

UNIT 1

LIVING IN THE DIGITAL AGE

Task 1 Read the text and try to answer these questions.

- a. What is the digital generation ?
- b. Complete the table below to list what computers can be used in schools to help

Students:	Teachers:
- perform	- give with and
- their maths skills.	- sciences, history or
- access	- publish for students to do
- do research and with other students.	
- enroll courses	
- write letters by	
- databases.	
- keep their	

- c. Why are mobile phones often called smartphones ?
- d. Instead of cash paying, now what can people use to pay for goods & service they buy ?
- e. How are computers be used to regulate air traffic ?

We are now living in what some people call the digital age, meaning that computers have become an essential part of our lives. Young people who have grown up with PCs and mobile phones are often called the digital generation. Computers help students to perform mathematical operations and improve their math skills. They are used to access the internet, to do basic research and to communicate with other students around the world. Teachers use projectors and interactive whiteboards to give presentations and teach sciences, history or language courses. PCs are also used for administrative purposes – schools use word processor to write letters and databases to keep records of students and teachers. A school website allows teachers to publish exercises for students to complete online. Students can also enroll for courses via the website and parents can download official reports.

Mobiles let you make voice calls, send texts, email people and download logos, ringtones or games. With a built-in camera you can send pictures and make video calls in face-to-face mode.

New smartphones combine a telephone with web access, video, a games console, an MP3 player, a personal digital assistant (PDA) and a GPS navigation system all in one.

In banks, computers store information about the money held by each customer and enable staff to access large databases and to carry out financial transactions at high speed. They also control the cashpoints, or ATMs (automatic teller machines), which dispense money to customers by the use of a PIN-protected card. People use a Chip and PIN card to pay for goods and services. Instead of using a signature to verify payments, customers are asked to enter a four-digit personal identification number (PIN), the same number used at cashpoints, this system makes transactions more secure. With online banking, clients can easily pay bills and transfer money from the comfort of their homes.

Airline pilots use computers to help them control the plane. For example, monitors display data about fuel consumption and weather conditions. In airport control towers, computers are used to manage radar systems and regulate air traffic. On the ground, airlines are connected to travel agencies by computer. Travel agents use computers to find out about the availability of flights, prices, times, stopovers and many other details.

Task 2 Match the words in column A (1-9) with the correct meanings in column B (a-i)

Column A

1. perform
2. word processor
3. online
4. download
5. built-in
6. store
7. financial
8. monitor
9. data

Column B

- a. keep, save
- b. execute, do
- c. monetary
- d. screen
- e. integrated
- f. connected to the internet
- g. collection of facts or figures
- h. programme used for text manipulation
- i. copy files from a server to your PC or mobile

Task 3 Match the verbs (1-10) with the nouns (a-j) to make collocations from the text (Task 1)

1. give
2. keep
3. access
4. enter
5. transfer
6. display

- a. the internet
- b. data
- c. presentations
- d. records
- e. a PIN
- f. research

- | | |
|---------------|-----------------|
| 7. do | g. information |
| 8. make | h. transactions |
| 9. store | i. money |
| 10. carry out | j. calls |

Task 4 Use collocations from Task 3 to complete these sentences.

1. Thanks to Wi-Fi, it's now easy to from cafes, hotels, parks and many other public places.
2. Online banking lets you between your accounts easily and securely.
3. Skype is a technology that enables users to over the Internet for free.
4. In many universities, students are encouraged to using PowerPoint in order to make their talks more visually attractive.
5. The Web has revolutionized the way people with sites such as Google and Wikipedia, you can find the information you need in seconds.
6. Cookies allow a website to on a user's machine and later retrieve it; when you visit the website again, it remembers your preferences.
7. With the latest mobile phones, you can with multimedia attachments: pictures, audio, even video.

Task 5 How do you pronounce the word RECORD used as a verb and as a noun ?

Task 6 What are the meanings of RECORD (n) ?

Task 7 In pairs, discuss these questions.

1. How are/were computers used in your school ?
2. How do you think computers will be used in school in the future ?

Task 8 In small groups, choose one of the areas below and discuss what you can do with computers in that area.

