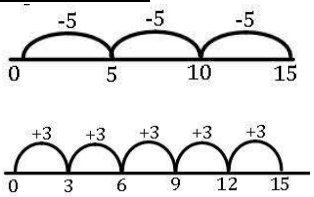
Progression:
- addition without boundaries
- addition with exchanging
- subtraction without boundaries
- subtraction with one exchange - subtraction with more than one exchange
- subtraction with exchanges through zero</td><td>Expanded method
2.5 + 1.7
O t
2 + 0.5
+ 1 + 0.7
4 + 0.2 = 4.2
1
3.4 – 1.6
O t
2 1.4
3 + 0.4
- 1 + 0.6
1 + 0.8 = 1.8</td><td>Compact method
2.5 + 1.7
O t
2 . 5
+ 1 . 7
4 . 2
1
3.4 – 1.6
O t
2
3 . 1 4
- 1 . 6
1 . 8</td></tr>
</table>

Multiplication and Division

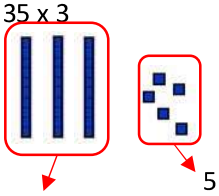
Year 1			
Outcome	Concrete	Pictorial	Abstract
Explore unequal groups	Explore unequal groups of familiar objects for children to understand equality.  	Images of unequal groups.  	
Multiplication as repeated addition, (link to counting in twos, fives and tens)	Use familiar objects to show repeated addition. 	Repeated images. 	Number sentences: 2 + 2 + 2 = 6 5 + 5 + 5 + 5 = 20
Represent repeated addition as an array	Explore arrays using a variety of familiar objects: 	Draw and interpret images of arrays as repeated addition. 	Write number sentences using repeated addition. 10 + 10 + 10 = 30 2 + 2 + 2 + 2 + 2 = 10
<u>Division</u> Group small quantities (How many equal groups of…?)	Use familiar objects to put into 'groups of'. 	Explore images and draw circles to show 'groups of'.  2 groups of 3 3 groups of 2 	<u>Number sentences and problems.</u> Take 20 cubes. Complete the sentences. I can make ____ equal groups of 2 I can make ____ equal groups of 5 I can make ____ equal groups of 10

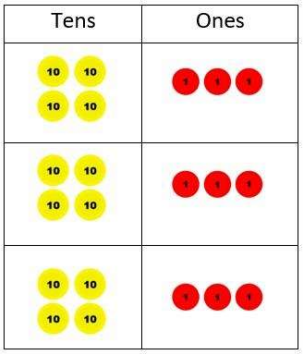
<u>Division</u> Share small quantities equally (How much does each part contain?)	Use familiar objects within a context to share equally between an amount. 	Explore images to share equally. 	<u>Number sentences and problems</u> Tim has 16 bananas. He shares them equally between two boxes. How many bananas are in each box?
Double numbers to 20	Use objects to explore the idea of having 'two lots of an amount.'  	<u>Tens frame</u>  <u>Numicon</u>  <u>Images showing double</u> 	2 + 2 = 4 Double 2 = 4 2 lots of 2 = 4
Halve numbers to 20. Find and name one half as two equal parts of a whole	Halve familiar objects using the idea of 'sharing into two equal groups.' 	Explore images relating to halving.  Explore equality.  	Whole = 6 Half = 3 Half of 6 = 3 ½ of 6 = 3 I have 6 sweets. I eat half. How many sweets did I eat?
Find and name one quarter as four equal parts of a whole (relating to dividing by 4)	Quarter familiar objects using the idea of 'sharing into four equal groups.'  	Explore images relating to quarters. 	Whole = 8 Quarter = 2 One quarter of 8 = 2 ¼ of 8 = 2

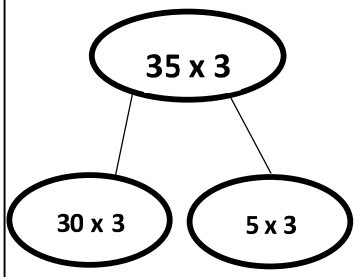
Year 2			
Outcome	Concrete	Pictorial	Abstract

