Computing - Knowledge Organiser

Year 8 – HT2 – Binary and Computer Logic

Keywords:

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Logic gate	Transistors joined together to give output/s
Truth table	Logical calculations via Boolean algebra showing possible inputs and out puts
Inverter	Monitors the frequency of the electric currently going into an appliance
Denary system	It has 10 digits that are used: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.
Binary system	A number system only using 1 and 0
ASCII code	Representation of a character used by a computer
Unicode	International encoding standard to represent characters
Metadata	Information about the data, e.g., image size, type, etc.

Binary number system (base 2 system)

Any data information input into a computer is processed by a computer as a sequence of 1s and 0s (Binary).
The binary **place values (128,64,32,16,8,4,2,1) start from the right**. In binary, each place value is 2 times bigger than the last (ie 2 to the power of 2 = 4):

E.g. **1010 1001** in binary is equal to **169** in denary and vice versa.

Logic Gates:
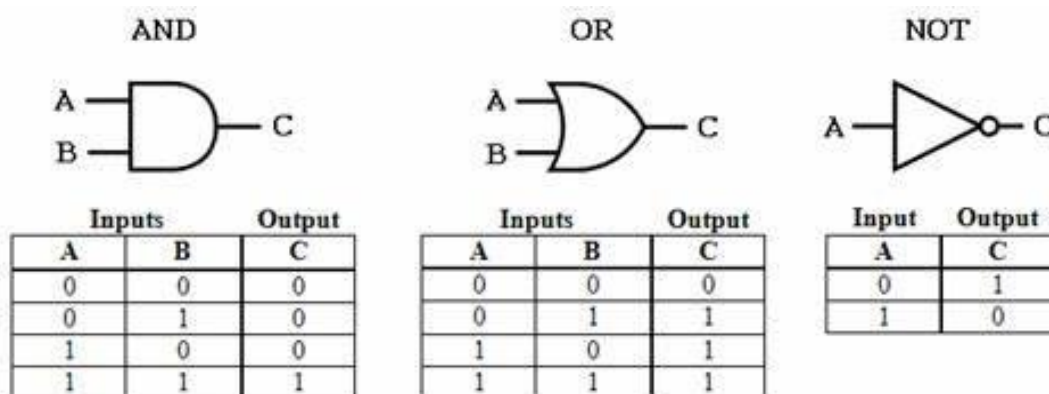
How text and images are represented in a computer

Text:

The ASCII code assigns a binary number for each character (on a keyboard) therefore allowing text to be converted to binary, e.g., the letter 'a' is 0110 0001 in binary which is the denary number 97. ASCII code stores 128 characters therefore Unicode is used for computer users of other languages.

Images:

Digital images are made up of pixels. Each pixel is made up of binary numbers. E.g., 1 and 0 can represent a black & white image (1 bit/pixel). Four different colours can be shown by using 2 bits/pixel: 00, 01, 10, 11.

Reference: https://www.bbc.co.uk/bitesize/guides/z26rcdm/revision/2
Logic gate image: http://archive.fabacademy.org/archives/2017/fablabtrivandrum/students/280/week8.html