

# Data Storage Units



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It is important for you to understand the storage units used in computer science.

The smallest unit of storage is the bit. This can store a single 0 or 1.

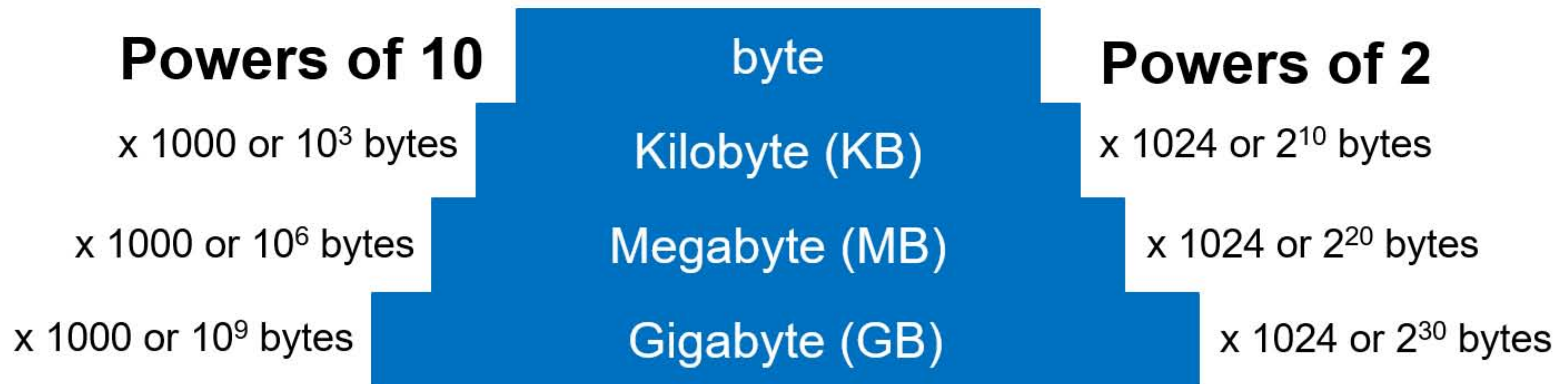
The byte consists of 8 bits and is the unit used to measure the size of computer memory.

We can use prefixes to indicate multiple bytes (kilo, mega, giga, tera).

# Prefixes

We can use prefixes to indicate multiple bytes (kilo, mega, giga).

Depending on the definition the prefixes can increase in powers of 2 or 10.



Powers of 2 are often used when measuring memory capacity.



# Memory Locations

Main memory in computers contains multiple memory locations, each of which can store a value in binary.

Each memory location can store one or multiple bytes and the capacity of memory is measured by adding together the number of bytes it can store.

Memory capacity is usually measured in powers of 2 as each memory location is addressed in hardware which is based on binary.

For example 4GB memory would have a  $4 \times 2^{30}$  byte capacity.