Use repeated addition with the multiplication sign (x) Relate this to division with the division sign (÷)	Use familiar images to show  repeated addition. 	<u>Images to show repeated addition relating to multiplication</u>  <u>Number lines</u>  	Introduce the multiplication sign within number sentences: 3 x 10 = 10 x 3 = 30 = 10 x ☐ ☐ x 3 = 30
Use arrays to make or draw multiplications and division facts.	<u>Numicon</u>  <u>Identify arrays in everyday objects</u> 	<u>Array images</u>  3 lots of 2 3 x 2 = 6 	<u>Number sentences</u>  3 x 4 = 12 12 ÷ 4 = 3 <u>Missing numbers</u>  20 = ☐ x 5
Understand the commutative law.	 3 x 2 = 6 <u>Rotating arrays</u> 2 x 3 = 6	<u>Number lines</u>  3 x 5 = 15 5 x 3 = 15	<u>Number sentences</u> 3 x 5 = 15 5 x 3 = 15 15 ÷ 3 = 5 15 ÷ 5 = 3

	Year 3		
Outcome	Concrete	Pictorial	Abstract

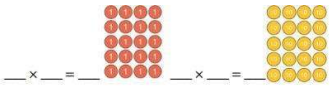
<table>
<tr>
<td>Mental methods – distributive law (partition into smaller parts to multiply)</td>
<td>
<u>Dienes</u>
35 x 3

30 x 3 5 x 3

<u>Place value counters</u>


43 x 3
</td>
<td>
Use of part/ part/ whole to show the partitions.


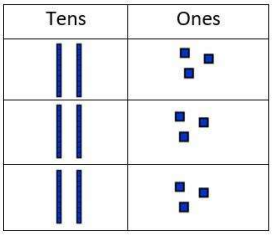
</td>
<td>
Number sentences only:
35 x 3 =

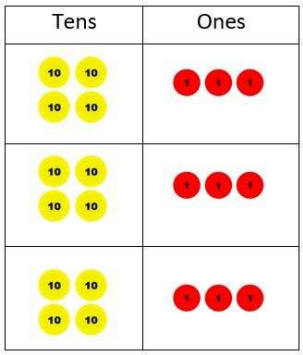
30 x 3 = 90
5 x 3 = 15

90 + 15 = 105
</td>
</tr>
<tr>
<td>Mental methods – using known facts (2 digit)</td>
<td>
Relate known times tables facts to larger numbers
<u>Place value counters</u>
Link ones to tens

<u>Numicon</u>
Use the notion of what could one represent?

If each hole is worth 10, how much is this piece?
</td>
<td>
<u>Finding patterns in numbers</u>
If we know that… 3 x 2 = 6 … then we know…

30 x 2 = 60
20 x 3 = 60
60 ÷ 2 = 30
60 ÷ 3 = 20
</td>
<td></td>
</tr>
</table>

<table>
<tr>
<td>Formal written methods – grid and short multiplication (TO x O)</td>
<td>
<u>Dienes</u>


23 x 3
<u>Place value counters</u>


43 x 3
</td>
<td>
Use arrays to help with commutativity of numbers. Use known facts to help to multiply larger numbers.

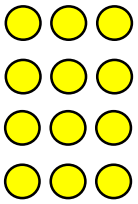
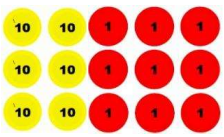
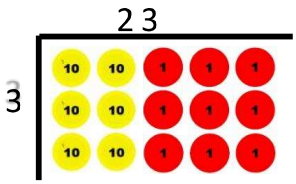
<u>Grid method</u>
Question: 24 x 5
1) Partition the number into tens and ones
20 x 5
4 x 5

2) Draw this grid and fill in the boxes.
<table>
<tr><td>x</td><td>20</td><td>4</td></tr>
<tr><td>5</td><td>100</td><td>20</td></tr>
</table>
3) Add together the amounts: 100 + 20 = 120
</td>
<td>
<u>Short multiplication</u> No exchange:
43 x 3

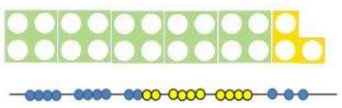
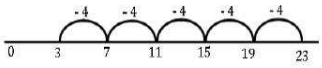
4 3
x 3
1 2 9

Exchange:
37 x 3

3 7
x 3
1 1 1
2
</td>
</tr>
<tr>
<td>Use arrays to show the link between multiplication and division.</td>
<td>
<u>Counters/ multi-link</u>
12 ÷ 4

