Anderton Primary School

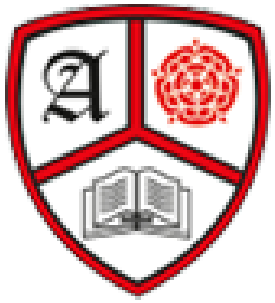
Maths Mastery Calculation Policy

Date reviewed:

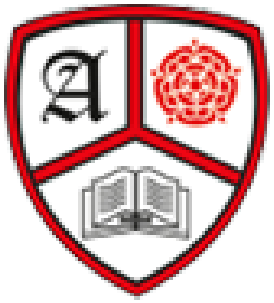
Date for next review:

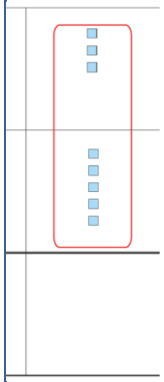
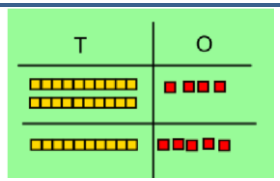
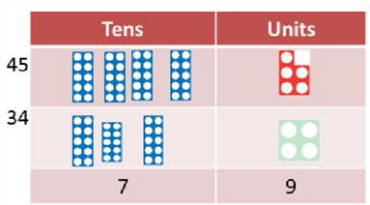
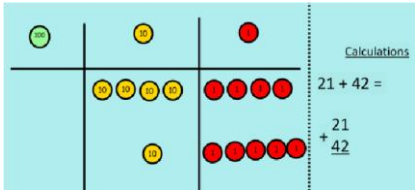
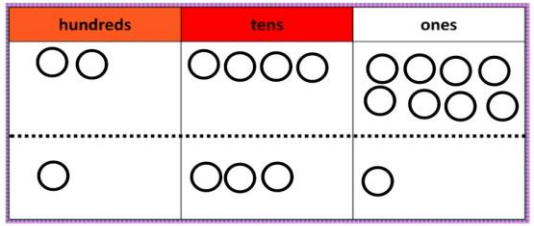
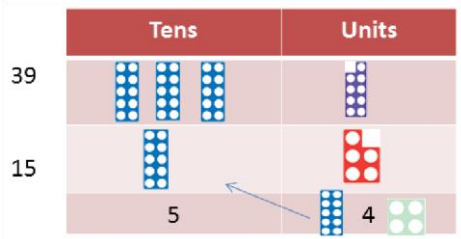
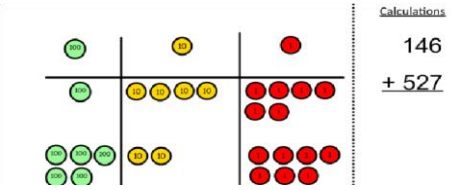
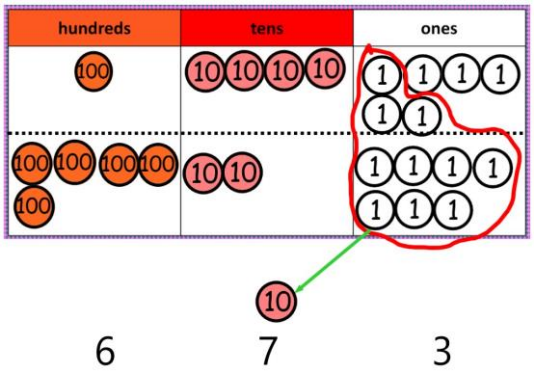
Signed :

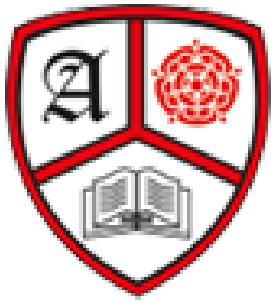
Signed :



