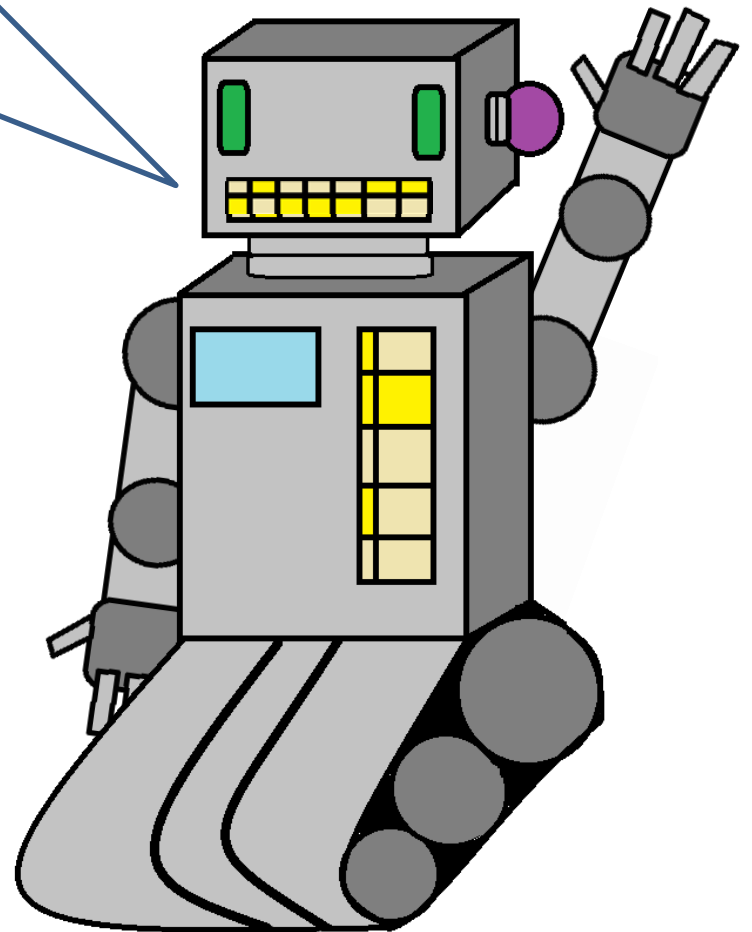
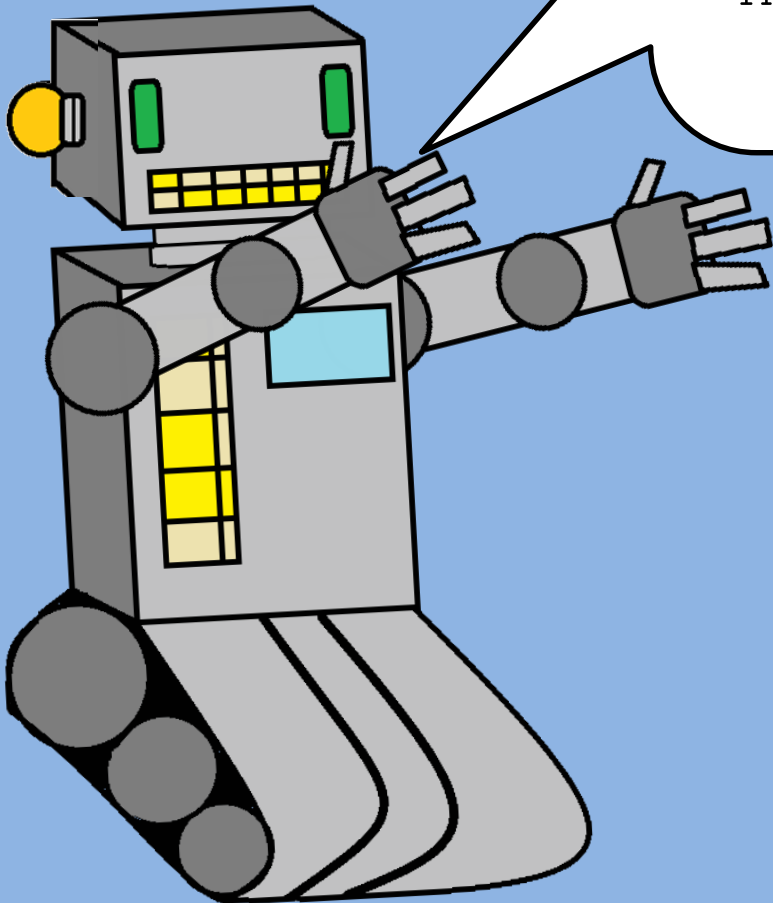


