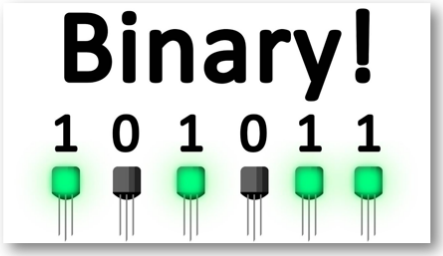
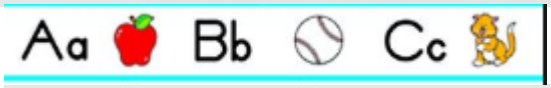
Binary

Computers only understand 1s and 0s (on and off) then everything must be converted into this format.





Binary Grid

When converting decimal numbers to binar numbers it is important to use a binary grid to assist you…

128	64	32	16	8	4	2	1
						1	1

Represent 3 in binary digits?

Hex

Hex codes are used in many areas of Computer Science to simplify binary codes.

It is important to note that computers do not use hexadecimal to transmit/store data

Hex is used by human (aka programmers) to shorten binary to a more easy to read format.

Decimal	Binary	Hex
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A
11	1010	B
12	1100	C
13	1101	D
14	1110	E
15	1111	F

The Weald unity school sixth form

Adding Binary Numbers

Binary addition works in the same way as denary.

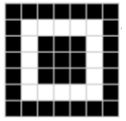
Here are the rules of Binary addition:

0 + 0	**= 0**	
0 + 1	**= 1**	
1 + 1	**= 10**	**(0 and carry 1)**
1 + 1 + 1	**= 11**	**(1 and carry the 1)**

Image Representation

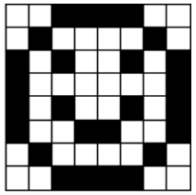
The formula is…

Resolution x Bit Depth



49b

So what are the file size of these images…



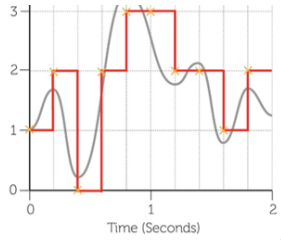
64b

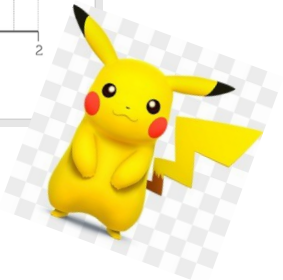
Sound Representation

In order to work out the file size of the sound we use the following formula: Resolution x Sampe Rate x Length

Resolution = 2 bits
Sample Rate = 5 Hz
Length = 2 secs

=20 b





Key Terms:

Bit	Binary	Image Rep	Sound Rep
Byte	Denary	Resolution	Resolution
Nibble	Hexadecimal	Bit Depth	Sample Rate