

Topic 1: Data Representation

EAL keyword sheet - Cambridge IGCSE Computer Science 0984. Write the word in your own language in the last column.

Keyword	Meaning	Example sentence	In my language
binary	A number system that uses only two digits: 0 and 1.	<i>Computers store all data in binary.</i>	
denary	The normal number system we use every day. It uses the digits 0 to 9. Also called decimal.	<i>The denary number 13 is 1101 in binary.</i>	
hexadecimal	A number system with 16 digits: 0-9 and A-F. It is a short way to write binary.	<i>The colour #FF0000 is written in hexadecimal.</i>	
bit	One binary digit: a 0 or a 1. It is the smallest unit of data.	<i>A bit can only be 0 or 1.</i>	
byte	A group of 8 bits.	<i>One ASCII character uses one byte.</i>	
nibble	A group of 4 bits. Half a byte.	<i>One hexadecimal digit matches one nibble.</i>	
convert	To change from one form to another.	<i>Convert the binary number to denary.</i>	
overflow	An error when a result is too big to fit in the available bits.	<i>Overflow happens when 8 bits cannot hold the answer.</i>	
logical shift	Moving all the bits left or right. Empty places are filled with 0.	<i>A left shift multiplies the number by 2.</i>	
two's complement	A method for storing negative numbers in binary.	<i>In two's complement, the left bit shows the sign.</i>	
character set	A list of all the characters a computer can use, each with its own binary code.	<i>ASCII is a character set.</i>	
ASCII	A character set that uses 7 or 8 bits for each character.	<i>The letter A has the ASCII code 65.</i>	
Unicode	A large character set that includes letters from many languages and emojis.	<i>Unicode can show Arabic, Chinese and Polish letters.</i>	
sample rate	The number of sound measurements taken every second.	<i>A higher sample rate gives better sound quality.</i>	
sample resolution	The number of bits used for each sound sample.	<i>More bits per sample means a larger file.</i>	

Keyword	Meaning	Example sentence	In my language
pixel	One tiny coloured dot in a picture. Short for 'picture element'.	<i>An image is made of thousands of pixels.</i>	
resolution	The number of pixels in an image (width x height).	<i>A high resolution image looks sharper.</i>	
colour depth	The number of bits used to store the colour of each pixel.	<i>A larger colour depth gives more colours.</i>	
file size	How much storage space a file needs.	<i>A bigger image has a larger file size.</i>	
kibibyte (KiB)	1024 bytes. Next units: MiB, GiB, TiB.	<i>A small text file may be only a few KiB.</i>	
compression	Making a file smaller so it uses less storage or is faster to send.	<i>Compression saves storage space.</i>	
lossy compression	Compression that permanently removes some data, so quality gets worse.	<i>A JPEG uses lossy compression.</i>	
lossless compression	Compression that makes a file smaller without losing any data.	<i>You can fully restore a file after lossless compression.</i>	
run-length encoding (RLE)	A lossless method that stores repeated data as a count and a value.	<i>AAAABB becomes 4A2B using RLE.</i>	