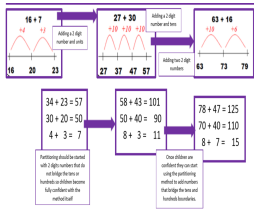
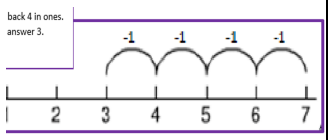
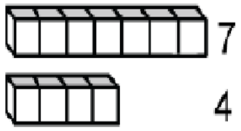
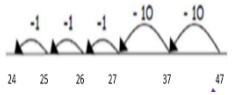
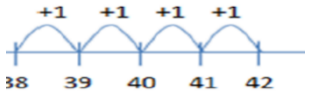
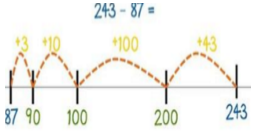
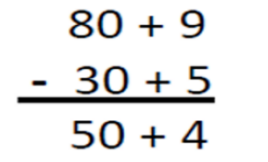
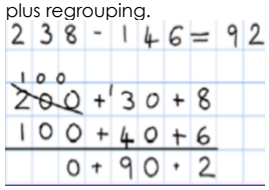
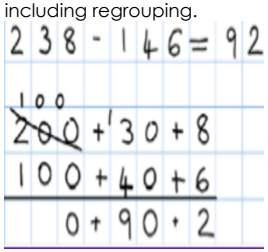
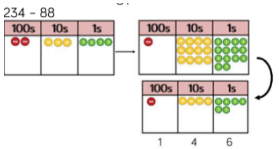
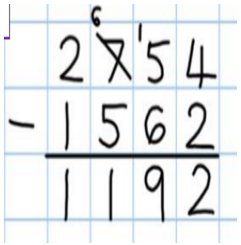
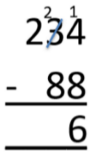
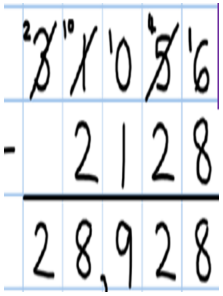
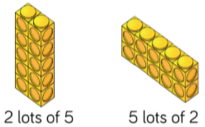
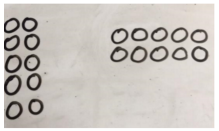
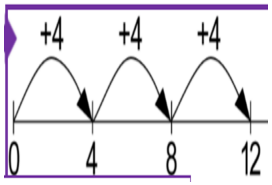
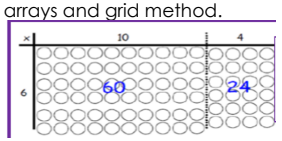
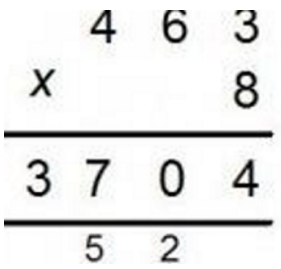
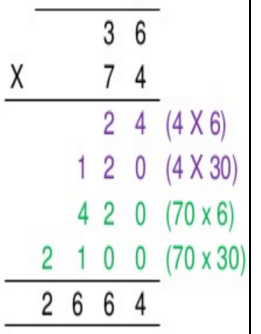
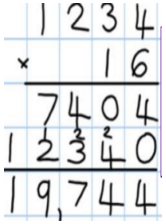
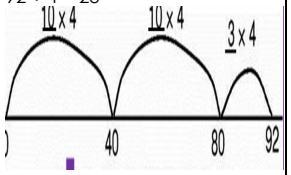
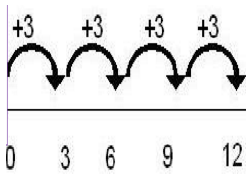
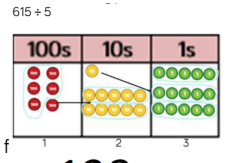
Andover CE Primary Calculation Policy

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	***Using concrete, pictorial and abstract representations.*** Touch counting, reciting numbers in order, developing one to one correspondence. Counting groups of objects. Counting groups of similar/different objects. Counting 2 groups of objects finding out how many altogether. Learning to look at largest group first. Linking counting to numerals and pictorial and number sentences. Beginning number bonds to 5 and then 10.	***Using concrete, pictorial and abstract representations*** Number bonds to 10 and then to 20. If we know 4+5=9 what else do we know? Ensure children understand what = sign means. Use of number tracks, number lines and bead strings to fully recall and use number facts to 20. Number tracks jumping in ones 	***Using concrete, pictorial and abstract representations*** Continuing number bonds to 10, 20 and up to 100. Adding 3 single digit numbers. Use of Dienes/Numicon Use of base 10 to combine two numbers.  Partition using T (tens) and O (ones). Partition using numbers alongside the pictorial and then without. 23+45 20+3 40+5 60+8 Repeat using bridging	***Continue to use concrete, pictorial and abstract representations*** Continuing number bonds. Counting forwards and backwards in 100s. Rounding and adjusting to add. 425+90=425+100 then – 10 Number lines Partition using T (tens), O (ones) and H (hundreds). 3 digits + ones 3 digits + tens 3 digits + hundreds Partition using numbers alongside the pictorial and then without. 123+145 100+20+3 100+40+5 200+60+8 Add units first Repeat using bridging 337 + 188 = 525 300 + 30 + 7 100 + 80 + 8 400 + 110 + 15 = 525 Expanded Column method plus re-grouping.	***Continue to use concrete, pictorial and abstract representations*** Counting in ones and tens. Rounding and adjusting. Using near doubles to add. Partitioning using numbers only. Column method up to 4 digits including regrouping. 243 +368 611 1 1	***Continue to use concrete, pictorial and abstract representations*** Range of mental strategies to add including the ones used in year 4. Column method including regrouping. 243 +368 611 1 1 Use place value counters for adding decimals. Children can start using column method for decimals and need to start adding 3 numbers. 6.54 + 7.89 14.43	***Continue to use concrete, pictorial but moving more on to abstract.*** Column method including regrouping. Use place value counters for adding decimals. Column method for adding decimals. Children need to be taught how to line up digits as well as decimal points. 6.54 + 7.89 14.43