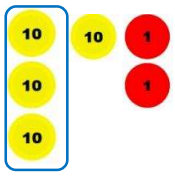
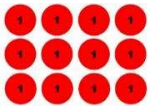
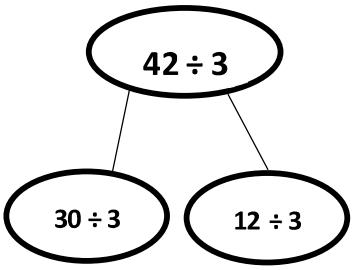
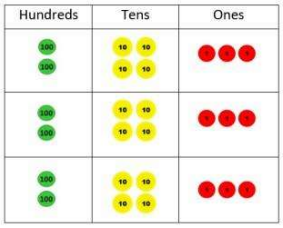
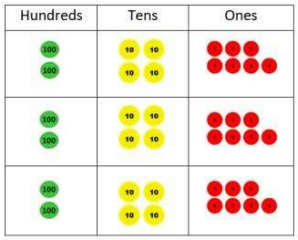
4 rows of 3
12 ÷ 4 = 3
</td>
<td>
<u>Represent through drawings</u>
12 ÷ 4

Again draw into columns of the divisor.
</td>
<td>
Write number sentences:
3 x 4 = 12
4 x 3 = 12
12 ÷ 4 = 3
12 ÷ 3 = 4
12 = 3 x ☐
☐ x 4 = 12
</td>
</tr>
<tr>
<td>Begin to use formal written methods for division (not exchanging from tens to ones at this stage)</td>
<td>
Use number beads to support calculations.
<u>Place value counters</u>
69 ÷ 3 =

Organise counters into columns of the divisor.
</td>
<td>
Extend this to a similar layout to short division.


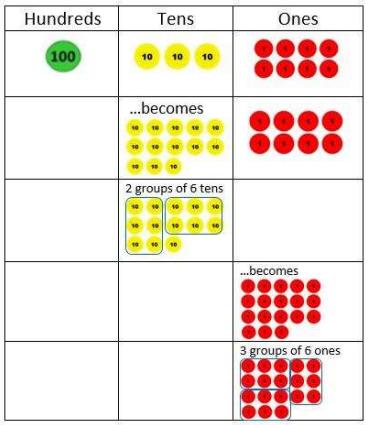
</td>
<td>
<u>Short division</u>
69 ÷ 3 =

23
3 | 6 9
</td>
</tr>
<tr>
<td>Begin to understand the concept of remainders</td>
<td>
Using familiar resources

</td>
<td>
Use repeated subtraction on a number line:
23 ÷ 4 = 5 r3


</td>
<td>
Begin to solve mentally:
23 ÷ 4 = ☐

Missing number problems:
☐ ÷ 3 = 4 r1
</td>
</tr>
</table>

<table>
<tr><th colspan="4">Year 4</th></tr>
<tr><th>Outcome</th><th>Concrete</th><th>Pictorial</th><th>Abstract</th></tr>
<tr><td>Mental methods – using known facts (3 digit)</td><td><u>What could one represent?</u>
 
If this cube represents 100, how much is this worth?
  </td><td colspan="2"><u>Finding patterns in numbers (3 digits)</u>
If we know that… 3 x 2 = 6 … then we know…
30 x 2 = 60
300 x 2 = 600
30 x 20 = 600
600 ÷ 2 = 300
600 ÷ 30 = 20</td></tr>
<tr><td>Mental methods – distributive law (partition into smaller parts to divide)</td><td><u>Place value</u>
<u>counters</u>
42 ÷ 3 =
 
3 tens ÷ 3 = 1 ten
Extra ten exchange:
 
4 columns of 3
Partition is 30 ÷ 3 and 12 ÷ 3</td><td>Use of part/ part/ whole to show the partitions.
  </td><td>Number sentences only:
42 ÷ 3 =
30 ÷ 3 = 10
12 ÷ 3 = 4
10 + 4 = 14</td></tr>
<tr><td rowspan="2">Formal written method – short multiplication (HTO x O)</td><td>Begin with crossing one boundary.
 
243 x 3 =</td><td colspan="2"><u>Short multiplication – one boundary</u>
126 x 3
1 2 6
x 3
3 7 8
1</td></tr>
<tr><td>Then move onto crossing two boundaries.
 
247 x 3</td><td colspan="2"><u>Short multiplication – two boundaries</u>
247 x 3
2 4 7
x 3
7 4 1
1 2</td></tr>
</table>

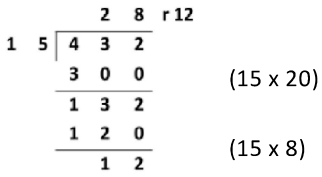
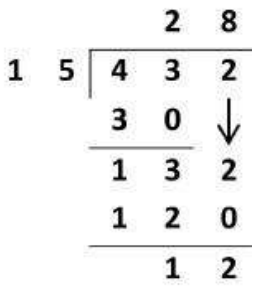
Formal written method – short division (TO ÷ O and HTO ÷ O)	 138 ÷ 6 =	Short division 138 ÷ 3 = 23 1 1 3 | 1 3 8 432 ÷ 5 becomes 8 6 r 2 3 5 | 4 3 2 Answer: 86 remainder 2

