Calculation policy: The LETTA Trust

Purpose of a calculation policy

- About ensuring a consistent approach across the school, with each year group building upon the strategies and layout used in previous year groups.
- Enabling the school to use consistent resources, pictorial representations and language when doing calculations, enabling children to have a reduced cognitive load as they are building on what they have already learnt

Key parts of our approach:

Concrete, Pictorial, Abstract approach

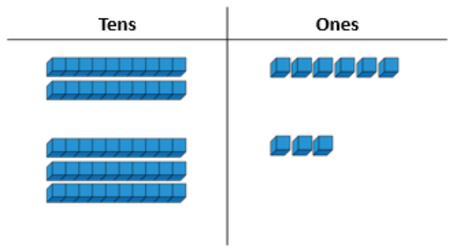
- *We do not believe that children 'graduate' from concrete, to pictorial and finally to abstract; instead, children should be exposed to the pictorial and concrete alongside the abstract strategy they are learning.*
- *'From concrete manipulatives and experiences, students are guided to uncover abstract mathematical concepts or results… The role of the teacher is that of facilitator, who guides students through the concrete, pictorial and abstract levels of understanding by providing appropriate scaffolding and feedback.' - Ministry of Education. 2012*
- *The focus is on ensuring children have an understanding of the mathematics the sits behind the strategy, rather than on finding answers - Askew, M. 2012*

Therefore:

- **In lessons:** teachers should model solving using the concrete and pictorial alongside the abstract calculation - this enables children to see the underlying concepts. *Using the visualiser here really helps.*
- **In books:** children should be expected to draw the pictorials (or use already-printed ones first) alongside solving the abstract until they are confident in the maths (this means having the ability to explain their understanding, not just getting answers correct).

Solve… $26 + 33 =$

Model



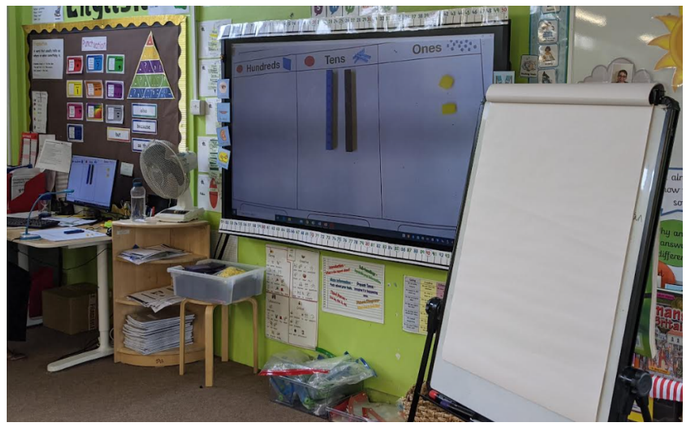
Calculations

$$\begin{array}{r} 2\ 6 \\ +\ 3\ 3 \\ \hline 5\ 9 \end{array}$$

$26 + 35 =$

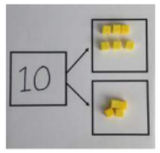
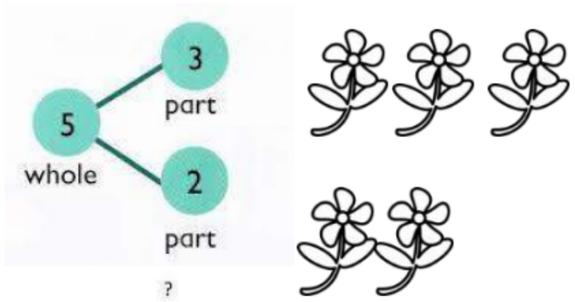
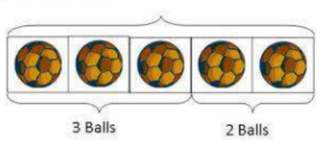
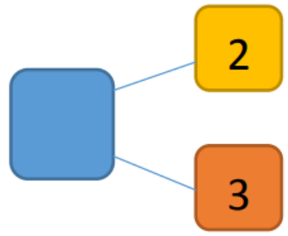
Key vocabulary: **exchange**

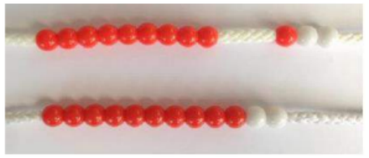
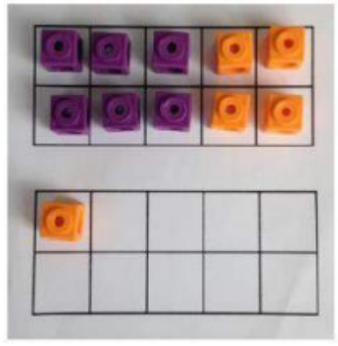
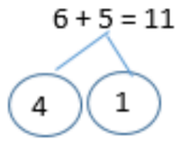
Can we exchange any ones?



Calculation guidance: Addition

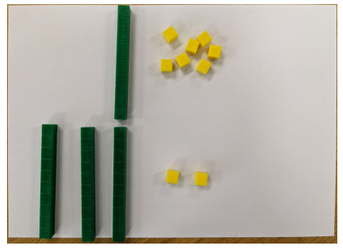
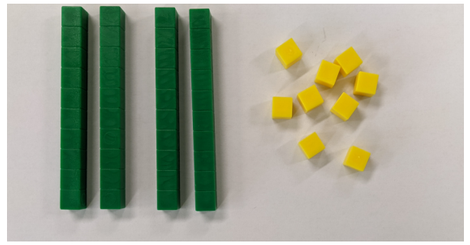
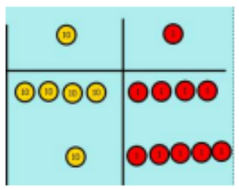
Year 1:

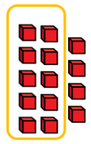
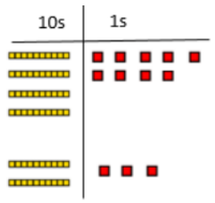
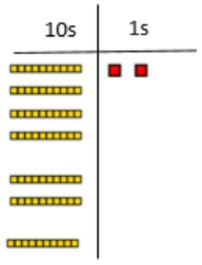
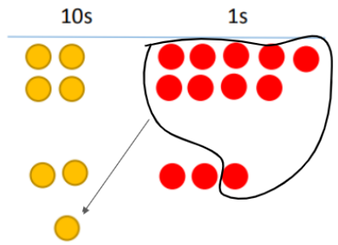
	concrete	pictorial	abstract
To represent and **use number bonds** and related subtraction facts within (and including) 10 - Number bonds of 5, 6, 7, 8, 9, 10	**Cubes** - Use to add two numbers together as a group or in a bar **4 + 3 = 7**  **10 = 6 + 4**  **8 + 1 = 9** 	**Part / whole method alongside images** - Create your parts and label - Add altogether to find the whole **3 + 2 = 5**  Bar model 	**Part / whole model** alongside all number sentences to move into the abstract 2 + 3 = 5 3 + 2 = 5 5 = 3 + 2 5 = 2 + 3 
Counting: add 1 and 2 digit numbers within 20 including zero:	**Bead string** - Start with the larger number and then count on the next number 1 by 1 **12 + 5 = 17** 	**Number line** - Start at larger number - Count on in ones 	5 + 3 = 8

	concrete	pictorial	abstract
Regrouping to make 10: add 1 and 2 digit numbers within 20 including zero	**Bead string** - Make larger number first - Use the smaller number to make 10 - Add the leftover amount **9 + 3 = 12**  Cubes - Make larger number on 10 frame - Use the smaller number to make 10 - Add leftover cubes in next 10 frame **6 + 5 = 11** - **6 + 4 = 10** - **10 + 1 = 11** 	**Pictorial** - Group 10 - Count on what is left **6 + 5 = 11** - **6 + 4 = 10** - **10 + 1 = 11**   6 + 4 =10 10 + 1 = 11	6 + 5 = 11

