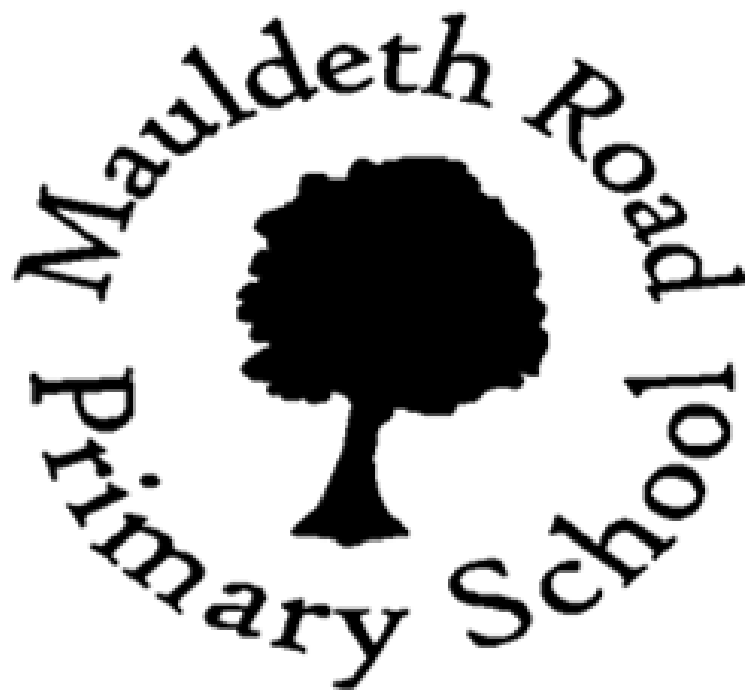


Written methods
for
addition



Written methods for addition

The aim is that children use mental methods when appropriate, but for calculations that they cannot do in their heads they use an efficient written method accurately and with confidence.

It is important that children practise and become confident in each method of calculation before moving on.

Counting groups of objects

- Begin counting everyday objects around the house.
- Split the objects into two groups. Count the objects in the 1st group and then **continue** on to the 2nd group.
- Talk to your child about 'If I have 5 cats and then I get 3 more, how many have I got altogether?'
- Try to introduce vocabulary such as 'more' and 'add'. For example 'I have 5 cats and then I **add** 3 more. How many do I have altogether?'
- When your child is confident with adding two groups of objects encourage them to use drawings to help their addition. Encourage your child to point at individual drawings as they count.



$$5 + 3 =$$

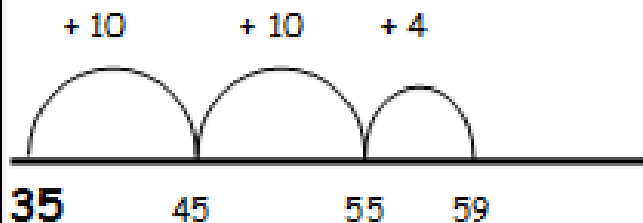
The number line

- Steps in addition can be recorded on a number line.
- Start at 7, jump on in 'ones' four times. So the answer is 11.
- Talk to your child about 'jumps' on the number line. Ask them to imagine a frog or a kangaroo jumping along line.
- Children will continue to use number lines for addition, but they will be 'empty number lines' (they have no numbers already recorded).
- It is important to write the numbers where the jump touches the line.
- Talk to your child about putting the largest number at the start of the number line and then counting on.
- This strategy can be used in any way that suits your child e.g. counting in ones, adding numbers in different step sizes (e.g. ten or five at a time) or by counting to the nearest multiple of ten (a number which comes in the ten times table).

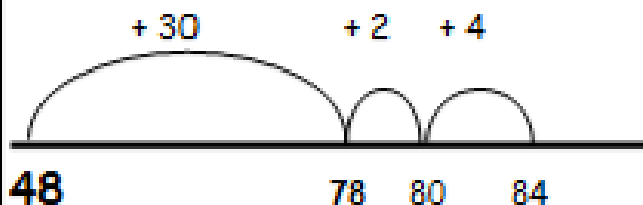
$$7 + 4 = 11$$



$$35 + 24 = 59$$



$$48 + 36 = 84$$



Partitioning

The next step is to record mental methods using partitioning. Add the tens and then the units to form partial sums and then add these partial sums.

- For example with the calculation $47 + 76$: 40 add 70 equals one hundred and ten, and then add together 7 and 6 which gives you 13.
- Add both parts of the calculation back together to give 123.
- Move on to completing the same calculation in columns.
- It is important to separate each number into tens and units so that your child understands the value of each digit ready for standard methods of addition.
- Partitioning both numbers into tens and units mirrors the column method where units are placed under units and tens under tens, this also links the mental methods.

$$47 + 76 = 123$$

$$40 + 70 = 110$$

$$7 + 6 = 13$$

$$110 + 13 = 123$$



$$\begin{array}{r} 47 \\ +76 \\ \hline \end{array} \quad \begin{array}{r} 40 + 7 \\ + 70 + 6 \\ \hline 110 + 13 \end{array}$$

$$47 + 76 = 123$$

Expanded methods in columns

- Move on to a layout showing the addition of the units to the units and the tens to the tens separately.
- Add the units first and then write the answer under the line.
- Next, add the tens ensuring your child understands that the 4 and the 7 in the tens column are forty and seventy and write the full 110 underneath.
- Finally, add the parts of the calculation to achieve the answer e.g. 13 add 110 equals 123.
- The same method can be used for the addition of 3-digit numbers.
- Add the units and then tens as in the previous example. Move on to add the hundreds by saying 'Two hundred add one hundred equals three hundred' and then record this under the previous answer.

$$\begin{array}{r} 47 \\ + 76 \\ \hline 13 \\ 110 \\ \hline 123 \end{array}$$

$$\begin{array}{r} 147 \\ + 176 \\ \hline 13 \\ 110 \\ 200 \\ \hline 323 \end{array}$$

Column method

- In this method, recording is reduced further.
- Always start with the units.
- Carry digits are recorded below the line, using the words 'carry ten' or 'carry one hundred', (not 'carry one').
- Later, extend to adding three two-digit numbers, two three-digit numbers and numbers with differing number of digits.

$$\begin{array}{r} 366 \\ + 458 \\ \hline 824 \\ \hline | | \end{array}$$

$$\begin{array}{r} 162 \\ + 9 \\ \hline 171 \\ \hline \end{array}$$

- Using similar methods add two or more decimal numbers, knowing that decimal points should line up under each other.
- Children will begin to add two or more three digit sums of money, knowing that decimal points should line up under each other.

$$\begin{array}{r} 17.62 \\ + 29.81 \\ \hline 47.43 \\ \hline \end{array}$$

$$\begin{array}{r} \text{£}4.21 \\ + \text{£}3.37 \\ \hline \text{£}7.58 \\ \hline \end{array}$$

$$\begin{array}{r} \text{£}3.82 \\ + \text{£}4.74 \\ \hline \text{£}8.56 \\ \hline \end{array}$$