1. Racing cars
2. Entertainment
3. Factories and industrial processes.
4. Schools/ Universities

Racing cars: design and build the car, test virtual models, control electronic components, monitor engine speed, store (vital) information, display data, analyze and communicate data.

Entertainment: download music, burn CDs, play games, take photos, edit photos, make video clips, watch movies on a DVD player, watch TV on the computer, listen to MP3s, listen to the radio via the Web.

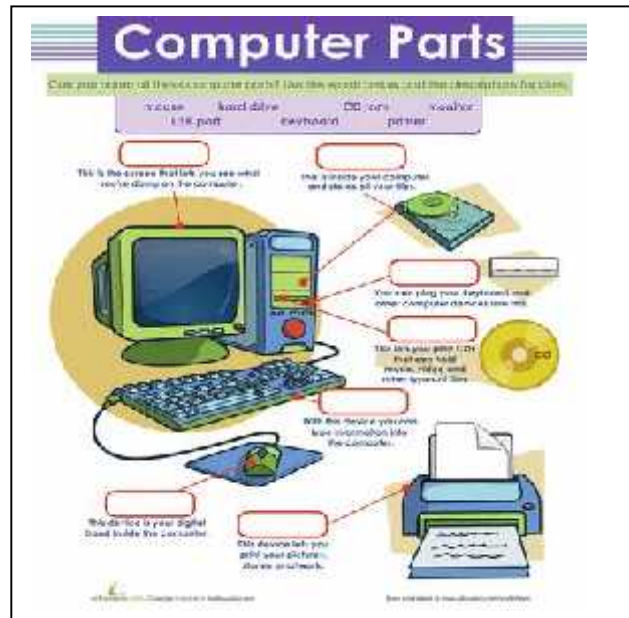
Factories and industrial processes: design products, do calculations, control industrial robots, control assembly lines, keep record of stocks (materials and equipment).

Schools/ Universities: access the internet, enroll online, search the Web, prepare exams, write documents, complete exercises online, do research, prepare presentations.

Task 9 **Write a short presentation summarizing your discussion. Ask one person from your group to give a summary of the group's ideas to the rest of the class.**

COMPUTER ESSENTIALS

Task 1 **Label the elements of this computer system.**



Task 2 Read these advertising slogans and say which computer element they refer to.

1. Point and click here – Obeys every impulse as if it were an extension of your hand.
2. Displays your ideas with perfect brilliance – See the difference – sharp images and a fantastic range of colours.
3. It's quiet and fast – It's easy to back up data before it's too late.
4. Power and speed on the inside – Let your computer's brain do the work.
5. A big impact on the production of texts and graphics – Just what you need: a laser powerhouse.

Task 3 Find words in the slogans with the following meanings.

1. To press the mouse button
2. Selection
3. Shows
4. To make an extra copy of something

Task 4 Read the text and then explain the functions of computers' main parts in your own words.

What is a computer ?

A computer is an electronic machine which can accept data in a certain form, process the data, and give the results of the processing in a specified format as information.

First, data is fed into the computer's memory. Then, when the program is run, the computer performs a set of instructions and processes the data. Finally, we can see the results (the output) on the screen or in printed form.

A computer system consists of two parts: hardware and software. Hardware is any electronic or mechanical part you can see or touch. Software is a set of instructions, called a program, which tells the computer what to do. There are three basic hardware sections: the central processing unit (CPU), main memory and peripherals.

Perhaps the most influential component is the central processing unit, its function is to execute program instructions and coordinate the activities of all the other units. In a way, it is the 'brain' of the computer. The main memory (a collection of RAM chips) holds the instructions and data which are being processed by the CPU. Peripherals are the physical units attached to the computer. They include storage devices and input/output devices.

Storage devices (hard drives, DVD drives or flash drives) provide a permanent storage of both data and programs. Disk drives are used to read and write data on disks. Input devices enable data to go into the computer's memory. The most common input devices are the mouse and the keyboard. Output devices enable us to extract the finished product from the system. For example, the computer shows the output on the monitor or prints the results onto paper by means of a printer.