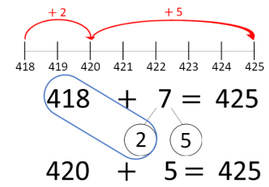
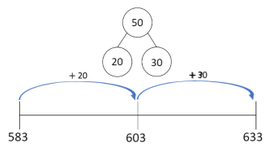
Year 2:

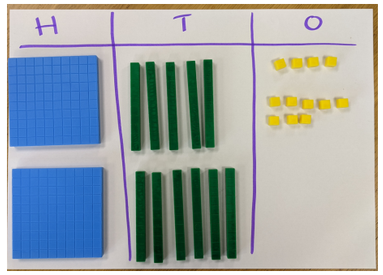
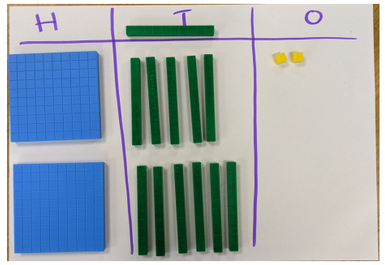
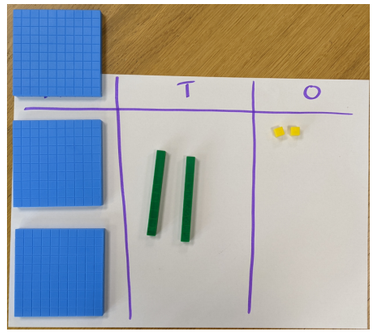
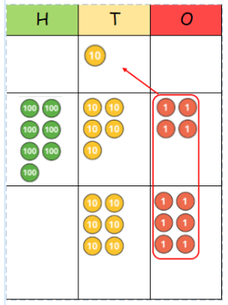
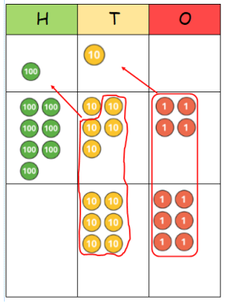
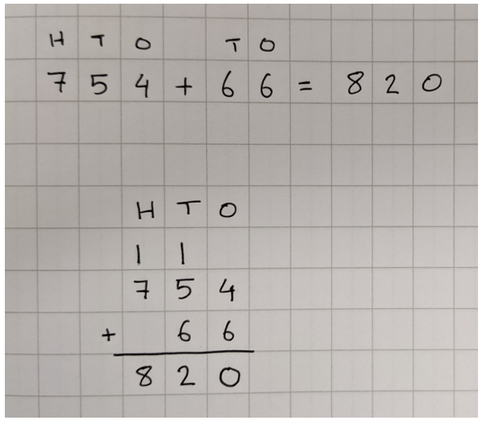
To also understand: that addition is commutative

	concrete	**pictorial**	**abstract**
Column method **without regrouping**	**Base 10** **17 + 32 =** *Begin to introduce the formal column method layout by placing the numbers one on top of the other* Create your two numbers using base 10  Add (group) the ones together - what do you have? Add (group) the 10s together - what do you have? What is the total?  **Counters** - Create your numbers - Add (group) the ones together - how many do you have? - Add (group) the tens together - how many do you have? **44 + 15 = 59** 	After physically using the base 10 and counters, children can use drawings to build their understanding  Again, count the ones first - how many do you have?	*Formal written method here*

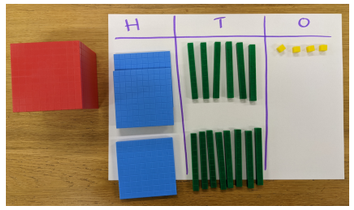
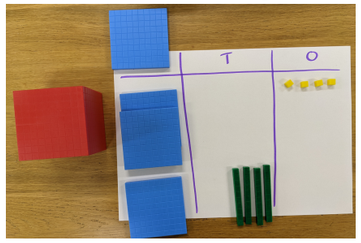
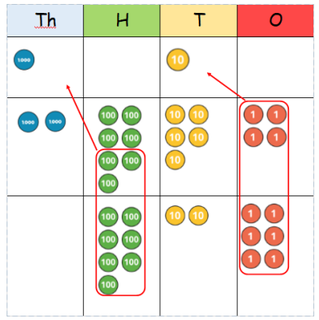
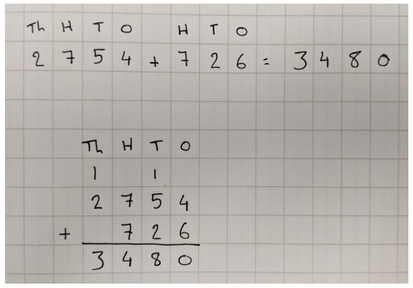
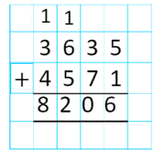
	concrete	pictorial	abstract
Column method with **regrouping**	**Base 10** - ***N.b. children will need to understand 10 ones is the same as 1 ten***  ***e.g. 14 ones is 1 ten and 4 ones*** **49 + 23 = 72** - Create both numbers on a place value grid  - Add up the ones - when you have 10, exchange for 1 ten and place in 10s column - What is left? - Add up the 10s - What is your total?  	Drawing counters or base 10 to support understanding **49 + 23 = 72**  	40 + 9 20 + 3 60 + 12 = 72
Adding **three 1 digit numbers**			

Year 3:

	concrete	pictorial	abstract
Using number line to cross the 10s / 100s barriers		**Adding 1s** **418 + 7**  **Adding 10s** **583 + 50**  	

	concrete	pictorial	abstract
To add numbers with up to 3 digits using formal **column method** (including regrouping). Using inverse to check answers	***Base 10*** **254 + 68** Make both numbers on a place value grid  Add the ones digits - exchange 10 ones for one ten  Add the tens digits - exchange 10 tens for one hundred  *Image using counters*	**754 + 66**   	

Year 4:

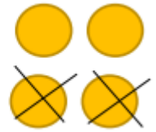
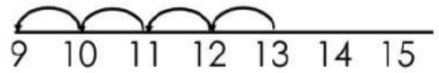
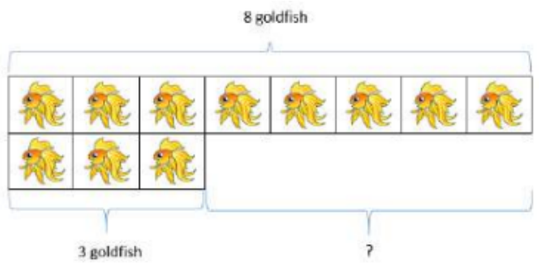
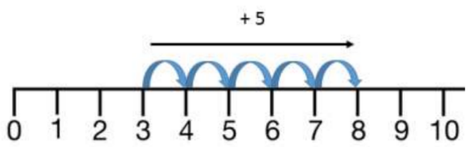
	concrete	pictorial	abstract
Be able to add ones, tens, hundreds and thousands using **place value knowledge**	*Photo using dienes cubes* *Image using counters*		Examples: 3,400 + 50 = 3,450 2,073 + 20 = 2,093 *Children to understand that these questions do not require using the formal written column method*
Use **column method** to add numbers with up to 4 digits (exchanging and regrouping). Use the inverse to check answers	**Base 10** **1264 + 180** Make both numbers on a place value grid  Add each column together, starting with the ones. Group 10 and exchange for one of the next column  *Can also be made using counters*	**2,754 + 726 = 3,480**  	 ***Example with sentence stems:*** 3,635 + 4,571 = 8,206 I have _6_ ones, so I _do not_ need to make an exchange. I have _10_ tens, so I _do_ need to make an exchange. I have _12_ hundreds, so I _do_ need to make an exchange. I have _8_ thousands, so I _do not_ need to make an exchange. 