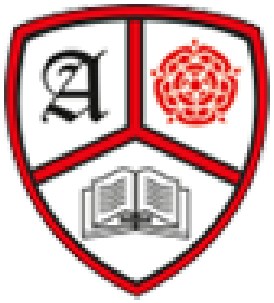
Year 3 Addition

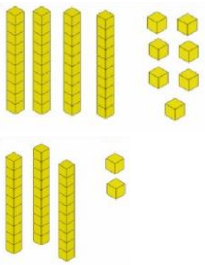
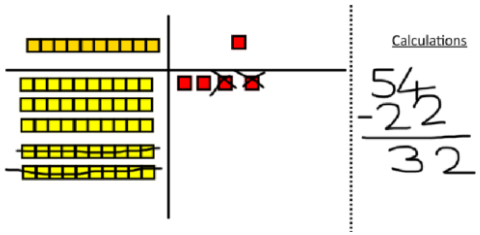
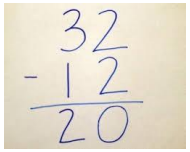
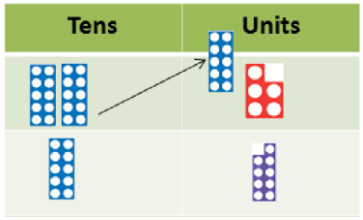
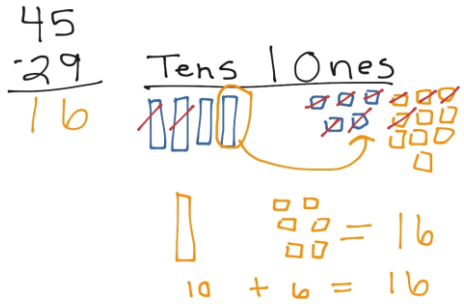
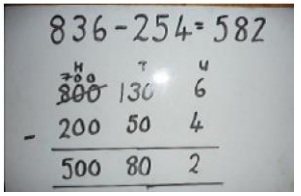
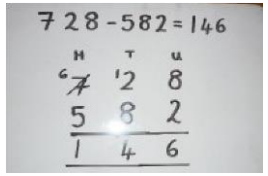


Objective, Strategy Key Vocabulary	Concrete	Pictorial	Abstract
	When moving from concrete to pictorial, show concrete alongside pictorial. Show pictorial alongside abstract when moving to abstract.		
Column Addition—no regrouping (friendly numbers) Add two or three 2 or 3digit numbers.  4 3 + 2 5 _____	 Model using Dienes or numicon Add together the ones first, then the tens.   Move to using place value counters	Children move to drawing the counters using a tens and one frame.  3 7 9	248 + 131 _____ 379 _____ Add the ones first, then the tens, then the hundreds.
Column Addition with regrouping. Use language of *'take and make'* to describe carrying	 Exchange ten ones for a ten. Model using numicon and pv counters. 	Children can draw a representation of the grid to further support their understanding, carrying the ten **underneath** the line 	Use expanded method ONLYWHEN NEEDED 20 + 5 40 + 8 60 + 13 = 73 Start by partitioning the numbers before formal column to show the exchange. 536 + 85 _____ 621 _____ 1 1

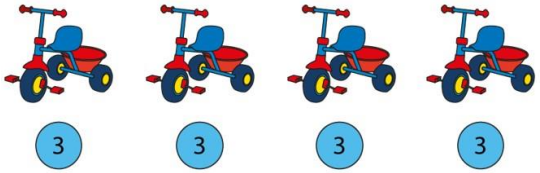
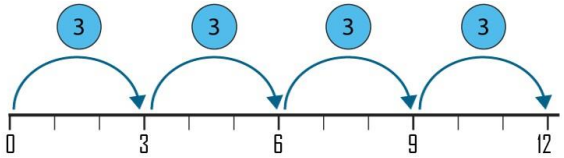
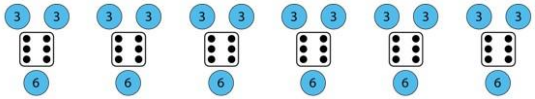
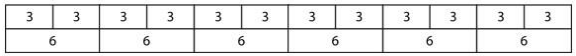
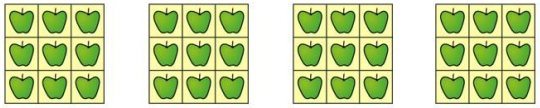
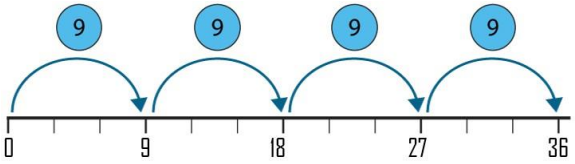


