

NIFTY NUMBERS



ANCIENT NUMBERS



Long before calculators and computers were invented, if humans wanted to keep a record of things they had counted, they cut lines into sticks or bones. One of the earliest known examples of this kind of counting was discovered in a cave in South Africa. It was a baboon bone with 29 lines scratched into it. Tests show that the scratches were made about 35,000 years ago.

Tally-Ho!

These lines, or tallies, may have been used to count anything from animals to people or passing days.

At first, the only number symbol used was '1'. Really these were just scratches on bones though, so, if humans wanted to count to 1,000, they would have had to find a load of baboon bones and scratch 1,000 1s.

Today, there are 10 different digits, or numerals – 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. These digits make up what is called the decimal system – from the Latin word for ten: *decimus*.

The decimal system is a very logical way for humans to count – most people first learn about numbers when they start to count on their ten fingers. In fact, the word 'digit' also means 'finger'. It's probably how you learned to count and it's probably just how ancient humans started, too.



Count Like An Egyptian

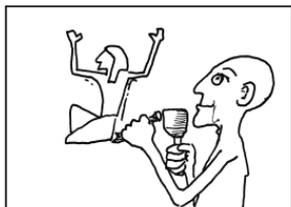
The earliest known counting system based on the number 10 was used 5,000 years ago, in Egypt. The Egyptians used sets of lines for numbers up to nine. They looked something like this:



Their new symbol for 10 was \cap , and larger numbers used combinations of $|$ s and \cap s. So 22 was written: $\cap\cap|||$. For 100 they used C and for 1,000 K , up to a million: M .

A million seemed so massive to the Ancient Egyptians that it also meant 'any enormous number'.

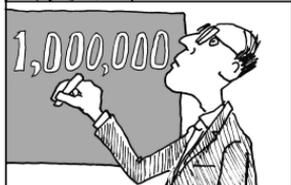
Timeless Numerals



The Romans also counted in tens, using letters for numbers: I (1), V (5), X (10), L (50) and C (100). Later, D (500) and M (1,000) were added.



To write a number, letters were grouped together, and added up, or taken away, according to the order. For example, if I is placed in front of a letter representing a larger number, it means 'one less than'. IX is 9, or one less than ten. The symbols CL were used to write 150 – or 100 plus 50. So added together the letters CCLVII stand for 257.



You can see Roman numerals on some clocks or at the end of some TV programmes, to show when they were made.

ALL ABOUT NOTHING



People had been using counting systems for centuries before they realized that something was missing – zero! Although an Ancient Greek man named Ptolemy did experiment with it, zero wasn't used regularly until the late 9th century.

Count Me In

Without zero, there is no way of telling the difference between, say, 166, 1,066 and 166,000. It is also a handy starting point for everything from stopwatches to rulers and temperature scales, too.



To tell the difference, a new counting system of 'positional notation' was developed, using the 'place value' of numbers. This system divides numbers into columns, starting with ones, or units, on the right, with tens to the left, then 100s, then 1,000s, and so on. For example, with the number 3,975, you can easily see that there are three 1,000s, nine 100s, seven 10s and five 1s.

In this system, after you reach 9, you place a 1 in the tens column and go back to 0 in the units column. At 19, the 1 in the tens column changes to a 2 and the units go back to zero again, and so on, until you reach 99. Then a 1 is placed in the 100s column and the units and tens go back to zero.