Year 5 & Year 6:

	concrete	**pictorial**	**abstract**
To add numbers with more than 4 digits	*Embed from Y4 up to 4 digits. Move to pictorial & abstract for greater than 4 digits*	*Embed from Y4*	

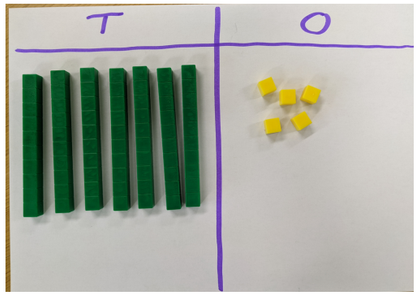
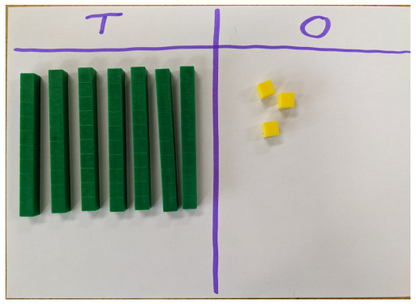
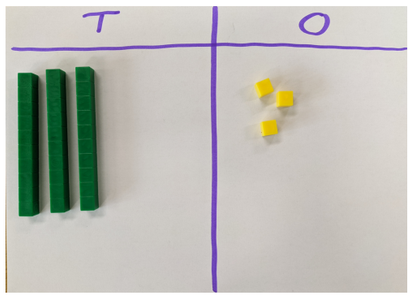
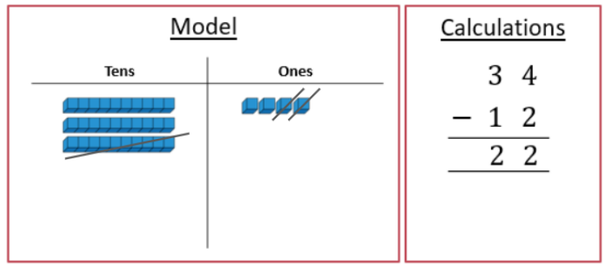
Calculation guidance: Subtraction

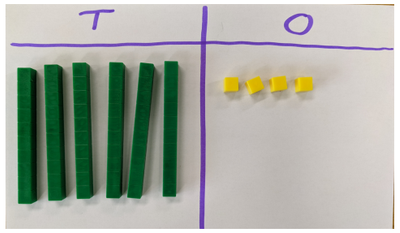
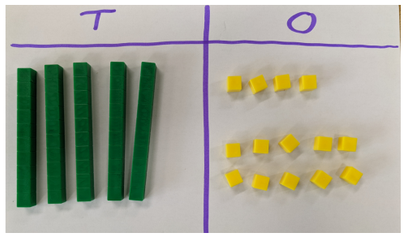
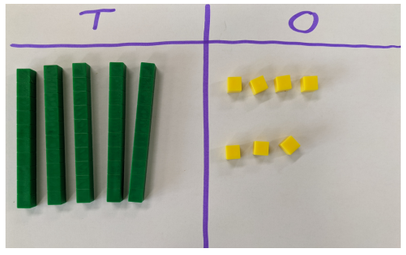
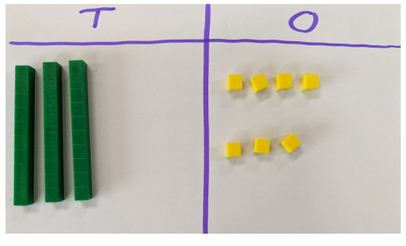
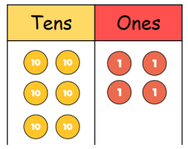
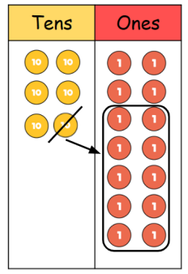
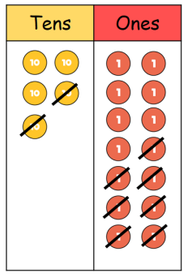
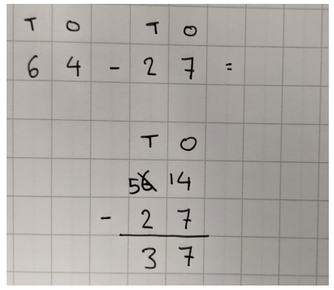
Year 1:

	concrete	pictorial	abstract
Taking away ones	**Counters / objects** - Use to show how objects can be taken away 4 – 2 = 2 	**Drawn counters / objects** - Cross out to show what has been taken away 4 – 2 = 2 	4 - 2 = 2
Counting back	**Bead string** - Make the starting number (minuend). Move the beads along the bead string as you count back in ones  **13 - 4 = 9**	**Number line / number track** - Start at the minuend and count back in ones, showing the jumps on the number line 	Put 13 in your head Count back 4 What number are you at? *Use fingers to help*
Find the **difference**	**Cubes** - Use cubes to make towers or bars to find the difference 	**Number line** - Find the two numbers you are finding the difference of - Count on from the smaller number to the bigger number  Bar model - Draw simple comparative bar model to find the difference between 2 numbers *example*	

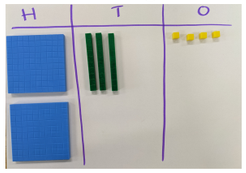
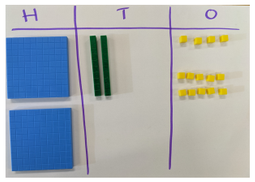
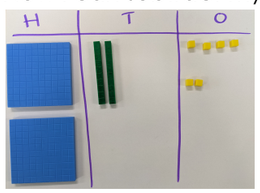
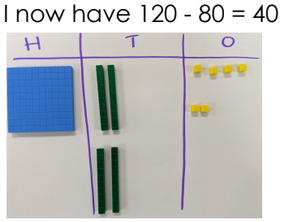
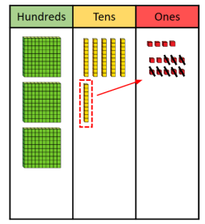
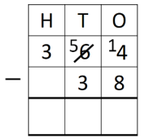
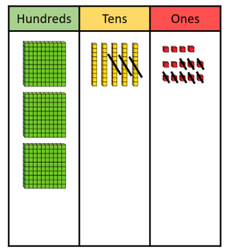
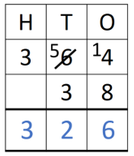
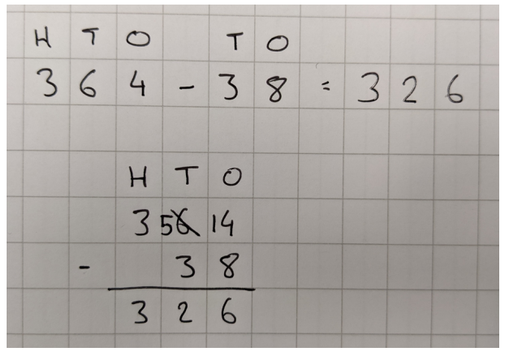
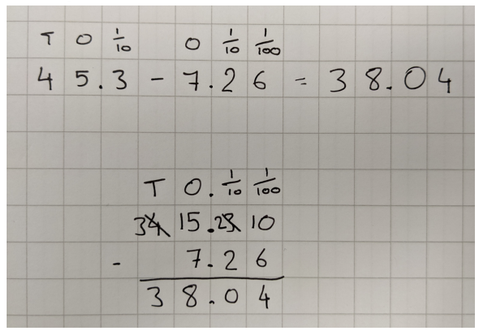
Year 2:

To also understand: subtraction is **not** commutative

	concrete	**pictorial**	**abstract**
Column subtraction **without exchange**	**Base 10** **75 - 42 = 33** Make the starting number (minuend) in place value columns  Take the smaller number (subtrahend) away, starting with the ones column   **Can also be made using place value counters**	Continue using base 10 models - children can eventually draw their own **34 - 12**  	To be shown alongside the model until children are confident in the maths going on

	concrete	pictorial	abstract
Column subtraction **with exchange**	**Base 10** **64 - 27** Create the starting number (minuend) in place value columns  Begin subtraction in the ones column. I can't subtract 7 from 4 so I need to exchange 1 ten for 10 ones.  I can then do 14 - 7 which is 7  I can then move to the tens column. 50 - 20 = 30  	Children to have drawn counters at first, then begin drawing their own - **can also be made using base 10** **64 - 27 = 37** - Create the starting number  - 4 - 7 is not possible here, so we exchange 1 ten for 10 ones. We now can do 14 - 7 = 7  - We can then do 50 - 20 = 30 (3 tens)  	To be shown alongside the pictorial until children are confident 

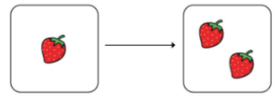
Year 3 upwards:

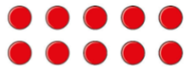
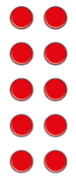
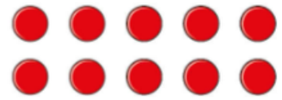
	concrete	pictorial	abstract
To subtract numbers with up to 3 digits using formal method of column subtraction (exchanging and regrouping). Using inverse to check answers	**Base 10 on place value grid -** n.b. The example below is the final step in understanding in Y3 **234 - 88 = 156** Make starting number on place value grid  Start with the ones. Can I subtract 8 from 4? No - I need to exchange 1 ten for 10 ones - I now have 14 ones  Now I can subtract my ones 14 - 8 = 6  I can now look at my tens column. 30 - 80. I can't do that - I need to exchange 1 hundred for 10 tens.  I now have 120 - 80 = 40  I am not taking any hundreds away from my hundreds column so my answer is 146	Base 10 and then move on to counters **364 - 38 = 326** - Make starting number (minuend) - Begin by subtracting the ones. If you cannot do this, exchange 1 ten for 10 ones  −  - Then, move onto the tens column. Again, if you cannot subtract then exchange 1 hundred for 10 tens  −  *Children should get into the habit of checking their answers using the inverse (addition) operation*	Year 3 example:  *note: when exchanging, the digit exchanged should be the same size (e.g. the 1 ten going into the ones column)* ***Example with decimals:*** 

Calculation guidance: Multiplication

Year 1:

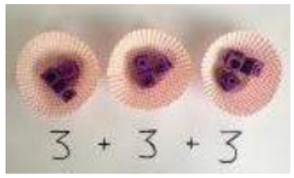
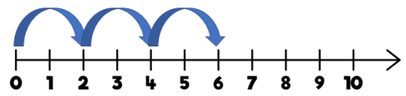
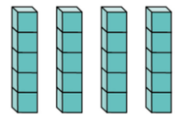
- Need to be able to count in 2, 5, 10
- Understand that multiplication involves equal groups

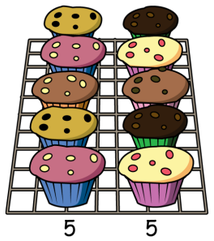
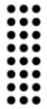
	concrete	**pictorial**	**abstract**
To double numbers within 10 (then within 20)	Children can use **fingers** (join hands together to show doubles)	Complete the sentences. Use the pictures to help you. a)  Double 1 is ☐ 1 + 1 = 2	
Recognise **repeated addition** and representing with multiplication equations (2, 5, 10 x tables)	***Children should begin by building an understanding of counting in 2s, 5s and 10s*** Using objects to add equal groups **7 lots of 2 = 2 + 2 + 2 +2 + 2 + 2 + 2 = 14** - How many? (counting up in twos)  **3 groups of 5 = 5 + 5 + 5 = 15** 	Children draw out objects / counters to show the repeated addition **There are 3 pots. There are 2 pencils in each pot** 	Children should write the addition sentences to describe the objects and pictures  **2 + 2 + 2 = 6**

	concrete	pictorial	abstract
Making **arrays**	**Counters or cubes**   Sentences to support: There are ☐ counters in each row. There are ☐ rows. There are ☐ counters altogether.	Draw arrays in different rotations to find commutative sentences  Complete the sentences. **a)** There are ☐ counters in each row. There are ☐ rows. There are ☐ counters altogether. 	Use the arrays to write multiplication sentences and reinforce repeated addition  5 + 5 = 10 5 x 2 = 10 2 + 2 + 2 + 2 + 2 = 10 2 x 5 = 10

Year 2:

*By the end of Y2, children should be secure in **2, 5, 10** times tables*

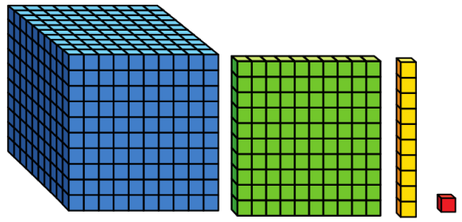
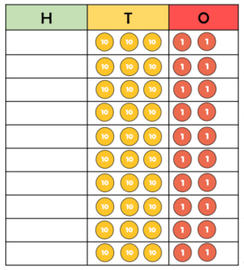
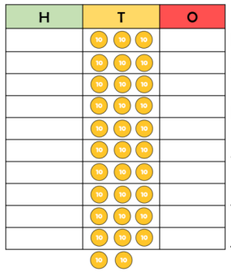
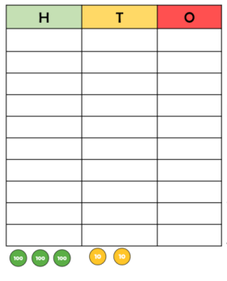
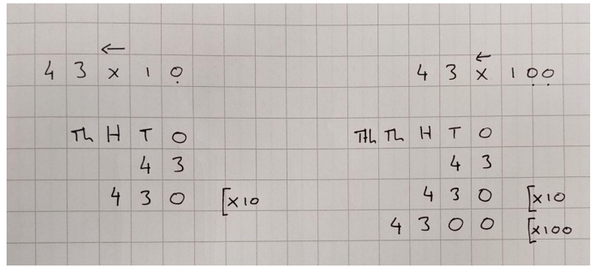
	concrete	**pictorial**	**abstract**
Recognise **repeated addition** and representing with multiplication equations (2, 5, 10 x tables) - **Equal groups**	***Children should begin by building an understanding of counting in 2s, 5s and 10s*** Using objects to add equal groups **3 groups of 3 = 3 + 3 + 3 = 9**  **3 groups of 5 = 5 + 5 + 5 = 15** 	Children draw out objects / counters to show the repeated addition - illustrate on a numberline  There are 3 equal groups of 2 2 + 2 + 2 = 6  **Once embedded, begin to show the multiplication sentence alongside**  There are ☐ equal groups with ☐ in each group. ☐ + ☐ + ☐ + ☐ = 20 ☐ × ☐ = 20	When moving away from pictorial, ensure children continue to see the relationship between repeated addition and multiplication sentence: Complete the table. The first one has been done for you. | Addition	Multiplication | |---|---| | 2 + 2 + 2 + 2 | 4 × 2 | | 5 + 5 + 5 | | | 3 + 3 + 3 + 3 + 3 | | | | 2 × 10 |

