



# Binary Code Knowledge Organiser



## ? What are we learning with binary code?

A computer does not understand the same language as us (numbers and the alphabet), it uses binary code, which is a sequence of zeros and ones (e.g 101001). It will translate numbers and letters into binary by positioning the ones and zeros. The numbers that the computer uses with binary double each time (1,2,4,8,16, 32 etc). This is why when you buy a computer, iPad or mobile phone, the memory on it is measured is in 16gb, 32gb, 64gb etc. Understanding binary helps understand how computers work but can also help with our mental maths skills.



## National Curriculum Content

Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.

## Key knowledge

- Know that binary is how computers work and is made up of a sequence of zeros and ones (or on and off).
- Know how to match a sequence of binary code to create digital art.
- Know how to convert binary numbers to denary number (numbers we understand) and visa-versa by understanding that the position of the zeros and ones on a grid of 1, 2, 4, 8, 16, 32, 64, 128.



## Quick tips

- Use the grid below to help you write binary code. The position of the ones and zeros will add up to the number. The number below is 38 (32+4+2=38)
- Binary code will never start with a zero, it will always be the position of the first 1. Binary numbers are always only 8 digits long.

128	64	32	16	8	4	2	1
		1	0	0	1	1	0



## Important Vocabulary

<b>Binary</b>	A computer works on a the binary system, a sequence of zeros and ones, to represent things we understand, such as numbers.
<b>Denary numbers</b>	The numbers we understand (also known as decimal numbers) such as 1,2,3,4,5 etc.
<b>Translate/convert</b>	Computers change the numbers we understand into the binary code sequence or change the binary code into numbers we understand.

