

ENGLISH
FOR
COMPUTER SCIENCE
STUDENTS

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ ТРАНСПОРТНИЙ УНІВЕРСИТЕТ

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ПОСІБНИК
ДЛЯ СТУДЕНТІВ, ЯКІ НАВЧАЮТЬСЯ
ЗА КРЕДИТНО-МОДУЛЬНОЮ СИСТЕМОЮ

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ПЕРЕДМОВА

Дана робота представляє собою посібник з англійської мови для студентів спеціальності комп'ютерні науки, які навчаються за кредитно-модульною системою.

Він складається з 16 тематично поєднаних розділів, які в свою чергу, поділяються на чотири блоки. Кожен блок складається з чотирьох логічно організованих розділів і закінчується завданнями Stop and Check, які мають на меті закріпити і підсумувати здобуті студентами знання і таким чином ефективно підготувати студентів до модульної контрольної роботи. Посібник містить глосарій комп'ютерних термінів, а також словник аббревіатур і акронімів.

Кожен розділ включає в себе актуальні тексти для читання та перекладу, завдання для аудіювання, вправи для розвитку мовлення, граматичні вправи, завдання для закріплення лексичного матеріалу, які переважно складені за тестовим принципом. Крім того, включені завдання для розвитку умінь самостійного пошуку, які пропонують робити доповіді на запропоновані теми.

Посібник має на меті навчити студентів читати, слухати, розуміти і аналізувати актуальні тексти зі сфери сучасних комп'ютерних наук, а також вести розмови, робити доповіді про нові комп'ютерні технології, описувати технічні параметри комп'ютерного та цифрового обладнання, описувати технічні процеси, писати листи – поради, ділові листи.

В більш широкому сенсі – метою даного посібника є підготовка спеціалістів європейського рівня, які можуть кваліфіковано і адекватно спілкуватися на теми свого фахового профілю і таким чином бути конкурентноспроможними на ринку праці.

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UNIT 1

I. Reading

- Where are computers used today?
- Can you imagine modern life without computers?

A Computers have many applications in a great variety of fields. Computers can help students perform mathematical operations and solve difficult questions. They can be used to access the Internet, teach courses such as computer-aided design, language learning, programming, mathematics, etc. PCs (personal computers) are also used for administrative purposes: for example, schools use databases and word processors to keep records of students, teachers and materials.

Race organizers and journalists rely on computers to provide them with the current positions of riders and teams in both the particular stages of the race and in the overall competition. Workstations in the race buses provide the timing system and give up-to-the-minute timing information to TV stations. In the press room several PCs give real-time information on the state of the race. Computer databases are also used in the drug-detecting tests for competitors.

C Computers store information about the amount of money held by each client and enable staff to access large databases and to carry out financial transactions at high speed. They also control the automatic cash dispensers which, by the use of a personal coded card, dispense money to clients.

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.

1. Match these captions with the paragraphs A – D:

1. *Using an automatic cash dispenser*
2. *In education, computers can make all the difference*
3. *Organizing the Tour de France demands the use of computer technology*
4. *Controlling air traffic*

2. Look at text 1 again and discuss these questions.

1. How were computers used in your school/ are used in your university?
2. What other areas of study would benefit from the introduction of computers?

3. Find the equivalents for these Ukrainian words/phrases in the text.

Застосовувати, база даних, текстовий редактор, покладатись на, забезпечувати, фінансові операції, банкомат, зберігати інформацію.

4. Find the words in texts A to D, and match them with the meanings below.

1 workstation	A information
2 data	B execute (do)
3 perform	C connected with money
4 automatic	D keep (save)
5 monitor	E massive
6 financial	F linked
7 store	G self-acting, mechanical
8 connected	H screen
9 word processor	I powerful computer usually connected to a network
10 large	J program used for text manipulation

5. Translate into English:

1. Сьогодні комп'ютери широко використовуються в різних сферах господарської та фінансової діяльності.
2. Завдяки комп'ютерним системам клієнти банків можуть легко зняти у будь-якому банкоматі світу гроші з свого рахунку.
3. Важко уявити кількість інформації, що зберігається сьогодні в базах даних комп'ютерних мереж.
4. Сучасні умови життя зобов'язують кожного: від школяра до ІТ спеціаліста володіти знаннями про застосування комп'ютера.

II. Reading

1. Write a list of as many uses of the computer, or computer applications, as you can think of.

2. Read the text and find answers to the questions:

- a. Are there any applications that were not mentioned in your list? What are they?
- b. Are computers a part of our everyday life?
- c. How does a computer help people in their work?
- d. Does a computer allow you to print and type anything you want?
- e. Does it enable you to interact with people around the world?
- f. Is it just a calculating machine today?
- g. What do you personally use computer for the most?

- 1 Computers and microchips *are* a part of our everyday lives: we *visit* shops and offices which have been designed with the help of computers, we *read* magazines which have been produced on computer, and we *pay* bills prepared by computers. Just picking up a telephone and dialing a number *involves* the use of a sophisticated computer system, as *does* making a flight reservation or bank transaction.
- 5

We *encounter* daily many computers that *spring* to life the instant they are switched on (e.g. calculators, the car's electronic ignition, the timer in the microwave, or the programmer inside the TV set), all of which *use* chip technology.

What *makes* your computer such a miraculous device? Each time you *turn it on*, it *is* a tabula rasa that, with appropriate hardware and software, *is* capable of doing anything you ask. It *is* a calculating machine that speeds up financial calculations. It *is* an electronic filing cabinet which manages large collections of data such as customers' lists, accounts, or inventories. It *is* a magical typewriter that *allows* you to type and print any kind of document — letters, memos or legal documents. It *is* a personal communicator that *enables* you to interact with other computers and with people around the world. If you *like* gadgets and electronic entertainment, you *can use* your PC even to relax with computer games.

III. Grammar: The present simple

1. Write out from the text above verbs in *italics* with the subjects they refer to.
e.g. *computers and microchips are*

2. The tense used is the Present Simple. Draw a table in your workbook filling it with the verb forms from ex.1.

Person Singular	Verbs		Person Plural	Verbs	
I	<i>am</i>	<i>use</i>	We	<i>are</i>	<i>use</i>
You			You		
He/she/it			They		

3. Draw the table in your workbook and fill it with questions 2 to 7 from exercise II.2. Explain the rules of making question in the Present Simple.

Question word	Auxiliary verb	Subject	Main verb	
	<i>Are</i>	<i>computers</i>		<i>a part of our everyday life?</i>
<i>How</i>	<i>does</i>	<i>a computer</i>	<i>help</i>	<i>people in their work?</i>

4. Fill in the gaps with the given verbs in the Present Simple:

- The swimming pool....(opens) at 9.00 and...(close) at 18.30 *every day*.
- What time....the banks....(close) in Britain?
- I have a computer but I....(not use) it *very often*.

- d. How much money....you....(spend) a day?
- e. 'What....you....(do)?' 'I....(be) a computer programmer.
- f. 'Where....your father....(come) from?' 'He(be) Ukrainian.'
- g. If you need money, why....you....(not get) a job?

IV. Listening

1. Listen to these people talking about how they use computers at work and write each speaker's job in the table.

electrical engineer	secretary	librarian	composer
---------------------	-----------	-----------	----------

2. Listen again and write what each speaker uses their computer for.

V. Reading: *Inside the system*

1. What does a computer consist of?

1 **Computers** are electronic machines which can accept data in a certain
 form, process the data and give the results of the processing in a specified
 5 format as information. Three basic steps *are involved* in the process. 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
 10 results (the output) on the screen or in printed form.

Information in the form of data and programs *is known* as **software**, and
 15 the electronic and mechanical parts that make up a computer system *are called*
hardware. A standard computer system consists of three main sections: the
 20 central processing unit (**CPU**), the **main memory** and the **peripherals**.

Perhaps the most influential component is the central processing unit. Its
 function is to execute program instructions and coordinate the activities of all
 25 the other units. In a way, it is the 'brain' of the computer. The main memory
 holds the instructions and data which *are being processed* by the CPU.

The peripherals are the physical units attached to the computer. They
 include **storage devices** and **input/output devices**. Storage devices (floppy,
 hard or optical disks) provide a permanent storage of both data and programs.
 Disk drives are used to handle one or more floppy disks.

Input devices are 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 - modems, fax machines, optical drives and scanners.
 These are the main physical unit of a computer system, generally known as the
 configuration.

2. Use the information in the text to help you match the terms with the appropriate explanation or definition below. Translate the terms.

a software **b** peripheral devices **c** monitor **d** floppy disk
e hardware **f** input **g** port **h** output **i** central processing unit

- 1 The brain of the computer.
- 2 Physical parts that make up a computer system.
- 3 Programs which can be used on a particular computer system.
- 4 The information which is presented to the computer.
- 5 Results produced by a computer.
- 6 Hardware equipment attached to the CPU.
- 7 Visual display unit.
- 8 Small device used to store information. Same as 'diskette'.
- 9 Any socket or channel in a computer system into which an input/output device may be connected.

3. Answer the questions:

- a. What is a computer?
- b. What are three basic steps involved into the processing of information?
- c. What are CPU's main functions?
- d. What are peripherals?
- e. What are the functions of input devices? Which of them can you name?
- f. What are the functions of output devices? Which of them can you name?

VI. Grammar: The present simple passive

1. Study the rules:

General formula for making a passive form is:

BE_{in appropriate tense} + **VERB**_{3(ed)}

You form the present simple passive with **am/is/are** + **past participle V_{3(ed)}**

e.g.: *This program **is written** in a special computer language.*

*Programs and data **are usually stored** on disks.*

Questions are formed as follows:

<i>Question word</i>	<i>Auxiliary verb</i>	<i>Subject</i>	<i>Verb</i>	
	Is	this program	written	in a special language?
Where	are	programs and data	stored	?

2. Fill in the blanks with the correct form of the verbs in brackets.

e.g. Houses (design) with the help of computers.

Houses are designed with the help of computers.

- a.** Various terminals (connect)..... to this workstation.
- b.** Microcomputers (know) as ‘PCs’.
- c.** Magazines (type)..... by computers.
- d.** When a particular program is run, the data (process).....by the computer.
- e.** The Web (use)to search for information and buy products online.
- f.** The drug-detecting test in Tour de France (support) by computers.
- g.** All the activities of the computer system (coordinate)by the CPU.
- h.** In some modern systems information (hold).....in optical disks.

VII. Research:

Find in the Web and prepare for presentation information about:

‘ PCs: History and Development’

UNIT 2

I. Listening

1. Answer these questions:

- 1 Have you got a computer at home, university? What kind is it?
- 2 How often do you use it? What do you use it for?
- 3 What are the main components and features (the configuration) of your computer system?

2. Listen to a short lecture given by John Griffiths, an expert on computer systems. Put the devices in order you first hear about them:

Desktop PC	Mainframe	Laptop	Handheld	Minicomputer
------------	-----------	--------	----------	--------------

3. Listen again and choose the correct answer.

1 According to the speaker

- a mainframe computer is less powerful than minicomputer
- b a mainframe is more powerful than a minicomputer

2 Mainframe computers are used by:

- a executives and businessmen
- b large organizations that need to process enormous amounts of data

3 Multi-tasking means:

- a doing a number of tasks at the same time
- b access to a minicomputer through terminals

4 The most suitable computers for home use are

- a minicomputers
- b desktop PCs

5 Handheld computers are

- a small enough to fit into the palm of one hand
- b bigger than laptops

II. Reading: *What's inside a PC system?*

1. Answer these questions:

1. What is the main function of a microprocessor?
2. What unit of frequency is used to measure processor speed?
3. What does 'RAM' stand for?

2. Read the text

1 The nerve centre of a PC is the central processing unit or CPU. This unit is built into a single microprocessor chip – an integrated circuit – which executes program instructions and supervises the computer's overall operation. The unit consists of three main parts:

5 1. **the control unit**, which examines the instructions in the user's program, interprets each instruction and causes the circuits and the rest of the components – disk drives, monitor, etc. – to be activated to execute the functions specified;

10 2. **the arithmetic logic unit (ALU)**, which performs mathematical calculations (+, -, etc.) and logical operations (and, or, etc.);

3. **the registers**, which are high-speed units of memory used to store and control information. One of these registers is the program counter (PC) which keeps track of the next instruction to be performed in the main memory.

15 Another is the instruction register (IR) which holds the instruction that is currently being executed.

One area where microprocessors differ is in the amount of data – the number of bits – they can work with at a time. There are 16, 32 and 64-bit processors. The computer's internal architecture is evolving so quickly that the new 64-bit processors are able to address 4 billion times more information than a 32-bit system.

The programs and data which pass through the central processor must be loaded into the **main memory** (also called the **internal memory**) in order to be processed. Thus, when the user runs an application, the microprocessor looks for it on secondary storage devices (disks) and transfers a copy of the application into the RAM area. RAM (random access memory) is temporary, i.e. its information is lost when the computer is turned off. However, the ROM section (read only memory) is permanent and contains instructions needed by the processor.

Most of today's computers have internal **expansion slots** that allow users to install adapters or expansion boards. Popular adapters include high-resolution graphics boards, memory expansion boards, and internal modems.

The power and performance of a computer is partly determined by the speed of its microprocessor. A **clock** provides pulses at fixed intervals to measure and synchronize circuits and units. The clock speed is measured in MHz (megahertz) or GHz (gigahertz) and refers to the frequency at which pulses are emitted. For example, a CPU running at 1,600 MHz (1,600 million cycles per second) will enable the computer to handle the most demanding applications.

3. Read these statements, decide if they are True or False. Correct the false sentences.

- a. The CPU directs and coordinates the activities taking place within the computer system.
- b. The arithmetic logic unit performs calculations on the data.

- c. 32-bit processors can handle more information than 64-bit processors.
- d. A chip is an electronic device composed of silicon elements containing a set of integrated circuits.
- e. RAM, ROM and secondary storage are the components of the main memory.
- f. Information cannot be processed by the microprocessor if it is not loaded into the main memory.
- g. 'Permanent' storage of information is provided by RAM.
- h. The speed of the microprocessor is measured in gigahertz or megahertz.
- i. One GHz is equivalent to one thousand MHz.
- j. One MHz is equivalent to one million cycles per second.

4. Translate the following sentences into English.

1. Центральний процесор виконує програмні команди та контролює роботу всієї системи.
2. Центральний процесор складається з блоку управління, арифметично-логічного пристрою та блоків пам'яті.
3. Оперативна пам'ять – це тимчасова пам'ять комп'ютера. Коли користувач вимикає комп'ютер, інформація з ОП зникає.
4. Гніздо для розширювальних модулів дозволяє розширити можливості комп'ютера завдяки додатковим пристроям.

III. Grammar: Relative clauses

1. Work with the text above. What do the words in bold refer to?

- 1 ... **which** executes program instructions and supervises ...
- 2 ... the instruction **that** is currently being executed
- 3 ... the amount of data - the number of bits – **they** can work with at a time
- 4 ... the microprocessor looks for **it** on ...
- 5 ... **its** information is lost when the computer is turned off.
- 6 ... expansion slots **that** allow users to install adapters or expansion boards

Study the following information:

We can define people or things with a restrictive (defining) clause.

- *The teacher **who** is responsible for the computer centre has just arrived.*

We use the relative pronoun 'who' because it refers to a person. We could also use 'that'.

- *The microprocessor is a chip **which** processes the information provided by the software.*

We use the relative pronoun 'which' because it refers to a thing, not a person. We could also use 'that'.

- *The computer we saw at the exhibition runs at 2.5 GHz.*

Relative pronouns can be left out when they are not the subject of the relative clause.

2. Complete the sentences below with suitable relative pronouns. Give alternative options if possible.

- 1 That's the CPU I'd like to buy.
- 2 A co-processor is an extra processor chipdoes calculations at high speed.
- 3 The microprocessor coordinates the activities..... take place in the computer system.
- 4 Last night I met someone..... works for GM as a computer programmer.
- 5 A palmtop is a computer..... is small enough to be held in the palm of one hand.
- 6 A megahertz is a unit of frequency is used to measure processor speed.
- 7 Here's the DVD you lent me!

3. Read the text about Max. Fill in the gaps with a clause from the box.

- 1 whose father is the Chief Inspector of the Metropolitan Police
- 2 what he was doing
- 3 which they thought were indecipherable
- 4 that even his father was unaware of
- 5 making it obvious
- 6 how to close down
- 7 playing a computer game
- 8 why everyone is making such a fuss
- 9 which he used to play children's games on
- 10 that has ever fooled the Security Services of MI5
- 11 who is the government Section Chief of MI5
- 12 who have had to change their whole computer system
- 13 who is eleven next month
- 14 closing the door gently behind him

MICRO MAD MAX

Max White is only ten years old, but he has the honour of being the youngest person (a).... . Max, (b)...., created havoc with MI5's computer system and nearly caused a national emergency. Max just thought he was having fun (c)...