Subtraction	***Using concrete, pictorial and abstract representations.*** Touch counting, reciting numbers in order, developing one to one correspondence. Learning to count backwards – idea of number getting smaller. Taking away one – one less. Taking away larger amounts using concrete and pictorial examples. Learning that big number comes first, as in addition. Relate the above to number sentences. Introduce cups to partition numbers using red (ones) and blue (tens) cups.	***Using concrete, pictorial and abstract representations.*** Physically taking away and removing objects from a whole Numicon, cubes, counters. Counting back using number lines or tracks.  Finding the difference using multilink cubes.  7- 4 = 3 Use of other resources to take away. Relate to number sentences too.	***Using concrete, pictorial and abstract representations.*** Continuing number bonds within 10, 20 and up to 100. Subtracting single digit numbers.  47-23 = 24 Finding the difference Counting on using number line.  Use of base 10 to subtract two numbers. Partition using numbers alongside the pictorial and then without. Repeat using bridging	***Continue to use concrete, pictorial and abstract representations.*** Continuing number bonds. Counting forwards and backwards in 100s. Rounding and adjusting to subtract. 425-90=425-100 then +10  Partition using T (tens), O (ones) and H (hundreds). 3 digits - ones 3 digits - tens 3 digits - hundreds Partition using numbers alongside the pictorial and then without. Repeat using bridging Expanded column method  plus regrouping. 	***Continue to use concrete, pictorial and abstract representations.*** Counting back in ones and tens. Rounding and adjusting. Using near doubles. Partitioning using numbers only. Column method up to 4 digits including regrouping.   	***Continue to use concrete, pictorial and abstract representations.*** Range of mental strategies to subtract including the ones used in year 4. Column method including regrouping.   Use place value counters for subtracting decimals.	***Continue to use concrete, pictorial but moving more on to abstract.*** Column method including regrouping. Use place value counters for subtracting decimals. Column method for subtracting decimals. 15.89 - 9.95 5.94
Multiplication	***Using concrete, pictorial and abstract representations.*** Counting in 1s. Counting in 2s.	***Using concrete, pictorial and abstract representations.*** Counting in 2s Counting in 5s Counting in 10s	***Using concrete, pictorial and abstract representations.*** Counting in 2s, 3s, 5s and 10s. Reciting times tables (2s, 5s and 10s) and showing the facts in different ways.	***Using concrete, pictorial and abstract representations.*** Continue to represent tables in different ways- – should only need too learn: 3x3, 4x3, 6x3, 7x3, 8x3, 9x3, 11x3, 12x3, 4x4, 6x4, 7x4, 8x4, 9x4, 11x4,	***Continue to use concrete, pictorial and abstract representations.*** Continue times tables work to build up to all tables – should only need too learn 6x6, 7x7, 9x9, 11x11, 7x6, 9x7, 11x9, 12x11, 9x6, 11x7, 12x9, 12x12, 11x6, 12x7, 12x6 now.	***Continue to use concrete, pictorial and abstract representations.*** Continue to revise times tables. Recall known facts based on times table fact.	***Continue to use concrete, pictorial and abstract representations.*** Continue to revise times tables.

