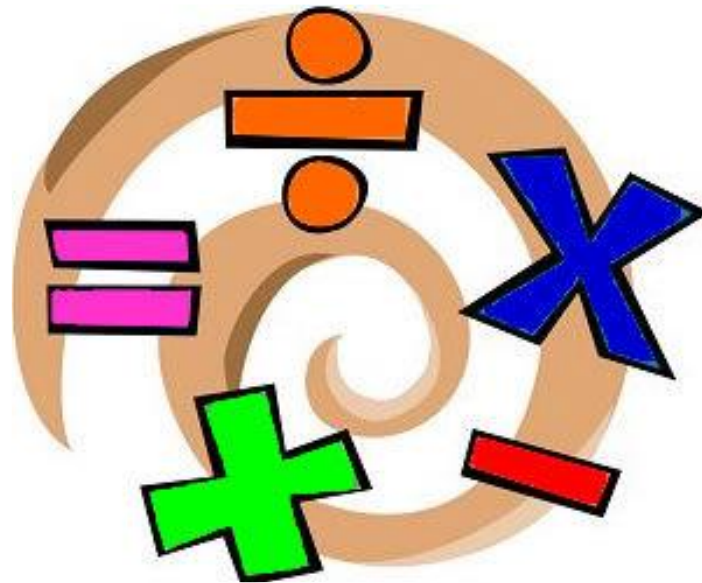




Guide to Written Calculation Strategies for Year 4 Children and Parents



Addition (+)

Expanded method of addition (up to 4 digits)

$$\begin{array}{r}
 +1,146 \\
 \underline{6,235} \\
 11 (6 + 5) \\
 + 70 (40 + 30) \\
 300 (200 + 100) \\
 \underline{7000} (6000 + 1000) \\
 \underline{7381}
 \end{array}$$

- Write the first number down, with the second number beneath it. Ensure the place value columns line up accurately.
- Use brackets to partition each number, recording each addition at the side
- Add the ones, tens, hundreds and thousands
- Total up the values and write it underneath the calculations

Standard Compact Written Method (Vertical & Compact)

$$\begin{array}{r}
 1,148 \\
 +286 \\
 \underline{1,434} \\
 11
 \end{array}$$

Use the language of place value to ensure understanding. E.g. 8 ones add 6 ones. 4 tens, add 8 tens, add 1 ten. Ensure that the digits that have been 'carried' are recorded under the line in the correct column.

Extend to decimals - same amount of decimal places, to two decimal places.

$$\begin{array}{r}
 7 \text{ } 2 \text{ } . \text{ } 5 \\
 + 4 \text{ } 5 \text{ } . \text{ } 7 \\
 \underline{1 \text{ } 1 \text{ } 8 \text{ } . \text{ } 2} \\
 1
 \end{array}$$

Maintain language of place value. 5 tenths add 7 tenths = 12 tenths which equals 1.2 or 1 whole and 2 tenths.

$$\begin{array}{r}
 \text{O.th} \\
 \text{£}3.75 \\
 + \text{£}2.53 \\
 \underline{\text{£}6.28} \\
 \text{£}
 \end{array}$$

Subtraction (-)

Expanded Method for up to 4 digit numbers

$$2343 - 1124 = 1219$$

$$\begin{array}{r} \text{30} \\ 2000 \quad 300 \quad 40 \quad 13 \\ 1000 \quad 100 \quad 20 \quad 4 \\ \hline 1000 \quad 200 \quad 10 \quad 9 = 1,219 \end{array}$$

- Partition each number into thousands, hundreds, tens and ones
- Write the first number down, with the second number beneath it. Remember to line up the place value columns accurately.
- Subtract the units from the units column
- **If there is a red alert:** exchange from the next column
- Subtract the tens from the tens
- Subtract the hundreds from the hundreds
- Subtract the thousands from the thousands
- Write the answers underneath each column.
- Add together (recombine) the values.

