

### Information

Binary code uses two numbers, 0 and 1's, to represent data. Binary refers to a two-based number system. The single value of the 0 or 1 is known as a bit. The word 'bit' is a combination of the word binary and digit. When pressing the 'a' key on a keyboard, the digital system does not recognise or store it as an 'a' it is represented as 01100001 and made up of 8 bits. Any data stored or manipulated in a digital system will be represented as binary code. This includes text, sound, images or videos.

Characters and numbers are represented using character sets with popular examples including ASCII and Unicode. Each character has an allocated number. These numbers can be stored in a digital system. Digital images may be created from bitmaps. Bitmaps use grids of small squares (pixels) that are represented using the RGB (red, green blue) format. The RGB uses the binary code. Image file types differ by the quality of the image which is influenced by the amount of binary code used to store the image. Audio files may be visually represented as sound waves, however a digital system will store samples from the soundwave as 0 and 1s. Similar to images, there are numerous sound files.

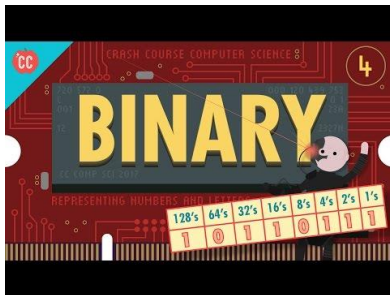
### Curriculum Expectation

Students will investigate how binary code is used in digital systems use to create, store manipulate data. All data (text, images and sound) in a digital system computer is stored as binary code.

### Video Resources

Click on the images to open the videos

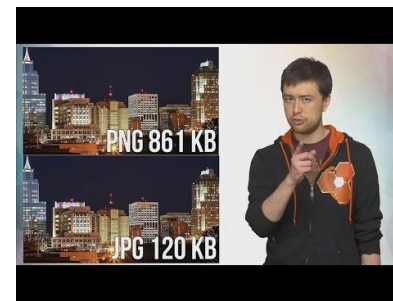
These videos explain binary code, ASCII, image files and sound files.



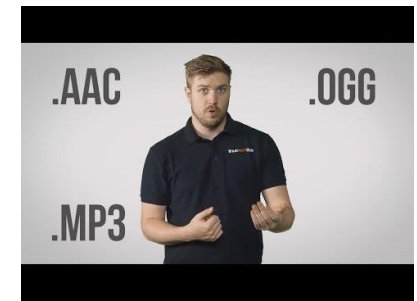
Video Source: CrashCourse



Video Source: BitMerge



Video Source: Techquickie

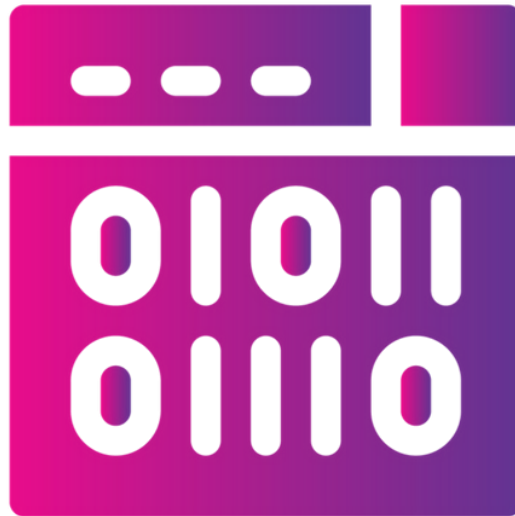


Video Source: Techquickie

# BINARY CODE

Data stored in a digital system

Binary Code is a sequence of 0 and 1's



'Bit' is made up of the words *binary* and *digit*

All data in a digital system will be stored and represented as binary code

Aa

## TEXT

Stored as 0 & 1's  
ASCII and Unicode  
Characters



## IMAGE

Stored as 0 & 1's  
Pixels, (RGB)  
Files stored as  
jpeg, bitmap, RAW



## AUDIO

Stored as 0 & 1's  
Files stored  
as mp3, WAV