On the rear panel of the computer there are several ports into which we can plug a wide range of peripherals – a modem, a digital camera, a scanner, etc. They allow communication between the computer and the devices. Modern desktop PCs have USB ports and memory cards readers on the front panel.

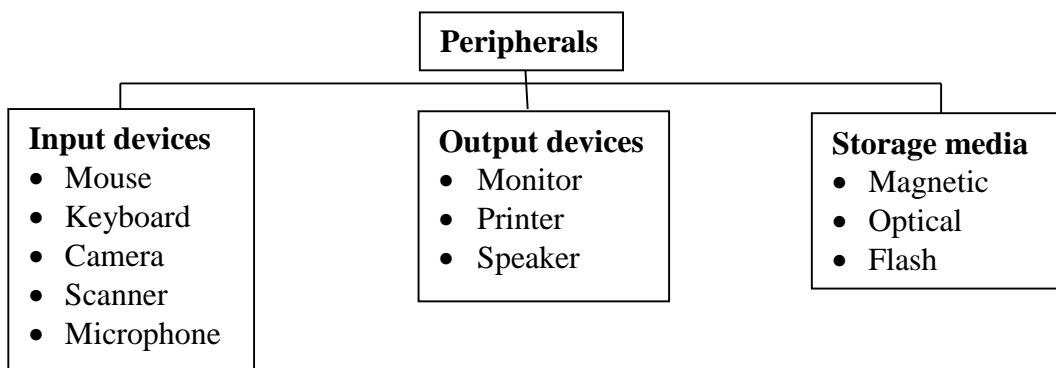
Task 5 Match the words (1-9) in column A with the correct meanings (a-i) in column B.

Column A	Column B
1. Software	a. the brain of the computer
2. Peripherals	b. physical parts that make up a computer system
3. Main memory	c. programs which can be used on a particular computer system
4. Hard drive (hard disk)	d. the information which is presented to the computer
5. Hardware	e. results produced by a computer
6. Input	f. input devices attached to the CPU
7. Ports	g. section that holds programs and data while they are executed/ processed
8. Output	h. magnetic device used to store information
9. Central processing unit	i. sockets into which an external device may be connected

Task 6 Use suitable classifying expressions to complete these sentences.

1. A computer hardware and software.
2. Peripherals three types: input, output, and storage devices.
3. A word processing program software which lets the user create and edit text.
4. of network architecture: peer-to-peer, where all computers have the same capabilities, and client-server (e.g. the Internet), where servers store and distribute data, and clients access this data.
5. The control unit of the CPU a decoder, a counter and a clock.

Task 7 Describe this diagram, using suitable classifying expressions.



Task 8 Listen to the recording about computer and answer these:

1. What are the advantages of computers?
2. List what we can do with computers.
3. Why can't computers be used to play cards?
4. Tell seven different points between human beings and computers.
5. How many kinds of computers are mentioned in the recording? What are they?

Task 9 1) Your school is considering replacing all of the office PCs with laptops. Write an email to your teacher explaining the benefits for students and school.
2) Your company is considering replacing all of the office PCs with laptops. Write an email to your boss explaining the benefits for employees and company.

UNIT 3

INSIDE THE COMPUTER SYSTEM

Task 1 **Read the advertisement and translate the technical specifications into Vietnamese.**

Dell Computer

- Intel Core 2 Duo processor at 2.4GHz
 - Mini Tower Chassis
 - 256MB RDRAM, expandable to 4GB
 - 500GB hard drive
 - 48 X CD-ROM Drive
 - 19" Colour SVGA monitor
 - Microsoft Windows XP
-
- The main processing chip that has dual core and operates at a clock speed of 2.4 thousand million cycles per second.
 - A small size of tall and narrow style of case containing the computer system.
 - 256 megabytes of dynamic type of main memory chips, expandable to 4GB.
 - A hard drive internal storage device with a capacity of approx. 500 thousand million bytes.
 - A CD-ROM storage device that operates at 48 times the speed of the original CD-ROM devices.
 - A colour monitor for displaying output on a screen at resolutions determined by the SVGA standard. The diagonal measurement of the whole screen is 19 inches.
 - The operating system that is used to control the system.