An introduction to
Binary



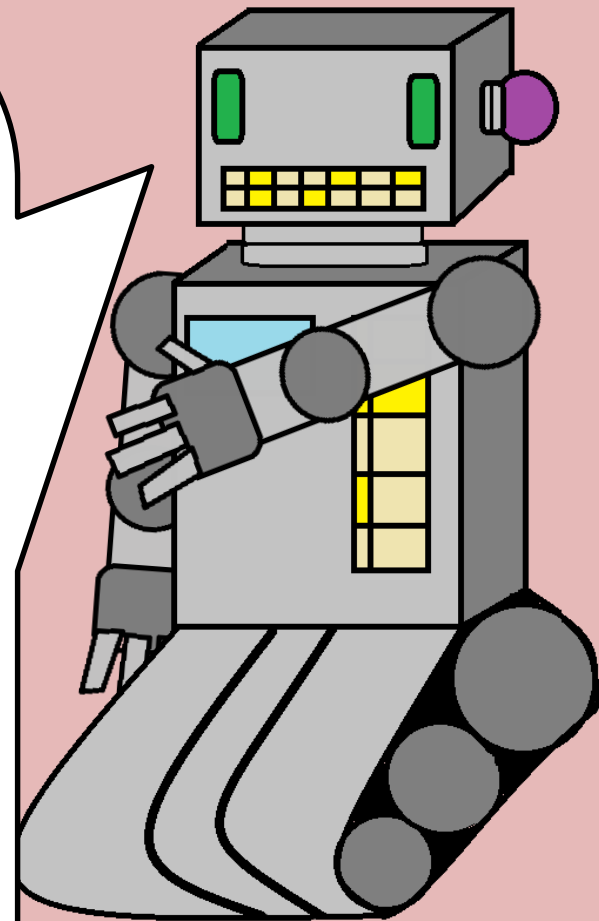
Binary is the language
used by computers.
It uses 0 and 1 to
represent different
numbers.

