How to support your child in Maths in Year 5

The main focus of maths teaching in Year 5 is to ensure that pupils extend their understanding of the number system and place value to include larger whole numbers (positive and negative). This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

Number and Place value

Children should already be able to:

- *count in multiples of 6, 7, 9, 25 and 1000*
- *find 1000 more or less than a given number*
- *count backwards through zero to include negative numbers*
- *recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)*
- *order and compare numbers beyond 1000*
- *identify, represent and estimate numbers using different representations*
- *round any number to the nearest 10, 100 or 1000*
- *solve number and practical problems that involve all of the above and with increasingly large positive numbers*
- *read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.*

New learning:

- ***Read and write numbers to at least 1 000 000 and determine the value of each digit***
- ***Order and compare numbers to at least 1 000 000***
- ***Read, write, order and compare numbers with up to three decimal places***
- ***Convert between different units of metric measure (e.g. x or ÷ by 10, 100, 1000)***
- ***Count forwards and backwards with positive and negative whole numbers, including through zero***
- ***interpret negative numbers in context***

Example of deeper understanding:

What can we say about 48 000?

It is ☐ less than 50 000.
It is made of 40 000 and ☐ together.
It is made of ☐ thousands.
It is made of ☐ hundreds.
It is made of ☐ tens.

Mental and written calculations

Addition and subtraction

Children should already be able to:

- *Add multiples of 10s , 100s, 1000s, tenths,*
- *Be fluent when adding 2 digit + 2 digit including with decimals*
- *Partition second number to add*
- *Use number facts, bridging and place value*
- *Adjust numbers to add*
- *Partition and recombine*
- *Subtract multiples of 10s , 100s, 1000s, tenths,*
- *Be fluent when subtracting 2 digit - 2 digit including with decimals*
- *Partition second number to subtract*
- *Find the difference between 2 numbers*
- *Adjust numbers to subtract*

New learning:

- *Add and subtract numbers mentally with increasingly large numbers*
- *Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)*
- *Solve problems involving addition and subtraction involving numbers up to three decimal places*
- *Add and subtract decimals including those with a different number of decimal places*

How we teach it

Addition

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

```
  23454
+   596
  24050
  1 1 1
```

Set out the calculation in columns.

```
  23454
+   596
```

Find the sum of the ones.
4 ones + 6 ones = 10 ones (or 1 ten and 0 ones) so record 0 in the ones and 1 below the line in the tens.

```
  23454
+   596
      0
      1
```

Find the sum of the tens.
5 tens + 9 tens + 1 ten = 15 tens (or 1 hundred and 5 tens) so record a 5 in the tens and 1 below the line in the hundreds.

```
  23454
+   596
     50
     1 1
```

Find the sum of the hundreds.
4 hundreds + 5 hundreds + 1 hundred = 10 hundreds (or 1 thousand and 0 hundreds) so record a 0 in the hundreds and a 1 in the thousands.

```
  23454
+   596
    050
    1 1 1
```

Find the sum of the thousands.
3 thousands + 1 thousand = 4 thousands so record a 4 in the thousands column.

```
  23454
+   596
   4050
   1 1 1
```

Find the sum of the ten thousan
There are only 2 ten thousands so record a 2 in the final columr

```
  23454
+   596
  24050
  1 1 1
```

Subtraction

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

Set out the calculation in columns

```
  52344
- 1187
```

The 1s column: four subtract seven Because seven is greater than four, exchange a 10 for ten 1s. So there are now three 10s and fourteen 1s.

```
  2 3 1
  52344
- 1187
```

Fourteen 1s subtract seven 1s makes seven 1s – record this.

```
  2 3 1
  52344
- 1187
      7
```

The 10s column: three subtract eight. Because eight is greater than three, exchange a 100 for ten 10s. So there are now two 100s and thirteen 10s.

```
  2 2 1 1
  52344
- 1187
     57
```

Thirteen 10s subtract eight 10s makes five 10s – record this.

```
  2 2 1 1
  52344
- 1187
     57
```

The 100s column: two subtract one. Two 100s subtract one 100 makes one 100 – record this.

```
  2 1 1 1
  52344
- 1187
    257
```

The 1000s column: two subtract one. Two 1000s subtract one 1000 makes one 1000 – record this.

```
  1
  2 1 1 1
  52344
- 1187
   1157
```

The 10,000s column: there are only five 10000s with nothing to subtract. So record 5.

```
  1
  2 1 1 1
  52344
- 1187
  51157
```

Example of deeper understanding:

Set out and solve these calculations using a column method.

3254 + = 7999

2431 = – 3456

6373 – = 3581

6719 = – 4562

Multiplication and Division

Children should already be able to:

- *Know 4x, 8x tables and division facts*
- *Make a number 100, 1000 times bigger*
- *Know 3x, 6x and 12x tables and division facts*
- *Make a number 10, 100, 1000 times smaller*
- *Double larger numbers and decimals*
- *Know 9x tables and division facts*
- *Know 11x , 7 x tables and division facts*
- *Partition to multiply mentally*
- *Know 6x, 12 x tables and division facts*
- *Partition to divide mentally*
- *Halve larger numbers and decimals*
- *Partition decimals to divide mentally*

New learning:

- *Identify multiples and factors, including all factor pairs of a number, and common factors of 2 numbers*
- *Solve calculation problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes*
- *Read and write decimal numbers as fractions*

How we teach it:

Multiplication

Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

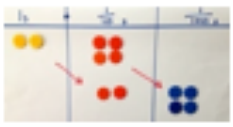
```
  243
x  36
 7290
1458
8748
 1
```

Grid method linked to formal written method

x	200	40	3
30	6000	1200	90
6	1200	240	18

```
 7290
+1458
 8748
 1
```

If I know 4 x 6 then 0.4 x 6 is ten times smaller
0.4 x 0.6 is ten times smaller again.



Division

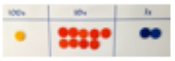
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context

194 ÷ 6

```
   3  2
6 | 1 9 12
```

192 ÷ 6 = 32

192 ÷ 6 using place value counters to support written method

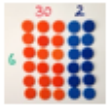


Exchange one 100 for ten 10s

19 tens into groups of 6

3 groups so that is 30 x 6, exchange remaining 10 for ten 1s

So 192 ÷ 6 = 32



Example of deeper understanding:

Fill in the missing numbers in this multiplication pyramid.