Y8 Data Representation

Key Words	
Bit (b)	The smallest unit of data. 0 or 1.
Nibble (N)	4 bits
Byte (B)	8 bits (note the difference between b and B)
Kilobyte (KB)	1000 bytes. Note KB is different from Kb.
Megabyte (MB)	1MB is equal to 1000 KB
Gigabyte (GB)	1GB is equal to 1000 MB
Terabyte (TB)	1TB is equal to 1000 GB
Petabyte (PB)	1PB is equal to 1000 TB
Binary number	A number system that contains two symbols, 0 and 1. Also known as base 2
Base 2 number system	A number system where there are only 2 digits to select from.
data	Units of information. In computing there can be different data types, including integers, characters and Boolean. Data is often acted on by instructions.
Denary (also known as decimal)	The number system you use. It contains 10 unique digits 0 to 9. Also known as decimal or base 10
Multiplier (also known as place	The value of the place, or position, of a digit in a number

Representing information with sequences of symbols, is necessary for storing, exchanging and processing information. Information in computers must be represented in a form convenient for processing.

Humans have invented lots of different ways to code information using different sounds, symbols or even lights!

Computers represent all data, including numbers, letters, symbols, images, videos and sounds using binary numbers. All binary numbers are made up of the digits) and 1.

0s and 1s are called binary digits, or bits. All characters are represented using sequences of bits.

Computers only use the two symbols 0 and 1 because all computers are built out of electrical switched which can only be on (1) or off (0).

Binary digits are like letters; they are the symbols that computers 'write' with.

Multipliers or weights are the amount each digit in a sequence is worth e.g the number 30 contains three 10s and zero 1s . 10 and 1 are the multipliers or weights. Binary numbers use different multipliers or weights

Multipliers	128	64	32	16	8	4	2	1
Example binary	0	0	0	1	0	1	1	1

To convert from binary to decimal (also known as denary) multiply each binary digit with its multiplier, then add up the products to work out the decimal number. For example in the binary number above 1 x 16 =16 4 x1 = 4 1x2 = 2 and 1x1 = 1 and 16 + 4 + 2 + 1 = 23

To convert from decimal to binary go through the multipliers from left to right . If a multiplier needs to be included in the sum, set the corresponding binary digits to 1 and proceed with the number that remains .