Task 2 **Answer these questions. If necessary, refer to the Glossary.**

1. What is the main function of a computer's processor ?
2. What unit of frequency is used to measure processor speed ?

3. What does RAM stand for ?
4. What are mathematical calculations ?
5. What are logic operations ?

Task 3 Read the text below and then answer these questions.

1. What are the main parts of the CPU?
2. What does ALU stand for? What does it do?
3. What is the function of the system clock?
4. How much is one gigahertz?
5. What type of memory is temporary?
6. What type of memory is permanent and includes instruction needed by the CPU?
7. How can RAM be increased?
8. What term is used to refer to the main printed circuit board?
9. What is a bus?
10. What is the benefit of having expansion slot?

What is inside a PC system?

Processing

The nerve center of a PC is the processor, also called the CPU, or central processing unit. This is built into a single chip which executes program instructions and coordinates the activities that take place within the computer system. The chip itself is a small piece of silicon with a complex electrical circuit called an integrated circuit.

The processor consists of three main parts:

- The control unit examines the instructions in the user's program, interprets each instruction and causes the circuit and the rest of the component – monitor, disk drives, etc. – to execute the function specified.
- The arithmetic logic unit (ALU) performs mathematical calculations and logical operations (AND, OR, NOT).
- The registers are high-speed units of memory used to store and control data. One of the registers (the program counter, or PC) keeps track of the next instruction to be performed in the memory. The other (the instruction register, or IR) holds the instruction that is being executed.

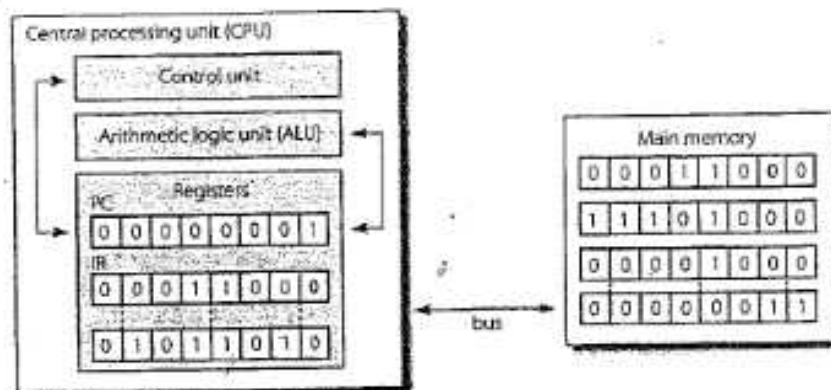


Fig 1: Organization of a simple computer; the CPU is built into a single microprocessor chip

The power and performance of a computer is partly determined by the speed of its processor. A system clock sends out signals at fixed intervals to measure and synchronize the flow of data. Clock speed is measured in gigahertz (GHz). For example, a CPU running at 4GHz (four thousand million hertz, or cycles per second) will enable your PC to handle the most demanding applications.

RAM and ROM

The program and data which pass through the processor must be loaded into the main memory in order to be processed. Therefore, when the user runs a program, the CPU looks for it on the hard disk and transfers a copy into the RAM chips. RAM (random access memory) is volatile – that is, information is lost when the computer is turned off. However, ROM (read only memory) is non-volatile, containing instructions and routines for the basic operations of the CPU. The BIOS (basic input/ output system) uses ROM to control communication with peripherals.

RAM capacity can be expanded by adding extra chips, usually contained in small circuit boards called dual in-line memory modules (DIMMs).

Buses and cards

The main circuit board inside your system is called the motherboard and contains the processor, the memory chips, expansions slots, and controllers for peripherals, connected by busses – electrical channels which allow devices inside the computer to communicate with each other. For example, the front side bus carries all data that passes from the CPU to other devices.

The size of a bus, called bus width, determines how much data can be transmitted. It can be compared to the number of lanes on a motorway – the larger the width, the more data can travel along the bus. For instance, a 64-bit bus can transmit 64 bits of data.

Expansion slots allow users to install expansion cards, adding features like sound, memory and network capabilities.

Task 4 Look at these extracts from the text. What do the words in bold refer to?

