**Lyme CP Progression in Addition**

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| **EARLY YEARS** | Children begin to compare amounts and discuss the language ‘more’ , ‘add’ or ‘plus’. Using practical equipment, they begin to explore the concept of number in small steps building to 20 and learn to add 1 ( 1 more) using the correct mathematical symbol. 3 + 1 = 2  7 + 1 = 6  15 + 1 = 14  They will explore the composition of a number using practical equipment so they can begin to see different ways of making a number. E.G., 2 add 4 makes 6 | |
| **Year One** | **Year Two** | **Year Three** |
| Combine groups of objects to find a total.  Add 2 single digit numbers by counting on with a bead stick and then a number line.    Use manipulatives to develop non counting by ones methods.(bridge through 10)    8+3 is 8+2+1 and 10+1=11    Understand + and = signs  Develop the concept of equality use concrete resources    Missing numbers need to be placed in all possible places.    Know all number bonds to 10 | Use concrete representations and number lines to develop counting on in 10s and ones.  [Image result for abacus tens and ones](https://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&ved=0ahUKEwjo2YP215XYAhXE7xQKHbmVA2AQjRwIBw&url=https%3A%2F%2Fwww.tes.com%2Flessons%2FejQ9j-kX8QnYNw%2Fplace-value&psig=AOvVaw2moXVTyJSekEYS2UZH9-lc&ust=1513759552543367)      Use manipulatives, concrete representations and number lines to bridge through multiples of ten.  17+8=25  Begin to develop written methods.  Partition place value equipment in different ways and recombine.  47+25=72  This leads on to  10+2  20+3  30+  Continue to develop an understanding of =  And complete missing number problems  [Image result for splat square](http://www.google.co.uk/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwibq93D15XYAhXCPhQKHW4GAjUQjRwIBw&url=http%3A%2F%2Fmathszone.co.uk%2Fusing-applying%2Fpuzzles-and-logic-problems%2Fsplat-square100-primary-games-3%2F&psig=AOvVaw06ydieWUbbUKLFEzZDBpU7&ust=1513759445353527) Use of number square to add tens and ones. | Continue to use concrete representations and number lines to develop the ability to add two digit numbers mentally.  Children need to add tens and hundreds to 3 digit numbers.    ‘Count on’ the second number  235+124=235+100+30+4  Continue to develop a written method using manipulatives.    This leads to a compact method with exchange    247  + 125  372  1 |
| **Year 4** | **Year 5** | **Year 6** |
| Missing number/digit problems:  **Mental methods** should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving.  Children should make decisions about which is the most efficient method when calculating.  **Written methods (progressing to 4-digits)**  Expanded column addition modelled with place value counters, progressing to calculations with 4-digit numbers.  **Compact written method**  Extend to numbers with at least four digits.          **Children should be able to make the choice of reverting to expanded methods if experiencing any difficulty.**  Extend to up to two places of decimals (same number of decimals places) and adding several numbers (with different numbers of digits).  72.8  + 54.6  127.4  1 1 | Missing number/digit problems:  **Mental methods** should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving. Children should practise with increasingly large numbers to aid fluency e.g. 12462 + 2300 = 14762  Continue to make decisions about which is the most efficient method when calculating.  **Written methods (progressing to more than 4-digits)**  As year 4, progressing when understanding of the expanded method is secure, children will move on to the formal columnar method for whole numbers and decimal numbers as an efficient written algorithm.    172.83  + 54.68  227.51  1 1 1  Place value counters can be used alongside the columnar method to develop understanding of addition with decimal numbers.  **Problem Solving**  Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. | Missing number/digit problems:  **Mental methods** should continue to develop, supported by a range of models and images, including the number line. The bar model should continue to be used to help with problem solving.  Continue to make decisions about which is the most efficient method when calculating.  **Written methods**  As year 5, progressing to larger numbers, aiming for both conceptual understanding and procedural fluency with columnar method to be secured.  Continue calculating with decimals, including those with different numbers of decimal places  **Problem Solving**  Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding. |