Unit 2

The Basic Features of a Computer

THE ABC'S OF A COMPUTER

Pre-reading Activities

In this unit, you will

- improve your understanding of the target technical words.
- learn about various supporting topic sentences (cause and effect) in writing.
- learn how to preview a reading comprehension passage through pre-reading questions to improve comprehension.
- be familiar with the ABC's of a computer.

I. Target Academic Vocabulary

Check out the meanings and functions of the target academic words in a monolingual and bilingual dictionary.

Retrieve (v)

Executive (adj)

Optical (adj)

Stable (adj)

Sluggish (adj)

Convenient (adj)

Avoid (v)

II. Writing development

Supporting topic sentences

After limiting your subject through writing a good topic sentence, you should develop that subject to help readers understand what you try to say. There are many ways, such as EXAMPLES and DETAILS helping you develop the subject (e.g., topic sentence).

Examples

An example is a particular instance showing a more general view. A search engine is an example of software, a meta-search engine is an example of a searching tool, and a web crawler is an example of a spider. The following are the noun, verb and phrase signals in a row to show how you can provide more general view: *Example, illustration, include, for example, for instance, as, like, and such as.*

Details

A detail focuses on a particular part/feature/characteristic of a whole idea and is used in description. For example: The two main components of a computer are software and hardware (the first paragraph in the reading comprehension passage provides a detailed information on the two components).

III. Pre-reading questions:

Read and respond to the questions below, and then discuss them in pair/group.

1. What are the two main components of a computer?

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2. What are the expansion cards used in a computer?

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3. What is a graphic processing unit? Where can it be used?

IV.Reading comprehension passage

This passage discusses the basic features of a computer and describes the main components along with adequate examples.

THE ABC'S OF A COMPUTER

The computer is an electronic machine that stores, retrieves, analyzes and processes data. This machine receives any digitally programmed instructions. A computer is mainly composed of hardware and software, and comes in various sizes, such as mini and mainframe computers, Personal Computer (PC), and tablets. The hardware of a computer includes the system unit, mouse, keyboard, and monitor. However, the software is any set of instructions (most often in the form of a computer program) that directs the computer to perform specific operations. Computer Software running in computers is loaded into their memory through storage devices such as a hard disk, a CD-ROM,

a DVD or a flash memory. While some computers are larger than others, the actual components inside them are pretty much the same. Any computer system needs to have two main components in its hardware to work. They are the Central Processing Unit (CPU) and the main memory (or RAM short for Random Access Memory).

1. CPU

The CPU is located inside the computer case on the motherboard. It is sometimes called the brain of the computer, and its job is to carry out commands. Whenever you press a key, click the mouse, or start an application, you are sending instructions to the CPU. The CPU is a small chip that fits into the motherboard's CPU socket, and is covered by a heat sink, a device that absorbs heat from the CPU to cool it down.

The processor speed is measured in Megahertz (MHz), or millions of cycles per second, and Gigahertz (GHz), or billions of cycles per second. A faster processor can execute instructions more quickly. However, the actual speed of the computer depends on the speed of many different components, not just the processor, for example the speed of RAM.

2. Motherboard

The central circuit board holding the CPU, memory, hard drive connector and optical drives is the motherboard. It also keeps the expansion cards to control the video, audio and connections to your computer's ports e.g., USB. In fact, the motherboard is directly and indirectly connected to all parts of the computer.

3. Power Supply

The desktop computer power supply converts alternating current (AC) from a wall socket to low-voltage direct current (DC) to operate the processor and peripheral devices. Several DC voltages are required, and they must be regulated with some accuracy to provide stable operation of the computer.

4. RAM

RAM is the computer's temporary memory. Whenever a computer performs calculations, it temporarily stores the data in the RAM when needed. The content of this memory disappears when the computer is turned off. If you are working on a document, spreadsheet, or other type of files, you will need to save it to avoid any accidental loss. When you save a file, the data is written to the hard drive, which acts as long-term storage.

The capacity of RAM is measured in megabytes (MB) or gigabytes (GB). The more RAM you have, the more tasks your computer can do at the same time. If you don't have enough RAM, you may notice that your computer is sluggish when you have several programs open. Because of this, many people add extra RAM to their computers to improve performance. A bit is the smallest unit of data in computer processing, and a byte is a group of eight bits. A megabyte contains about one million bytes, and a gigabyte is about one billion bytes.

5. Hard Drives

Computer's main data center is the hard drive. The software, documents, and files are stored in the hard drive. The data on the hard drive are 'safe and sound' even after the computer is turned off or unplugged. After a program is run, the computer copies some of the data from the hard drive onto the RAM. This is because the computer could have an easy access to the data. When a file is saved, the data is copied back to the hard drive. The faster a hard drive functions, the faster a computer starts up and loads program icons on the screen.

Hard drives are commonly hard disk drives storing data on a magnetic platter. Some computers use solid-state hard drives, i.e. flash hard drives. Though they are expensive, they are more durable than hard disk drives. A USB flash drive is a small, removable flash hard drive plugging into a port, which is a convenient way to carry your document and use them on a different computer.