1. **This** is built into a single chip.
2. ... **which** executes program instructions and coordinates
3. **that** is being executed.
4. performance of a computer is partly determined by the speed of **its** processor.
5. the CPU looks for **it** on the hard disk
6. inside the computer to communicate with **each other**.

Task 5 Complete the sentences below with suitable relative pronouns. Give alternative options if possible. Put brackets round the relative pronouns you can leave out.

1. That's the computerI'd like to buy.
2. Core 2 Duo is a new Intel processorcontains about 291 million transistors.
3. A webmaster is a person designs, develops and maintains a website.
4. A bus is an electronic path way carries signals between computer devices.
5. Here's the DVD you lent me !
6. Last night I met someone woks for GM as a software engineer.

Task 6 Listen to the recording about bit and byte then answer these questions.

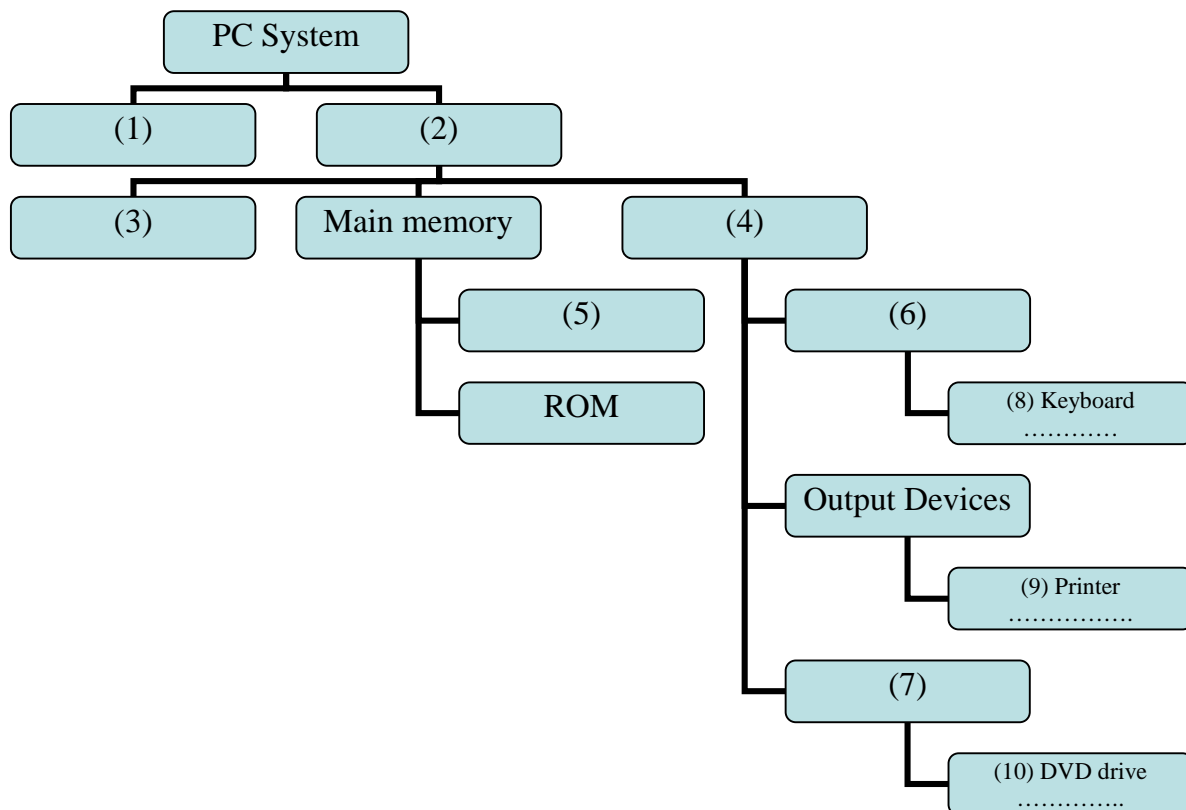
1. How many digits does a binary system use?
2. What is a bi ?
3. What is a collection of eight bits calle ?
4. What does ASCII stand fo ?
5. What is the purpose of ASCI ?

