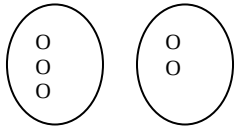
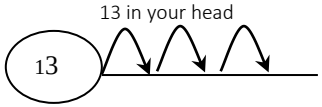
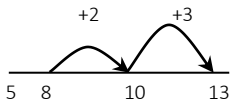
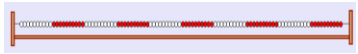
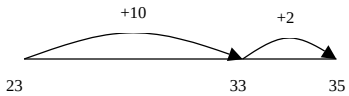
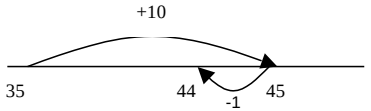
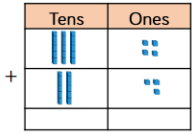
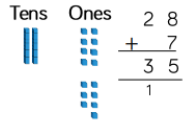
Addition

Foundation	Year 1	Year 2
Key Objectives They say which number is one more or one less than a given number. Begin to relate addition to combining two groups of objects, and subtraction to 'taking away'. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.	• read, write and interpret mathematical symbols including addition (+). • represent and use number bonds within 20. • add one- and two-digit numbers to 20, including zero. • solve simple one-step problems that involve addition, use concrete objects and pictorial representations, and missing number problems such as 7 = □ + 4.	• solve problems that involve addition: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures. - applying their increasing knowledge of mental and written methods. • Recall and use addition facts to 20 fluently and derive and use related facts to 100. • add numbers using concrete objects, pictorial representations, and mentally, including: o a two-digit number and ones o a two-digit number and tens o two two-digit numbers o adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative). • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
• Use language of addition - add, more, make, sum, total, altogether, one more, two more, ten more, how many more to make..?, how many more is…than…? • Oral and practical work. • Songs and rhymes. • Number stories for combining sets e.g. *3 pigs in a field, 2 in a sty how many altogether?* • Model 1:1 correspondence. E.g. 3 + 2 = 5  • Practice recalling number bonds for numbers up to 10 using Numicon. • Use number lines and objects to count on from a given number, leading to children counting on mentally. 	• Use + and = symbols and language of 'put together', 'add', 'altogether' and 'total'. • Songs and rhymes. • Working with apparatus, e.g. bead strings to 20.  • Use mental strategies: - Putting the larger number first and counting on 13 + 3 = 16 13 in your head  - Spotting number bonds and doubles and using knowledge of place value. - Counting in 10s from multiples of 10 - Bridging 10 e.g. 8 + 5 = 13 on bead frame, strings, then modelled on semi structured lines  • Learn and be confident in recalling number bonds of all numbers to 10 and 20. □ + 7 = 12 11 = □ + 8 • Use Numicon with an emphasis on place value to reinforce all of the above visually.	• Counting in 10s from any number. • Rapid recall of all number bonds for all numbers to 20. • Use bead strings to practice number bonds to 100.  • Extend language further to include 'sum'. • Check calculations using the inverse operation, number lines and concrete resources. • Apply knowledge of number bonds to write related facts to 100 – use Base 10 to help children see the relationship. E.g. from 3 + 7 = 10, derive 30 + 70 = 100. • Show an understanding of the commutativity and associativity of addition, e.g. 7 + 6 + 5 = □; 14 = □ + 8; 14 = 8 +□; 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5 • Use knowledge of place value to add a two-digit number and one-digit number or two two-digit numbers. • Use an empty number line to count on. E.g. 23 + 12=  • When adding 9 or 11, add 10 and adjust. E.g. 35 + 9 = 44 

		• Lead on to using Base 10 or place value counters to line up two numbers before adding them. Use the manipulative to practice exchanging. E.g. Find the sum of 34 and23  • Progress to the expanded column method and then the formal column method (adding a two-digit and one-digit number or two two-digit numbers). Expanded column method: 64 + 17 11 + 70 81 Formal column method:  2 8 + 7 3 5 1 Children should be encouraged to draw the Base 10 alongside recording the formal column method. • Solve word problems and identify which strategy is most appropriate. • Make jottings which show the method they have used to solve a problem.