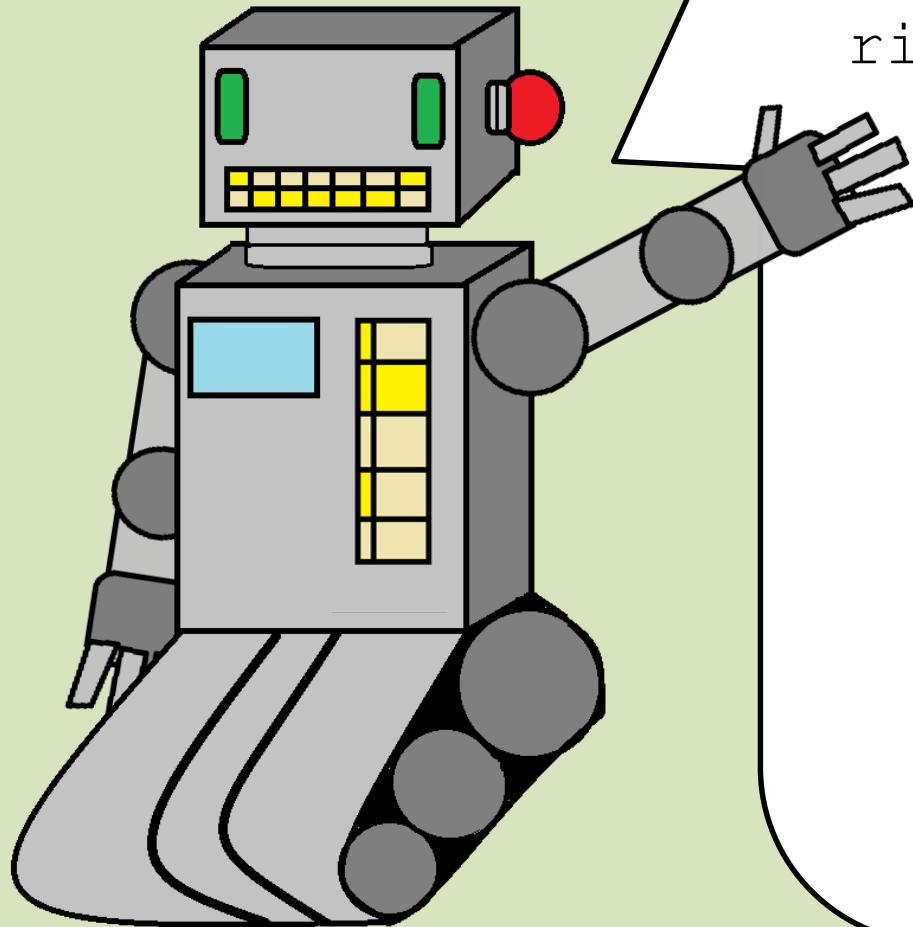


In the everyday number system we use 0 - 9 to show numbers.

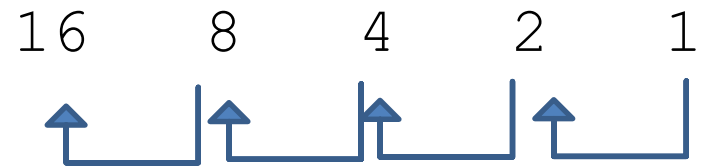
H	T	U
5	6	9

If a number has two whole numbers to its right we know that it has a 'hundreds' value. In this example the '5' actually represents 500.