Standard Compact Written Method (Vertical & Compact) to 4 digits

- Write the first number down, with the second number beneath it. Remember to line up the place value columns accurately.
- Subtract the units from the units column
- Subtract the tens from the tens
- Subtract the hundreds from the hundreds
- Subtract the thousands from the thousands
- **If there is a red alert:** exchange from the next column
- Write the answers underneath each column.
- Your final answer will be in the box below

$$\begin{array}{r} 2 \quad 1 \\ 3 \quad 3 \quad 1 \\ - 1 \quad 2 \quad 2 \\ \hline 2 \quad 0 \quad 9 \end{array} \quad \begin{array}{r} 2 \quad 3 \quad 4 \quad 1 \quad 3 \\ - 1 \quad 1 \quad 2 \quad 4 \\ \hline 1 \quad 2 \quad 1 \quad 9 \end{array}$$

Extend to decimals (to 2 decimal places) maintaining language of place value. E.g. need to exchange a one for 10 tenths so we now have 15 tenths subtract 7 tenths.

$$\begin{array}{r} 6 \quad 11 \quad 1 \\ 7 \quad 2 \quad . \quad 5 \\ - 4 \quad 5 \quad . \quad 7 \\ \hline 2 \quad 6 \quad . \quad 8 \end{array} \quad \begin{array}{r} 3 \quad 10 \quad 1 \\ \pounds 4.15 \\ - \pounds 3.27 \\ \hline \pounds 0.88 \end{array}$$

Multiplication (x)

Expanded Method of short multiplication for 2 and 3 digit numbers

$$127 \times 6 = 762$$

$$\begin{array}{r} 127 \\ \times \quad 6 \\ \hline 42 \\ + 120 \\ \hline 600 \\ \hline 762 \end{array}$$

(6x7)

(6x20)

(6x100)

- Write the number you are multiplying down, with number you are multiplying by underneath.
- Partition the number you are multiplying and multiply each part by the number you are multiplying by, recording this in brackets next to the method.
- Line up the digits accurately
- Multiply the ones digit
- Multiply the tens digit
- Multiply the hundreds digit (if a 3 digit number).
- Add up the values to reach your answer.

Compact Method of short multiplication for 2 and 3 digit numbers

$$\begin{array}{r} 127 \\ \times \quad 6 \\ \hline 762 \\ \hline \end{array}$$

- Write the number you are multiplying down, with number you are multiplying by underneath.
 - Multiply the digit in the ones column
 - Write the number answer underneath, carrying over if necessary.
 - Multiply the digit in the tens column and repeat for further digits.
- Remember to add up any of the digits you **carried over**.

Division ($\div$)

Division using partitioning and chunking

$$98 \div 7 =$$

$$98 = 70 + 28$$

$$70 \div 7 = 10$$

$$28 \div 7 = 4$$

$$10 + 4 = 14$$

-Partition the number you are dividing into multiples of the number you are dividing by

-Work out how many lots of the number you are dividing by fit into each partitioned value

-Add these values to reach your answer

Expanded Short division method for 2 and 3 digit numbers

$$\begin{array}{c} 98 \div 7 = \\ \swarrow \quad \searrow \\ 70 \quad 28 \end{array}$$

- Partition the number you are dividing into multiples of the number you are dividing by (you might need to partition into more than one group - see example at the bottom of the page)

-Write the number you are dividing by next to the "bus stop"

-Use times tables knowledge to partition the number you are dividing into multiples of the number you are dividing by e.g. 98 can be partitioned into $70 + 28$ when dividing by 7 (10 lots of 7, 4 lots of 7)

-Write how many lots of that number goes into the partitioned values

- Repeat until you have fully divided the starting number and you can't chunk away any more

-Add up how many lots of the number fit into the partitioned value

-This is your answer.

$$\begin{array}{r} 10 + 4 = 14 \\ 7 \overline{) 70 + 28} \end{array}$$

$$\begin{array}{c} 96 \div 3 = \\ \swarrow \quad \downarrow \quad \downarrow \quad \searrow \\ 30 \quad 30 \quad 30 \quad 6 \end{array}$$

$$515 \div 5 = 103$$

$$\begin{array}{r} 100 \quad 3 = 103 \\ \hline 5 \mid 500 \quad 15 \end{array}$$

$$\begin{array}{r} 10 + 10 + 10 + 2 = 32 \\ 3 \overline{) 30 + 30 + 30 + 6} \end{array}$$