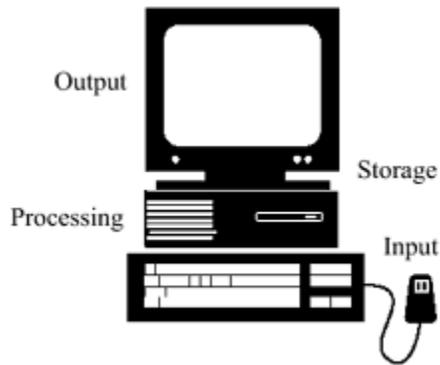


The Journey InsideSM: Introduction to Computers Student Handout: An Information Processing Machine

An Information Processing Machine

A computer is a special kind of machine—a machine that processes information. Most personal computers look very much alike both on the inside and on the outside. They consist of both hardware and software. The hardware is the part of the computer you can touch. The software is the collection of programs that makes the computer work. You cannot see or touch software.

The hardware of a computer system consists of four main parts:



1. **Input devices.** These are designed to get information into a computer. Examples include a keyboard, microphone, digital camera, scanner, drawing tablet, and a mouse.
2. **Storage devices.** Internal storage is of two kinds. The computer uses temporary storage called RAM to hold the information being used during processing. Chips are partially or totally dedicated to this kind of storage. The computer uses long-term storage called ROM to hold information it needs each time the computer is used. The ROM chips receive their information before the computer is assembled. In addition, the computer uses external storage or storage that is not directly involved in information processing. Hard drives, floppy disks, CD-ROMs, and tapes are all devices that hold information for long periods of time. The information is moved from these types of memory storage into active use by the computer when needed.
3. **Information processing.** The computer has special integrated circuits that are designed to handle the processing of information. Of the many chips inside a computer, the microprocessor is the most complex and has the greatest amount of circuits. The microprocessor is the primary work area when information is being processed.
4. **Output devices.** The results of information processing must be accessible to be of value to the user. Examples of output devices are monitors, speakers, and printers.

The computer's microprocessor is an extremely versatile chip. As a user, you only have to change the instruction set you give the microprocessor—your choice of software—and your computer changes from being a word processor to a graphics machine to a sound editor or even to a games machine. The microprocessor helps with every task.

Other information-processing machines exist that are much less versatile. These use an embedded processor—a processor given a limited set of instructions. Embedded processors are found in VCRs, electronic games, microwave ovens, remote controls, wristwatches, and so on. These devices are only able to accomplish the tasks assigned to them by their designers. As a user, you can only use the device for whatever purpose it was intended.

Activities

1. The following table names some devices that can be thought of as information-processing machines with embedded processors. Complete the table for the indicated devices. Add two items of your own.

Device	What Device Does	What Embedded Processor Does
VCR	Connects to TV to play a tape or record a program from the TV.	Lets you set time for VCR to come on to record. Lets you set VCR to record for a specific time period. Lets you set VCR to record a specific channel.
Elevator	Goes up and down a building (some play music).	
Microwave Oven		

2. Think of both a computer and a person as information-processing machines. Identify the four components of an information-processing device for both and complete the following table:

	Computer	Human
Input is done with...		
Storage is done with...		
Information Processing is done by...		
Output is done with...		