

# Introduction to Computers/What is a computer

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What is a computer? A lesson in [Introduction to Computers](#), a course in [School:Computer Science](#)

## What Is a Computer?

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A computer is a "box" that you put some "stuff" in, the box does "stuff" with it, and then the box has some way of showing the world what it has done. The stuff you put into a computer is called *data*, and gets into the computer using the *input*. Data is simply a form of information. You can put data into a computer by your keyboard, a mouse, a trackpad, a camera, an infrared sensor; anything that will give the computer more information about the world around it. Based on what information the computer has gotten, it can decide to do stuff with it. What the computer does with information is known as *processing*. A computer will process information differently based on what kind of data it has gotten. It decides how to process using a set of instructions it has, called a *program*. Once the computer has done some processing, there should be a way to show the world what it has done. This is usually done through a screen, but can also be done with a speaker, LEDs, a laser, a robotic arm; all of these are called *outputs*.

A basic computer consists of three major components; input/output, the processor, and memory.

Input and output provide a way to interact with a computer:

- Keyboard
- Mouse
- Display
- Power Button
- Camera

The processor, or CPU, is the part that does processing. The CPU can be said to manipulate data:

- Encryption and Decryption (This makes your data secure.)
- Math
- Logic

The memory gives your computer a place to store information that it might need in order to process data well. The processor can be told to use the memory by specifying it as the input or output. Some things that might be stored in memory might be:

- Photos from a Camera (A camera is an input)
- A Program
- A Text Document

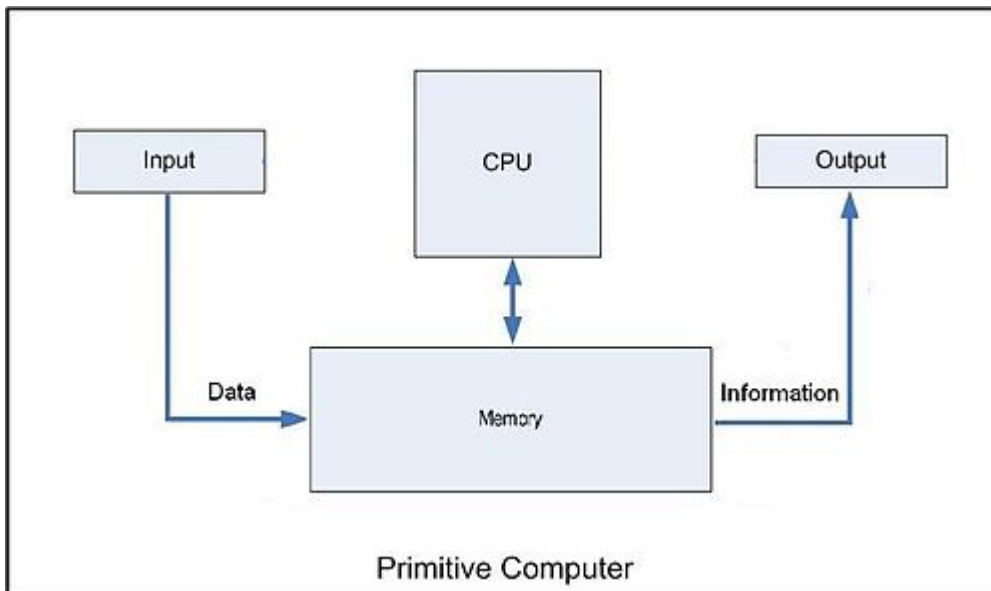


Figure 1

The way components inside a computer fit together helps describe how the computer works. Data comes through the Input, and is sent to the CPU. The CPU processes the data, normally based on the data or a program which is in memory; for example, in modern computers, When you press the power button on your computer, there is some data (a program) that is automatically sent to the processor from memory. When a CPU is finished processing some data, the result can be sent back to memory or it is sent to the output.

## Opening an application

Lets say you're sitting at your computer, and you want to open up Firefox.

- What is the input your computer gets?
- Where does your application come from?
- What does the computer output?

## A Computer-based system

A computer-based system is a system in which a computer is involved and consists of three major elements: Hardware, Software, and User. The elements of a computer based system are described in the three following scenarios:

### 1. Registration in a University

Hardware = Micro computers, Network platform, and a Server Computer  
Software = Student Registration Application, Database, and Operating System  
User = Operators, Administrators

### 2. Controlling a section of an Assembly Line

Hardware = A specially embedded system which is developed for this purpose  
Software = The machine code loaded on the embedded system Memory  
User = Other Machine, Supervisor

### 3. Playing a game with a Computer

Hardware = Game console such as Xbox, Playstation  
Software = The game itself  
User = The game player

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