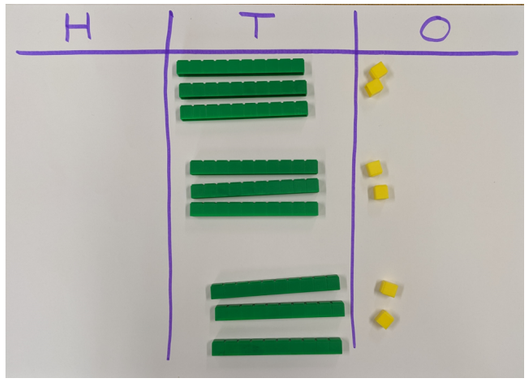
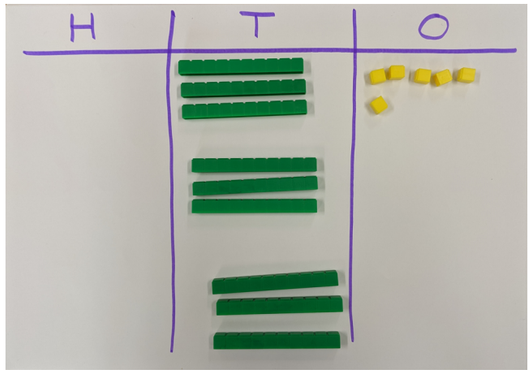
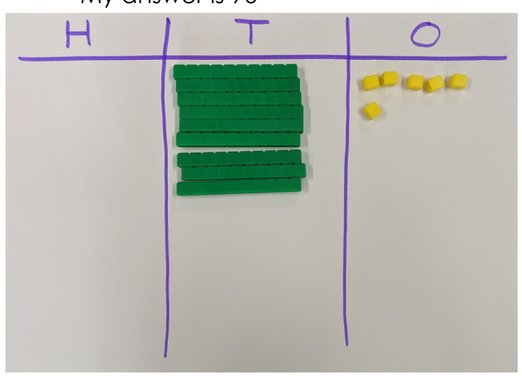
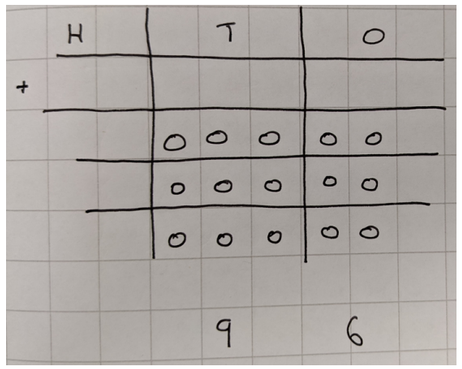
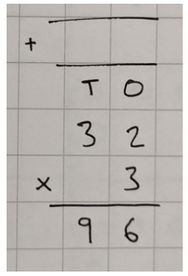
<table>
<tr><th></th><th>concrete</th><th>pictorial</th><th>abstract</th></tr>
<tr>
<td>Arrays: Understand multiplication as number of groups with total unknown - also understand multiplication is commutative</td>
<td>Create arrays using physical objects / cubes
- How many rows?
- How many in each row?
- How many in cakes?
 
2
2
2
2
2
5 5</td>
<td>Continue concrete work with pictorials and counters. Build understanding of multiplication being commutative
<table>
<tr><th>Multiplication</th><th>Array 1</th><th>Array 2</th></tr>
<tr><td>3 × 8</td><td>  </td><td>  </td></tr>
<tr><td>2 × 5</td><td></td><td></td></tr>
</table>
</td>
<td>5 + 5 = 10 → 2 x 5 = 10
2 + 2 + 2 + 2 + 2 = 10 → 5 x 2 = 10</td>
</tr>
</table>

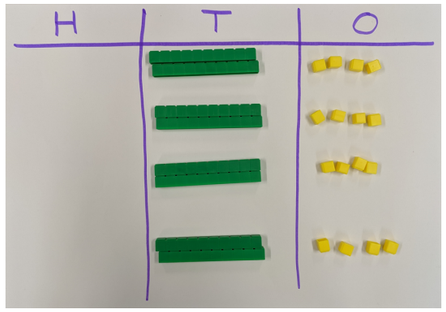
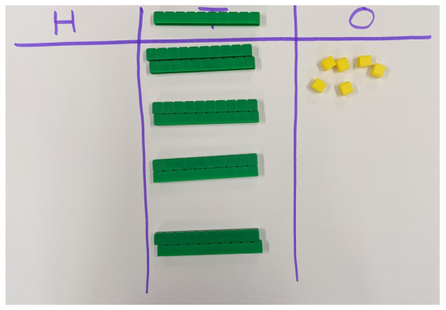
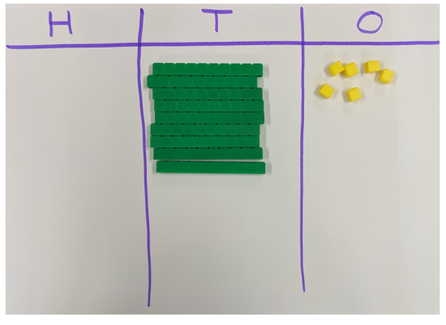
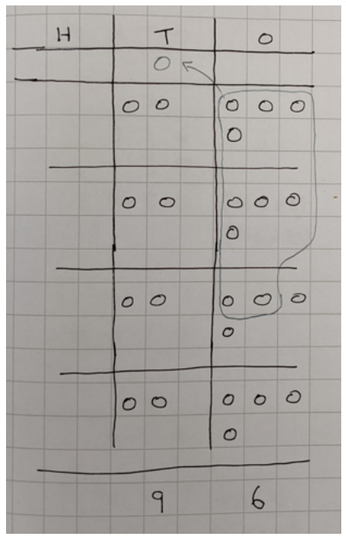
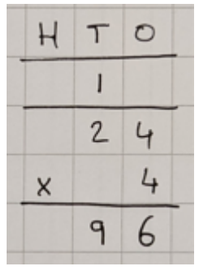
Year 3 & Y4:

*By the end of **Y3**, children should be secure in 2, 5, 10, **3, 4, 8** times tables*

*By the end of **Y4**, children should be secure in **all times tables***

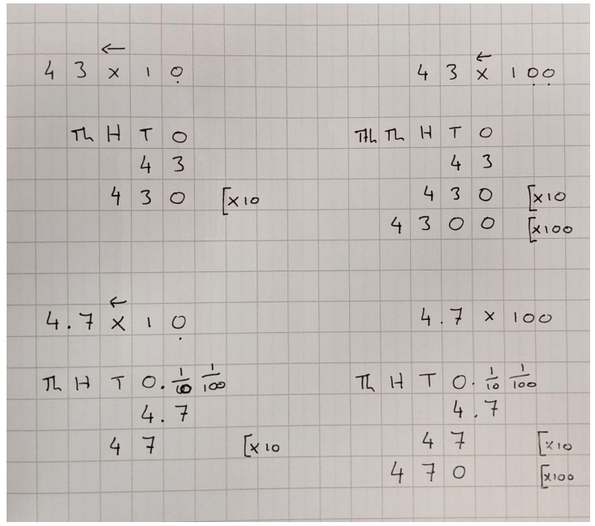
	concrete	**pictorial**	**abstract**
To recognise the effect of multiplying 1 digit numbers by 10 and 100	*Children need to understand the relationship between ones, tens, hundreds and thousands. They can do this by seeing how many they need to exchange for the following power of 10.* *E.g.* - *10 ones is the same as 1 ten. Therefore 1 ten is 10 times the size of 1 one*  1 ten is 10 times the size of 1 one 1 hundred is 10 times the size of 1 ten 1 thousand is 10 times the size of 1 hundred	*Children should understand the effect of multiplying by powers of 10 by first using repeated addition to multiply numbers 10 times.*  Each row has 3 tens and 2 ones. Each row has 32 There are 10 rows. The calculation is ___ × ____ = ____ - *I exchange 20 ones for 2 tens*  Each row has 3 tens and 2 ones. Each row has 32 There are 10 rows. The calculation is 32 × 10 = ____ - *I exchange 30 tens for 3 hundreds*  Each row has 3 tens and 2 ones. Each row has 32 There are 10 rows. The calculation is 32 × 10 = ____ - *I now have 320*	

