Faire toute la page.

How memory is measured

Read the text and then answer these questions.

1 How many digits does a binary system use?
2 What is a *bit*?
3 What is a collection of eight bits called?
4 What does ASCII stand for?
5 What is the purpose of ASCII?

Bits and bytes

Computers do all calculations using a code made of just two numbers – 0 and 1. This system is called **binary code**. The electronic circuits in a digital computer detect the difference between two states: ON (the current passes through) or OFF (the current doesn't pass through) and represent these states as 1 or 0. Each 1 or 0 is called a **binary digit**, or **bit**.

Bits are grouped into eight-digit codes that typically represent characters (letters, numbers and symbols). Eight bits together are called a **byte**. Thus, each character on a keyboard has its own arrangement of eight bits. For example, 01000001 for the letter A, 01000010 for B, and 01000011 for C.

One bit

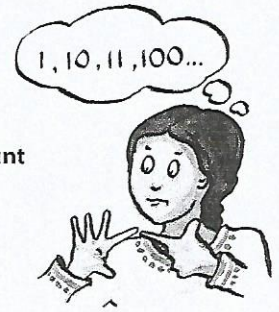
01000011

Example of a byte

Computers use a standard code for the binary representation of characters. This is the American Standard Code for Information Interchange, or **ASCII** – pronounced /'æski/. In order to avoid complex calculations of bytes, we use bigger units such as kilobytes, megabytes and gigabytes.

We use these units to describe the RAM memory, the storage capacity of disks and the size of a program or document.

Note: **bit** is pronounced /bɪt/; **byte** is pronounced /baɪt/



Unit of memory	Abbreviation	Exact memory amount
Binary digit	bit, b	1 or 0
Byte	B	8 bits
Kilobyte	KB or K	1,024 bytes (2^{10})
Megabyte	MB	1,024 KB, or 1,048,576 bytes (2^{20})
Gigabyte	GB	1,024 MB, or 1,073,741,824 bytes (2^{30})
Terabyte	TB	1,024 GB, or 1,099,511,627,776 bytes (2^{40})

Complete these descriptions with the correct unit of memory.

1 A Terabyte is about one trillion bytes – about as much text as the books and magazines in a huge library.
2 A Megabyte is about one million bytes – about as much text as a 300-page novel.
3 A Kylobyte is about one thousand bytes – equivalent to one sheet of A4.
4 A Gigabyte is about one billion bytes – about as much text as 1,000 books.
5 A Binary digit can store a single character, such as the letter *h* or number *7*.