Max was just six years old when his father bought him his first computer, (d)...., but he quickly moved on to more exciting activities.

Max, (e)...., had soon infiltrated all his father's confidential files. Max was too young to understand the seriousness of (f).... .

Early in the morning he would creep into his father's office, (g)...., and turn on the computer. He realized that different codes gave him access to certain files, and he soon discovered files (h).... .

Keith Hamilton, (i)...., monitored the progress of this unknown spy. He wondered what sort of super intelligence could break the codes (j).... . But what he couldn't understand was why the spy made no attempt to close all the files behind him, thus (k).... that espionage was taking place.

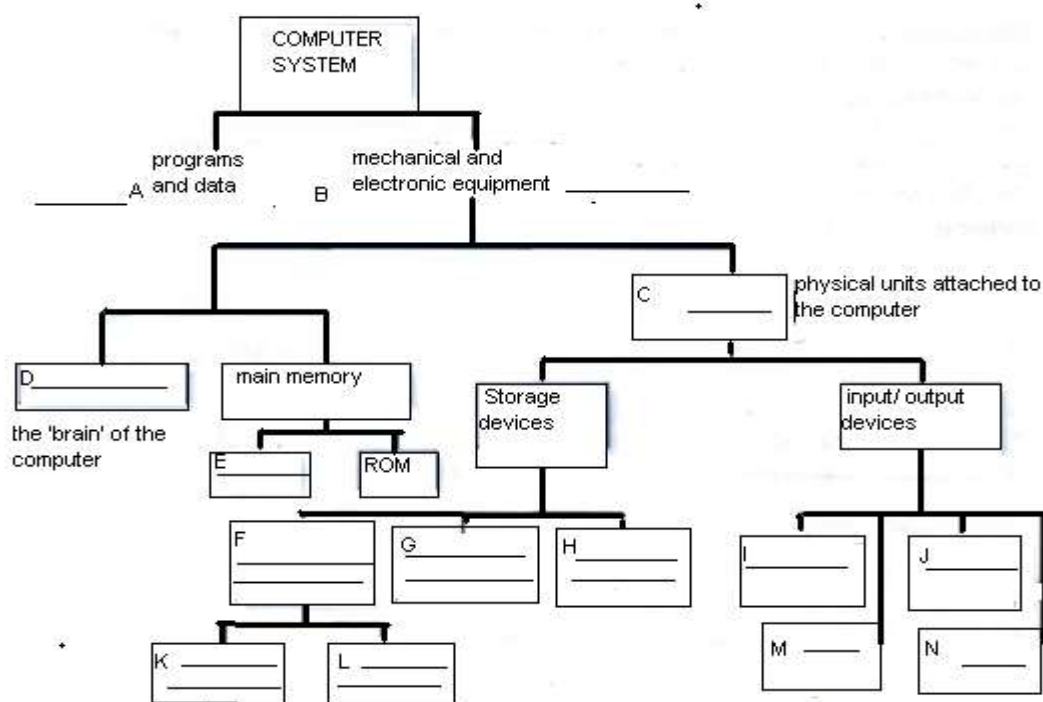
The reason became apparent when they discovered their so-called secret agent. Max didn't know (l).... the files, only how to open them. This incident has been an expensive lesson for MI5, (m).... .

Max doesn't really understand (n).... , but he has promised to stick to Super Mario and Nintendo from now on.

4. Retell the text.

IV. Listening

1. Label this diagram with the correct terms.



2. Listen and check your answers.

V. Speaking

1. In groups of three, write answers to these questions. The winners are the group that answers the most questions correctly in four minutes.

1 What are the main parts of the CPU?

2 What is RAM?

3 What memory section is permanent and contains instructions needed by the CPU?

4 What information is lost when the computer is switched off?

5 What is the typical unit used to measure RAM memory and storage memory?

6 What is the meaning of the acronym SIMM?

7 What is a megahertz?

8 What is the ALU? What does it do?

9 What is the abbreviation for 'binary digit'?

10 How can we store data and programs permanently?

2. Make notes about the features of the computer that you would like to have.

CPU: Speed: Optical disk drives:

Minimum/maximum RAM: Monitor:

Hard disk: Software:

3. Now describe it to your partner:

Useful expressions:

It has got...

It's very fast. It runs at...

The standard RAM memory ... and it is expandable ...

The hard disk can hold ...

I need a SuperVGA monitor because ...

As for the Internet...

VI. Research:

Find in the Web and prepare for presentation information about:

“The newest devices and gadgets on the market today”

UNIT 3

I. Reading: *Units of memory*

1. Try to answer these questions with a partner.

- 1 How many digits does a binary system use? What is a 'bit'?
- 2 What is the difference between binary notation and the decimal system? Give some examples.
- 3 What is a collection of eight bits called?
- 4 One kilobyte (IK) equals 1,024 bytes.
Can you work out the value of these units?
(*kilo* -: one thousand) 1 megabyte = bytes/1,024 kilobytes
(*mega* -: one million) 1 gigabyte = bytes/1,024 megabytes
(*giga* -: one thousand million)
- 5 What does the acronym ASCII stand for? What is the purpose of this code?

2. Now read the text to check your answers or to find the correct answer.

1 **Bits - basic units of memory**

Information is processed and stored in computers as electrical signals. A computer contains thousands of electronic circuits connected by switches that can only be in one of two possible states: *ON* (the current is flowing through the wire) or *OFF* (the current is not flowing through the wire). To represent these two conditions we use **binary notation** in which 1 means ON and 0 means OFF. This is the only way a computer can 'understand' anything. Everything about computers is based upon this binary process. Each 1 or 0 is called a **binary digit** or **bit**.

Bytes and characters

- 10 Is and 0s are grouped into eight-digit codes that typically represent characters (letters, numbers and symbols). Eight bits together are called a **byte**. Thus, each character in a keyboard has its own arrangement of eight bits. For example. 01000001 for the letter A, 01000010 **for** B and 01000011 for C.

The ASCII code

- 15 The majority of computers use a standard disks system for the **binary representation** of characters. This is the *American Standard Code for Information Interchange*, known popularly as ASCII (pronounced 'ask-key'). There are 256 different ways of combining 0 and 1 bits in a byte. So they can give us 256 different signals. However, the ASCII code only uses 128 bytes to represent characters. The rest
- 20 of the bytes are used for other purposes.

The first 32 codes are reserved for characters such as the Return key, Tab, Escape, etc. Each letter of the alphabet, and many symbols (such as punctuation marks), as well as the ten numbers, have ASCII representations. What makes this system powerful is that these codes are standard.

25 **Kilobytes, megabytes and gigabytes**

In order to avoid astronomical figures and sums in the calculation of bytes, we use units

such as kilobytes, megabytes and gigabytes. One kilobyte is 1,024 bytes (2^{10}) and it is represented as KB, or more informally as K. One megabyte is equivalent to 1,024 KB, and one gigabyte is 1,024 MB. We use these units (KB, MB, GB) to describe the RAM
 30 memory, the storage capacity of disks and the size of any application or document.

2. Look at the illustrations and the captions below. Then fill in the blanks with the correct unit of memory.



1. One.....
represents
one character.



2. One.....
represents 1,024
characters (about a
small page of text).



3. One.....
represents 1,000,000
characters (about the
text of this book).



4. One.....
represents
1,000,000,000
characters (about 1,000
books in a library).

II. Grammar: Word building

1. The table gives some prefixes commonly used in computer science.

Knowing the meaning of these prefixes will help you understand new words.

Prefix	Meaning	Examples
deci-	ten	<i>decimal, decimalize, decibel</i>
hexadec	sixteen	<i>hexadecimal</i>
kilo-	one thousand (1,000) (1,024 in binary: 2^{10})	<i>kilocycle, kilogram(me), kilowatt</i>
mega-	large; one million	<i>megahertz, megalith, megaton</i>
giga-	very large; one thousand	<i>gigantic, gigabyte, gigahertz</i>
mini-	small	<i>minibus, minimum, minimize</i>
micro-	very small	<i>microfilm, microphone, microwave</i>
bi-	two	<i>bidirectional, bidimensional, binary</i>
tri-	three	<i>tripartite, tricycle, trilingual</i>
multi-	many	<i>multi-racial, multi-user, multitasking</i>
mono-	one	<i>monologue, monosyllable, monolingual</i>

2. Explain these expressions, taking into account the prefixes and roots

e.g. the binary system

The binary system is a notation which uses two digits, 0 and 1.

- | | |
|------------------------------|------------------------------|
| 1 a minicomputer | 6 a bidimensional chessboard |
| 2 a microcomputer | 7 a tricycle |
| 3 the decimal system | 8 a monochrome computer |
| 4 the hexadecimal system | 9 a CPU with 256 MB of RAM |
| 5 a multi-user configuration | 10 a document of 3 kilobytes |

III. Reading: *Bits for pictures*

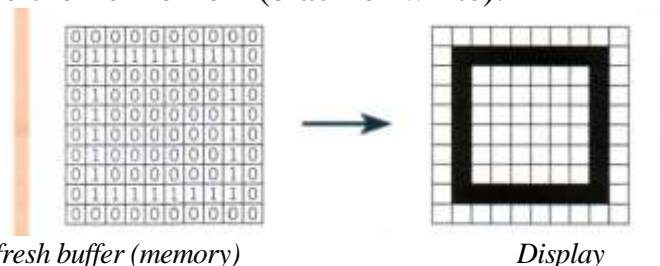
1. Read the question and the text, then study the diagrams.

If you have 8 bits per primary colour, can the palette of your computer obtain 16.7 million colours?

1 Each tiny dot on the screen of a computer is called a picture element or **pixel**. Images and text are formed by combining a large number of pixels.

5 In a bit-mapped display, the dots displayed on the screen correspond, pixel by pixel, with bits in the main memory of the computer. The bits are held in an area of the memory called the 'refresh buffer' and are stored in groups that represent the horizontal and vertical position of the pixels on the screen and whether the pixels are on or off.

On monochrome systems, one bit in this 'map' represents one pixel on the screen and can be either 'on' or 'off' (black or white).



10 On colour systems, each pixel is a certain combination of the three primary colours: red, green and blue. The total number of colours which can be shown on the screen is called the colour palette. The size of this palette depends on the graphics adaptor, a separate video card that converts the bits into visual signals. A graphics adaptor with 1 bit per primary colour can generate up to 8, or 2^3 , colours. A graphics adaptor with 8 bits per primary colour can generate 16.7 million or $(2^3)^8$ colours.

2. Translate the last paragraph (starting from 'On colour systems, ...') into Ukrainian in writing.

3. Do you understand the calculations made to obtain a palette of 16.7 million colours? (If you don't, ask a partner to explain them to you.)

4. Using the information in the passage and the illustrations, match the terms in the box with the appropriate explanation or definition. Translate the terms.

pixel; bit; bit-mapped display; primary colours; palette

- 1 The menu of colours available on a graphics system; its size depends on the hardware.
- 2 Red, green and blue (RGB) in computers.
- 3 The smallest element of a display surface.
- 4 A display on the screen which corresponds, pixel by pixel, with bits stored in memory cells.
- 5 The acronym for 'binary digit'; one of the digits (0 and 1) used in binary notation.

IV. Translation: *Smile-Shot*

Англійське слово «Shot» означає не тільки «фотознімок», але й «постріл». Нова модель фотоапарату *Sony Cyber-shot T200* – це в деякому сенсі постріл в класі подібних цифрових камер: розподільча здатність 8,1 мегапікселі, п'ятикратний оптичний зум і 3,5-дюймовий рідкокристалічний дисплей. Досвідченим фотолюбителям не потрібно пояснювати наскільки важливі ці технічні характеристики, а новачкам сподобаються навіть перші власні знімки. Інтерес викликає функція *Smile Shutter*. Ця система здатна реагувати на посмішку: як тільки хтось посміхнеться – апарат спрацює автоматично. Якщо ж в кадрі декілька чоловік, за допомогою сенсорного екрану ви самі зможете вибрати того, чию посмішку захочете сфотографувати. І функція розпізнавання облич *Face Detection* ніколи не буде зайвою при достатньо високих швидкісних характеристиках роботи T200.

V. Listening

1. You are going to hear two people making enquiries in a Macintosh computer shop. The shop assistant is telling them about the two models below. Listen and fill in the missing information.



iMac

Processor speed	1GHz
RAM standard
Hard disk capacity
Price
DVD and Mac OS included?

iBook

Processor speed
RAM standard
Hard disk capacity
Price
DVD and Mac OS included?



2. Now listen again and fill in the gaps below. (A: assistant, P: Paul, S: Sue)

A: Do you need any help?

P: Uh yes, we're looking for a personal computer. Have you got any fairly basic ones?

A: Yes, sure. If you'd like to come over here ...

P: What different (1) are there?

A: At the moment we've got these two models: The iMac, which is a desktop computer with a (2).....operating at 1 gigahertz, and the portable iBook which has a processor (3).....at 700 megahertz.

S: So the iMac is the (4) one. And which one has the most memory? I mean - which has the most RAM?

A: Well, the iMac has 256 megabytes of (5)....., which can be (6)..... up to 1 gigabyte, and the iBook has 128 megabytes which can be expanded up to (7).....It all depends on your needs. The iMac is suitable for home users and small offices. The iBook is ideal for students and for people who travel.

VI. Role play

Work with a partner. One of you wants to buy a computer, the other is the sales assistant. Ask and answer questions, using the information and instructions below to help you.

<i>Products available</i>	<i>Processor Speed</i>	<i>Minimum/Maximum RAM</i>	<i>Hard disk</i>	<i>Disk drives</i>	<i>Monitor</i>	<i>Price</i>
Explora 700	Mips R4700	128 MB expandable	20 GB	Optional	Super VGA	\$5799
Net PC	900 MHz	to 512		3.5" drive	compatible	
Toshiba portable	Pentium 4	256 MB expandable	40 GB	3.5" drive	colour LCD	\$2,309
	1.5 Ghz	to 512		DVD/ CD-RW		
IBM	Pentium 4 1.8 GHz	256 MB expandable	70 GB	DVD CD-RW	XGA	\$2,149
		to 512				
Polywell	AMD Athlon	512 Mb expandable	80 GB	3.5" drive	SuperVGA	\$2,700
	1.6 GHz	to 2 GB		DVD/ CD-RW		
Dell	Pentium 4 2 GHz	256 MB expandable	60 GB	DVD/ CD-RW	XGA	\$2,710
		to 1GB				

Shop assistant	Customer
Greet the customer and offer help.	
	Ask to see some computers

Show the customer some models	Ask for details: processor, RAM, etc.
Describe the speed in MHz and the main memory	Ask about the hard disk
Give explanations	Ask about the monitor and other features
Give the required information	Ask the price
Give the price and explain different ways of paying	Decide to buy one / to think about it Thank the shop assistant

VII. Speaking

1. Read the descriptions of the four people and the four computers below. With a partner, choose the most suitable computer for each person. Give reasons for your choices.

Power Mac G4

- PowerPC processor at 933 MHz Pentium III
- 256 MB of RAM expandable to 1.5 GB
- 2 MB of in-line cache on the processor card
- Graphics card with 64 MB of SDRAM
- 80 GB hard disk
- DVD-R and CD-RW Superdrive
- Comes with Apple monitor, sound board, built-in microphone, and stereo speakers
- Mac OS with QuickTime (an extension that lets pointing device you play video and animation on the computer), digital video editing and DVD authoring software
- \$4,149

Compaq Evo Notebook N200

- Intel's 700 MHz Low Voltage Mobile processor
- 192 MB RAM
- 20 GB hard drive
- Optional 1.44 MB diskette drive
- CD-RW DVD-ROM
- 10.4" colour TFT display, high resolution
- Integrated keyboard, touch pad as Integrated mini-PCI modem
- Lithium-ion battery
- Weight: 2.5 pounds
- Dimensions: 25.15 x 19.8 x 2.11 cm
- Windows comes pre-installed

\$1,190

Sun workstation

- 900 MHz UltraSPARC processor
- Multiprocessor machine (expandable to two CPUs)
- 8-GB RAM capacity
- 72-GB internal hard drive
- DVD-ROM
- Supports several graphics formats
- Lets you attach any peripherals and link up to Network
- Allows you to handle your toughest technical, scientific, and business-critical applications
- Requires Solaris Operating system
- \$5,049

Compaq Presario PC

- 500 MHz Pentium III processor
- 128 MB of RAM expandable to 384 MB
- 19 GB Quantum Bigfoot hard disk
- Built-in Zip drive
- DVD-ROM drive
- JBC speakers, Dolby Digital Surround
- Integrated digital modem Windows
- \$700

- 1 **Daniel** is a history student. He needs a computer to write essays, assignments and letters. He likes surfing the web.
- 2 **Sarah** is the manager of an advertising company. She needs a powerful system which will work with optical disks and multimedia applications, integrating text and pictures with animation and voice annotations. Digitized images and sound occupy a lot of disk space.
- 3 **Andy** is a CAD engineer. His job involves computer-aided design, simulations and three-dimensional modelling. These applications require a lot of memory and a large drive.
- 4 **Tanya** is a sales representative. She needs a lightweight machine with which she can process orders and communicate with head office while she is on the road.

