LESSON PLAN
Computer science

Name of school	Electrotechnics and Telecommunications High School (Grup Scolar de Electrotehnica si Telecomunicatii), Constanta
Level of target class:	Upper intermediate (10th Grade)
Area	Computer science
Time needed:	2 hours
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UNIT 1: COMPUTERS

Before you start

1. Discuss the role of computers in every-day life.

READING

2. Read the text about the organization of a simple computer and answer the questions:
a) What are the basic components of a computer system?
b) What is a bit?
c) What does the memory do?
d) What are registers?

VOCABULARY

3. Work out the meaning of the following words related to IT:
Registers, digit, bit bus, processor, fetch

What does a digital computer consist of?

A digital computer consists of a system of interconnected processors, memories and input/output devices.
The organization of a simple computer, as shown in the figure, is based on a (CPU), the brain of the computer. Its function is to execute programs stored in the main memory, by fetching their instructions, examining them and then executing them one after another. The CPU is composed of several distinct parts. The control unit (CU) is responsible for fetching instructions from main memory and determining their type. The arithmetic and logical unit (ALU) performs operations, such as addition and *boolean AND* needed to carry out the instructions.
The memory is that part of the computer where programs and data are stored. Without a memory from which the processors can read and write information, there would be no "stored program digital computers" as we know them.
The basic unit of memory is the binary digit, called bit.

A bit may contain a 0 or a 1. It is the simplest possible unit.
The CPU also contains a small, high-speed memory used to store temporary results and certain control information. This memory consists of a number of registers, each of which has a certain function. The most important register is the program counter (PC), which points to the next instruction to be executed. There is also an instruction register (IR), which holds the instruction currently by being executed.

The instruction execution is carried out in a series of small steps:
   1. *Fetch* the next instruction from the memory into the instruction register (IR);
2. *Change* the program counter so it points to the following instruction;
3. *Determine* the type of the instruction just fetched;
   4. See if the instruction requires any data from the memory, and if so, determine here in memory the data is located;
5. If the instruction needs data from memory, load it into internal CPU registers;
6. Execute the instruction;
7. Store the results in the proper place;
8. Return to step 1 to begin executing the following instruction.
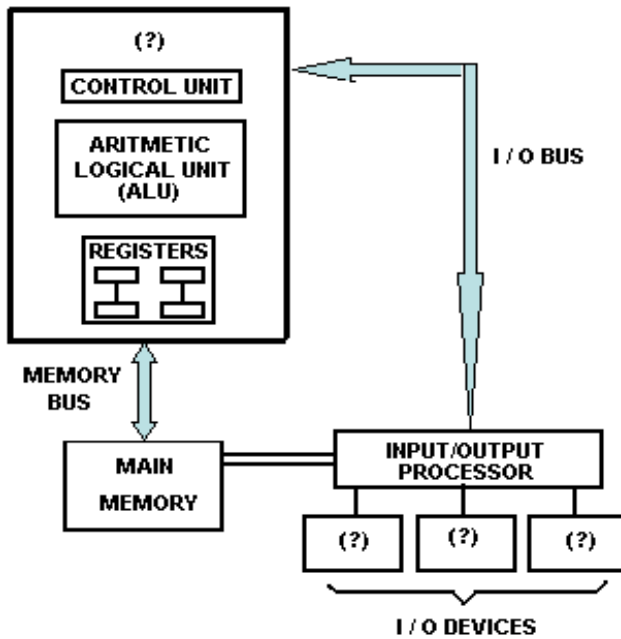
(adapted from: Engleza tehnica de Viorica Dãnilã, Editura tehnica 1982)

WRITING

4. Put the following steps in the correct order:

a) Going back to step 1
b) Storing the result
c) Instruction execution
d) The change of the program counter
e) Next instruction fetching

5. Use the appropriate names to complete the boxes in the diagram.

Class discussion

Express your opinions on the advantages and disadvantages of a computer based society.