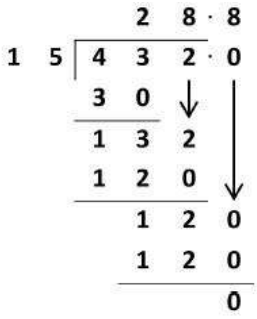
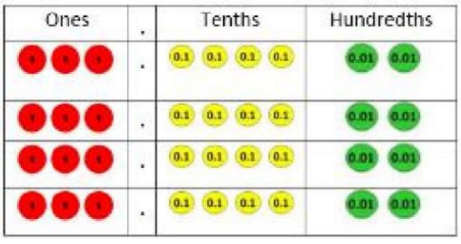
Year 5			
Outcome	Concrete	Pictorial	Abstract
Short multiplication (ThHTO x O)	See Year 3 and 4 short multiplication.		Short method for ThHTO 2 7 4 1 x 6 16446 4 2
Long multiplication (TO x TO then HTO x TO)	Children working at this level are expected to have secure knowledge of place value and will therefore work from pictorial and abstract.	Begin with expanded method to help with understanding of the method: 4 7 x 3 6 4 2 (7 x 6) 2 4 0 (40 x 6) 2 1 0 (7 x 30) 1 2 0 0 (40 x 30) 1 6 9 2	Long multiplication 4 7 x 3 6 2 8 2 4 1 4 1 0 2 1 6 9 2
Short division (ThHTO ÷ O)	Follow the guidance for short division in Year 4.	2576 ÷ 3 =	
		858r2 3 | 2 2 5 1 7 2 6 Answer: 858 remainder 2 Showing remainder as a whole:	Showing remainder as decimals 858.66 3 | 2 2 5 1 7 2 6 4 4 0 0 Add place value digits to continue into decimals.

		$3\overline{)2^{2}5^{1}7^{2}6}$ = 858 r 2 Answer: $858\ \frac{2}{3}$ Showing remainder as a fraction:	
Mental methods – using known facts (link to division)	What could one represent?  If this cube represents 1000, how much is this worth?   Place value counters for related facts 3 x 2 = 6 30 x 2 = 60 300 x 2 = 600 3 x 0.2 = 0.6	Finding patterns in numbers (decimals) If we know that… 3 x 2 = 6 … then we know… 300 x 2 = 600 30 x 20 = 600 600 ÷ 2 = 300 600 ÷ 30 = 20 3 x 0.2 = 0.6 0.3 x 2 = 0.6	

Year 6			
Outcome	Concrete	Pictorial	Abstract
Use known facts	Consider what 'one' could represent, e.g. If this cube represents 0.1, how much is this worth?  	Finding patterns in numbers If we know that… 3 x 2 = 6 … then we know… 30 x 2 = 60 300 x 3 = 600 0.3 x 2 = 0.6 .3 x 20 = 6 600 ÷ 2 = 300 600 ÷ 30 = 200	

<table>
<tr><td>Long multiplication (ThHTO x TO)</td><td colspan="3">Use the guidance from Year 5 for long multiplic ıtion applying it to ThHTO x TO.</td></tr>
<tr><td>Long division (ThHTO ÷ TO)</td><td>Children should be secure in place value at this stage.</td><td><u>Expanded method:</u>
432 ÷ 15 =
1) Write down times tables for 15
x1 15 x6 90
x2 30 x7 105
x3 45 x8 120
x4 60 x9 135
x5 75 x10 150

2) Subtract suitable amounts.
 
(15 x 20)
(15 x 8)
(remainder)</td><td><u>Long division</u>
432 ÷ 15 =
Same as expanded except we bring down each digit rather than show place value.
 
Bring down the 2 ones.
12 is the remainder

Answer: 28 r 12</td></tr>
<tr><td>Long division – interpreting the remainder as a decimal</td><td></td><td>Follow the same steps for expanded method.</td><td><u>Long division</u>
As with short division in Year 5, continue the place value into tenths by adding extra place holders (0).
 
Add place holder after decimal point.
Continue for up to 2dp.</td></tr>
<tr><td>Short multiplication - decimals</td><td colspan="2">Use place value counters
 
4 x 3.42</td><td><u>Short multiplication</u>
4 x 3.42

3 . 4 2
x 4
<u>3 . 6 8</u>
1</td></tr>
</table>