Task 7 Complete these descriptions with the correct unit of memory.

Unit of memory	Abbreviation	Exact memory amount
Binary digit	bit, b	1 or 0
Byte	B	8 bits
Kilobyte	KB or K	1,024 bytes (2^{10})
Megabyte	MB	1,024 KB or 1,048,576 bytes (2^{20})
Gigabyte	GB	1,024 MB or 1,073,741,824 bytes (2^{30})
Terabyte	TB	1,024 GB or 1,099,511,627,776 bytes (2^{40})

1. A is about one trillion bytes – about as much text as the books and magazines in a huge library.
2. A is about one million bytes – about as much text as a 300-page novel.
3. A is about one thousand bytes – equivalent to one sheet of A4.
4. A is about one billion bytes – about as much as 1,000 books.
5. A can store a single character, such as the letter h or number 7.

Task 8 Complete this diagram of a PC system.



Task 9 **Make notes about the features of the computer that you would like to have. Think about the features in the box.**

CPU	Speed	Optical disk drives	Wireless connectivity	RAM
Minimum/maximum	Monitor	Ports and Card	Memory slots	
Hard disk	Software			

Task 10 **Describe your ideal computer system. Give reasons for your choices.**

USEFUL LANGUAGE

It's got

It's very fast. It runs at

The standard RAM is and it's expandable

The hard disk can hold

I need a large, flat LCD screen because

As for the Internet,

UNIT 4

INPUT/ OUTPUT DEVICES

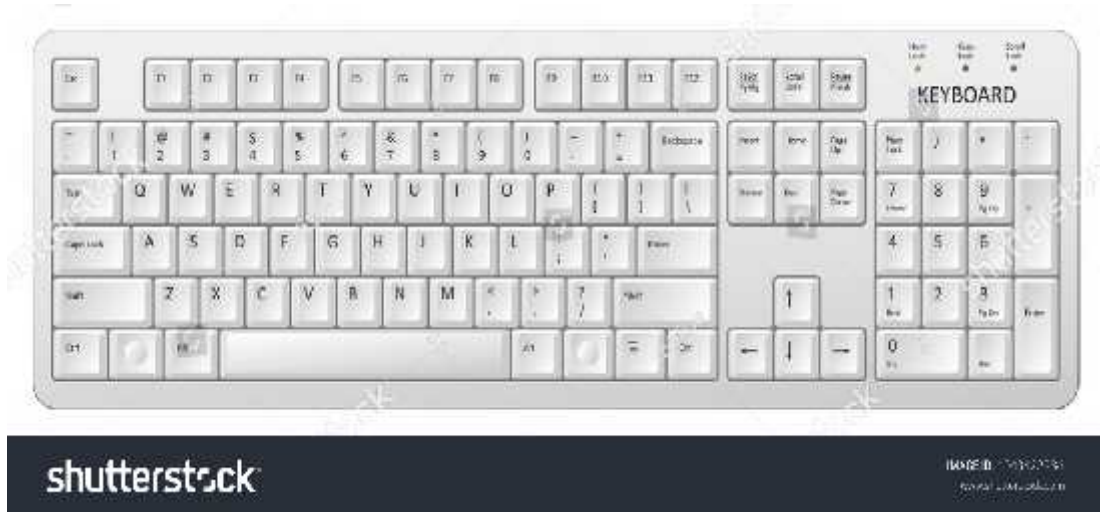
Task 1 Read the description of input devices and then label pictures with words from the text.

Input devices are the pieces of hardware which allow us to enter information into the computer. The most common are the keyboard and the mouse. We can also interact with a computer by using one of these: a scanner, a trackball, a graphics tablet, a game controller or a microphone.



Task 2 Label the picture of a standard keyboard with the group of keys (1-4).

1. Cursor control keys include arrow keys that move the insertion point up, down, right and left, and keys such as End, Home, Page Up and Page Down, which are used in word processing to move around a long document.
2. Alphanumeric keys represent letters and numbers, as arranged on a typewriter.
3. Function keys appear at the top of the keyboard and can be programmed to do special tasks.
4. A numeric keypad appears to the right of the main keyboard. The Num Lock key is used to switch from numbers to editing keys.



