Binary

The decimal system uses base 10.

That means every time you reach the value 10 in a place value, instead of writing 10 you write zero and add one to the next place value up.

What if we used a different base?

You could use any base. For example if we decided to have a number system with base 8 it would look like this:

0, 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 20…

Notice how we never actually end up writing the number 8.

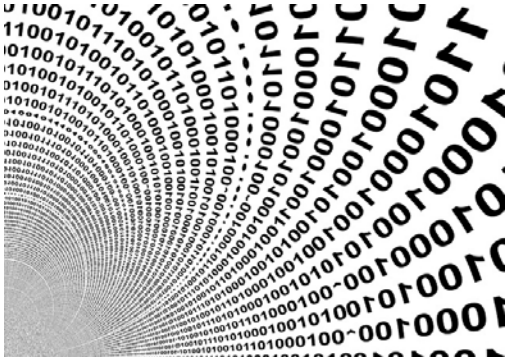
So what is special about Binary?

Binary uses base 2 instead. It means that using Binary all numbers can be written in terms of 0 and 1.

As soon as you reach the value of 2 in a place value, instead of writing 2 you write zero and add one to the next place value up.

0, 1, 10, 11 and so on….

Binary is a really useful number system for computers and electronic devices.



Using Binary to send messages

That's great for numbers, but what about if we want to send worded messages?

Each letter of the alphabet is represented by a string of 8 numbers.

Capital letters always start with 01, lower case letters always start with 011.

For example:

A: 01000001

B: 01000010

C: 01000011

And similarly…

a: 01100001

b: 01100010

c: 01100011

A **space** between words is indicated by

00100000