2. Read the descriptions of these computers again and choose the one that is closest to your ideal. Explain the reason for your choice.

VIII. Writing

A friend has written to you asking you to recommend a computer that suits their needs. Write a letter in reply, describing its technical features and saying why you recommend it.

UNIT 4

I. Listening

1. Read this information. Look at the pictures of different input devices.
Can you name them?

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 lightpen, a scanner, a trackball, a graphics tablet, a joystick or a voice recognition device.



1



2



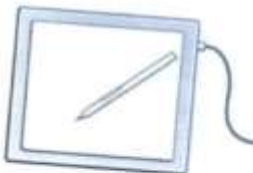
3



4



5



6



7



8

2. Listen to these descriptions of three input devices. What are they?

1 2 3

3. Check your answers with a partner.

II. Grammar

1. Read the description of the mouse.

This is a device for controlling the cursor and selecting items on the screen.

In this sentence '**for controlling**' describes what the mouse does (*for + -ing*)

There are several ways of describing function:

- *for + -ing (for controlling)*
- relative pronoun + verb (*which controls*)
- relative pronoun + *is used + to + infinitive (which/that is used to control)*
- used + *to + infinitive (used to control)*

2. Write descriptions of a joystick, a scanner, a keyboard and a webcam using each of the structures above.

3. Look at the picture of a PC-compatible keyboard and identify these groups of keys:

Alphanumeric keys: arranged in the same order as a typewriter.

Function keys: used by various programs to instruct the PC to perform specific tasks, such as Save, Copy, Cut, Paste, Help, etc.

Numeric keypad: set of numeric or editing keys. The Num Lock key is used to switch from numbers to editing functions.

Editing keys: cursor and other keys usually used within word processors to page up and down in a long document or to edit text (using Insert or Delete keys).

Special keys: used to issue commands or to produce alternative characters in key combinations, for example, the Alt key.



A PC-compatible keyboard

4. Match these descriptions with the names of keys in the box. Then find them on the keyboard.

arrow keys	return	caps lock	shift	tab
space bar	backspace	alt		escape

- 1 A long key at the bottom of the keyboard. Each time it is pressed, it produces a blank space.
- 2 It moves the cursor to the beginning of a new line. It is also used to confirm commands.

- 3 It stops a program without losing the information from the main memory. Sometimes its use depends on the applications.
- 4 It works in combination with other keys to produce special characters or specific actions.
- 5 It removes the character on the left of the cursor or any selected text.
- 6 It produces UPPER-CASE characters (or the upper-case character of the key).
- 7 It produces upper-case letters, but it does not affect numbers and symbols.
- 8 It moves the cursor horizontally to the right for a fixed number of spaces (in tabulations and data fields).
- 9 They are used to move the cursor, as an alternative to the mouse.

5. Read this passage about a computer mouse. Fill in the gaps with verbs in box:

click	double-click	drag	grab	select	move	control
-------	--------------	------	------	--------	------	---------

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 pointer usually looks like an I-bar, an arrow or a pointing hand, depending on what you are doing.

A mouse has one or more buttons to communicate with the computer. For example, if you want to place the insertion point or choose a menu option, you just (3)..... (press and release) on the mouse button, and the option is chosen. The mouse is used to (4)..... text and items on the screen. You can highlight text to be deleted, or you can select an item from a check-box or questionnaire. The mouse is widely used in graphics and design. When you want to move an image, you position the pointer on the object you want to move, press the mouse button, and (5).....the image to a new location on the screen.

Similarly, the mouse is used to change the shape of a graphic object. For example, if you want to convert a square into a rectangle, you (6).....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 (7)..... on the name – that is, you rapidly press and release the mouse button twice.

IV. Listening

1. Listen to an interview with Anne, an expert in voice-input technologies. And tick (✓) the features that she mentions.

You need a good sound card and a microphone to

- ☐ take dictation with accuracy
- ☐ create and compile a computer program
- ☐ surf the Web by speaking
- ☐ execute programs and navigate around menus by voice commands
- ☐ design graphics

2. Listen again and fill in the gaps in these sentences. Use the correct modal verb from the list.

can (ability)	must (necessity)	should (advice)
could (possibility)	will (prediction)	

1. If you intend to do a lot of dictation, you.....get a high-quality headset microphone.
2. Youdictate text directly onto your word processor or e-mail program.
3. With many voice-recognition programs, the user..... first train the software to recognise individual pronunciations.
4. Speech-recognition softwarehelp children with special educational needs.
5. In a few years' time, a lot of people.....use their voices to interact with computers.

V. Reading: *The eyes of your computer*

You can capture your favourite pictures using three different input devices: a scanner, a digital camera, or a camcorder.

1. Read the following information.

What does a scanner do?

A scanner 'sees' images and converts the printed text or pictures into electronic codes that can be understood by the computer.

With a flatbed scanner, the paper with the image is placed face down on a glass screen similar to a photocopier. Beneath the glass are the lighting and measurement devices. Once the scanner is activated, it reads the image as a series of dots and then generates the digitized image that is sent to the computer and stored as a file.

A colour scanner operates by using three rotating lamps, each of which has a different coloured filter: red, green and blue. The resulting three separate images are combined into one by appropriate software.

What does a digital camera do?

A digital camera takes photos electronically and converts them into digital data (binary codes made up of Is and Os). It doesn't use the film found in a normal camera; instead it has a special light-sensitive silicon chip. Photographs are stored in the camera's memory before being sent to the computer. Some cameras can be also connected to a printer or a TV set, to make viewing images easier.

What does a camcorder do?

A camcorder, or digital video camera, records moving pictures and converts them into digital data that can be stored and edited by a computer with special video editing software. Digital video cameras are used by home users to create their own movies, or by professionals in computer art and video conferencing. They are also used to send live video images via the Internet. Then they are called Web cameras or webcams.

2. Answer the questions:

- 1 Which device is used to input text and graphic images from a printed page?
- 2 How does a colour scanner work?
- 3 Do digital cameras use film? How do they store photographs?
- 4 Which device would you use to take digital video?
- 5 What kind of software is used to manipulate video clips on the computer?
- 6 What do you think are the benefits of using scanners and cameras at home and in business?

3. Read the advertisements below and say what you think are the facts and the opinions.

(A)



The ColourScan XR from Sunrise is a flatbed scanner with 600 dpi of resolution and 9" x 15" of scanning area.

Think of the possibilities.

You can enter data and graphic images directly into your applications - word processors or databases. You can get crisp, clean scans for colour compositions, video and animation work.

It comes complete with its own image-capture software which allows for colour and grey retouching. And it's easy to use.

What more could you want for only \$290? It couldn't be cheaper.

(B)

ScanPress 800

The ScanPress 800 is a self-calibrating, flatbed scanner with 800 dpi of resolution. You can scan from black and white to 24-bit colour. The package includes a hardware accelerator for JPEG compression and decompression. JPEG technology saves disk space by compressing images up to 50 to 1. In creating ScanPress 800, the manufacturers have chosen the highest technology to give you the best scans with the least effort. It produces images with high colour definition and sharpness. And it comes with OCR software and Adobe Photoshop, so you can manipulate all the images you capture. This is a fantastic machine you will love working with. And at only \$510 it is an excellent investment.

	<i>ColourScan XR</i>	<i>ScanPress 800</i>
Facts	<i>flatted scanner 600 dpi of resolution</i>	<i>Self-calibrating flatted scanner</i>
Opinions	<i>You can get crisp, clean scans</i>	<i>The highest technology</i>

4. In small groups, compare your answers and decide:

- 1 which text has got more persuasive language? Why?
- 2 which text is more factual or objective? Why?

VI. Grammar: Comparatives and superlatives

1. Apart from catchy slogans and other persuasive techniques, advertisements often use the comparatives and superlatives of adjectives and adverbs. Read the following examples from advertisements. What can you say from these examples about how comparatives and superlatives are formed?

- 1 ... only *ten times faster*.
- 2 It couldn't be *cheaper*.
- 3 The manufacturers have chosen *the highest* technology ...
- 4 *The cleverest* personal scanner ...
- 5 *The most revolutionary* computer peripheral ...
- 6 *The best* scans with *the least* effort...
- 7 Flatbed scanners are *more accurate than* ...
- 8 Now you can edit your documents *more easily than ever*, and they'll look *better than ever* ...

2. The class of a word can often be changed by adding a suffix. For example, if *-er* is added to the verb *scan* (and the 'n' is doubled) we get the noun *scanner*.

Common adjectival suffixes are: *-ing, -y, -able, -ible, -he, -al, -ed, -ful*

Common noun suffixes are: *-er, -or, -(t)ion, -ation, -ment, -ness, -ity, -ant, -logy*

3. Put the words in the box into the correct column below.

computer	self-calibrating	easy	resolution	sharpness
information	printed	personal	capable	compression
technology	calculator	useful	assistant	expensive
	possibility	reducible	investment	
Adjectives			Nouns	

4. Some words have been left out of this persuasive advertisement. Read it and complete it with words:

vivid	easy-to-use	faster	fashionable	wide	shots
--------------	--------------------	---------------	--------------------	-------------	--------------

If you want great pictures from an (1).....digital camera, you want the Kodak DC215. Now you can capture life's memories in style with this sleek and (2).....digital camera.

The camera's 2X (29 mm-58 mm) optical zoom lens lets you get close up and personal without sacrificing image detail or quality while the (3).....angle lens design helps you capture more in each shot.

With one million (1152 x 864) pixels, you'll have enough detail to generate crisp, (4).....realistic photos up to 5" x 7".

The 1.8" colour LCD lets you preview and review your pictures so you get only the (5).....you want, and lets you delete those you don't. With the included USB COMPACTFLASH Card Reader, you can download pictures up to ten times (6).....than with serial connections for faster image sharing.

VII. Listening

1. Listen to the conversation between Vicky Cameron, an Information Technology (IT) lecturer, and one of her students, and complete these notes.

- 1 The technology used in scanners is similar to that used in
 - 2 A laser beam reads the image in
 - 3 The image is then
 - 4 Text is scanned with
 - 5 Flatbed scanners can scan
 - 6 Slide scanners are used to scan
- Hand-held scanners are used for capturing

VIII. Translation

1. Read the following information from a magazine and translate it into English

Є контакт!

Припустимо, що якось ваш дідусь вирішить написати мемуари про своє життя, а може і про ваше... забезпечити контакт між минулим та майбутнім йому допоможе *Mobile Digital Scribe* – звичайна на перший погляд ручка, яка пише звичайними чорнилами на звичайному папері. Варто лише закріпити папір на спеціальному тримачі, як ви потрапите в цифровий світ. Тримач запам'ятає тексти та малюнки автора та передасть їх у комп'ютер, де вони будуть розпізнані. Залишається додати, що для тих, кому дуже важко впоратись з дротами і роз'ємами, чи просто хочеться зберегти свободу пересування, пристрій існує і в бездротовому варіанті.

забезпечити – to provide

на перший погляд – at first glance, at first sight

чорнила – ink

тримач – holder

цифровий світ – digital world

Stop & Check 1

Exercise 1. choose the correct verb to complete these collocations

- | | | | |
|----------------------|------------|----------------|------------|
| 1. texts | a. send | b. forward | c. post |
| 2. calls | a. do | b. make | c. have |
| 3. transactions | a. do | b. carry out | c. bring |
| 4. data | a. display | b. demonstrate | c. exhibit |
| 5. records | a. guard | b. keep | c. do |

Exercise 2. complete these extracts from websites with collocations from exercise 1. Use the correct verb forms

1. We will notof your online activities.
2. The *Toyota Prius* has a built-in monitor which about your location, speed and fuel consumption.
3. *Skype* lets you over the Internet for fee.
4. With our latest online tariff, you can to your friends for fee.
5. Our secure server allows you to with absolute confidence.
- 6.

Exercise 3. which prepositions are used with the following words?

- | | | | |
|-------------|---------|---------|---------|
| 1. classify | a. into | b. onto | c. in |
| 2. divide | a. in | b. of | c. into |
| 3. consist | a. in | b. of | c. onto |
| 4. type | a. to | b. in | c. of |
| 5. class | a. to | b. in | c. of |

Exercise 4. look at these extracts from emails to an online helpdesk. Which type of computer is each person talking about: *laptop*, *desktop PC*, *mainframe*, *PDA*, *tablet PC*?

1. I dropped it as I was getting out of a taxi, and now it won't turn on.
2. I lost the stylus. Is it safe to use a pencil to input directly onto the screen?
3. As soon as it went offline, every PC on the network crashed.
4. I was rotating the screen round to show something to a colleague, and now it won't move.
5. Can you send someone down to show me the best position for my monitor and keyboard? I want to avoid getting any back or neck problems.

Exercise 5. fill in the gaps with a correct relative pronoun: *who*, *which*, *that* or *no relative pronoun*.

1. The central processing unit, or CPU, is like a 'brain'..... Performs tasks for your computer.
2. The CPU is built into a single chip executes program instructions and coordinates activities within the system.

3. The control unit is the part of the processor is responsible for loading and interpreting the individual instructions that make up a computer program.
4. Clock speed is measured in gigahertz; for example, a processor running at 4Ghz would give you all the performance you need to run most applications.
5. Buses are electrical channels allow devices inside the computer to communicate.

Exercise 6. Nick (N) has gone to his local computer shop to buy a new laptop. Complete his conversation with the sales assistant (SA) by typing in words from the box.

running storage lighter feature any bigger for
got specs more cost cheaper both

- **SA:** Hi there. Do you need (1)..... help or are you just looking?
- **N:** Actually, yes, you might be able to help. I'm looking (2)..... a new laptop. Have you (3) any that are really reliable? I've had loads of problems with the one I've got at the moment.
- **SA:** OK. Well, it'll depend on your budget, but we've got two with 20% off at the moment – the Acer Aspire 4920 and the Samsung R60.
- **N:** Right. And what's the difference between these two? Do they have similar (4).....?
- **SA:** Well, the Samsung's more of an entry-level model. It's got a Pentium Dual Core processor (5)..... at 1.4Ghz, which is fast enough for most applications, although you might struggle if you want to play really advanced games on it. The Acer's processor runs at 2Ghz, which is really fast. The Acer also has twice as much RAM as the Samsung– that's 2Gb as opposed to just 1.
- **N:** OK and what's the (6)..... capacity of each model?
- **SA:** OK, that's 80GB for the Samsung and 250GB for the Acer.
- **N:** Mmm. That's quite a difference, isn't it? Is there anything else I should know about?
- **SA:** Well, they (7)..... come fully wireless and Bluetooth-enabled, and Windows Vista is now standard on all the laptops we sell. They also both (8)..... DVD writers, so backup onto DVD is quick and easy. The Acer has a slightly (9)..... screen, and it's (10)....., which would make it more practical if you plan to travel with it.
- **N:** OK and how much do they (11).....?
- **SA:** Let me just have a look. The Samsung's quite a bit (12)..... than the Acer – it's £439.97 compared to £769.97. But the Acer is much (13)..... powerful – it's got twice the RAM and faster processor.
- **N:** Yeah, but I just can't afford that much. I think I'll take the Samsung.

UNIT 5

I. Reading: *The Monitor*

After the information has been processed by the CPU, we can see the results on the screen. This is also called a monitor or visual display unit (VDU).



1. Describe the monitor of your computer to another student. Use these questions to help you.

- Is it a monochrome or a colour monitor?
- What size is the screen?
- Does it have a cathode ray tube or a flat LCD screen?
- How can you change the picture using the controls?
- Does it produce a high quality image?
-

2. Read the text and translate it. Refer to the Glossary if necessary.

- 1 The characters and pictures that we see on the screen are made up of dots, or picture elements (pixels). The total number of pixels in which the display is divided horizontally and vertically is the **resolution**. If the number of pixels is very large, we obtain a high resolution display and a sharp image. If the number of pixels is small, a low resolution is produced.

Typical resolutions are 640 X 480 or 1,024 x 768 pixels. Pixel density affects the image: a larger number of pixels gives a much clearer image.

- 10 The **cathode ray tube** of the monitor is very similar to that of a TV set. Inside the tube there is an electron beam which scans the screen and turns on or off the pixels that make up the image. The beam begins in the top left corner, and scans the screen from left to right in a continuous sequence, similar to the movement of our eyes when we read, but much faster. This sequence is repeated 50, 70 or 85 times per second, depending on the system. If the rate of this repetition is low, we can perceive a flickering, unsteady screen, which can cause eye fatigue. However, a fast-moving 75
- 15 Hz refresh rate' eliminates this flicker.