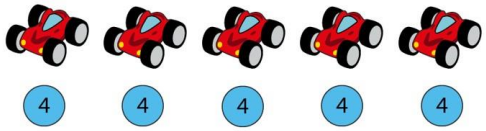
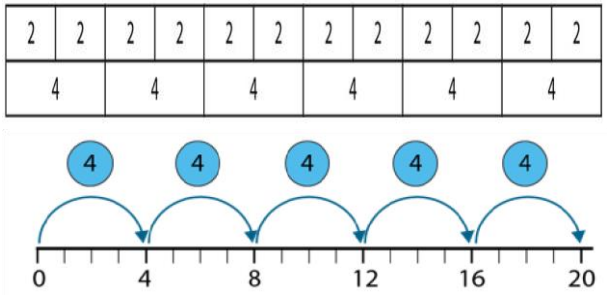
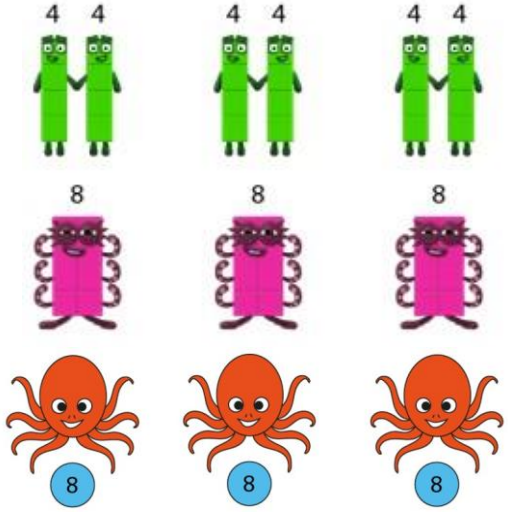
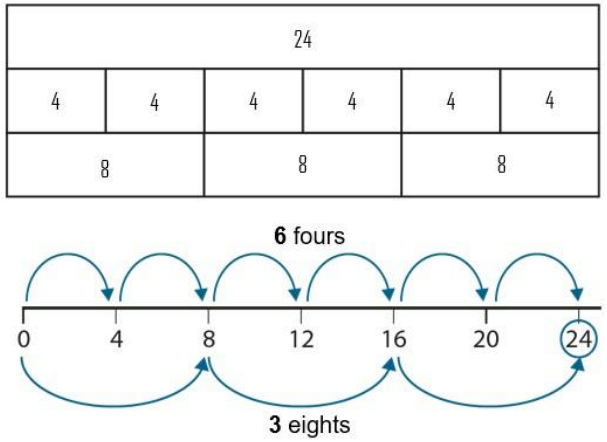
Year 3 Subtraction



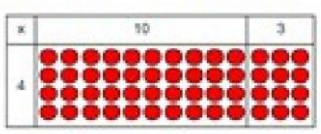
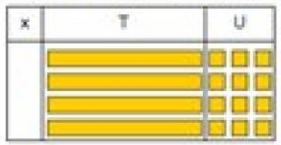
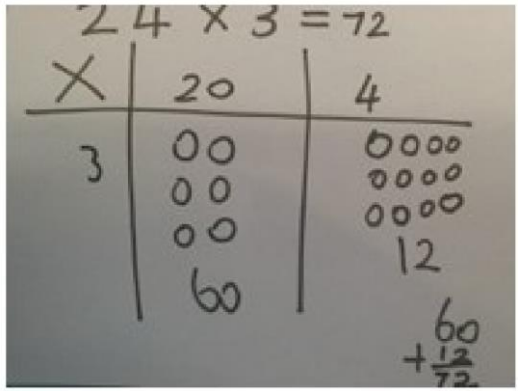
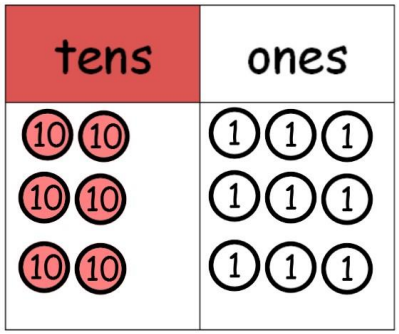
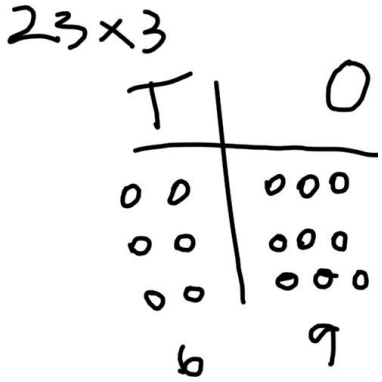
Objective & Strategy	Concrete	Pictorial	Abstract
Column subtraction without regrouping (friendly numbers)	 47—32 — Use base 10 or Numicon to model	 Draw representations to support understanding	$47-24=23$ $40+7$ $-\ 20+4$ $20+3$ Intermediate step may be needed to lead to clear subtraction understanding. 
Column subtraction with regrouping	 Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into tten ones. Use the phrase 'take and make' for exchange.	 Children may draw base ten or PV counters and cross off.	 Begin by partitioning into pv columns  Then move to formal method.

