



**Year 5**



## Number

### Children are expected to:

- ◆ **Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.**
- ◆ **Count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000.**
- ◆ **Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.**
- ◆ **Round any number up to 1,000,000 to the nearest 10,100,1,000 and 100,000.**
- ◆ **Solve number problems and practical problems that involve all of the above.**
- ◆ **Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.**

Building on the learning from Year 3 and 4, children are now expected to know and use the multiples of all numbers from 1-12 as well as 25, 50, 100 and 1000. Using their knowledge of partitioning four-digit numbers into thousands, hundreds, tens and ones, they are able to apply this knowledge to five, six and seven digit numbers and understand the value of the digits in the ten thousands, hundred thousands and millions columns.

These objectives are taught using practical objects and manipulatives and through the use of games, songs and interactive activities.

The children are encouraged to partition five-digit numbers in different ways and continue to develop their understanding of zero as a place holder.

It is important that the children have a deep understanding of these objectives in order to successfully access the calculation objectives. Therefore lots of time is spent in school embedding basic number facts and ensuring that the children have a deep understanding of place value (the value of each digit in a multi-digit number).



# Year 5



## addition and subtraction

### Children are expected to:

- ◆ **Add and subtract whole numbers with more than four-digits**

Children should continue to consolidate their understanding of the column method addition and subtraction methods with more than 4 digits. They should also use the same method to add and subtract numbers with up to 3 decimal places and more than two numbers. (See Year 3 and 4 for detailed examples of the method).

If at any stage they are struggling, they should revert back to the expanded method and the use of practical base 10 resources in order to deepen their understanding of place value and the formal written method.

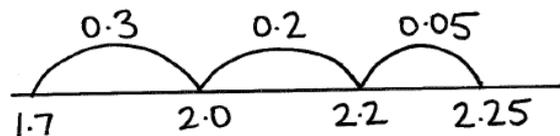
- ◆ **Add and subtract numbers mentally with increasingly large numbers.**

Children begin to understand that, as mathematicians, we are aiming for the **most efficient** method and are encouraged to recognise when a problem can be easily solved using a mental method as opposed to a formal written method.

Children take part in regular arithmetic practice, both in maths lessons and basic skills, whereby they determine the most efficient method and practise solving addition and subtraction problems using mental methods.

They should be able to count on and back in tenths and hundredths. They could use a number line or jottings to help them.

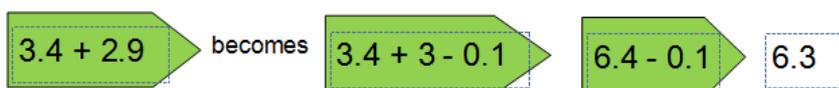
0-01	0-02	0-03	0-04	0-05	0-06	0-07	0-08	0-09	0-1
0-11	0-12	0-13	0-14	0-15	0-16	0-17	0-18	0-19	0-2
0-21	0-22	0-23	0-24	0-25	0-26	0-27	0-28	0-29	0-3
0-31	0-32	0-33	0-34	0-35	0-36	0-37	0-38	0-39	0-4
0-41	0-42	0-43	0-44	0-45	0-46	0-47	0-48	0-49	0-5



$$1.7 + 0.55 = 2.25$$

In order to solve problems mentally children use a range of strategies:

- ◆ Re-ordering (if possible, re-order the numbers to make it easier to solve mentally)
- ◆ number bonds (identify bonds to 10 or 100)
- ◆ known facts/near doubles (identify known facts or near doubles within a question)
- ◆ place value (partition numbers mentally)
- ◆ compensating





# Year 5



## addition and subtraction

- ◆ **Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.**

Children are encouraged to estimate the answer to a problem by rounding the numbers. Numbers rounded to the nearest 10 will be more accurate than numbers rounded to the nearest 1000.

For example:  $25,376 + 11,993 =$



I can use my rounding skills to estimate the answer will be near to:  
40,000 or 37,000 or 37,400 or 37,380

- ◆ **Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.**

Children solve a range of 1 and 2 step problems involving addition and subtraction. They are taught how to approach problems using Reasoning Ralf (see separate document for details).

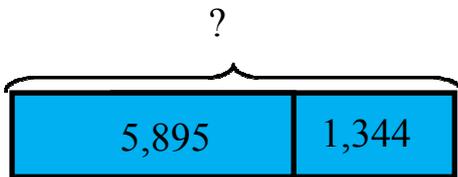
This table shows the heights of three mountains.

Mountain	Height in metres
Mount Everest	8,848
Mount Kilimanjaro	5,895
Ben Nevis	1,344

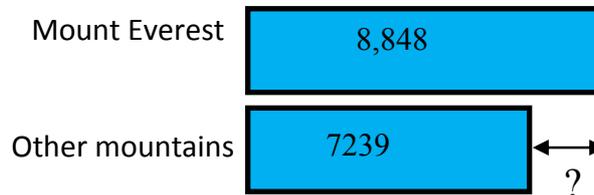
How much higher is Mount Everest than the combined height of the other two mountains?

They are encouraged to draw bar models to represent the question. Children are taught to draw single bars or comparison models, depending on what the question is asking.

**step 1:**



**step 2:**



### Key vocabulary and symbols

place value, digit, ten thousands, thousands, hundreds, tens, ones, zero, Roman numeral, negative number, estimate, number line, more, less, positive, negative, decimal place, addition, subtraction, sum, total, difference, minus, less, column addition, column subtraction, exchange, operation,  $<$ ,  $>$ ,  $-$ ,  $+$ ,  $=$ .