What we see on the screen is created and stored in an area of RAM, so that there is a memory cell allocated to each pixel. This type of display is called **bit-mapped**. On monochrome monitors, bits 0 are visualized as white dots, and bits 1 as black dots.

- 20 On colour displays, there are three electron guns at the back of the monitor's tube. Each gun shoots out a beam of electrons for each of the primary colours: red, green and blue. These electrons strike the inside of the screen which is coated with substances called phosphors that glow when struck by electrons.

Three different phosphor materials are used – one for red, green and blue. To create different colours, the intensity of each of the three electron beams is varied.

- 25 The monitor is controlled by a separate circuit board, display adaptor, which plugs into the motherboard of the computer. Different boards drive different types of displays. For example, the **VGA** (video graphics array) card has become a

standard for colour monitors.

- 30 Now flat-screen monitors are fashionable. They are inherently flat, and therefore require less space. In addition, they give crisp, clear images and eliminate screen flicker.

- 35 Portable computers use a flat **liquid-crystal display** (LCD) instead of a picture tube. An LCD uses a grid of crystals and polarizing filters to show the image. The crystals block the light in different amounts to generate the dots in the image.

3. Read the text again and answer these questions.

- 1 According to the writer, what is the importance of 'pixel resolution'?
- 2 Which unit of frequency is used to measure the refresh rate of a monitor?
- 3 In the writer's opinion, why can a low refresh rate produce eye fatigue?
- 4 What substance is hit by electrons in a monitor?
- 5 What is the standard display system for many PCs?
- 6 What does LCD' stand for? What type of computers use LCD displays?

II. Writing

1. Tables often include abbreviations and technical words that are not easy to understand. Look at this table and the explanation of Monitor A's specifications.

	<i>Type</i>	<i>Size</i>	<i>Pixel res.</i>	<i>Visual display</i>	<i>Refresh rate</i>	<i>Tilt-and-swivel</i>	<i>Other features</i>
Monitor A Compaq TFT 8020	Flat-panel LCD	18.1"	1024 x 768	16.7 million colours	75 Hz flicker-free	√	energy saver mode
Monitor B Paintview	CRT monitor	19"	1280 x 1024	16.7 million colours	85 Hz flicker-free	√	anti-glare filter

2. The specifications of Monitor A can be described like this:

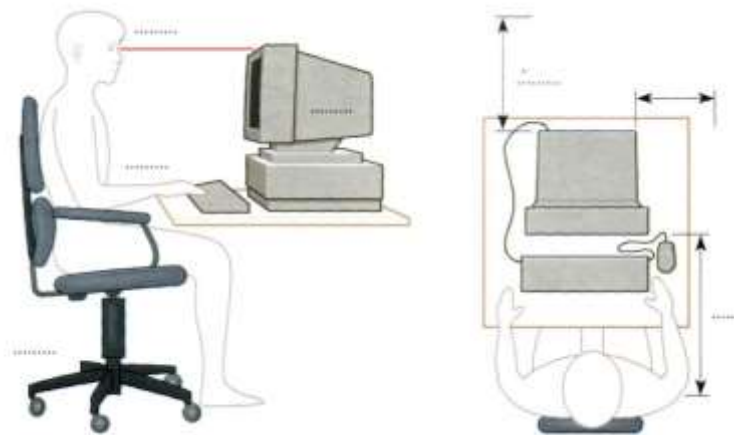
- 1 This is a flat-panel Liquid Crystal Display.
- 2 The screen size is 18.1 inches (diagonal viewable image size).
- 3 You get a resolution of 1024 by 768 pixels.
- 4 It offers support for 16.7 million saturated colours.
- 5 This digital display has a 75 hertz refresh rate. It never flickers (the images are bright, sharp, and distortion-free).
- 6 You can change the orientation of the display, adjusting your viewing angle back and forth.
- 7 It has a built-in power feature that saves a lot of energy consumption.

3. Use the example above to help you describe Monitor B.

III. Listening

Tony Clark, a lecturer in computer ergonomics, is talking to some students about health and safety in a computer classroom. Listen and complete the sentences below. Then decide where they should go in the pictures.

1. You should get a good chair, one that
2. Position the keyboard.....
3. Position the monitoreye level, or just.....
4. A tilt-and-swivel display lets you.....
5. You should stay an arm's length away from
6. If you work in a room with a lot of computers, sit



IV. Grammar: *Giving Instruction and advice.*

1. Read and study the information below:

Imperatives

***Position** your keyboard at the same height as your elbows.*

***Don't use** a monitor that is fuzzy or distorts the image.*

Should/ought to

*You **should** position your keyboard at the same height as your elbows. = You **ought to** ...*

*You **shouldn't** use a monitor that is fuzzy or distorts the image. - You **ought not (oughtn't)** to use ...*

2. Using the examples above rewrite the following instructions, so that you get a piece of advice about how to protect your eyes while working with computer.

1. Do not stare at the screen for long periods of time.
2. Avoid placing the monitor so that it reflects a source of bright light, such as a window.

3. Keep the screen clean to prevent distorting shadows.
4. If you work in an office with a large number of computers, don't sit too close to the sides or backs of the monitors.
5. Buy a protective filter that cuts down the ELF (extremely low frequency) emissions.

V. Reading: *Printers*

1. How many kinds of printers can you think of?

2. Read the text:

1 Printing is the final stage in creating a document. That is the purpose of
printers joined to your computing equipment. *Since* the results you can obtain
with different types of printers will vary substantially, here is a guide to help you
decide which one is most suitable for your needs.

5 *To begin with*, it must be taken into account that printers vary in cost,
speed, print quality and other factors such as noise or
compatibility. In fact, printing technology is evolving so quickly that there is
always a printer for every application or personal requirement.

10 **Dot-matrix** printers use pins to print the dots required to shape a character.
They print text and graphics and nowadays some of them can print up to 500
characters per second (cps); *however*, they produce relatively low resolution
output - 72 or 144 dots per inch. This level of quality, *while* suitable for
preliminary drafts, is not recommended for reports or books that have a wide
audience. They are slower than laser printers *but* much cheaper.

15 One common type of non-impact printer is an **ink-jet** printer. It operates by
projecting small ink droplets onto paper to form the required image. This type
of printer is quite fast, silent *and* not so expensive as a laser printer.
Nevertheless, you can expect high quality results *because* there are some ink-
jet printers on the market with a resolution of 720 dpi. **Bubble-jet** printers work
20 the same way.

Laser printers produce output at great speed and with a very high resolution
of 600/2,400 dpi. They scan the image with a laser beam and transfer it to paper
with a special ink powder. They are constantly being improved. In terms of
speed and image quality they are preferred by experts for different reasons:
25 they have a wider range of scalable fonts, they can emulate different language
systems, they can produce graphics, and they have many other
advantages. It goes without saying that they are still expensive for home users.

 We must not forget to mention **thermal** printers. They use heat, a special
kind of paper and electrosensitive methods. They are silent and considered to be
30 inexpensive. However, some colour models that emulate HP (Hewlett Packard)
plotters cost too much to be included in the same category.

Imagesetters can be regarded as an attractive alternative. They produce very
high-resolution output (up to 3,540 dpi) on paper or microfilm. *In addition*, they
are extremely fast. They are used in desktop publishing. *Although* they produce
35 the highest quality output, they have one important drawback: they are too

expensive for homes or small offices.

Finally, **plotters** are a special kind of printer. Plotters use ink and fine pens held in a carriage to draw very detailed designs on paper. They are used for construction plans, engineering drawings and other technical illustrations.

3. Read the text again and complete this table with the most relevant information. Then compare your notes with a partner.

<i>Type of printer</i>	<i>Technical specifications and other features</i>
Dot-matrix	

VI. Grammar: Comparatives

1. Study the sentences below and identify comparatives and superlatives.

1. Dot-matrix printers are cheaper than laser printers.
2. An imagesetter is the fastest output device.
3. A thermal wax printer is more expensive than a monochrome laser printer.
4. The Micro Laser XT is the most reliable of all.
5. Personal laser printers cost less than ordinary printers. They also weigh less and require less space.
6. My printer has more resident fonts than yours.
7. This printer offers laser quality at a lower price.
8. Monochrome printers operate faster than colour ones.
9. Dot-matrix printers are too slow.
10. Dot-matrix printers are not quick enough.
- 11.

2. Read the advertisements for printers below, and then, with your partner discuss which printer is better and why. Talk about their: speed, memory, fonts, emulations, resolution, service, price, noise. Use adjectives from the box below.

expensive	easy	difficult	simple	powerful	reliable
adaptable	expandable	compatible with			

Use the comparative structures:

....is.....than.....

....is (not) as.....as.....

<p>Turbo Laser Writer QR</p> <p>Workgroup laser printer. 15 ppm. 1,200 dpi for graphics. 36 MB of RAM. Includes Adobe PostScript and Hewlett Packard PCL, printer languages, 75 residential fonts.</p> <p>\$1,150</p> <p>Connectivity: one bi-directional parallel port, one LocalTalk port, and one Ethernet port for networks. 12 month warranty.</p>	<p>STYLUS DOT-MATRIX PRINTER</p> <p><i>Dot-matrix printer with 24 pins. Prints text and graphics. 450 cps. Compatible special interface. Free unlimited hotline support for our customers. One year on-site maintenance.</i></p> <p>\$179.50</p>
<p>Colour PostScript Printer</p> <p>Colour printer. 40 Adobe Postscript fonts. 36 MB RAM with a SCSI interface for an optional 20 MB hard disc. Parallel, serial and Apple Talk interfaces. HP plotter emulation. Thermal printing system. 30-day money-back guarantee and 1 year's on-site parts and labour.</p> <p>\$2,249</p>	<p>CRYSTAL LASER PRINTER</p> <p>14 pages per minute. 20 MB RAM Two 200 sheet selectable input trays. LCD display. 80 internal scalable fonts. A resolution of 2,400 dpi. Comes with PostScript language and PCL (printer control language). Telephone hotline support \$999</p>
<p>COLOUR INK JET</p> <p><i>Stunning Plug & Play colour printer. Brilliant photo quality (up to 720 dpi) and fast-drying ink. Produces 8 pages per minute in plain text and 4 ppm in colour. 150 page paper tray. Fast, friendly service.</i></p> <p>\$299</p>	<p><u>MICRO LASER XT</u></p> <p>Personal laser printer. 5 pages per minute. 4 MB RAM expandable to 64 MB. Parallel interface. 200 sheet input tray. 35 resident fonts. One-year on-site maintenance. Prints on a wide range of materials and sizes.</p> <p>\$649</p>

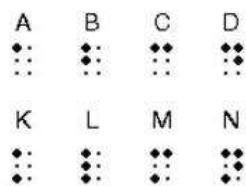
VII. Listening

1. Listen to an extract from a consumer technology podcast about multi-function printers. What two disadvantages of multi-function printers are mentioned?
- 2.
3. Listen again and answer these questions:
 1. What is a multi-function printer?
 2. Why are multi-function printers so popular?
 3. What is the main advantage of PictBridge technology?
 4. Apart from sheets of paper, what other things can multi-function printers print?
 5. What software do you usually get when you buy a multi-function printer?
 6. What advice does Mr Kelly give on ink cartridges?
 7. What type of device does he recommend for home users?
 8. What type of device does he recommend for businesses?

UNIT 6

I. Reading

1. Discussion:



1. Look at the pictures. What do you think they show?

2. What do you know about Louis Braille? What is his famous invention?

3. Do you think it is possible for blind people to use PCs and search the Web?



2. Speak about the typical Web design using the suggested words:

The Web: webpage, icon, link, password, chatroom, search-engine, ads, animated pictures, pictures, blogs

3. Read the text and match the headings (1) to (4) to the paragraphs from (A) to (D):

- (1) High-tech electronics
- (2) New portable software
- (3) Descriptive text is a must
- (4) Information on the Net

Bad Web Design Proves a Problem for Blind Internet Users

1 **The combination of the Internet and computer screen reader software means blind people now have more access to written information than ever before. But bad Web design is making accessibility difficult.**

5 A folded white cane lies next to piles of papers and coffee cups on computer desk of programmer Günter Christmann. He is blind and can't see the written text on the computer screen in front of him. Christmann opens his Internet browser using the keyboard curser and types in the name of the site he wants to visit – the tap of his fingers is accompanied by a fast-talking robotic voice that reads *every* character displayed on the screen. Given the amounts of
10 advertisements, pictures, links and headings on every Internet page, it can sometimes take a while for a blind user to find the actual text that they want.

(A).....

15 Previously, if Christmann wanted to read a newspaper, he had to wait for it to be scanned into Braille. "Nowadays, with Internet, I can go to the newspaper or magazine and I can read the newspaper directly," he said. The Internet has an even more practical side. Before the advent of the Net, Christmann had to wait for someone to scan in his computer manuals so he could do his work. "Now, I can search with Google and find everything I need," he said. There are several types of screen reader software that Europe's 2.7 million blind people can use if
20 they have computer access.

(B).....

Christmann works as a product manager for Baum Retec, a German firm based near the southern German city of Heidelberg specializing in products and

services for the blind and visually impaired.

25 One of the products he supports is MyStick, a screen reader packed into a
normal USB stick that is making computers and the Internet more accessible for
the blind. Because it is portable, MyStick means blind users can log onto any
PC, and start using the programs and surfing the Internet without having to
engage in the process of installing software first. "I can go to a library or an
Internet café and plug in MyStick and start using the screen reader," Christmann
30 said. When he's finished, he just takes out the USB stick, and puts it in his
pocket.

(C).....

In addition to the screen reader, another piece of equipment that's essential
is a Braille display (costs around 12,000 euro). It's made up of a long row of so-
called "soft cells" that are made up of six to eight tiny metal or nylon pins, which
are controlled electronically and move up and down to spell out a line of text in
35 Braille.

"Just because I can hear the words, doesn't mean I know how to write
them," explained Anna Courtpozanis, who has been blind since birth (which
hasn't stopped her gaining a degree, having a family, and working full-time). "If
I write texts, I need to see if I have made a mistake," she said, as her fingers flew
40 over the Braille line. Courtpozanis tests Web sites to see how accessible they are
for Web For All, a Heidelberg association aiming to reduce barriers for people
using the Internet.

It can take new users a while to learn the numerous keyboard commands that
are necessary for using a screen reader or a Braille line. According to
Courtpozanis, however, the main barrier to web use is poor Web design.

(D).....

45 Pictures are often a barrier because unless a descriptive text is provided, a
blind person has no way of knowing whether the image is an unidentified photo
or logo, artwork, a link to another page or animated elements. Courtpozanis
personally finds online forms particularly annoying simply because they are an
unavoidable part of daily existence but often have no description of what
particular field is for.

50 "If I want my daughter's birth certificate but I haven't got time to go to the
town where she's born, then I have to do it over the Net, but I can't fill in the
forms," she complained.

Courtpozanis and Christmann are both what you would call power Internet
users. And both of them are irritated that with all the investment in high-tech
software and technology, it's the simple things – a lack of descriptive words, for
instance – that can render a website meaningless for the blind.

Kate Hairsine for DW, 2007

4. Summarize and retell the text using the headings in task 3 as a plan.

II. Reading: *Computers for the disabled*

1. Read the text below and find:

1. the name of the law that ensures equal opportunity for persons with disabilities in the US.
2. the type of software which is recommended for someone with low or partial vision.
3. the type of software that reads printed material, recognizes the text and then sends it to the PC.
4. the switch that can be used by someone with quadriplegia.
5. the function of voice recognition devices.

1 Computers have taken a dominant role in our society, so most new jobs require access to computers and the Internet. But what happens if a person is blind, deaf or motor-disabled? The latest assistive technology is designed to help them use computers and do their jobs in the office, learn at school, or interact with their families at home. In addition, new laws oblige employers to adapt the
5 workplace to accommodate disabled people. For example, companies in the USA are subject to the Americans with Disabilities Act or ADA. This makes it illegal for employers to discriminate against people with disabilities.

The first task in adding assistive technology to a computer is to determine the
10 specific needs of the disabled worker. To work effectively, most **blind users** need to have their computers adapted with technologies such as Braille, magnification, speech synthesis and Optical Character Recognition (OCR).

Modern Braille keyboards have Braille lettering on keyboard overlays, allowing the blind user to identify each key. For Braille output, there are printers
15 that can emboss Braille on both sides of a page at high speed.

For someone with limited but usable vision screen magnification programs can enlarge text appearing on the screen by 16 times. In addition, they are now being developed with various levels of speech output capabilities, and work with all applications, including the Internet.

20 A speech-synthesis system is used to read aloud the work on the computer. It has a speech-synthesizer, which produces the audio output, and a screen reader, the program which reads aloud text and menus from word processors, databases, and even the Web.

OCR uses a flatbed scanner and specialized OCR software to read printed
25 material and send the text to the computer. Then the PC can produce a copy of the text in Braille, a magnified copy, or a version that can be read aloud by a speech-synthesis system.