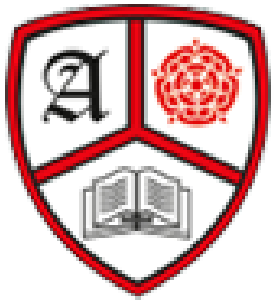
Year 3 Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Understand the 3 times table	Count in three using objects and representations of multiples of 3. 		There are 12 wheels. $4 \times 3 = 12$ $3 \times 4 = 12$
Understand the 6 times table	We can double our 3 times table to find our 6 times table. 		12 x 3 = 36 6 x 6 = 36
Understand the 9 times table	Count in nines using objects and representations of multiples of 9. Make links 9 being three groups of three. 		There are 36 apples. $4 \times 9 = 36$ $9 \times 4 = 36$

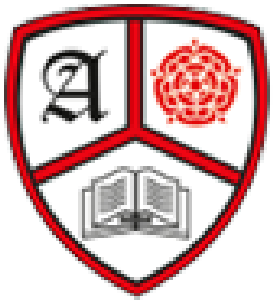
Objective & Strategy	Concrete	Pictorial	Abstract
Understand the 4 times table	We can double our 2 times table to get the 4 times table  Pupils revise 2 times table from year 2 and make link that this can be doubled to obtain 4 times table. How many wheels? Count in groups of 4. 		12 x 2 = 24 6 x 2 = 24 There are 20 wheels. $5 \times 4 = 20$ $4 \times 5 = 20$
Understand the 8 times table	We can double our 4 times table to get the 8 times table 		6 x 4 = 24 3 x 8 = 24

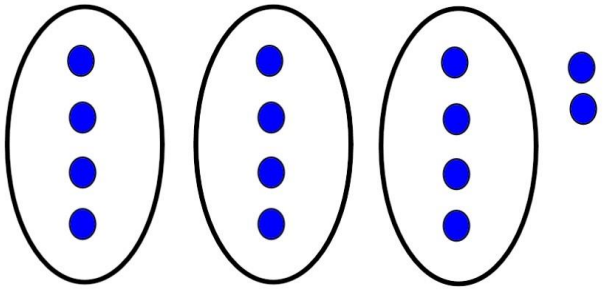
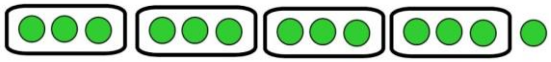
Divisibility rules in 'families' – 2, 4 and 8	
2	A number is divisible by 2 if the ones digit is even.
4	If halving a number gives an even value, then the number is divisible by 4. *and* For numbers with more than two digits: if the final two digits are divisible by 4 then the number is divisible by 4.
8	If halving a number twice gives an even value, the number is divisible by 8.

Objective & Strategy	Concrete	Pictorial	Abstract
Multiplying 2-digit by 1 digit using partitioning (distributive law)	 Show the links with arrays to illustrate the PV partitioning Move onto base ten to move towards a more compact method.  Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below. 	4 x 10 = 40 4 x 3 = 12 40 + 12 = 52
2 digit x 1 digit using PV counters (no regrouping)	23 x 3  Chn can see array in the ones and the tens. There is a visual link to repeated addition.	Children practice, drawing their representations. 	$\begin{array}{r} 23 \\ \times \quad 3 \\ \hline 69 \end{array}$



Year 3 Division



Objective & Strategy	Concrete	Pictorial	Abstract
Division with remainders. (partitive)	I divide 14 cakes between 3 plates. How are the cakes shared? 	Draw dots and group them to divide an amount and clearly show a remainder. 	Complete written divisions and show the remainder using r. 14 ÷ 3 = 4 r 2 dividend divisor quotient remainder
Division with remainders. (quotitive)	13 eggs are put into boxes. Each box holds 3 eggs. How are the eggs boxed? 	Children may draw representations to show their understanding.  Use bar models to show division with remainders. 13 3 3 3 3 1	13 ÷ 3 = 4 r 1

Divisibility rules in 'families' – 3, 6 and 9	
3	For a number to be divisible by 3, the sum of the digits of the number must be divisible by 3.
6	For a number to be divisible by 6, the number must be divisible by *both* 2 *and* 3.
9	For a number to be divisible by 9, the sum of the digits of the number must be divisible by 9.

Divisibility rules in 'families' – 5 and 10	
5	A number is divisible by 5 if the ones digit is 5 or 0.
10	A number is divisible by 10 if the ones digit is 0.