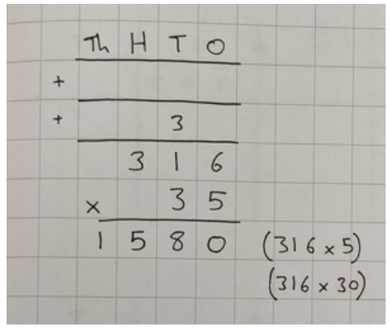
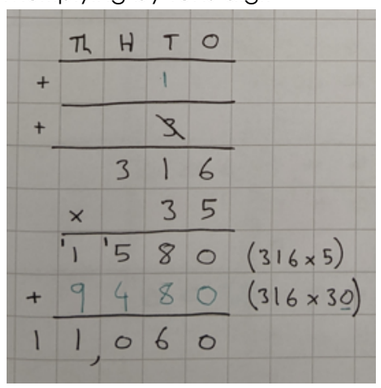
	concrete	pictorial	abstract
Column multiplication - no exchange - *To multiply 2 digit numbers by 1 digit numbers using the formal written methods*	**32 x 3 = 96** - 32 x 3 means I am multiplying 32, three times  - Start by groupings the ones. I have 6 ones.  - Group tens. I have 9 tens, which is 90. - My answer is 96  	**Drawn counters** **32 x 3 = 96** - *N.B. Layout - column at top for exchanges; not needed yet but good to embed ready for new learning* - I have 3 lots of 32 - Begin in the ones column - I have 3 lots of 2: 3 x 2 = 6 - Next is the tens column - I have 3 lots of 3 tens: 3 x 3 = 9  	

	concrete	pictorial	abstract
Column multiplication - with exchange - *To multiply 2 digit numbers by 1 digit numbers using the formal written methods*	**24 x 4 = 96** - I am multiplying 24, four times.  - Start by grouping the ones. 4 x 4 is 16, so I need to exchange 10 ones for 1 ten. I have 6 ones left  - I can now look at the tens column. I have 9 tens, which is 90.  	**Base 10** **24 x 4** - Begin with the ones column - I have 4 lots of 4. This makes 16, so I need to exchange 10 ones for 1 ten - Now, I can look at the tens column. I have 4 lots of twenty. That is 80. I also have one ten that has been exchanged. That makes 90.  	**Column multiplication** 

Year 5:

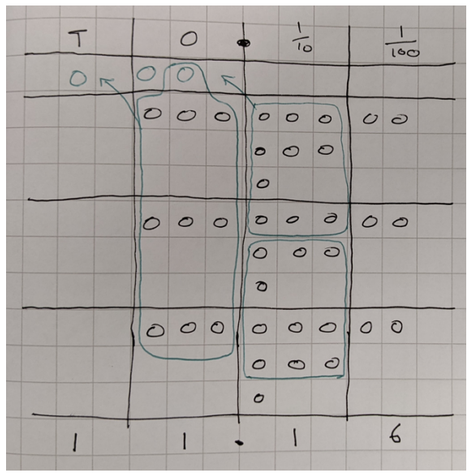
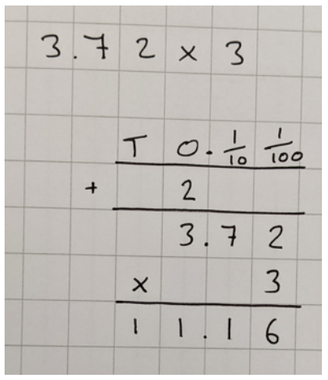
As above, but including the following:

	concrete	**pictorial**	**abstract**
To multiply numbers including decimals by 10, 100 and 1000		*Reinforce with pictorial from Yrs 3 and 4 if required*	

	concrete	pictorial	abstract
To multiply numbers up to 4 digits by a 1 and 2 digit number		*See Y3 and Y4 for pictorial of multiplying by a one digit number.* *When moving to multiplying by a 2 digit number, use understanding of multiplying by 10 to embed understanding of tens column*	**316 x 35** Layout and multiplying by ones digit  Multiplying by tens digit  - use a different colour pen for tens digit - Underline the zero in the tens digit to help remember adding the placeholder before multiplying

Year 6:

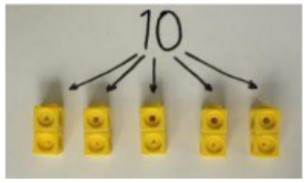
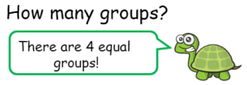
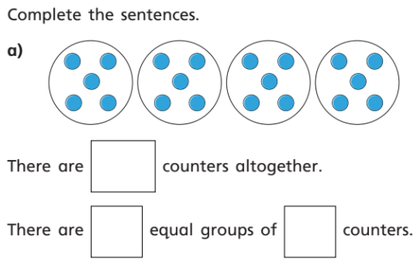
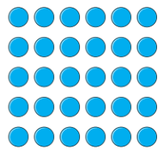
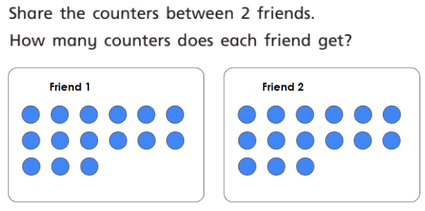
As above, but including the following:

	concrete	pictorial	abstract
To multiply a number with up to 2 decimal places by whole numbers		**3.72 x 3** 	**3.72 x 3** 

Calculation guidance: Division

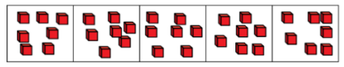
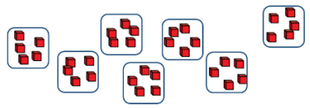
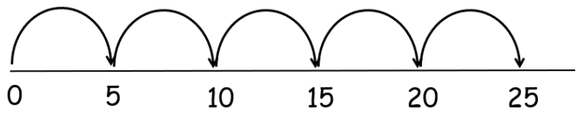
Year 1:

- Focus is on children understanding the concept of division being sharing or grouping into equal groups

	concrete	**pictorial**	**abstract**
Making equal groups: grouping	Using objects around the room to put into equal groups - How many ___ do I have altogether? - I need to put them into groups of ____ - *Make groups, counting out as you go* - There are ___ equal groups  - I have 10 cubes altogether - I need to put them into groups of 2 - *Make groups, counting out in twos* - There are 5 equal groups	*Drawing out pictures of objects into equal groups*   *Moving into using sentence stems to explain the groupings:*  	
Making equal groups: sharing	*Difference here is counting out one into each group at a time*	  *Children draw out counters, one at a time, into each group alternately*	

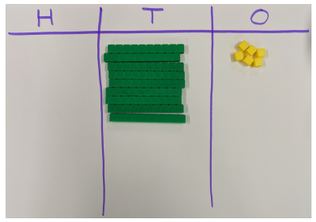
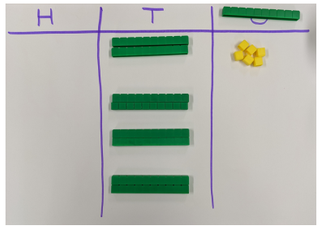
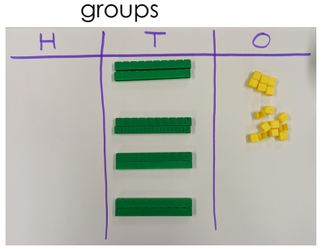
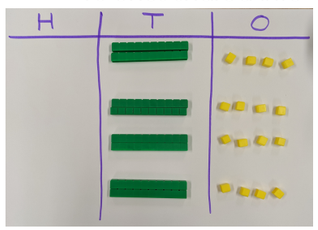
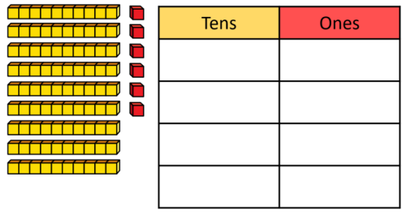
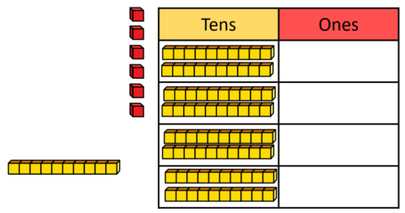
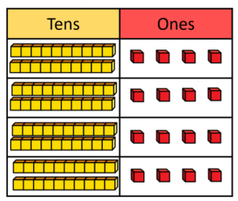
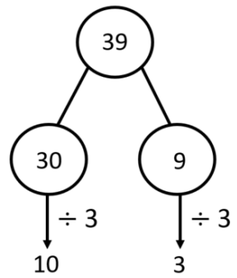
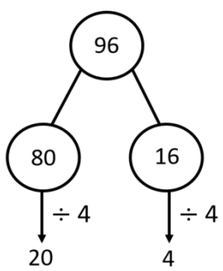
Year 2:

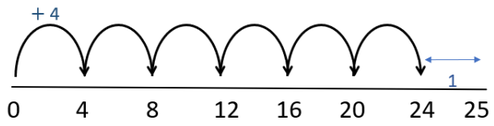
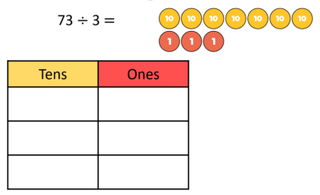
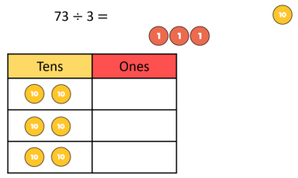
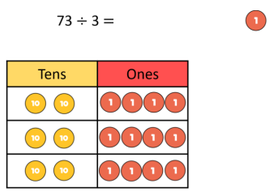
- Children should be using their knowledge of times tables that they have been learning to support with understanding of division (and the relationship between the two)
- Continue practising sharing and grouping before moving to numberlines

	concrete	**pictorial**	**abstract**
Understand division as dividing into groups of.. (quotative division)	As in Y1	Children should understand the difference between sharing and grouping as strategies, but how they both get to the same answer **Sharing**  There are 7 cubes in each group. $35 \div 5 = 7$ **Grouping**  There are 7 groups of 5 $35 \div 5 = 7$	*Using concrete / pictorial resources to support with solving number sentence questions* **a)** $6 \div 2$ **d)** $0 \div 2$ **g)** $\square \div 2 = 9$ **b)** $10 \div 2$ **e)** $\square \div 2 = 5$ **h)** $\square \div 2 = 11$ **c)** $14 \div 2$ **f)** $\square \div 2 = 6$
Using a numberline		 - I know that 25 ÷ 5 can be worked out using my times tables knowledge. - I can count up in 5s until I get to 25. - 5, 10, 15, 20, 25 → I have counted up in 5s five times. - That means there are 5 lots of five in 25. - So, 25 ÷ 5 = 5 *Could be filled in with children counting the intervals to scaffold* - *The aim is for children to develop an understanding that they can use their times tables to solve division questions*	

Year 3:

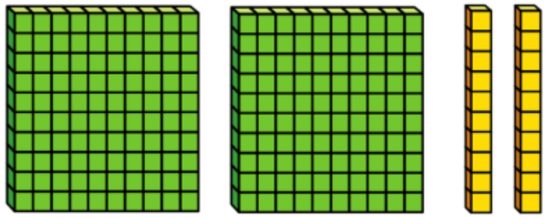
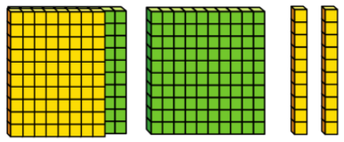
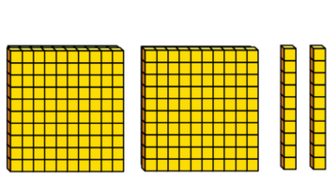
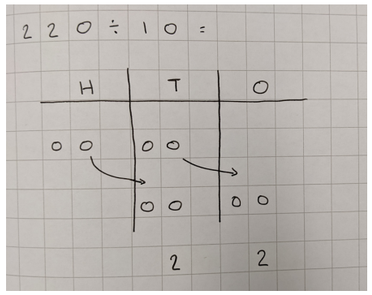
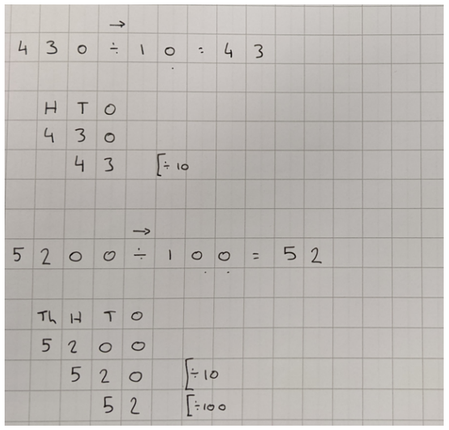
- Continue to embed understanding of sharing and grouping, & repeated addition, before moving on to the following method:

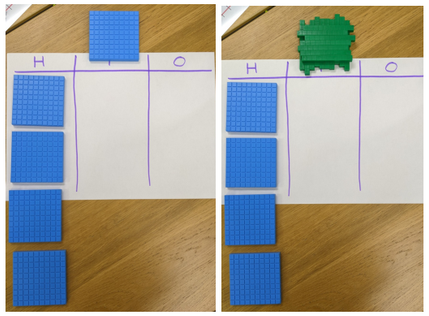
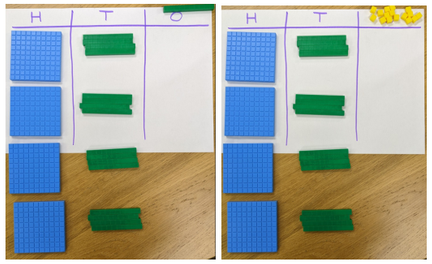
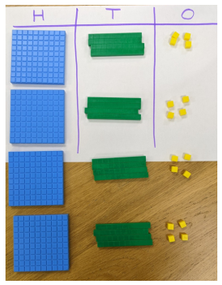
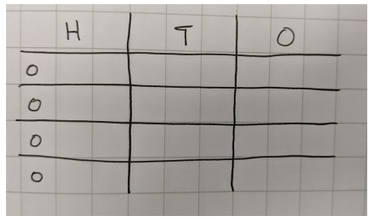
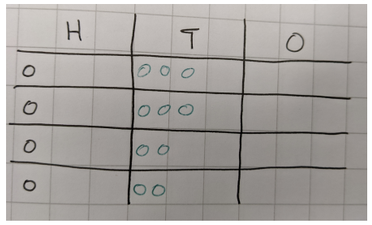
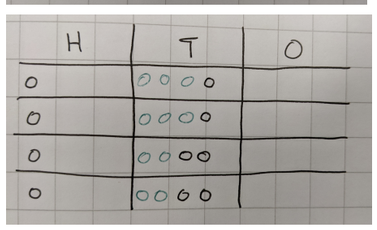
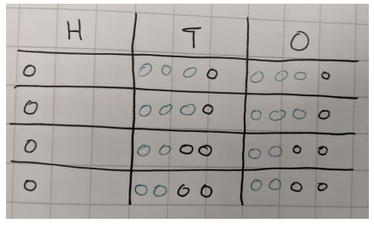
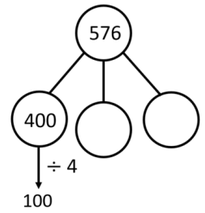
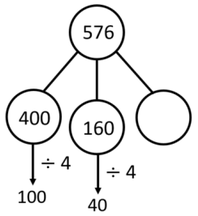
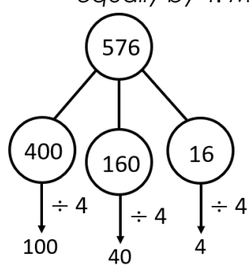
	concrete	**pictorial**	**abstract**
To divide 2 digit numbers by 1 digit numbers	**96 ÷ 4** - I am sharing 96, so I need to create the number 9 tens and 6 ones - I am sharing it into 4 equal groups.  - I start with the tens column. 9 tens shared into 4 equal groups is 2 in each group with one left over. I need to exchange that left over ten  - I now have 16 ones to share into 4 equal groups  - 16 ones shared into 4 groups is 4  	**96 ÷ 4** - *I am sharing 96 into 4 equal groups. First, I will share my tens*  - *9 tens shared between four is 2 tens. There is one ten left over, so I need to exchange that for 10 ones*  - *I now have 16 ones. I share these into 4 groups. There are 4 ones in each group.*  - *One group contains 2 tens and 4 ones. That is 24. So, 96 ÷ 4 = 24*	*Note: this strategy requires children to have a secure understanding of standard and non-standard partitioning. This strategy lays the foundations for bus stop.* **39 ÷ 3 =** - *My whole is 39. I am dividing by 3. First, I look at my tens. I know that 3 tens will divide by 3, so I can partition my number as 30 and 9.*  10 + 3 = 13 **96 ÷ 4 =** - *I notice that 9 tens will not divide equally into 4 groups. Therefore, I need to partition my number. I know that 80 divides into 4, so I can partition my number as 80 and 16.*  20 + 4 = 24 - *80 divided into four groups is 20* - *16 divided into four groups is 4* - *Therefore, 96 divided by 4 is 24*