	Concrete exploration of doubling. Introduce idea of making equal groups. Counting in 2s and 10s. Introduce 'lots of' using concrete examples. Pictorial representations of multiplying by 2 Counting In 5s.	Use pictures to show repeated addition. Use number lines and bead strings to show jumps of 2 etc. Look for patterns in the above tables. Double numbers to 20 Using arrays to show commutative multiplication i.e. 2x3 and 3x2. $2 \times 5 = 5 \times 2$  2 lots of 5 5 lots of 2	Using arrays to show commutative multiplication.  Repeated addition on a number line.  Two-digit x one-digit multiplication using partitioning e.g. 13x2=10x2 + 3x2	12x4, 6x8, 7x8, 8x8, 9x8, 11x8, 12x8. Count in 2s, 5s, 10s, 3s, 4s and 8s. Continue to use arrays and to use partitioning to multiply. 13x2 = 10x2 + 3x2 Multiple representations to continue. Begin to show link between arrays and grid method. 	Use factor pairs e.g. 24x3 = 8x3x3 or 6x4x3 Use partitioning to multiply – grid method 20 4 80 16 Use column multiplication 2/3 digit by 1 digit – use place value counters to start with. 	Multiply using factors. Investigate Square and prime numbers Multiplying by 10, 100, 1000 including some decimals. Column multiplication - 4 digit by 1/2-digit numbers – expanded form. Estimate, calculate, check.  Decimal multiplication e.g. 4.65 x 9 4.65 X 9 41.85	Recall known facts based on times table fact. Multiply using factors. Square and prime numbers Multiplying by 10, 100, 1000 including decimals. Column multiplication - 4 digit by 2-digit numbers. Estimate, calculate, check.  Decimal multiplication Use brackets correctly.
Division	***Using concrete, pictorial and abstract representations.*** Halving with objects and amounts – concrete. Idea of equal groups or pieces. Understanding that a number is a selection of	***Using concrete, pictorial and abstract representations.*** Sharing objects into equal groups. Double and halve numbers to 20. Division as grouping. Multiple representations. Use number sentences to show what pictorial is saying.	***Using concrete, pictorial and abstract representations.*** Doubling and halving. Continue to learn 2/5 and 10 times tables and relate to division. Use arrays to show related division and multiplication facts. Repeated subtraction to divide. Using numberline	***Using concrete, pictorial and abstract representations.*** Continue 2/5/10/3/4/8 times tables and division facts. Using a number line to divide. 92 ÷ 4 = 23 	***Continue to use concrete, pictorial and abstract representations.*** Continue times tables with related division facts. Explore what happens when dividing by 1/0. Bus stop division – dividing 3 digits by single digit no remainders. Estimate, calculate, check. Bus stop division – dividing by single digit **with** remainders.	***Continue to use concrete, pictorial and abstract representations.*** Continue to revise times tables. Recall known facts based on times table fact. Dividing by 10, 100, 1000 including some decimals. Doubling and halving mentally including odd numbers and decimals.	***Continue to use concrete, pictorial and abstract representations.*** Continue to revise times tables. Recall known facts based on times table fact. Dividing by 10, 100, 1000

	ones which can be shared out. Sharing into larger groups of 3/4 – concrete moving onto pictorial. Use number sentences to show what pictorial is saying.			Moving onto short division using pictorial examples. No remainders. 2 digits by 1 digit.  $5\overline{)615}$ = 123 Only use examples based on times tables learnt.	$5\overline{)615}$ = 123 Support with place value counters Estimate, calculate, check.	Bus stop division – dividing by single digit no remainders. Estimate, calculate, check. Bus stop division – dividing 4 by single digit **with** remainders. Estimate, calculate, check. $5\overline{)615}$ = 123 Support with place value counters Decimal multiplication e.g. 4.65 x 9	including decimals. Doubling and halving mentally including odd numbers and decimals. Bus stop division – dividing by single digit **with** remainders. Estimate, calculate, check. Long division $12\overline{)2544}$ = 212 24 er. 14 12 24 24 0 Decimal multiplication e.g. 4.65 x 9