Deaf computer users can overcome many communication difficulties with the aid of visual alerts and electronic note takers.

30 Visual alerts are indicators that alert the deaf user when there is an error. So instead of hearing a sound, the user is alerted by a menu bar blinking or by a

message on the screen. Electronic note-takers are devices which print out what is spoken in meetings or business presentations, where lip-reading is not possible.

Motor-impaired workers unable to type on a standard keyboard can
35 employ expanded or ergonomic keyboards, on-screen keyboards, adaptive switches and voice recognition systems.

On-screen keyboards are software images of a keyboard that appear on the screen and may be activated with a trackball, touch screen, screen-pointing device, or eye movements. In an eye-gaze system, the keys on the virtual
40 keyboard are activated by the user's eyes when they pause on a key for 2 or 3 seconds.

Switches come in many shapes and sizes. They are operated by muscle movements or breath control. For example, a pneumatic switch – known as 'sip and puff' – allows someone to control the PC by puffing and sipping air through
45 a pneumatic tube. Voice-recognition allows the computer to interpret human speech, transforming the words into digitized text or instructions.

2. Match the terms in the box with the explanations below.

a Braille	b speech synthesizer	c electronic note-taker	d
on-screen keyboard	e eye-gaze system		

1. a keyboard displayed within the computer screen
2. a system of writing and reading (using raised dots) for blind people, to enable them to read by touch
3. a hardware device used in conjunction with a screen reader program to convert screen contents into spoken words
4. a system activated by the movement of the user's eyes
5. a device used by deaf users to record and print out what is spoken in a meeting

II. Vocabulary: *Noun Phrases*

1. Study the information below:

Noun phrases

In describing a noun phrase, we can distinguish two components:

- the head
- the modifier – notably adjectives and nouns. Thus:
 - *compatible computer* modifier + head
 - *machine code* modifier + head

We have the following range of modifiers:

• adjectives

I like this portable computer. (a computer which is portable)

• participles

I like this drawing and painting program. (a program that draws and paints)

I like this pocket-sized computer. (a computer that fits into your pocket)

- **'s genitive**

I like the director's computer. (the computer which belongs to the director)

- **nouns**

I like this colour scanner. (a scanner which works in colour)

2. Look at the noun phrases 1 to 7. Decide what type of modifier(s) is/are placed before the 'head' in each case.

Types of modifiers

- a. adjective
- b. participle
- c. 's genitive
- d. noun

Noun Phrases

- 1. disabled worker
- 2. rehabilitation engineer
- 3. employee's abilities
- 4. external adaptive switch
- 5. Windows-based applications
- 6. pointing device
- 7. speech synthesizer

3. Explain and translate the following noun phrases.

Examples:

memory chips - *chips of memory*

disk controller - *a device which controls the disk drive*

- 1 screen reader
- 2 printing devices
- 3 company's database
- 4 adapted keyboards
- 5 magnification program
- 6 eye movements

III. Listening

1. Mike Hartley is a director of the Adaptive Technology Project for the Blind in Washington, DC. Listen to this interview with him in which he discusses the needs of blind computer users and make notes.

2. Compare your notes in pairs.

3. Listen again and complete your notes.

- Work he's involved in:
- Minimum configuration required to meet the needs of these workers:
Processor:
RAM:
- Expansion slots:
- Specific technologies (input/output devices):.....
- Companies that are developing adaptive equipment:

IV. Writing

Write a letter to Mike Hartley asking for information about computers for the disabled. Make sure you include the following points.

- Begin by saying why you're writing:

I am writing to ...

- Ask for information about specific I/O equipment for deaf, blind and motor-disabled workers:

I would like to know ...

Ask for a free handbook about how to add adaptive technology to personal computers:

I would be very grateful if...

- End the letter appropriately:

I look forward to hearing from you soon.

Yours sincerely ...

V. Research:

Find information and be ready to present it in front of the class to one of the following topics:

- 1. Technologies for disabled.**
- 2. Disabled people in Ukraine.**
- 3. Helen Keller: blind and deaf.**

UNIT 7

1. Scan-reading: *Types of drives*

Look at the illustrations and information and find out:

- 1 the size of a floppy disk
- 2 the storage capacity of a high density diskette
- 3 the name of a hard drive on a PC platform
- 4 the storage capacity of a SyQuest cartridge
- 5 the system that can hold 10 GB tapes
- 6 a type of drive used by digital cameras and music players.



diskette

A high-density (HD) floppy disk can store 1.44 MB of information. A floppy drive uses 3-5-inch disks and it's called drive A.

Hard disk

Most PCs have one hard drive, called drive C. It's used to keep software and files organized in a convenient way. A hard disk can hold several gigabytes of data.

Removable hard drive

Popular drives are the Zip and jaz systems from Iomega. A Syquest cartridge can hold 1.5 GB.



Tape drive

A tape drive stores data on tape cartridges. It's used for backup purposes. A Digital Audio Tape drive can hold up to 10 GB of data.

Pocket-sized drive

Ultra portable drives are used with mobile computers. They hold 40 MB disks. The Peerless system can hold 20 GB disks, which allows you to store thousands of MP3s and video games.

Microdrive

A Microdrive is the smallest hard drive for digital cameras, laptops, and audio players. It comes in 340 MB and 1 GB capacities. It uses a PC Card adapter.

II. Listening

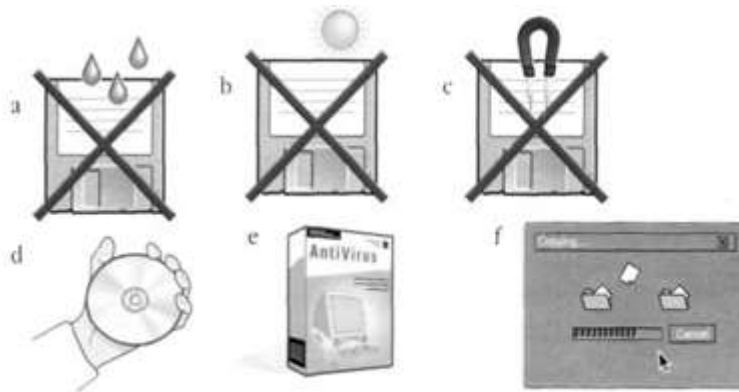
1. Sue is in a shop. Listen to the conversation and answer these questions.

- 1 What type of drive does Sue want to buy?
- 2 What's the storage capacity of the Iomega eGo portable hard drive?
- 3 How much information can be stored on the Edge DiskGo model?
- 4 What type of disk is good for mobile professionals?
- 5 How much is the Iomega eGo drive cost?

III. Reading: *Directions for use*

1. Match the instructions to the pictures.

1. Protect your floppies against high temperatures.
2. Check for viruses before opening files you receive from the Web or via e-mail.
3. Keep back-ups (spare copies) of your data.
4. Magnetic fields can damage the information stored on disks. Don't leave them near the telephone.
5. Keep disks away from water and humidity.
6. When handling CDs or DVDs, hold the disks around the edge.



2. In pairs, tell each other what you must or mustn't do to protect your data.

Example *You mustn't stack disks on top of each other.*

- 1 Store disks in a protective case
- 2 insert into the disk drive very carefully
- 3 keep near magnets; they can damage the information stored on them
- 4 update your anti-virus program regularly since new viruses are created every day
- 5 use passwords and security devices to protect confidential information

IV. Reading: *Technical details*

1. Read the text and match the terms 1-6 with the explanations a-f.

- | | |
|------------------|---|
| 1. backing store | a) a device which spins disks and contains a read write head |
| 2. floppies | b) secondary memory |
| 3. disk drive | c) diskettes |
| 4. formatting | d) initializing: setting tracks and sectors on magnetic disks |
| 5. directory | e) a catalogue of where each piece of data is stored and how to find it |

2. Look at the illustration. Identify some tracks and sectors.

1 **Floppy disks** are so called because they consist of flexible plastic material which has a magnetizable surface.

 The surface of a disk is divided into concentric circles or 'tracks', which are then divided into 'sectors'. When you insert a blank disk into a disk drive, it must be
5 'initialized', or formatted, before information can be recorded onto it. This means that magnetic areas are created for each track and sector, along with a catalogue or 'directory' which will record the specific location of files.

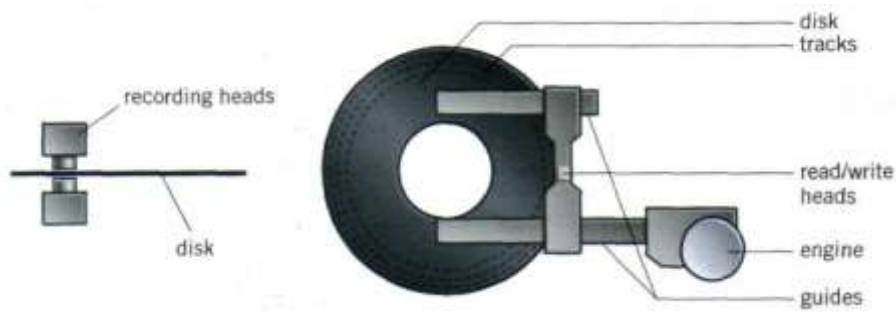
 When you save a file, the operating system moves the read/write heads of the disk drive towards empty sectors, records the data and writes an entry for the
10 directory. Later on, when you open that file, the OS looks for its entry in the directory, moves the read/write heads to the correct sectors, and reads the file into the RAM area.

Hard disks work in the same way as floppies. But they have important advantages: they can hold much more data and spin at higher speed, so you can store
15 and retrieve information much faster than with floppies. The speed at which a hard drive finds data is called 'access time' - or seek time. The average access time is measured in milliseconds (ms). Most hard drives have an access time of 8 to 14 ms. You have to distinguish between access time (e.g. 9 ms) and 'data transfer rate' (the
20 average speed required to transmit data from a disk system to the RAM, e.g. at 10 megabits per second). Remember that the transfer rate depends also on the power of your PC.

 If you only use word-processing programs, you will need less storage capacity than if you use CAD, sound and animation programs. If you need an extra hard drive, you should consider the type of mechanism. There are 'internal' and 'external' drives
25 which are both rigid disks sealed into the drive unit, either within or attached to the computer.

 Another type of hard drive, known as 'removable', allows you to record data on 'cartridges', which can be removed and stored off-line for security purposes. Some systems allow you to back up your entire PC on one disk.

30 Laptops use pocket-sized drives. Digital cameras and music players use microdrives with special cards.



A floppy disk drive spins at 360 revolutions per minute. A hard disk drive spins at 7,200 rpm and stores data on a stack of metal rotating disks, called platters.

3. Read the sentences and say if they are true (T) or false (F).

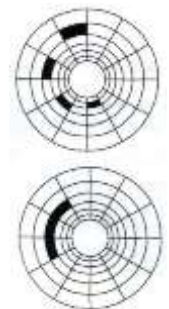
1. Hard drives are faster than floppy drives.
2. 'Access time' refers to the average time required for the recording heads to move and access data.
3. 'Access time' and 'data transfer rate' mean the same.
4. Hard disks use rigid rotating disks.
5. A hard drive is about 20 times faster than a floppy disk drive.

V. Vocabulary: Word building

1. Look at the groups of words and decide what class each word belongs to: noun, verb, adjective or adverb. Fill in the gaps in the sentences below.

magnet	magnetic	magnetically	magnetism	magnetize	magnetized
--------	----------	--------------	-----------	-----------	------------

- 1is the science of magnetic phenomena and properties.
- 2 Floppy and hard disks are considered as storage devices.
- 3 Data is recorded on a disk in the form ofspots called bits.



record /ri'kc:d/	recorder	recording	recorded
------------------	----------	-----------	----------

- 4 All disks must be initialized before information can beonto them.
- 5 The.....heads magnetize the coating along each track.
- 6 A disk drive works very much like a tapethat can both play and record.

fragment	fragmentation	defragmenter	fragmented
----------	---------------	--------------	------------

- 7 After you create, delete and modify a lot of files, the hard disk becomes..... with bits and pieces spread all over the disk.
- 8slows down the speed at which data is accessed because the disk drive has to work harder to find the parts of a file stored in many different locations.
- 9 To reorganize your hard disk, you can use a disk optimizer or.....; this will reorder your files into contiguous clusters.

VI. Listening

1. Before listening try to answer these questions.

- 1 What do CD and DVD stand for?
- 2 What is the main advantage of using DVDs instead of CDs?

2. Paul wants to buy some blank discs. Listen to his conversation with the sales assistant.

3. Listen again and decide whether these sentences are true or false. Correct the false ones.

1. A DVD is an optical digital disk that can be used for video, audio and data storage.
2. The dimensions of a CD and a DVD are the same: 1.3 mm thick and 13 cm in diameter.
3. The data on a DVD is read with a laser beam.
4. A basic DVD can hold 3.7 gigabytes.
5. You need a hard drive to read DVDs.
6. DVD-video discs can hold full-length movies.
7. A DVD writer is not compatible with old CD-ROMs.

VII. Reading: *Optical Discs*

1. What are the advantages and disadvantages of optical disks? Read the text to find out.
2. Which types of drives and storage devices do you use most often? Why?
3. What is a flash card? What are the advantages/ disadvantages of using it?

- 1 Optical disks can store information at much higher densities than magnetic disks. Thus, they are ideal for multimedia applications where images, animation and sound occupy a lot of disk space. Besides, they are not affected by magnetic fields. This means that they are secure and stable, e.g. they can be
- 5 transported through airport metal detectors without damaging the data. However, optical drives are slower than hard drives. While there are hard drives with an average access time of 8 ms, most CD-ROM drives have an access time of 150 to 200 ms.

There are various types of optical drives:

- 10 **CD-ROM** systems offer everything, from shareware programs to dictionaries and encyclopedias, from multimedia databases to 3-D games. A lot of institutions have discovered that CD-ROM is the most economical way of sharing information. In fact, one CD-ROM disk (650 MB) can replace 300,000
- 15 pages of text (about 500 floppies), which represents a lot of savings in distributing materials and corporate databases. In addition, CD-ROM drives can play music CDs while you work. Yet CD-ROM technology has one

disadvantage: you cannot write anything onto a CD-ROM disk. You can only 'read' it, like a book.

20 CD-Recorders come in two different forms: **CD-R** and **CD-RW**. CD-R machines record on CD-R (write-once) disks, allowing you to create and duplicate CDs. They are used to back up hard disks or to distribute and archive information. In fact, these systems are the modern version of old WORM (write once, read many) disks. CD-RW (rewritable) disks can be erased and re-used, just as you would do with a hard disk.

25 **DVD** (digital versatile disk). A DVD-ROM can hold up to 8.5 GB, about 15 times an ordinary CD-ROM. For this reason, it can store a large amount of multimedia software and complete Hollywood movies in different languages. They can also play music CDs and CD-ROMs. However, DVD-ROMs are 'read-only' devices. To avoid this limitation, companies also produce DVD-R and DVD rewritable disks.

VIII. Grammar: *Discourse cohesion (Reference signals)*

1. Read these sentences and clauses and look back at the text in Task VII to find out what the words in bold refer to.

- 1 ... **they** are secure and stable ...
- 2 ... **which** represents a lot of savings in distributing materials ...
- 3 ... **you** cannot write anything onto a CD-ROM disk
- 4 You can only 'read' **it** ...

Connectors and modifiers

2. Look at the expressions in *italics* in these sentences and clauses.

- 1 *Thus*, they are ideal for multimedia applications ...
- 2 *Besides*, they are not affected by magnetic fields.
- 3 *However*, optical drives are slower than hard drives.
- 4 *In addition*, CD-ROM drives can play music CDs while you work.
- 5 *Yet* CD-ROM technology has one disadvantage: ...
- 6 *For this reason*, it can store a large amount of multimedia software ...

3. Put each expression (1 to 6) into the right category: a, b or c.

- a to show contrast
- b to explain causes and results
- c to add new ideas

IX. Translation. Translate the text into English

Достойна класика

У нової моделі смартфона компанії ASUS – широкий корпус (117X65X13,8 мм) і повноцінна QWERTY клавіатура з чітко сегментованими клавішами, що в даному випадку важливо. І хоча це не перша модель в світі, виконана в даній концепції, у деякої категорії наших споживачів цей комунікатор, напевне, викликає інтерес.

Масою лише 130 грамів, *M530w* оснащений великим дисплеєм діагоналлю 2,46 дюйми, 2-мегапіксельною фотокамерою і додатковою камерою з роздільною здатністю 640X480 для передачі зображення при відео дзвінках. У моделі – 256 Мб флеш пам'яті і 64 Мб SDRAM, яка може бути розширена за допомогою карт пам'яті Micro-SD. Звичайно ж є повний набір бездротових інтерфейсів: Wi-Fi, Bluetooth і GSM- модуль з підтримкою функцій 3G.