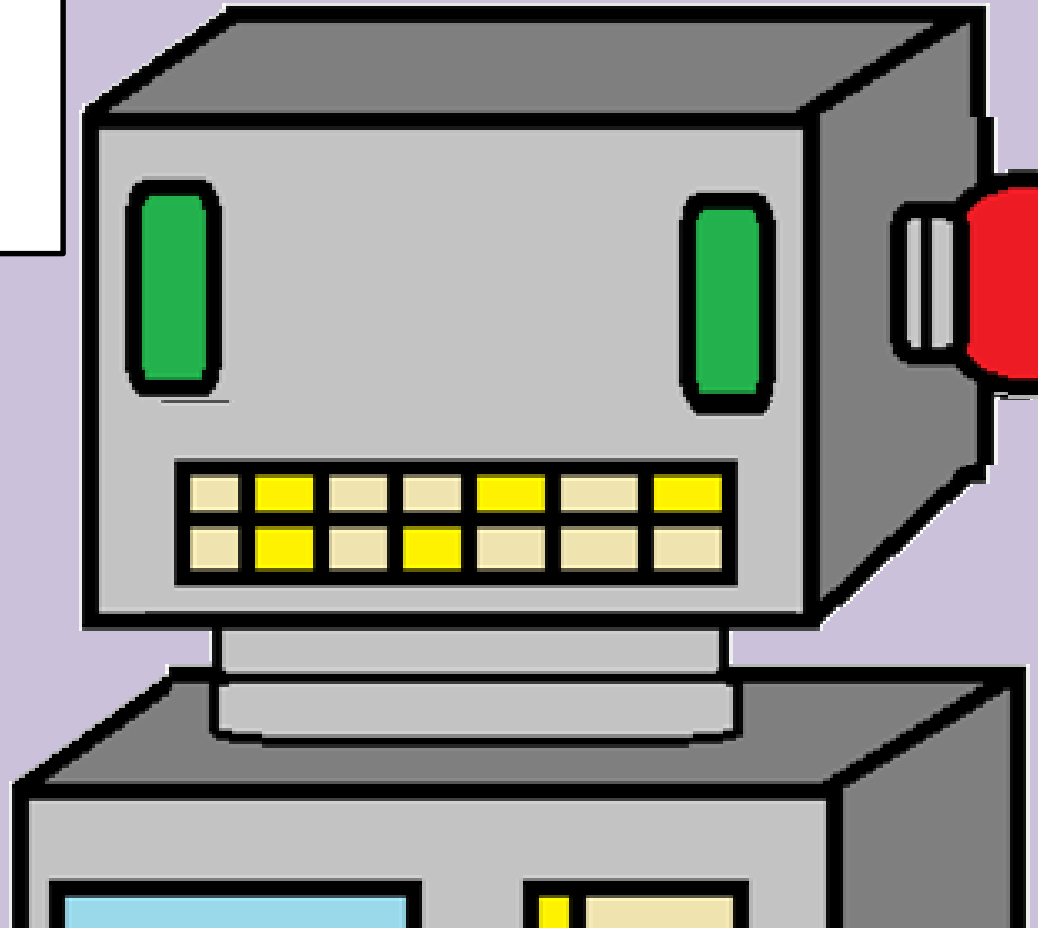




Binary uses 'Base 2'.
Each position to the
left is worth 2x more
than the place to the
right:



How do I
write numbers
in binary,
Binary-Bot?



To write numbers in Binary you only have to be able to add.

For example:

If I wanted to write 9 as a Binary number I have to see which columns I can use to get to 9

16	8	4	2	1
	1	0	0	1

I would put a 1 in the place that has the value of '8', zeroes in the '4' and '2' columns and a 1 in the '1' column.
(1 x 8) and (1 x 1) gives me 9

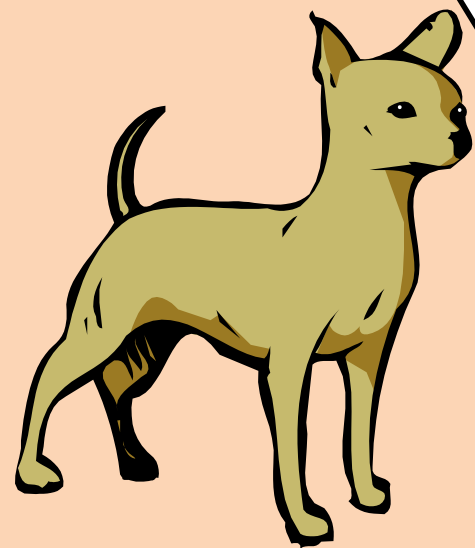
But couldn't I get to 9 like this, Binary-Bot?

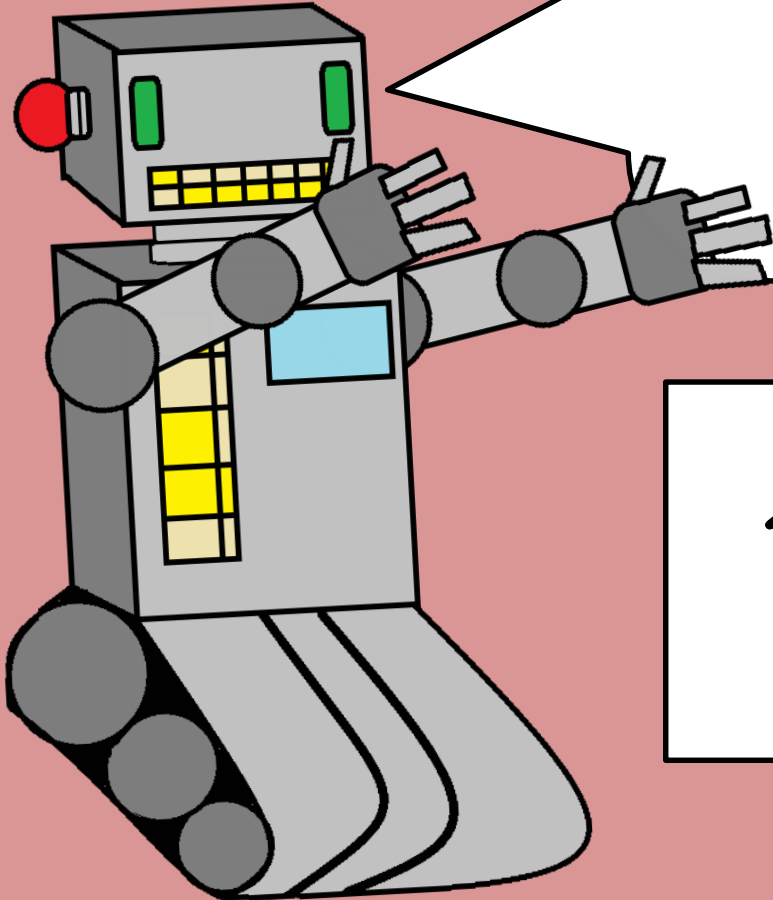
16	8	4	2	1
			4	1

Or like this?

