

Binary Numbers

Computers don't store numbers like we do because they don't have the symbols 0-9 to represent them, they only have 1's and 0's. Humans write 1010011 it means One million, ten thousand and eleven. But to a computer it means eighty three. But how??

Humans write numbers like this (Base 10):

Millions	Hundreds of Thousands	Tens of Thousands	Thousands	Hundreds	Tens	Ones
1	0	1	0	0	1	1

1 million + 1 Tens of thousand + 1 ten + 1 one =
One million, ten thousand and eleven

Computers use base 2, Binary numbers!

Sixty-four	Thirty-Two	Sixteen	Eight	Four	Two	One
1	0	1	0	0	1	1

Add up the columns that have 1's in them
Sixty-four + sixteen + two + one = Eight-three

Lucky humans have all the digits between 0 and 9. Computers have to make do with only 0 and 1!

This is a problem when we want to make a number like 37. Computers don't have the digits 3 or 7 ...

**Let's make
the number
37 in binary**

Sixty-four	Thirty-Two	Sixteen	Eight	Four	Two	One
0	1	0	0	1	0	1

Thirty-Two + Four + One = Thirty-Seven

Try and convert a number to binary!

1. Chose an number from the sheet below!
2. Grab a board and put 1's and 0's that add up to the number.
3. Check your answer by lifting up the flap on the sheet below.