Звичайно ж, зручно, що *M530w* може бути і USB- хостом, який дозволяє підключати інші USB-пристрої (клавіатуру, мишку, та ін..) Комунікатор може працювати до 4 годин в режимі розмови. І все це чудо відбувається завдяки свіжій версії операційної системи *Microsoft Windows Mobile 6 Smart Phone version*.

X. Puzzle

Read the clues and complete the crossword



Across:

1. Acronym for 'light amplification by stimulated emission of radiation'. 4. A microcomputer. 6. To write information on a disk 10. To record and keep for future use. 12. Abbreviation of 'binary digit'. 14. Thousandth of a second. 15. The type of computer with a 286 processor introduced by IBM in 1984. 17. Concentric ring marked on the surface of a disk when the disk is formatted. 18. Prefix meaning 'very large' or 'one thousand million'. 20. Read only memory. 22. The physical mechanism that accepts, reads and writes data on a disk.

Down:

1. Acronym for 'local area network'. 2. Opposite of 'indelible'. 3. Abbreviation of 'high density' or 'hard disk'. 5. Way of storing a lot of information in a removable form. 7. Abbreviation of 'optical character recognition'. 8. All disks must be 'initialized' or when used for the first time. 9. Indelible optical storage device: 'write once, read many'. 11. Not cheap. 13. A flat, circular surface used to hold computer data. 16. Opposite of 'soft'. 19. Disk that holds music. 21. A thousand kilobytes.

UNIT 8

I. Reading

1. Read the text below and complete it with the phrases in the box.

applications software	operating system	software	system software
-----------------------	------------------	----------	-----------------

Information provided by programs and data is known as (1)

Programs are sets of instructions that make the computer execute operations and tasks.

There are two main types of software:

- The (2)..... refers to all the programs which control the basic functions of a computer. They include operating systems, system utilities (e.g. an anti-virus program, a back-up utility) and language translators (e.g. a compiler - the software that translates instructions into machine code).
- The (3)..... refers to all those applications – such as word processors and spreadsheets – which are used for specific purposes. Applications are usually stored on disks loaded into the RAM memory when activated by the user.
- The (4)..... is the most important type of system software. It is usually supplied by the manufacturers and comprises a set of programs and files that control the hardware and software resources of a computer system. It controls all the elements that the user sees, and it communicates directly with the computer. In most configurations, the OS is automatically loaded into the RAM section when the computer is started up.

2. Read the text and find:

- 1 the text-based operating system used in older PCs
- 2 the most secure and reliable version of the Windows family
- 3 the OS designed for handheld computers
- 4 the function of the Finder in Macintosh computers
- 5 the meaning of 'multi-tasking'
- 6 the OS written in C language and used on minicomputers and workstations
- 7 the OS that is freely redistributable under the GNU general public licence
- 8 the OS originally developed to run on SPARC workstations.

Operating systems

MS-DOS This operating system was developed by Microsoft in 1981 for all IBM PC compatibles. Today it's only used in old PCs. In this text-based OS, you communicate with the computer by typing commands that exist within its library. For example, some basic DOS commands include: DIR (shows a list of all the files in a directory), COPY (makes a duplicate of a file), DEL (deletes files).

Windows	<p>Most home PCs use Windows. Here are the most recent versions:</p> <ul style="list-style-type: none"> • With Windows 98, Internet access becomes part of the user interface. Its active desktop lets you find information easily with the same view of content on your PC, network or the Web. The system includes Outlook Express for e-mail, NetMeeting conferencing software, a chat program and a Web-page editor. It offers advancements such as USB and multimedia extensions. • Windows 2000 is built upon the Windows NT architecture and designed for business uses. • Windows Millennium is designed for home use. It includes new system safeguards and support for DVD, music players and mobile computers. • Windows XP is an update to all Windows versions, with a new visual design. It's more secure and reliable. It offers support for the latest technologies.
Pocket PC (Microsoft)	This OS is developed for handheld computers (or palmtops) that use a stylus or a small keyboard for input.
Mac OS	The Mac OS combines the elegance of Macintosh and the power of UNIX. Large parts of the Mac OS are inside the System file and the Finder, kept in the System folder. The content of the System file is loaded automatically at start-up, and contains information which modifies the routines of the OS in the ROM chips. The Finder displays the Macintosh's desktop and enables the user to work with disks, programs and files. With the new Mac OS, you can create CDs and record DVDs. It also offers Internet capabilities, support for Java, and AirPort technology for wireless connections.
OS/2 Warp (IBM)	This is the PC world's most technically sophisticated operating system. It provides true multi-tasking, allowing a program to be divided into 'threads', many of which can run at the same time. Thus, not only can numerous programs run simultaneously, but one program can perform numerous tasks at the same time. The IBM OS/2 Warp includes easy access to networks via modem, support for Java applications, and voice recognition technology.
UNK	This OS, designed by Bell Laboratories for minicomputers and workstations, has been widely adopted by many corporate installations. From the very first, it was designed to be a multi-tasking system. It is written in C language. It has become an operating environment for software development, available for any type of machine, from IBM PCs to Macs to Cray supercomputers. Unix is the most commonly used system for advanced CAD programs.
Linux	Protected under the GNU general public licence, Linux is the open source, cooperatively-developed POSIX-based, multi-tasking operating system. Linux is used as a high value, fully-functional UNIX workstation for applications ranging from Internet Servers to reliable

work group computing. Linux is available for Intel, Alpha and Sun SPARC platforms.

Solaris This is a Unix-based operating system developed by Sun Microsystems. Originally designed to run on SPARC workstations, today Solaris also runs on many Pentium servers. It supports multi-processing - many CPUs and processes on a single system. It includes Java technology, which allows Web pages to display animation, play music and interact with information.

II. Grammar: *Countable and uncountable nouns*

1. Study the information below:

- **Countable** nouns are people or things that we can count. They have a singular and a plural form. They must have a determiner (*a, one, my, this,...*) in the singular, though this is not necessary in the plural.

e.g. *computer, website, bookmark*

- **Uncountable** nouns are things that we can't count. They have no plural form.

e.g. *information, pirating, storage*

- They are partly distinguished by the determiners they can take.

Many, few, a few go with countable nouns.

We didn't take many pictures.

I have a few jobs to do.

Much, little, a little, a great deal only go with uncountable nouns.

We didn't do much shopping.

I have little work to do.

Some, any, no, enough can go with both countable and uncountable nouns.

We listened to some music.

Did you buy any CDs?

I don't have enough money.

- Some words are countable in most languages, but uncountable in English and are used **with a singular verb**:

*advice, damage, equipment, furniture, research,
luggage, news, progress, homework, weather*

2. Here are some common nouns in computing. Divide them into countable and uncountable nouns.

1 window	2 robotics	3 hardware	4 program	5 hacker
6 hacking	7 system	8 software	9 workstation	

3. These sentences contain typical mistakes. Correct them.

- 1 We are having a terrible weather.
- 2 Can you give me an advice?
- 3 I need some informations.
- 4 The news were very depressing.
- 5 I like the furnitures.
- 6 Much people use the Web today.

4. Complete the sentences with *a, an, the*, or *no article*.

At university we have (1)..... computer in every classroom.

We use (2).....computer to do (3).....projects and to study (4).....music and languages.

The teachers use PCs to print articles, songs, or activities for use in class. This year, they are preparing (5).....exchange with a college in Norfolk.

We all use it to get (6).....information from (7).....Internet.

At home I use my computer to send and receive (8).....e-mail and to play (9).....computer games.

I have (10).....ink-jet printer.

III. Listening

1. Read the information:

System utilities are small programs which improve a system's performance and help users take advantage of the computer's capabilities. They are often desk accessories that can be called up while you're working in another application. They can also be INITs, i.e. system extensions which are activated when you turn on the computer, control devices which you adjust in the control panel, or even stand-alone programs that run when you need them. Utilities are available for back-up, file search, virus protection, disaster recovery, and so on.

2. Listen to four advertisements from a radio programme about computers and number these system utilities in the order in which you hear them.

- screen saver
- virus detector
- crashed disk rescuer and data recovery
- multimedia player

3. Listen again. Which utility would you use for each of these requirements?

- 1 To play and organize multimedia on your PC
- 2 To diagnose and repair damaged disks
- 3 To automatically blank out the screen after a specific interval of inactive time (so that the image does not burn into the screen).....
- 4 To protect your system against computer viruses

IV. Vocabulary:

1. Study these definitions and translate them:

- **window:** a viewing area less than or equal to the screen size. By using different windows you can work on several documents or applications simultaneously
- **pull-down menu:** a menu that the user 'pulls down' from a name in the menu bar at the top of the screen by selecting the name with the mouse
- **the pointer:** an arrow, controlled by the mouse, that allows you to move around the screen
- **toolbar buttons:** found at the top of a window, they take you to the Home folder and others.
- **icons:** graphic images (or intuitive symbols) used to represent an object or task
- **folders:** containers for documents and applications
- **dock:** set of icons at the bottom of the screen that give you instant access to the things you use most

2. Look at the picture and describe the *interface elements of the Macintosh*



V. Reading: *GUIs*

1. Read the article

1 The term **user interface** refers to the standard procedures the user follows to
interact with a particular computer. A few years ago, the way in which users had
access to a computer system was quite complex. They had to memorize and type a
lot of commands just to see the content of a disk, to copy files or to respond to a
5 single prompt. In fact, only experts used computers, so there was no need for a
user-friendly interface. Now, however, computers are used by all kinds of people
and as a result there is a growing emphasis on the user interface.

A good user interface is important because when you buy a program you
want to use it easily. Moreover, a graphical user interface saves a lot of time: you
10 don't need to memorize commands in order to execute an application; you only
have to point and click so that its content appears on the screen.

Macintosh computers – with a user interface based on graphics and intuitive
tools – were designed with a single clear aim: to facilitate interaction with the
computer. Their interface is called WIMP: **Window, Icon, Menu (or Mouse) and**
15 **Pointer** and software products for the Macintosh have been designed to take
full advantage of its features: windows, dialog boxes, icons and pop-up menus.

Today, the most innovative GUIs are the Macintosh, Microsoft Windows and
IBM OS/2 Warp. These three platforms include similar features: a desktop with
icons, windows and folders, a printer selector, a file finder, a control panel and
20 various desk accessories. Double-clicking a folder opens a window which
contains programs, documents or further folders. At any time within a folder, you
can launch the desired program or document by double-clicking the icon, or you
can drag it to another location.

The three platforms differ in other areas such as device installation, network
25 connectivity or compatibility with application programs. These interfaces have
been so successful because they are easy to use. It is well known that computers
running under an attractive interface stimulate users to be more creative and
produce high quality results, which has a major impact on the general public.

2. Find answers to these questions.

- 1 What does the abbreviation 'GUI' stand for?
- 2 What is the contribution of Macintosh computers to the development of graphic environments?
- 3 What does the acronym 'WIMP' mean?
- 4 What computing environments based on graphics are mentioned in the text?
- 5 How do you run a program on a computer with a graphical interface?
- 6 Can you give two reasons for the importance of user-friendly interfaces?

VI. Writing

1. Summarize the text in Task V in 70-75 words. You may like to follow these steps.

- 1 Read through the whole text again and think of a suitable title for it.
- 2 Make sure you understand all the main points. Go through the text and underline the relevant information in each paragraph.
- 3 Make notes about the main points:
 - omit repetitions and unnecessary phrases
 - leave out details, such as examples.

E.g. notes on the first paragraph:

In the past only experts used computers. But now, emphasis on user-friendly interfaces.

- 4 Make sentences from the notes and connect the sentences by using linking words (*and, but, also, because, that's why, in fact, therefore, etc.*). Write your first draft.
- 5 Improve your first draft by **reducing sentences*****
- 6 Check grammar, spelling and punctuation. Write the final version of your summary.

*****Ways of reducing sentences**

- Transform a relative clause into an *-ing* participle clause
e.g. *Icons are graphic images that represent tasks ...*
= *Icons are graphic images **representing** tasks.*
- Take out relative pronouns where possible
e.g. *The software (that) we bought last year ...*
- Omit qualifying words (adjectives or modifying adverbs)
e.g. *(quite) complex/(very) similar*
- Take out **that** in reported speech or thought
e.g. *It is well known (that) computers ...*
I think (that) there's something wrong with this program.
- Cut out unnecessary phrases
e.g. *Macintosh computers were designed with a clear aim: to facilitate the user's interaction with the computer.*
= *Macintosh machines were designed to facilitate the user's interaction with the computer.*

VII. Listening

Listen to this radio interview with Bill Thompson, a program developer. He is talking about Microsoft Windows. Complete this fact file.

- *Why it's so popular*

- (1)..... because everything is presented in graphic images.
(2).....with thousands of programs and allows multi-tasking.

- *Windows versions*

Older versions like Windows 98 and Windows 2000 have been replaced by the new Windows XP.

- (3).....is ideal for home users.
(4).....is aimed at business users.

- *Other features*

Offers support for the latest technologies. Includes Windows.

- (5)....., a program that lets you play music CDs and videos.

- *Internet connections*

Internet Explorer is more reliable and secure. A connection Firewall protects your PC from (6).....

- *Windows programs*

The most popular is (7)..... a suite that includes: a word processor, an e-mail program, a spreadsheet, and a presentation graphics program.

VIII. Research

Find and present information on one of the suggested topics:

1. New products of the Microsoft

2. Advantages and disadvantages of popular Operating Systems. Which one to choose?

3. PCs and laptops vs. smartphones. Who wins?

Stop & Check 2

Exercise 1. Complete the phrases by shop assistants with words from box A and then choose which device they're talking about from box B.

A:	to can which allows used by features works for
B:	scanner, keyboard, game controller, graphics tablet, mouse, microphone, light pen, trackball

1. This model a backlight, so you can see what you're typing in the dark.
2. We have a Bluetooth version which without wires, but the surface you use it on needs to be dark.
3. Why don't you try this? It's drawing, as if you were using a pen and paper.
4. You'll need one of these – it's to control your movements while you play.
5. For more precision, I'd recommend this. It's like an upside-down mouse, and it works running your hand over the plastic ball here.
6. This is our most popular model. It you reproduce exact copies of your documents in digital format.
7. This works just like a mouse, except you write directly onto the screen with it.
8. This is a model works particularly well with Skype.

Exercise 2. Complete these FAQs from a word processing program by choosing the correct words from the box.

Caps Lock, return, tab, Ctrl, backspace, arrow, shift, space bar
--

1. Question: How do I start a new line in my document?
Answer: Just hit
2. Question: How can I delete a letter or word that I've typed?
Answer: Position the cursor after the letter or word and hit once per letter.
3. Question: Do I have to use the mouse to navigate around my document?
Answer: No, you can also use the keys.
4. Question: How can I type in UPPER CASE characters?
Answer: If you want to type one or two letters in upper case, then simply hold down and type the letters at the same time. If you want to type a whole sentence in upper case, you should use

Exercise 3. Complete this review of a digital camera by the superlative form of the adjectives in brackets.

With 6.0 megapixels and 3x optical zoom, the D930 is (1) (good) the high resolution digital camera available in this price range. You can use the D930 to produce some of (2) (sharp) the images possible and take detailed photos for printing up to poster size. In addition, it has a 3x optical and 5x digital zoom giving 15x total zoom when combined – (3) (high) the in any digital camera under £50. ASR technology prevents the degradation of image clarity and colour common in flash photography. With ASR, the effects of camera shake are reduced in lower light

conditions; you can even take well exposed, sharper pictures in low light without using a flash at all. It guarantees (4) (bright) the and (5) (natural) the pictures possible at this price.

Exercise 4. Complete these descriptions of printers by comparative form of the adjectives in brackets.

1. Laser printers are (expensive) than inkjets.
2. Thermal transfer printers are (good) for printing bar codes than dot-matrix printers.
3. Inkjets are (small) than imagesetters
4. Dot-matrix printers are (noisy) than laser printers.
5. Imagesetters are (convenient) than platesetters, as you still need to print to film before making the printing plates.

Exercise 5. Complete these sentences by choosing the correct phrase in box.

seek time, transfer rate, access time, sectors, tracks, directory, partition
--

1. The average time it takes the read/write heads to move and find data on a disk is called the
2. is another way of saying *seek time*.
3. is the average speed required to transmit data to the CPU from the disk; it is measured in megabytes per second.
4. Once formatted, a disk's surface is organized into circular each of these is then divided into
5. When a disk is formatted, a is created by the operating system to record the location of files.
6. If you have more than one on your hard drive, you can install more than one operating system.

Exercise 6. Complete this extract from a wiki entry about Windows Vista by appropriate articles: *a, an, the, -*.

Windows Vista is (1) ... operating system developed by Microsoft for use on (2) ... personal computers. Development was completed on November 8, 2006; over (3) ... next three months it was released in stages to (4) ... computer manufacturers, (5) ... business customers, and (6) ... shops. On January 30, 2007, it was released worldwide to the general public, and was made available for purchase and download direct from Microsoft. (7) ... release of Windows Vista comes more than five years after (8) ... introduction of Windows XP.

