Data Storage Units

A **binary digit** (or **bit**) is the smallest unit of data storage. A bit can only have two states, on or off, which are commonly represented as **1** or **0**. A group of 8 bits is called a **byte**. A group of 4 bits (half a byte) is called a **nibble**.

Historically, a byte was the number of bits used to encode a single character of text in a computer.

A **kilobyte** is often referred to as 1000 bytes. It is a base ten prefix used in binary to represent approximately 1000. The binary equivalent of 1000 is $\mathbf{2^{10}}$, which equals **1024**, meaning a kilobyte is actually 1024 bytes.

See the tables below of the different units of measurement used in data storage and examples of what can be stored with different units.

As of now, there are no approved standard sizes for anything bigger than a yottabyte. However, the two proposed standards are **hellabyte** or **brontobyte**.

NB: Remember that the abbreviation of bit is a lowercase "b", but the abbreviation of byte is an uppercase "B".

Unit	Shortened	Capacity
Bit	b	1 or 0 (on or off)
Byte	B	8 bits
Kilobyte	KB	1024 bytes
Megabyte	MB	1024 kilobytes
Gigabyte	GB	1024 megabytes
Terabyte	TB	1024 gigabytes
Petabyte	PB	1024 terabytes
Exabyte	EB	1024 petabytes
Zettabyte	ZB	1024 exabytes
Yottabyte	YB	1024 zettabytes

Unit	What can I store?
Byte	• 1 character of text, such as the letter “c”
Kilobyte	• 2 or 3 paragraphs of text (1,200 characters)
Megabyte	• 873 pages of plain text • 1 minute of an MP3 audio
Gigabyte	• 341 digital pictures (3MB average file size) • 256 MP3 audio files (4MB average file size) • 4,473 books (200 pages)
Terabyte	• 233 DVDs (4.38GB) • 655,360 web pages (1.6MB average file size)
Petabyte	• 938,249,922,368 pages of plain text (1,200 characters) • 357,913,941 digital pictures (3MB average file size)
Exabyte	• 366,503,875,925 digital pictures (3MB average file size) • 42,949,672 Blu-ray discs (25GB)
Zettabyte	• 4,919,131,752,989,213 books (200 pages) • 375,299,970,000,000 digital pictures (3MB average file size)
Yottabyte	• 1,007,438,183,012,190,978,921 pages of plain text (1,200 characters) • 288,230,375,000,000,000 MP3 audio files (4MB average file size)