The Elements of a Computer System - Osama Zain,May 2nd, 2012 - http://articles2day.org/2012/05/computer-hardware-the-elements-of-a-computer-system.html

The Elements of a Computer System

A computer system has two main parts: hardware and software. Hardware is the machinery and electronic components of a computer system, such as the memory, keyboard, and printer. Software is the set of instructions (called programs) needed to make the hardware process data and solve problems.

Computer Hardware

To do its job, a computer system's hardware must accomplish four tasks: (1) input, (2) storage, (3) manipulation, and (4) output. Doing these tasks requires several kinds of hardware. The typical hardware components of most computer systems are (1) a central processing unit (CPU), (2) computer memory (internal temporary storage), and (3) input, output, and auxiliary external permanent storage devices.

Central Processing Unit

The central processing unit (CPU) is the heart of a computer, where the processing of data occurs. The CPU includes (1) an arithmetic and logic unit for performing calculations and for comparing values and helping the computer to "make decisions" and (2) a control unit for interpreting the software instructions.

Computer Memory

Two types of electronic memory are tied to the CPU. Read-only memory (ROM) is permanent computer memory (firmware). It contains and saves instructions for the control unit. When a computer is turned on, the control unit reads the instructions contained in ROM. These instructions tell the computer what to do "to be a computer" and to process data.

Random-access memory (RAM) is temporary computer memory (working storage). It stores data only while the computer is on. The computer uses RAM to store the software programs and data with which it is currently working.

Computer memory capacity is measured in bytes. A byte is a character of data, such as the number 3 or the letter s. A kilobyte, or Kbyte, is the capacity to store 1,024 characters. A megabyte, or Mbyte, is the capacity to store 1,048,576 bytes (or 1,024 kilobytes).

Input, Output, and Auxiliary External Permanent Storage Devices

Input and output devices are the hardware used to get data into and out of the computer. Such "user interfaces" put people in contact with computers. On personal computers, the keyboard, disk drive, monitor, and printer are the chief input/output units. ...

Auxiliary storage permits the storage of machine-readable data in a location other than computer memory. A computer's electronic memory can be expanded by means of magnetic or optical storage systems. Magnetic storage systems range from 5.25-inch floppy disks that can store 360,000 characters to hard disks with much greater capacities. Optical storage systems can store several hundred million characters. For example, CD-ROMs today can store over 600 million characters of data, enough to hold

an entire encyclopedia. The CD-ROM for Compton’s Multi- Media Encyclopedia holds a twenty-six-volume set of books, complete with sound and animation on one disk. It works on IBM PCs and compatibles.’...

Dictionary / Słownik

- **hardware** – sprzęt (komputerowy)
- **software** – oprogramowanie
- **input** – wejście, wprowadzanie (danych)
- **output** – wyjście, wyprowadzanie (danych)
- **storage –** przechowywanie, magazynowanie
- **store** – przechowywać, składować
- **manipulation** – manipulowanie, działanie, operowanie (czymś)
- **central processing unit (CPU) –** jednostka centralna komputera
- **memory** – pamięć
- **arithmetic and logic unit** – jednostka arytmetyczno-logiczna
- **control unit** – jednostka sterująca
- **instruction –** instrukcja
- **device** – urządzenie
- **keyboard** – klawiatura
- **disk drive** – dysk twardy
- **monitor** – monitor
- **printer -** drukarka
- **auxiliary** – dodatkowy
- **capacity** – pojemność
- **data**- dane
- **process** – przetwarzać
- **temporary** – tymczasowy
- **permanent –** stały, trwały
- **external** – zewnętrzny
- **internal** wewnętrzny
- **interface** – interfejs
- **expand** – rozszerzać
- **floppy disk** – dyskietka
- **readable** - czytelny, możliwy do odczytania
- **optical** – optyczny
- **magnetic** - magnetyczny
- **inch** – cal
- **CD-ROM** – dysk CD
- **sound** – dźwięk
- **animation** – animacja
- **hold** – pomieścić (coś)
- **compatible** – kompatybilny, zgodny

Task 1 / Zadanie 1
Match the words with their definitions. Dopasuj wyrazy do ich definicji.

1. hardware
2. software
3. central processing unit (CPU)
4. read-only memory (ROM)
5. random-access memory (RAM)
6. byte
7. input and output devices
8. auxiliary storage

a) permanent computer memory
b) machinery and electronic components of a computer system
c) character of data, such as the number 3 or the letter s
d) storage of machine-readable data in location other than computer memory
e) temporary computer memory
f) heart of a computer, where the processing of data occurs
g) set of instructions needed to make the hardware process the data and solve problems
h) hardware used to get data into and out of the computer

Task 2 / Zadanie 2
Fill the gaps with the words and expressions from the box. Uzupełnij luki wyrazami i wyrażeniami z ramki.

instructions, temporary, capacity, hardware, output, processing, computer memory, permanent

1. A computer system consists of two parts: ..... and software.
2. The typical hardware components of a computer are: CPU, ..., input, ..., and auxiliary external permanent storage devices.
3. Software is the set of ..... called programs.
4. The CPU is the heart of a computer, where ..... of data takes place.
5. ROM is ..... computer memory.
6. RAM is ..... computer memory.
7. Computer memory ..... is measured in bytes.