Vista contains hundreds of new and improved features. The most significant include (9) ... updated GUI and visual style called Windows Aero, improved search features, new multimedia creation tools, and completely redesigned networking, audio print, and display sub-systems. However, perhaps the greatest improvement has been to (10) ... security; Windows XP suffered from (11) ... vulnerability to viruses and malware, and it will be interesting to see to what extent this has been addressed in Vista.

UNIT 9

I. Reading: *Word-processing facilities*

1. Try to answer these questions.

- 1 What is a word processor?
- 2 What makes word processors superior to traditional typewriters?

2. Make a list of the most important features offered by word processors.

3. Read the text and find any word-processing capabilities that you did not list in Task 2.

- 1 Writing letters, memos or reports are the ways most people use computers. They manipulate words and text on a screen - primarily to print and store. Computers alleviate much of the tedium associated with typing, proofing and manipulating words. Because computers can store and recall information, documents need not be retyped
- 5 from scratch just to make corrections or changes. The real strength of word processing lies in this ability to store, retrieve and change information. Typing is still necessary to put the information into the computer initially.

- Word processing is more than just typing, however. Features such as **Search** and **Replace** allow users to find a particular phrase or word no matter where it is in a body of
- 10 text. This becomes more useful as the amount of text grows.

- Word processors usually include different ways to view the text. Some include a view that displays the text with editor's marks that show hidden characters or commands (spaces, returns, paragraph endings, applied styles, etc.). Many word processors include the ability to show exactly how the text will appear on paper when
- 15 printed. This is called WYSIWYG (What You See Is What You Get, pronounced 'wizzy-wig'). WYSIWYG shows **bold**, *italic*, underline and other type style characteristics on the screen so that the user can clearly see what he or she is typing. Another feature is the correct display of different typefaces and **format** characteristics (margins, indents, super- and sub-scripted characters, etc.). This allows the user to plan the document
- 20 more accurately and reduces the frustration of printing something that doesn't look right.

- Many word processors now have so many features that they approach the capabilities of **layout applications** for desktop publishing. They can import
- 25 graphics, format multiple columns of text, run text around graphics, etc.

- Two important features offered by word processors are automatic **hyphenation** and **mail merging**. Automatic **hyphenation** is the splitting of a word between two lines so that the text will fit better on the page. The word processor constantly monitors words typed and when it reaches the end of a line, if a word is too long to fit, it checks that word in a hyphenation dictionary.

- 30 This dictionary contains a list of words with the preferred places to split it. If one of these cases fits part of the word at the end of the line, the word processor splits the word, adds a hyphen at the end and places the rest on the next line. This

happens extremely fast and gives text a more polished and professional look.

35 **Mail merge** applications are largely responsible for the explosion of
'personalized' mail. Form letters with designated spaces for names and addresses are
stored as documents with links to lists of names and addresses of potential buyers or
clients. By designating what information goes into which blank space, a computer can
process a huge amount of correspondence substituting the 'personal' information into
a form letter. The final document appears to be typed specifically to the person
40 addressed.

Many word processors can also generate tables of numbers or figures,
sophisticated indexes and comprehensive tables of contents.

**4. Look at the words in the box and complete the following sentences with them.
Use the information in the text or Glossary if necessary.**

type style	WYSIWYG	format	indent	font menu	justification	mail
merging						

- 1 stands for 'What you see is what you get'. It means that your printout will precisely match what you see on the screen.
- 2 refers to the process by which the space between the words in a line is divided evenly to make the text flush with both left and right margins.
- 3 You can change font by selecting the font name and point size from the.....
- 4 refers to a distinguishing visual characteristic of a typeface; 'italic', for example is a..... that may be used with a number of typefaces.
- 5 The menu of a word processor allows you to set margins, page numbers, spaces between columns and paragraph justifications.
- 6 enables you to combine two files, one containing names and addresses and the other containing a standard letter.
- 7 An..... is the distance between the beginning of a line and the left margin, or the end of a line and the right margin.
- 8 Indented text is usually narrower than text without.....

5. Match the words and expressions on the left with their explanations on the right.

- | | |
|---------------|---|
| 1 retrieve | a text printed in the top margin |
| 2 typefaces | b recover information from a computer system |
| 3 header | c letter, number or symbol that appears below the baseline of |
| 4 footer | the row of type; commonly used in maths formulas |
| 5 subscripted | d text printed in the bottom margin |
| character | e division of words into syllables by a short dash or hyphen |
| 6 hyphenation | f styles for a set of characters; sometimes called 'fonts' |

6. Find English equivalents for these words in the text:

пом'якшувати, втома, почати все з початку, знайти\ відновити, функція, поле, відступ, верхній\ нижній індекс, розмітка, настільна видавнича система, тире.

II. Listening

1. Two friends are talking about how to move text by using the 'Cut and Paste' technique. Read the conversation and complete it with words from the box.

Finally	command	First	Edit now	mistake	Next
insertion					

A: Do you know how I can move this paragraph? I want to put it at the end of this page.

B: Er ... I think so. (1)..... you use the mouse to select the text that you want to move ... and then you choose the Cut (2).....from the Edit menu.

A: Like this?

B: Yes. The selected text disappears and goes onto the Clipboard. And (3)..... you find where you want the text to appear

and you click to position the (4).....point in this place.

A: Mm ... is that OK?

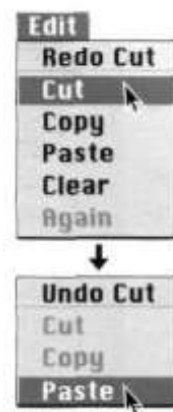
B: Yes, if that's where you want it. (5)choose Paste from the (6)..... menu, or hold down Command and press V (7).....check that the text has appeared in the right place.

A: What do I do if I make a (8).....?

B: You can choose Undo from the Edit menu which will reverse your last editing command.

A: Brilliant! Thanks a lot.

B: That's OK.



2. Now listen to check your answers.

3. Roleplay the dialogue.

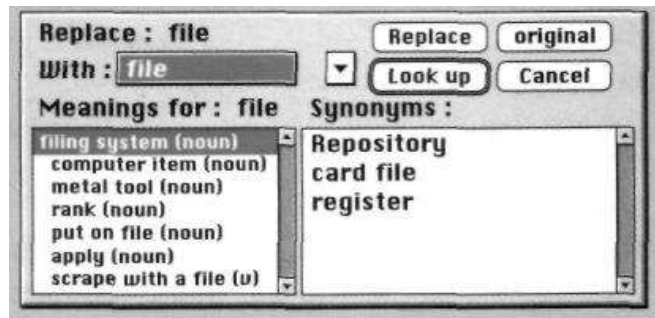
III. Writing

Look through the list of tasks to do. Choose 3 you know best how to do. Write the instructions for accomplishing these tasks:

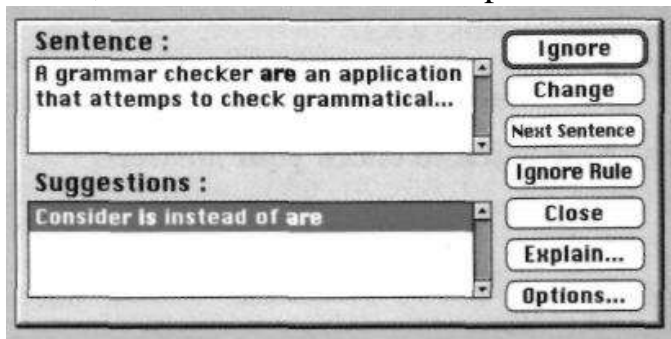
- send an email
- add an attachment to an email
- download a music file
- change a cartridge in a printer
- install new software from a CD
- transfer a picture from a digital camera onto your computer
- change the colour of your computer screen

IV. Reading: *Writing tools*

1. Three major features that word processors offer are spell checkers, online thesauruses and grammar checkers. Read the descriptions of these features and match them with the windows or dialog boxes.



Spell checkers can be used to compare words in the program's dictionary to those used in the user's document. The spell checker points out any words it cannot match, notifies the user and allows them to make any changes; it even suggests possible correct spellings. This is a good first step at proofing a document because it can find many errors, but users will still need to proofread documents to ensure accuracy.

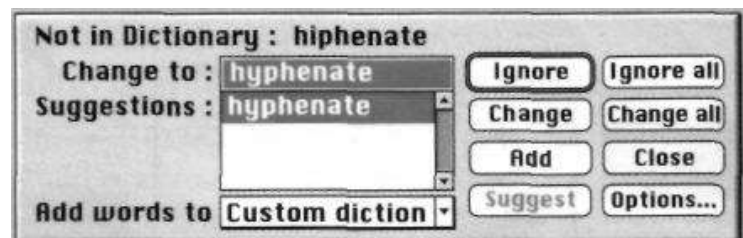


Like a conventional thesaurus, this database of words contains definitions and suggestions of words with similar and opposite meanings. A word may be spelled correctly but still be wrong (*too* instead of *two*, for instance).

Many word processors include an **online thesaurus** with which users can

look up different words to use. Their power comes not from knowing every grammatical rule, but from questioning the writer about certain parts of the text. Some even include information about pronunciation and histories of meaning evolving.

Grammar checkers are applications that attempt to check more than just spelling. They look for words that show possible conflicts between verbs and subjects and they offer advice about corrections. Grammar checkers are a step beyond spell checkers, but they are still not a substitute for a human editor. However, this does not mean that all of the words in the document are spelled correctly. This gives the writer another chance to think about what they have written; the computer can alert writers to problems that wouldn't be obvious to them otherwise.



V. Writing

You have run your letter text through the spellchecker. Unfortunately, it missed a number of mistakes. Identify all 20 mistakes and correct them. Write the correct version in your notebook.

I'd really like to complement you on you're new product line/ I think its grate that you've mad it available for the Mac, to. Are they're any features on the PC version

that are not on the one four the Mac? At the monument, we are planning too order a set of programmes this autumn, if hour test results are positive, of coarse. However, we cannot except the terms and conditions as they are know. Whose responsible for setting the prizes? Although we are very interested in the software, weather we buy it or knot may depend on the cost.

VI. Speaking

Work in pairs. Read the table below which summarizes the most relevant features of two word-processing programs. The characteristics of each program are marked with a tick (✓). Student A has *Printext* and Student B has *Publisher*. Explain to your partner why your program is better.

Example

A: *With Printext I can ...*

B: *Yes, but you can't ...*

A: *However, it is possible to ... whereas with Publisher you can't ...*

B: *Yes, but don't forget that with Publisher you can ... Moreover, ...*

A: *OK. I understand what you mean, but what about ...?*

<i>Characteristics</i>	<i>Student A "Printext"</i>	<i>Student B "Publisher"</i>
1 Instantaneous WYSIWYG and editing	✓	✓
2 Variety of font types, styles and size	✓	✓
3 Editing facilities: Copy, Cut, Paste, Undo, Select All	✓	✓
4 Centering and indenting paragraphs. Special column formats. Hyphenation and justification of text with optimum line-breaking	✓	✓
5 Spell checker, grammar checker and thesaurus	✓	✓
6 Can find and replace words even in unopened files	✓	
7 Automatic numbering of chapters and sections. Automatic generation of indexes and tables of contents. Cross-reference facilities		✓
8 Allows you to generate maths formulas, and diagrams		✓
9 Graphics tools: You can have the text wrap around the graphic or flow through it. You can scale and rotate graphics	✓	
10 Import and export facilities. You can transfer files to other IBM PCs and Macintosh applications	✓	
11 You can record voice annotations to insert comments into a document		✓
12 Includes Internet connection tools and allows you to create HTML pages for the Web		✓

VII. Listening: *Spreadsheets*

1. Look at this spreadsheet and answer the questions. (This sample spreadsheet shows the income and expenses of a company. Amounts are given in \$millions).

1. What is a spreadsheet? What is it used for?
2. In a spreadsheet, there are 'columns', 'rows' and 'cells'. Give an example of each

from the sample spreadsheet.

3. What type of information can be keyed into a cell?
4. What will happen if you change the value of a cell?
- 5.

	R	B	C	D	D	E
1		2001	2002			
2	Sales	\$890	\$982			
3	Stocks/Shares	487	768			
4	Interest	182	324			
5	Total Revenue	1559	2866			
6						
7	Payroll	894	984			
8	Publicity	399	451			
9	SerVICES	438	372			
10	Total Expenses	1731	1727			
11						
12	TOTRL	-172	339			
13						
14						

2. Listen to Lucy Boyd, a software developer, talking about spreadsheet programs and the spreadsheet above and check your answers to Task 1.

3. Listen again and decide whether these sentences are True or False:

1. A spreadsheet program displays information in the form of a table, with a lot of columns and rows.
2. In a spreadsheet you can only enter numbers and formulas.
3. In a spreadsheet you cannot change the width of the columns.
4. Spreadsheet programs can produce visual representations in the form of pie charts.

VIII. Vocabulary

1. Translate and match the terms in the box with the explanations below.

a. formula	b. cell	c. sales	d. payroll	e. share(s)	f. revenue
-------------------	----------------	-----------------	-------------------	--------------------	-------------------

- 1 A sum of money that is charged or paid as a percentage of a larger sum of money which has been borrowed or invested,
e.g. *High ... rates; 17 per cent ... on a loan.*
- 2 The intersection of a column and a row in a spreadsheet,
e.g. *the ... B2.*
- 3 The quantity sold,
e.g. *The ... of PCs rose by 10 per cent last year.*
- 4 The income – or money – received by a company or organization,
e.g. *The annual ... of this multinational company is ...*
- 5 A ... in a company is one of the equal parts into which the capital of the company is divided, entitling the holder of the ... to a proportion of the benefits,
e.g. *£10 ...s are now worth \$11.*
- 6 Financial costs; amounts of money spent,
e.g. *Travelling*
- 7 A function or operation that produces a new value as the result of adding, subtracting, multiplying or dividing existing values,

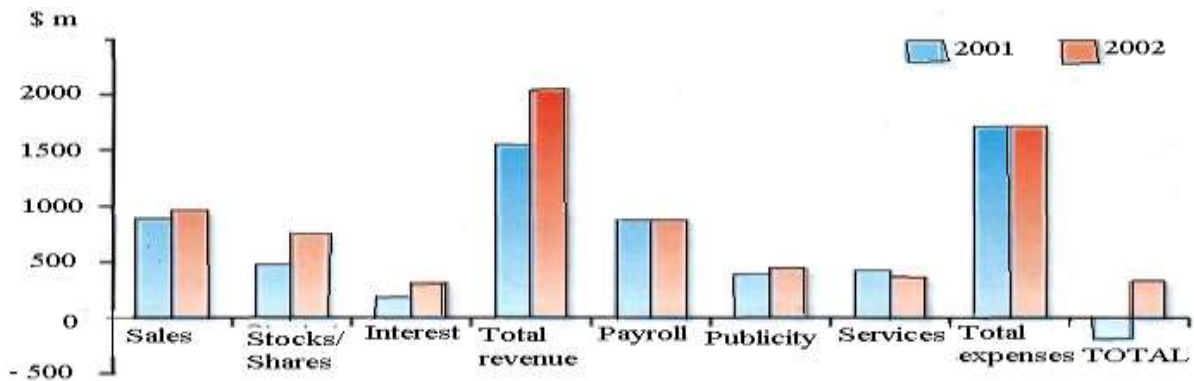
e.g. *If we enter the ... B5-B10, the program calculates ...*

8 1 A list of people to be paid and the amount due to each.

2 Wages or salaries paid to employees,

e.g. *He was on the company's*

2. Look at the graph and, with the help of a partner, check that it is an exact visual representation of the spreadsheet in Task V.



3.

What type of image is this: a pie chart, a bar chart, an area graph or a line graph? Say what is the advantage, if any, of displaying information as a graph, rather than as a spreadsheet?

4. Spreadsheet programs are also used to make out invoices. Look at the invoice below. Copy it and fill in the blanks with the right words from the box.

Quantity	Description	Price	VAT (Value Added Tax)	Reference
TOTAL	Address	Company		


Name: Redwood Comprehensive School				Invoice	
Springbank Road, Easthill					
Telephone: 436171				Date: 12 March 2003	
				Total	
Ulysses Classic	256 MB of RAM, 60 GB HD	12	£ 1,050	£ 12,600	
XGA Monitor	Colour 16"	9	225	2,025	
Video Card	Millions of colours	5	316	1,580	
Portable Ulysses	128 MB RAM, 40 GB HD	3	1,190	3,570	
Laser SAT	PostScript	1	825	825	
Scanner JUP	Flatbed. Includes OCR	2	675	1,350	
				Subtotal	
				£ 21,950	
				17.5%	
				3,841	
Ulysses Computers, Inc.				£ 25,791	

UNIT 10

1. Reading: *Databases*

1. Companies often use databases to store information about customers, suppliers and their own personnel. Study the illustrations and then try to answer these questions.