6. Expansion Cards

The expansion slots on the motherboard help to add some various types of expansion cards, which are sometimes, called PCI (Peripheral Component Interconnect). Most motherboards have built-in video, sound, network and other parts, but to boost the performance of a computer or to update software in an old computer you need to add one or more cards. Two of the most common types of expansion cards are introduced below.

6.1 Video card

The video cards are responsible for what you see on the monitor. Most computers now have GPU (Graphics Processing Unit) built into the motherboard but have no separate video card. Having graphics-intense games on the computer requires adding a faster video card to one of the expansion slots and its purpose is to strengthen the computer's performance.

6.2 Sound card

The sound card or audio is responsible for what you hear through speakers or headphones. Most motherboards have an integrated sound card and it can be upgraded to increase the quality of sound produced.

Post-reading Activities

I. Reading comprehension

Directions: Mark each statement as T (True), F (False), or NG (Not Given) to the information in the reading comprehension passage.

----------1. Computers can easily save data but cannot analyze them immediately.

----------2. A Computer has three main components and each one functions differently.

----------3. CPU is located inside the case, and is attached to the RAM.

----------4. The speed of a computer is dependent on a few factors other than the speed of RAM.

----------5. The main function of a USB port is to keep a digital spare part.

---------6. Computer users should take care of the motherboard, as it is very expensive.

---------7. The speed of hard drive assists in starting and loading up quicker on program icons on the screen.

---------8. A faster video card does not help the function of graphic intense games on the computer.

Questions *9-15:* Choose the appropriate letter ***A-C***.

9. All of the following state the different types of a computer but……..

   A. Personal computer

   B. Tablets

   C. Hardware

10. Which of the following is called the brain of a computer, according to the passage?

    A. Motherboard

    B. CPU

    C. RAM

11. To have stability of computer operation, the requirement is…….

    A. The user should use a brand new hardware and install updated software.

B. Direct-current voltages are needed and should be fixed in an organized way.

C. Computer should store data in the RAM when it is highly required.

12. According to the passage, all of the following are directly supported by expansion cards but……..

A. Hard drives

B. Video cards

C. Sound cards

13. The phrase 'safe and sound' in the section 5 and line 2 means…….

A. Secured but not appropriate

B. Very safe

C. Unsecured but appropriate

14. Which one of the following options is NOT true about flash hard drive?

A. It is portable but not safe.

B. It can be carried everywhere.

C. It is comfortable to carry your files on them.

15. The more RAM a computer has, the …..its performance will be.

A. faster

B. slower

C. more

II. Vocabulary activities

Directions: Read each sentence on ABC's of a computer stated below. Circle the one word or phrase in parentheses ( ) that has the same meaning as the underlined word in the sentence. Compare your answers with a partner.

1. The CPU is located inside the computer case on the motherboard. It is sometimes called the brain of the computer, and its job is to carry out (*perform/improve/reduce*) commands.
2. The central circuit (*mother/wooden/conductor*) board holding the CPU, memory, connector for the hard drive and optical drives is the motherboard.
3. The content of this memory disappears (*finds/fades/emerges*) when the computer is turned off.
4. The data are safe and sound even after the computer is turned off or unplugged (*switch on/disconnect/connect*).
5. Most motherboards have built-in video, sound, network and other parts, but to boost (*approve/develop/destroy*) the performance of a computer or to update software in an old computer, you need to add one or more cards.
6. After a program is run, the computer copies some of the data from the hard drive onto the RAM. This is because the computer has an easy access (*availability/distant/escape*) to the data.
7. Most motherboards have an integrated (*separate/ combined/ disconnected*) sound card and it can be upgraded to increase the quality of sound.

8. Having graphics-intense games on the computer requires adding a faster video card to one of the expansion slots (*spaces/ boards/ tables*) and its purpose is to increase the computer performance.

III. Writing development activities

Model paragraph 1

Computer is an electronic machine that stores, retrieves, analyzes and processes data. This machine receives any digitally programmed instructions. A computer is mainly composed of hardware and software, and comes in various sizes, such as mini and mainframe computers, Personal Computer (PC), and tablets. The hardware of a computer includes the system unit, mouse, keyboard, and monitor. However, the software is any set of instructions (most often in the form of a computer program) that directs the computer to perform specific operations. Computer Software running in computers is loaded into their memory through storage devices such as a hard disk, a CD-ROM, a DVD or in a flash memory. While some computers are larger than the others, the actual components inside the computers are pretty much the same. Any computer system needs to have two main components in its hardware to work. They are the Central Processing Unit (CPU) and the main memory (or RAM short for Random Access Memory).

Self-assessment

1. What examples do the writers provide in the model paragraph?

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2. How many examples are provided in the model paragraph?

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3. Definition of a computer (detail):

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4. Components of a computer:

A) ---

Detail: ---

B) ---

Detail: ---
