

Component 1: Data representation and storage

Key terms

Term	Definition
Pixel	A small coloured dot on a computer display (short for picture elements)
Bitmap	Images are stored as an array of pixels
Vector	Images that do not store the data by pixels, but are a set of instructions for drawing a geometric shape
Sample rate	The number of audio samples captured every second
Bit depth	The number of bits available for each clip
Bit rate	The number of bits used per second of audio

Metadata A set of data that describes and gives information about other data

Representation of graphics and sound

Digital storage of graphics

A black and white bitmap image will store a 1 for a black pixel and 0 for a white pixel.

						0000000
						0100010
						0000000
						0001000
						0000000
						0100010
						0011100
						0000000

This bitmap image can be represented using 56 bits (or 7 bytes).

Digital storage of graphics (continued)

A colour bitmap image is stored using a longer binary number that represents how much red, green and blue (RGB) is required in the colour of each pixel to produce different colours.

Colour depth

The more bits in the binary number, the greater the colour depth, which leads to more colours being available.

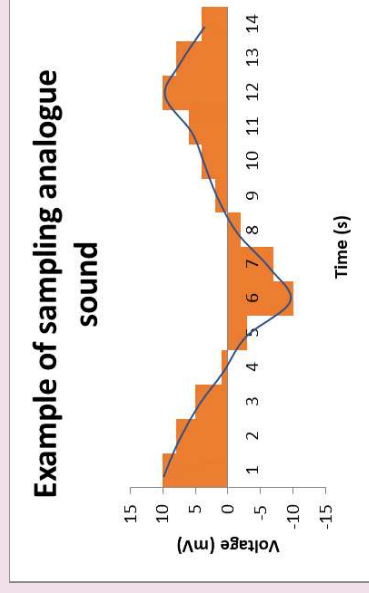
Colour depth	Number of available colours
1 bit	2
2 bits	4
3 bits	8
8 bits	256
16 bits	65,536
24 bits	16.7 million
32 bits	4.3 billion

Resolutions

Resolution is the measure of the quality of graphics. Resolution is expressed in dots per inch (dpi). The higher the dpi, the higher the resolution.

Representation of sound

Sound is converted into a digital signal by a process called sampling. This is where hardware, such as a microphone, measures the level of sound many times per second and records this as binary digits.



The higher the sampling rate, the better the quality, but larger the file size.