Task 3 Match the description (1-8) with the names of the keys (a-h).

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. It produces UPPER CASE characters. 2. A long key at the bottom of the keyboard. Each time it is pressed, it produces a blank space. 3. It moves the cursor to the beginning of a new line. It is also used to confirm commands. 4. It works in combination with other keys. For example, you press this key and C to copy the selected text. 5. It removes the character to the left of the cursor or any selected text. 6. It produces UPPER CASE characters, but it does not affect numbers and symbols. 7. It moves the cursor horizontally to the right for a fixed numbers of spaces (in tabulations and data fields). 8. They are used to move the cursor, as an alternative to the mouse. | <ol style="list-style-type: none"> a. arrow keys b. return/enter c. Cap Lock d. shift e. tab f. space bar g. backspace h. Ctrl |
|--|--|

Task 4 Listen to a computer technician description and then answer these questions.

1. What are usually soldered directly on the motherboard?
2. On the motherboard, how many slides are there for the RAMs?
3. When talking about graphics cards, what does AGP stand for?
4. What is the function of the fan in the power supply?
5. What is the other name of hard disk? What does it contain?

Task 5 Use the notes below to write a description of the Sony Playstation 3 Controller.

Sony Playstation 3 controller

Functions

- control video games
- hold it with both hands, use thumbs to handle directional sticks and face buttons

Features

- six-axis sensing system (capable of sensing motion in 6 directions: up, down, left, right, forwards and backwards).
- wireless controller (Bluetooth)
- USB miniport and capable for wired play and automatic battery charging

Task 6 Complete this text about the mouse with words from the box.

click double-click drag grab select move control position pointer buttons

Mouse actions

A mouse allows you to (1) the cursor and move around the screen very quickly. Making the same movements with the arrow keys on the keyboard would take much longer. As you (2) the mouse on your desk, the pointer on the screen moves in the same direction. The (3) usually looks like an I-bar, an arrow, or a pointing hand, depending on what you are doing.

A mouse has one or more (4).....to communicate with the computer. For example, if you want to place the insertion point or choose a menu option, you just (5) (press and release) on the mouse button, and the option is chosen.

The mouse is also used to (6) text and items on the screen. You can highlight text to be deleted, copied or edited in some way.

The mouse is widely used in graphics and design. When you want to move an image, you (7) the pointer on the object you want to move, press the mouse button, and (8) the image to a new location on the screen. Similarly, the mouse is used to change the shape of a graphic object. For instance, if you want to convert a square into a rectangle, you (9) one corner of the square and stretch it into a rectangle.

The mouse is also used to start a program or open a document: you put the pointer on the file name and (10) on the name – that is, you rapidly press and release the mouse button twice.

Task 7 In groups, discussion these questions.

1. What are the benefits of speech recognition software ?
2. What kind of tasks would you find speech recognition useful for ?
3. Who would benefit most from advances in speech recognition technology ?
4. What is the future of this kind of technology ? Do you think it will ever be possible to control your computer using only your thought ?

Task 8 Look at the notes you made about your ideal computer system in Unit 3 Task 10. What did you want ? Study the descriptions of the computers below and choose the one that is closest to your ideal.

Toshiba Satellite Laptop
2.0 GHz Core 2 Duo Processor
2GB RAM Expandable to 4GB
160GB hard drive
Super Multi drive (double layer)
15.4" wide XGA display
Wireless LAN, WIFI compliancy
£1,099

Dell desktop PC

AMD Athlon at 2.4GHz
1GB RAM expandable to 4GB
320GB hard drive
DVD+/- RW drive
17" LCD monitor
£680

Palm TX handheld

Intel 312MHz ARM- based processor
128 MB flash memory
Support for memory cards
320x480 TFT touch screen
Wi-fi and Bluetooth
Lithium-ion battery
£216

Task 9 Explain the main differences of desktop computer, laptop computer, and handheld computer.

Task 10 A friend has asked you to recommend a computer that suits his needs. He needs to be able to access the Internet, play games and work with graphics, music and video files. Write an email describing its technical features and saying why you recommend it.