16	8	4	2	1
		1	2	1

(1 x 4) and (2x2) and (1x1)
will give me a 9!





No!

Binary only uses 1s and 0s.

Here are some more examples:

32	16	8	4	2	1	
		1	0	1	0	= 10
	1	0	0	1	0	= 18
1	0	0	0	0	1	= 33

Ah! I see
now!

Try working out these numbers

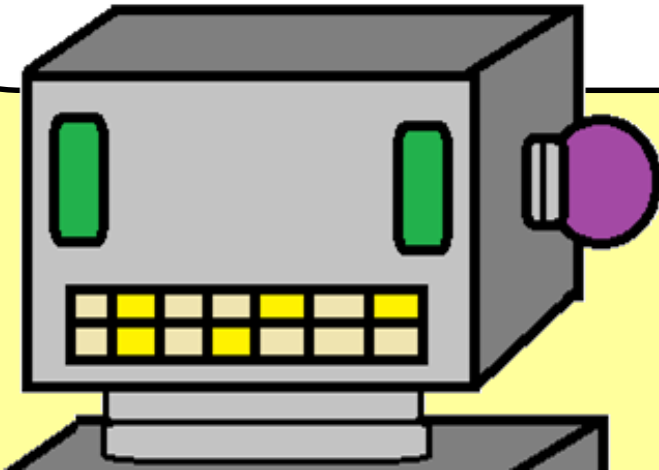
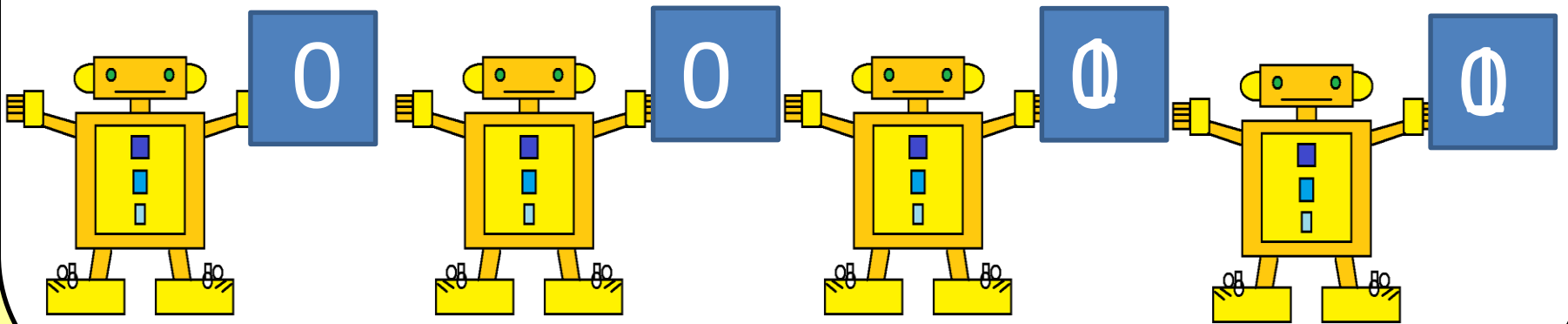
Here are the answers

		1	0	1	1	11
	1	0	0	0	1	17
	1	0	1	1	0	22
				1	0	2
1	1	1	1	1	1	63
1	0	1	0	1	0	42
	1	0	1	1	1	23

Can you tell straight away which numbers will be odd?

You can easily count from 1 - 10 using the base 10 system - but could you do this in Binary?

Here are the first three numbers to get you started:





Can you make
numbers over 100 in
Binary?

Yes! I just need to 'add'
another column to the left.

64	32	16	8	4	2	1
1	1	1	1	1	0	1

This would give me 125!