	concrete	pictorial	abstract
To divide 2 digit numbers by 1 digit numbers **with remainders**		**25 ÷ 4** - *I know that dividing by 4 is the same as counting up in 4s until I get to 25.*  - *There are 6 steps of 4. 6 x 4 is 24. There is one left over.* - *Therefore, 25 divided by 4 is 6 r1* **Then move on to using counters** **73 ÷ 3** - *I am sharing 73 into 3 equal groups. I start by sharing the tens.*  - *I know that I can share 6 tens equally into 3 groups. However, I have one ten that I can't share. Therefore, I need to exchange 1 ten for 10 ones*  - *I now have 13 ones. I can share these into three equal groups* 	**Stick to pictorial and embed in Y3**

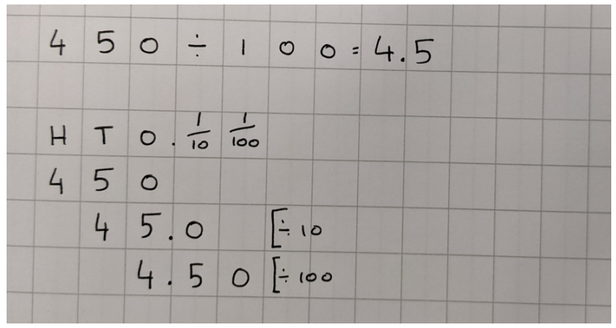
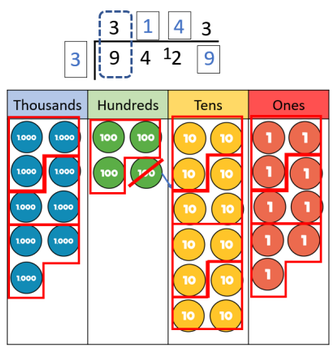
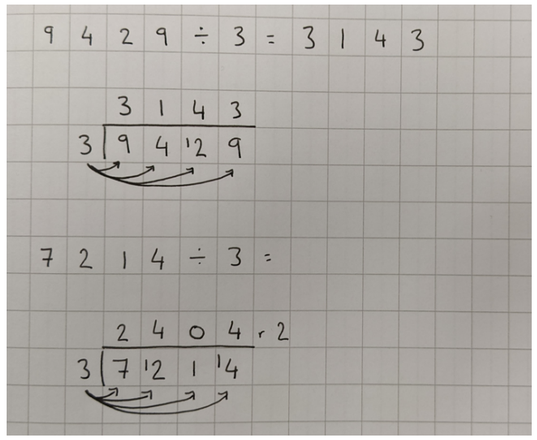
Year 4:

- Children should learn the division facts alongside their times tables knowledge. E.g. If I know that 3 x 4 = 12, I also know that 12 ÷ 4 = 3

	concrete	**pictorial**	**abstract**
To divide whole numbers by 10 and 100 (sticking to whole number quotients)	**220 ÷ 10 =** - *We need to see how many groups of ten are in 220*  - *We can count in 10s:*   - *There are 22 groups of 10. Therefore, 220 ÷ 10 is 22.* - *What do children notice?*		

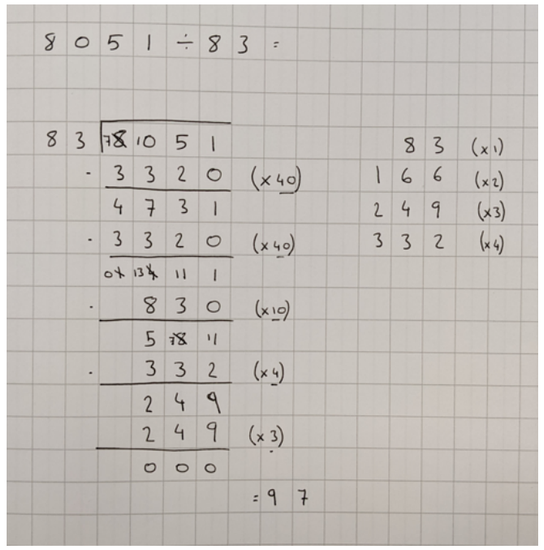
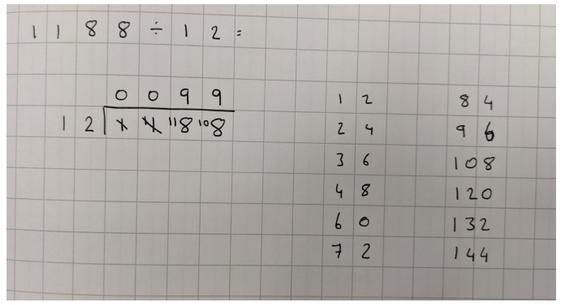
	concrete	pictorial	abstract
Divide 2 digit and 3 digit numbers by 1 digit number	**576 ÷ 4** - *First I need to share my 5 hundreds into four equal groups. Each group will have 1 hundred, and there will be 1 hundred left over. I need to exchange this for 10 tens*  - *I now have 17 tens. I need to share those into four equal groups. Each group will have 4 tens, with 1 ten left over. I need to exchange this for 10 ones.*  - *I now need to share 16 ones. When I share this into four equal groups, I have 4 with none left over.* - *My answer is 144* 	**576 ÷ 4** - *First I need to share my 5 hundreds into four groups. Each group will have 1 hundred. I will have one hundred left over. I need to exchange that for 10 tens.*  - *Now, I have 17 tens. I need to share them into 4 equal groups. I know that 17 cannot be shared into 4 equal groups, but 16 can.*   - *I need to exchange my 1 ten for 10 ones. I now have 16 ones. When I divide that by 4, each group will have 4 ones.*  - *My answer is 144*	**Running alongside the pictorial until children are confident** - *I divide 500 by 4. I know 4 hundreds can be shared into 4 groups. I will have one hundred left over*  - *I now have 17 tens. I know that 16 tens can be divided by 4. I will then have 1 ten left over.*  - *I now have 16 ones. I know this will divide equally by 4. My answer is 144.*  ***When secure, move to numbers where there will be remainders***

Year 5:

	concrete	pictorial	abstract
To divide numbers, including decimals, by 10, 100 and 1000	*See previous years for embedding*	*See pictorial from Y4*	
To divide numbers up to 4 digits by a 1 digit number	*See previous years for embedding*		

Year 6:

- As above, but include the following:

	concrete	**pictorial**	**abstract**
To divide numbers up to 4 digits by a 2 digit whole number (long division)	*See previous years for embedding*	*See previous years for embedding*	 - Write out the times tables of the number at the side - Looking to chunk multiples of your divisor out
To divide numbers up to 4 digits by a 2 digit whole number (short division)	*See previous years for embedding*	*See previous years for embedding*	 - Write out the times tables of the divisor to help