LESSON PLAN
Computers / Mecatronics

High School	Colegiul Tehnic 'Henri Coanda', TIMISOARA
Level	Intermediate
Area	Computers / Mecatronics
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Time	3 hours

I. LEAD-IN

1. Look at the pictures and guess what the text is about. Give it a title.

2. Write under the headings HARDWARE and SOFTWARE as many words as you can think of.

HARDWARE   SOFTWARE

1. Skim texts A, B, C and match them with the corresponding subtitles. Ignore the gaps.

> 1. The Central Processing Unit
> 2. Computer Memory
> 3. The Operating System

A. When a computer is turned on it searches for instructions in   its memory. Usually, the first set of these instructions is a special program called the operating system, (1). It prompts the user (or other machines) for input and commands, reports the results of these commands and other operations, (2). When the user requests that a program run, the operating system loads the program in the computer's memory (3) . (4) , such as Microsoft Windows and the Macintosh system (Mac OS), have a graphical user interface (GUI)-that is, a display that uses tiny pictures, (5) , to represent various commands. To execute these commands, the user clicks the mouse (6) or presses (7) keys on the keyboard

B. To process information electronically, data are stored in a   computer in the form of binary digits, or bits, each having two possible representations (0 or 1). If a second bit is added to a single bit of information, the number of representations is doubled, resulting in four possible combinations: 00, 01, 10 or 11. A third bit added to this two-bit representation again doubles the number of combinations, resulting in eight possibilities: 000, 001, 010, 011, 100, 101, 110 or 111. (1)

A byte is a useful quantity in which to store information because it provides enough possible patterns to represent the entire alphabet, in lower and upper cases, as well as numerical digits, punctuation marks, and several character-sized graphics symbols, including non-English characters such as π. (2)

 (3). One way to store memory is within the circuitry of the computer, usually in tiny computer chips that hold millions of bytes of information. The memory within these computer chips is RAM. Memory also can be stored outside the circuitry of the computer on external storage devices, such as magnetic floppy disks, which can store about 2 megabytes of information; hard drives, which can store thousands of megabytes of information; CD-ROMs (compact discs), which can store up to 710 megabytes of information; and DVDs (digital video discs), which can store 8.5 gigabytes of information. (4)

2a. Get in 2 groups (A, B). Group A, read text A and fill in the gaps with the corresponding phrases

or icons

and runs the program

and controls the sequence of the software and hardware actions

a combination of keys on

popular operating systems

which is the software that makes the computer work

on the icon

stores and manages data

Group B, read text B and fill in the gaps with the corresponding fragments (a,b,c,d,e). There is one extra fragment!

A byte also can be interpreted as a pattern that represents a number between 0 and 255. A kilobyte-1,024 bytes-can store about 1,000 characters; a megabyte can store about 1 million characters; a gigabyte can store about 1 billion characters; and a terabyte can store about 1 trillion characters.

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The physical memory of a computer is either random access memory (RAM), which can be read or changed by the user or computer, or read-only memory (ROM), which can be read by the computer but not altered.

Languages that use words or other commands that reflect how Humans think are easier for programmers to use, but they are slower because the language must be translated first so the computer can understand it.

Each time a bit is added, the number of possible patterns aded is doubled. Eight bits are called a byte; it has 256 possible combinations 0s and 1s. See also expanded memory; extended memory.

2b. Read text C and summarize it using the highlighted subjects and the highlighted verbs.

C. Information from an input device or memory **is communicated** via **the bus** to the **central processing unit** (CPU), which is the part of the computer that **translates** and runs programs. The CPU is a microprocessor chip, that is, a single piece of silicon containing millions of electrical components. Information **is stored** in a CPU memory location called a **register**. Registers can be thought of as the CPU's tiny scratchpad, temporarily storing instructions or data. When a program is run, one register called **the program counter keeps** track of which program instruction comes next. **The CPU's control unit coordinates and times** the CPU's functions, and it retrieves the next instruction from memory.
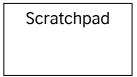
In a typical sequence, the CPU locates the next instruction in the appropriate memory device. The instruction then travels along the bus from the computer's memory to the CPU, where it is stored in a special instruction register. Meanwhile, the program counter is incremented to prepare for the next instruction. The current instruction **is analyzed** by a **decoder**, which determines what the instruction will do. Any data the instruction needs are retrieved via the bus and placed in the CPU's register. The CPU executes the instruction, and the results are stored in another register or copied to specific memory locations.

IV. SPEAKING
Group work / pair work

Write down words from your text (A, B), preferably nouns, on slips of paper (one card, one word) then choose partners from the other group, flash out a card at him/her. He/she has to ask questions about the word which is on the card. You answer the questions either by providing the information which is in the text the word was taken from or by saying " The text doesn't say ", " I wish I could answer that " , " I'll pass that".

e.g. Student A   Student B

┌─────────────────────┐   • What's a scratchpad?
│   │   • What's it used for?
│   Scratchpad   │   • What is the relevance of a scratchpad in a
│   │   text about computers?
│   │   • What does a scratchpad have to do with
└─────────────────────┘   computers? "

V. Grammar focus – Passive Voice (Present)
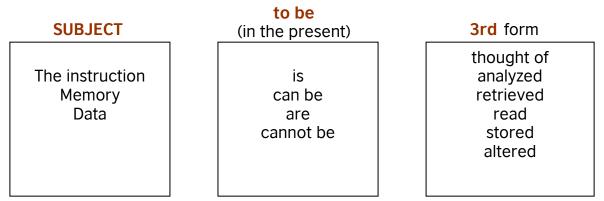
1. Look at the following sentences
- The program counter *is incremented* to prepare for the next instruction.
- Any data the instruction needs *are retrieved* via the bus and *placed* in the CPU's register.
  Choose the correct option to complete the rule:
  We use the passive voice when the person (object) who (which) does something *is/is not* important, relevant.

2. Consider the following sentences from the texts

SUBJECT	to be (in the present)	3rd form
The instruction Memory Data	is can be are cannot be	thought of analyzed retrieved read stored altered

VI. Writing practice

Letter of enquiry
1) Identify the letter components by matching the letters a,b,c,d,e,f,g with the corresponding numbers.
2) Complete this letter of enquiry with the correct prepositions.

H.C. Ltd.
UltraPro
81, Msal. Al. Averescu
Timisoara 1900   1 March 2005

Dear Madam,

We were impressed 1...............................your display 2.........................office electronic equipment 3............................... the RomExpo trade fair held 4...........................Bucharest 5.........................January.

We are a group 6.....................retailers specializing 7.........................the sale 8...............top-quality electronic office equipment, and we are seeking a supplier 9.....................our offices.

Could you send us your latest catalogue and price list, details 10.....................components used 11.....................your products, and information regarding credit terms and discounts?

We look forward 12...................receiving your reply.

Yours faithfully,
Bill Croft
Sales Director.

- Body of the letter
- Signature
- Closing formula
- receiver's address
- Receiver's name
- The sender's address
- The date

3)   a) You are upgrading your PC. Write a letter to a supplier in which you enquire about the graphic card they have on offer.
        b) Turn the letter into an e-mail message. Which of the letter layout elements will you keep, which will you leave out?