

# **BITS AND BYTES**

Bit is a contraction of the phrase binary digit, the small unit of information that a computer can process.

Information is processed and stored in computers as electrical charges. There are thousands of circuits in a computer connected by switches which only know one of two states: on or off. An open switch is on and a closed switch is off. An open switch does not complete a circuit, so no electrical charge may pass through it. A closed switch completes a circuit, allowing the charge to flow through.

A binary numbering system is used to represent the on and off states of the electrical circuits. 0 means off, 1 means on. Each 0 or 1 represents a binary digit or bit. A byte is made up of 8 bits. Each character on your keyboard is represented by a distinct arrangement of 8 bits, the standardized system for the keyboard is known as the ASCII character set, which is an acronym for American Standard Code for Information Interchange.

Larger units of bytes are used to discuss the number crunching capabilities of computers. Kilobytes refer to 1024 bytes ( $2^{10}$ ) or KB or K and megabytes refers to 1024 kilobytes, and is represented by MB.

**8 bits = 1 byte**

**1024 bytes = 1 kilobyte**

**1024 kilobytes = 1 megabyte**

**1024 megabytes = 1 gigabyte**