Calculation Policy : Addition

|  | Age related expectations | Methods |  |  |  |  |  |  | Rapid recall | Mental calculation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\stackrel{4}{4}$ | Addition as 'combining 2 groups' <br> In practical activities / discussion begin to use vocabulary involved in Adding $1 \text { digit + } 1 \text { digit }$ | Practical / recorded using ICT (e.g. digital photos / pictures on IWB) | Pictures / Objects <br> I buy 2 cats and my friend buys 3 cats. How many cats did we buy altogether? |  |  | Symbols <br> 8 people are on the bus. 5 more get on at the next stop. How many people are on the bus now? <br> [May be recorded as: $8+5=13$ ] |  |  | 1 more (nos up to 20) | Add 2 single digit nos (see recording) |
| $\overline{7}$ | Addition as 'counting on' $\begin{gathered} 1 \text { digit }+2 \text { digit numbers to } \\ 20 \\ \text { (bridging 20) } \end{gathered}$ |  | Pictures/Symbols <br> (see above) | Number track / Numb (modelled using bead <br> $18+5=23$ <br> $18 \quad 19 \quad 20$ |  | Empty Number line (efficient jumps) $18+5$ <br> The empty number line helps to record the way to calculating the total. The ste sometimes bridge through a multiple of | he steps on ca <br> 0. | No number line mental + jottings $\begin{array}{ll} 18+5=23 & \\ (18+2) & 20 \\ (20+3) & 23 \end{array}$ | Bonds to 20 <br> 1 or 10 more than a number <br> 1 more than any given number up to 100 | $\begin{aligned} & 1 \text { digit + multiple of } \\ & 10 \\ & 2 \text { digit + multiple of } \\ & 10 \\ & +9 \text { (by }+10,-1 \text { ) } \end{aligned}$ |
|  | Add two 2 digit numbers (bridging 10s / 100) <br> Add three 1 digit numbers See mental calculation. | Pictures/Symbols $23+12=35$ | Empty Number line $47+35$ | efficient jumps) | The empty nu record the ste calculating th bridge throug |  No <br> men <br>  <br> mber line helps to <br> ps on the way to <br> etotal. The steps often <br> $47+$  <br> e a multiple of 10 . $(47$ <br>  $(77+$ <br>  $80+$ <br>   | umber line - <br> al + jottings <br> $35=82$ <br> 30) <br> 3) <br> 2) <br> 27 | Partitioning $\begin{aligned} & 47+35 \\ & 40+30=70 \\ & 7+5=12 \end{aligned}$ | Addition facts up to 20 <br> Pairs to 100 (using multiples of 10) eg 20/80 | 2 digit and 1 digit <br> 2 digit and multiple of 10 up to 100 <br> two 2 digit numbers <br> three 1 digit |
| $\stackrel{\sim}{\sim}$ | Adding tens or hundreds to 3 digit numbers <br> Add numbers with up to 3 digits | Empty number line <br> The empty number line helps to record the steps on the way to calculating the total. The steps often bridge through a multiple of 10 . <br> Example: $48+36=84$ |  | No number line mental + jottings$374+248=622$Mental --- jotting <br> $(374+200)$ 574 <br> $(574+40)$ 614 <br> $(614+8)$ 622 | Partitioning <br> When adding larger numbers, it becomes less efficient to count on so partitioning is used. <br> Partition into (hundreds) tens, ones, tenths, hundredths etc, add to form partial sums and then recombine. | Expanded column method (many children will not need this step) <br> The expanded method leads children to the more compact column method so that they understand the structure and efficiency of it. | Formal column method <br> The method is then shortened and when the column total is a two-digit number, the tens (or hundreds) are carried over into the next column. Use the words 'carry ten' or 'carry one hundred', not 'carry one'. |  | Bonds to 100 <br> Pairs of two-digit multiples of 10 <br> Pairs of fractions to 1 with common denominators | 3 digit and 1 digit <br> 3 digit and multiple of 10 <br> 3 digit number and multiple of 100 |
| $\pm$ | Add numbers with up to 4 digits using formal methods <br> Decimals: money - up to 2 $\mathrm{dp}$ $(£ 7.85+£ 3.49)$ |  |  |  | Partitioning all the numbers mirrors the standard column method where ones are placed under ones and tens under tens etc. $\begin{aligned} 47+76= & 40+7 \\ & =\frac{70+6}{110+13=123} \\ 375+567= & 300+70+5 \\ & \frac{500+60+7}{800+130+12=942} \end{aligned}$ | The amount of time that should be spent teaching and practising the expanded method will depend on how secure the children are in their recall of number facts and in their understanding of place value. $\begin{array}{r} 374 \\ +\quad 248 \\ \hline 12 \\ \hline 110 \\ 500 \end{array}$ | Once learne and reliable. two-digit num numbers, and numbers of also be used $\begin{array}{r} 11 \\ 374 \\ +\quad 248 \\ \hline 622 \\ \hline \end{array}$ | this method is quick xtend to adding three ers, two three-digit numbers with different its. This method of can add decimals. | Bonds to 1000 <br> Multiples of 50 that total 1000 <br> Derive sums of pairs of multiples of 10 / 100/1000 | 2 digit +2 digit <br> (Pairs of multiples of $10 / 100 / 1000$ ) <br> Three, 2-digit multiples of 10 <br> Two, three-digit multiples of 10 <br> Add fractions with common denominators |
| $\stackrel{\sim}{\sim}$ | Add numbers with more than 4 digits using formal methods <br> Decimals up to 3 dp (23.745 + 48.56) |  |  | Partitioning - mental with jottings $374+248$ $(300+200)$ $500$ | $\begin{array}{r} 3.243 \\ +\quad 18.070 \\ \hline 0.003 \\ 0.110 \end{array}$ | $+\frac{18.070}{21.313}$ |  | (derive) Bonds up to 1 <br> ( 1 dp ) <br> (derive) Bonds up to 10 (1dp) | Decimal + Decimal (e.g. $19.7+3.4)$ <br> Add fractions with same denominator and multiples of same number |
| $\stackrel{\square}{>}$ | Consolidate / extend Y5 including: <br> Application to solving multistep problems <br> Add fractions with different denominator and mixed numbers |  |  | $3.243 \mathrm{~km}+18.07 \mathrm{~km}$ | $\qquad$ <br> Discuss how adding the ones first gives the same answer as adding the tens first. Refine over time to consistently adding the ones digits first. |  |  | (derive) Bonds up to 1 (2 dp) |  |