- 1 What is a database?
- 2 Which tasks can be performed by using a database? Make a list of possible applications.
- 3 What do the terms mean in your language: file, record, field?

	Name James Powell Address 12, Back St. Marital status Single
Identification 0994989 Job ENGINEER SALARY £18,750	Home phone 456367 Department Data processing Commission £2,785

Record from an Employee file in a database. This record holds ten fields (the illustration is one)



A database file stores information in fields grouped on records

2. Here is part of an article about databases. First, read all the way through and underline the basic features of a database.

Basic features of database programs

- 1 With a **database** you can store, organize and retrieve a large collection of related information on computer. If you like, it is the electronic equivalent of an indexed filing cabinet. Let us look at some features and applications.

- 5 Information is entered on a database via **fields**. Each field holds a separate piece of information, and the fields are collected together into **records**. For example, a record about an employee might consist of several fields which give their name, address, telephone number, age, salary and length of employment with the company.

Records are grouped together into **files** which hold large amounts of information. Files can easily be updated: you can always change fields, add new records or delete
10 old ones. With the right database software, you are able to keep track of stock, sales, market trends, orders, invoices and many more details that can make your company successful.

Another feature of database programs is that you can automatically look up and find records containing particular information. You can also search on more than one
15 field at a time. For example, if a managing director wanted to know all the customers that spend more than \$7,000 per month, the program would search on the name field and the money field simultaneously.

A computer database is much faster to consult and update than a card index system. It occupies a lot less space, and records can be automatically sorted into
20 numerical or alphabetical order using any field.

The best packages also include networking facilities, which add a new dimension of productivity to businesses. For example, managers of different departments can have direct access to a common database, which represents an enormous advantage. Thanks to security devices, you can share part of your files on a network and
25 control who sees the information. Most aspects of the program can be protected by user-defined passwords. For example, if you wanted to share an employee's personal details, but not their commission, you could protect the commission field.

In short, a database manager helps you control the data you have at home, in the library or in your business.

3. Using the information in the text, complete these statements.

- 1 A database is used to
- 2 Information is entered on a database via
- 3 Each field holds
- 4 'Updating' a file means
- 5 The advantages of a database program over a manual filing system are
- 6 Access to a common database can be protected by using

II. Grammar: Plurals

1. Study this information:

- In most cases, the plural in English is written with an 's'.

record -> records

- The plural is written with 'es' after 's', 'sh', 'x' or 'ch'.

address -> addresses box -> boxes

- With nouns which end in a consonant + 'y', the 'y' becomes 'i' and 'es' is added.

technology -> technologies

- But if the y follows a vowel, only 's' is added.

day -> days

• **Special plural forms**

*man – men; child – children; analysis – analyses;
formula – formulae/formulas*

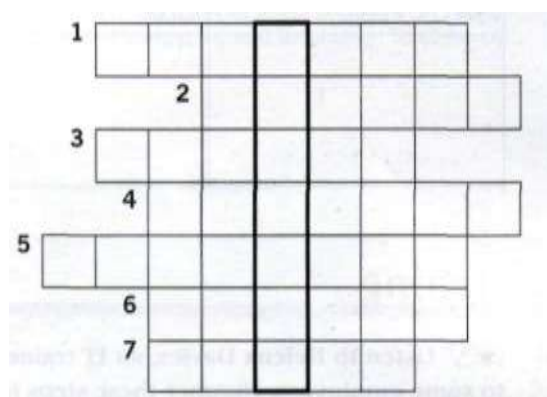
3. Write the plural of these words:

slot, key, directory, businessman, fax, mouse, floppy, virus

4. Puzzle

Complete the sentences by using a term from the list. Then write the words in the crossword to find the hidden message.

database	field	layout	merging
record	sorted	updated	



- 1 In order to personalize a standard letter you can use 'mail'.....(a technique which consists of combining a database with a document made with a word processor).
- 2 Records can be automatically.....into any order.
- 3 You can decide how many fields you want to have on a.....
- 4 Files can easily be.....by adding new information or deleting the old one.
- 5 A program can be used to store, organize and retrieve information of any kind.
- 6 The..... of the records can be designed by the user.
- 7 Each piece of information is given in a separate.....

III. Listening

1. Listen to Helena Davies, an IT trainer, explaining how to use mail merging to some employees. Number these steps in the order that you hear them.

- ☐ Activate the Mail Merge command (Print Merge in some programs). This combines the main document and the data document.
- ☐ Click 'Print' and the program generates a single letter for each record in the data document.
- ☐ Create the data document with a database program or with the right spreadsheet software. This document contains rows with names, addresses and other information that will be merged with the standard letter.
- ☐ Create the main document with a word processor. Type the standard letter and insert the appropriate field names into it.

2. Look at the illustration of mail merging and identify the three types of documents involved in this example of mail merging.

	A	B	C	D	E	F
1	Title	First	Last name	Street	City	Postcode
2	Mr	Fred	Jones	15 The Calls	Leeds	LS2 6JU
3	Mrs	Diana	Read	18 Union Street	Glasgo	G1 3TA
4	Ms	Carol	Taylor	75 Windmill	London	W1P 1HH
5	Mr	Jack	Gordon	7 Piccadilly Street	York	YO1 1PN

The data document contains the fields and the information that is different in each version of the letter

IV. Writing

1. Study this sample mail:

<<DATA Mailing>>
<<Title>><<First name>><<Last name>>
<< Street>>
<<City>><<Postcode>>

Dear <<Title>><<Last name>>,

We are pleased to inform you that an updated version of Top Project is now available. To obtain your copy, simply call us and we'll send you, absolutely free, the new version of the program.

We also enclose a catalogue with the new range of SunRise machines and the latest software products. There are special offers for all our clients, including a book about budgeting and balancing. To order by phone, call 01332 8430477.

Yours sincerely,

Barry Stephens

Sales Manager Sunrise Computers 19 Park Avenue Derby

2. Imagine that you are Barry Stephens, the sales manager of Sunrise Computers. Write a standard letter to your clients about 'New software products on the market' and offer them a free demonstration disk.

V. Listening

1. Try to answer these questions.

1 What is the Internet?

2 What can you do on the Internet? Make a list of possible applications.

2. Listen to a conversation between a customer buying a PC and a sales assistant. Why do you think the sales assistant has to explain so much about the Internet?

3. Listen again and complete the customer's notes.

- *To connect to the Internet from home I need:*
(1) a and (2) a
- *Also need an account with an (3) (a company that offers connection for a monthly fee).*
- *If you want to connect lots of computers without using cables, you can use a (4) router.*
- *Wi-Fi uses (5) waves to send data over medium-range distances..*
- *Things you can do on the Internet: (6)*
- *'Web' or 'Internet'? the Web: huge collection of (7) stored on computers all over the world. The Internet: the network which connects all the computers.*

VI. Reading: Internet software

1. Which Internet utility (1 to 7) would you use to do each of these tasks (a to g)?

- | | |
|---------------------|--|
| 1 e-mail | a send a message to another person via the Internet |
| 2 Web browser | b transfer files from the Internet to your hard disk |
| 3 Newsreader | c have a live conversation (usually typed) on the Internet |
| 4 IRC chat program | d connect to a remote computer by entering certain |
| 5 FTP software | instructions and run programs on it |
| 6 Videoconferencing | e take part in public discussion areas, called newsgroups |
| 7 Telnet | f fetch and view Web pages on the Internet |
| | g participate in live conversations, using text, audio and video |

2. Read the text to check your answers.

1 Getting connected

The language used for data transfer on the Internet is known as TCP/IP (transmission control protocol/Internet protocol). This is like the Internet operating system.

- 5 The first program you need is a PPP (point to point protocol) driver. This piece of software allows the TCP/IP system to work with your modem; it dials up your Internet service provider (ISP), transmits your password and log-in name and allows Internet programs to operate.

E-mail

- 10 E-mail is your personal connection to the Internet. It allows you to exchange messages with people all over the world. It can include text, pictures, and even audio and animation.

When you set up an account with an ISP, you are given a unique address and

- anyone can send you e-mail. The mail you receive is stored on the server of your
15 ISP until you next connect and download it to your hard disk.

Web browsers

The Web is a hypertext-based system where you can find news, pictures, games, online shopping, virtual museums, electronic magazines - any topic you can imagine.

- 20 You navigate through the Web using a program called a 'browser', which allows you to search and print Web pages. You can also click on keywords or buttons that take you to other destinations on the net. This is possible because browsers understand hypertext markup language (HTML), a set of commands that indicate how a Web page is formatted and displayed.

25 **IRC, audio and video chatting**

IRC - Internet relay chat - is a system for realtime (usually typed) conversation. It's easy to use. To start a chat session you run an IRC program, which connects you to an IRC server - a computer dedicated to IRC. Then you join a channel, which connects you to a single chat area. Next you type a message and the other

- 30 participants can see it.

Internet telephone and video chatting are based on IRC protocols. Videoconferencing programs enable users to talk to and see each other, and collaborate. They are used in intranets - company networks that use Internet software but make their Web site accessible only to employees and authorized users.

35 **FTP and Telnet**

With **FTP** software you can copy programs, games, images and sounds from the hard disk of a remote computer to your hard disk. Today this utility is built into Web browsers. A **Telnet** program is used to log directly into remote computer systems. This enables you to run programs kept on them and edit files directly

Newsgroups

- 40 Newsgroups are the public discussion areas which make up a system called 'Usenet'. The contents of the newsgroups are contributed by people who send articles (messages) or respond to articles. They are classified into categories: *comp* (computers), *misc* (miscellaneous), *news* (news), *rec* (recreation), *soc* (society), *sci* (science), *talk* and *alt* (alternative).

3. Read the text again and choose the right answer.

- 1 An Internet service provider (ISP) is
 - a a program that connects you to the Internet.
 - b a company that gives you access to the Internet.
- 2 HTML is
 - a the software which allows you to fetch and see Web pages.
 - b the codes used to create hypertext documents for the Web.
- 3 An IRC channel is
 - a an IRC discussion area.
 - b a computer system dedicated to IRC.

- 4 Usenet is
 - a a big system of public discussion groups.
 - b a newsgroup.
- 5 An intranet is
 - a like a small version of the Internet inside a company.
 - b a commercial online service.

VII. Speaking

1. Ask your partner these questions.

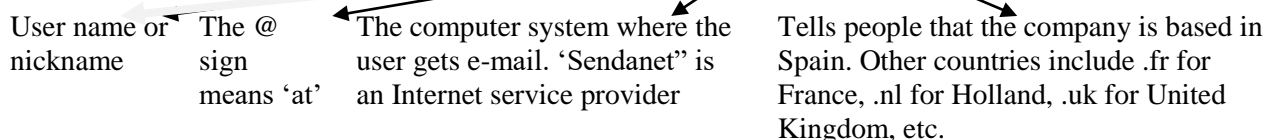
- 1 What web site do you visit to chat with friends?
- 2 Which chat channels are you interested in?
- 3 Do you talk with strangers during web chats?
- 4 Do you use your real name or a nickname?
- 5 How long do you usually spend at the terminal?
- 6 Have you ever surfed the Web? What are your favourite web sites?
- 7

VIII. Vocabulary

1. Study the following information:

- 1 **URL:** uniform resource locator, the address of a file on the Internet. A URL looks like this: <http://www.netscape.com/>
 - '**http://**' means hypertext transfer protocol and tells the program to look for a web page
 - '**www**' means World Wide Web
 - '**netscape.com**' is the domain name and tells people that it is a commercial enterprise
- 2 **Navigation buttons:** buttons on the toolbar which allow you to go back or forward to other web pages. You can also return to your start-up page or stop the transfer when the circuits are busy
- 3 **Links:** shortcuts (underlined text or images) that, when clicked, take you to other web pages
- 4 **Security on the Web:** just a few websites are secure. When the page is not encrypted, the security lock is open
- 5 **Basic functions of the toolbar:**
 - a go to the home page
 - b retrace your steps
 - c go forward one page
 - d interrupt the current transfer
 - e update a page
 - f find words within a page
 - g load and display the page's images

6 The format of an e-mail address: celia@mail.sendanet.es



2. Look at these tasks and choose the most suitable Web site from the cyberlist.

- | | |
|--|---|
| 1. Read about environmental problems | http://www.yahoo.com/ |
| 2. Get news reports | http://www.greenpeace.org/ |
| 3. Find out about specific hardware and software | http://www.ibm.com/ |
| 4. Make flight reservations | http://www.gofly.com/ |
| 5. Read about films and Hollywood awards | http://www.telegraph.co.uk/ |
| 6. Search for web addresses | http://www.oscars.org/ |

3. Rearrange the letters to create the words described.

a. E-mails that you don't want or no longer need go here.	HATSR
b. Junk mail you receive.	MAPS
c. The first version of an e-mail that you write.	AFTDTR
d. E-mails on the same subject or from one sender form this.	DTAHER

IX. Reading/ Speaking: *Online*

1. Read the interview below with a best-selling author Jessica Adams about her experiences with computers.

This week we interview Jessica Adams, best-selling author of *Single White E-mail* and *Astrology for Women*, about her thoughts on computers, the Internet and everything!

1.	?
I've had a computer of one sort or another since I bought my first Mac in 1987. I remember it was a little box with a black and white screen, and I think I used to go off and make a cup of tea when it was time to print anything.	
2.	?
I have two laptops, and at home I have a huge IBM Aptiva, which is jet black and looks like the sort of thing Darth Vader might use.	
3.	?

Very important, but like most of the world, I have a love-hate relationship with computers. As a novelist I love the cut and paste function, which has changed the way I write fiction. As a traveler, I'm hooked on hotmail and Internet cafes. But as a

true technobimbo, I really hate the way computers can get stuck, go wrong and generally fail to explain themselves in plain English.

4.	?
----	---

For e-mail and writing fiction.

5.	?
----	---

I'm afraid the only website I look at regularly is my own. I like to see what readers of *Single White E-mail* are saying about the book. It's never what I expect or imagine!

6.	?
----	---

Yes. Once I had a very flirtatious online conversation with someone who, embarrassingly enough, turned out to be fifteen. I was thirty at that time.

7.	?
----	---

About eight hours. The longest I've ever spent was actually twenty-four hours, when I was writing a story for an Australian magazine entitled *24 Hours on the Net*. It nearly killed me.

8.	?
----	---

Yes, I bought a juicer. It's fantastic, and I've become addicted to banana milk shakes!

9.	?
----	---

Yes, I really want one of those mobile phones with e-mail and Internet access on them.

10.	?
-----	---

No, I don't think so. I'm not a geek at all. I don't understand computers – they're just glorified hairdryers or electric kettles to me.

11.	?
-----	---

Yes, it annoys me to think how much I depend on them. I've been spending far too long on my computer. I must remember to get a life!

12.	?
-----	---

A computer – sorry about that, humans!

2. Complete the interview by matching the questions (a-l) below with the appropriate gaps in the article (1-12) in 1.

- a) How long have you spent on the Internet in the last week?
- b) What do you use your computer for?
- c) Have you bought any new gadgets recently?
- d) How important do you think computers are?
- e) Have you ever chatted with strangers on the Internet?
- f) Are there any new gadgets on the market that you want?
- g) Do you see yourself as a computer geek?
- h) Do you know any good websites?
- i) Which would you take to a desert island for company – a computer or a human?
- j) How long have you been using computers?
- k) Is there anything that irritates you about computers or electronic technology?
- l) What kind of computer do you have now?

- 3. Work with a partner. Ask the questions from the interview.
Find out as much as you can.**

X. Translation. Translate this text into Ukrainian.

Huge Business Potential of Google Advertising

Google is one of the most widely used search engines. Nielsen/Net Ratings recently disclosed that Google accounts for over 45% of all US Internet searches. Google states that its network reaches 80% of all Internet users. It gains 60 million unique viewers per month with over 200 million searches conducted every day. This results in over 2000 searches every second by people and businesses hungry to buy your products and services. Google is also one of the most comprehensive search engines. It reviews over 8 billion Websites for each query to return the most relevant results. Google does not limit itself to the Web. It also promotes advertisers by showing certain ads in traditional print magazines. The potential to increase your business using Google advertising is huge. So, Google!

XI. Writing: *Dos and don'ts*

Match the sentence halves to find out what are the rules of e-mailing in some companies. Translate the sentences.

- | | |
|--|--|
| A Do not use e-mail to discuss confidential company matters: | 1 keep texts short and to the point. |
| B Do not write messages that are longer than necessary: | 2 restricted information should not be spread freely. |
| C Do use proper punctuation: | 3 most people will not appreciate getting them at work. |
| D Do not attach unnecessary documents: | 4 you will only confirm that your e-mail address is real. |
| E Do not flag every e-mail as URGENT: | 5 in your correspondence you represent the firm. |
| F Do be polite and professional: | 6 this behavior is not acceptable. |
| G Do not send chain messages or 'funny' e-mails: | 7 mark messages as high priority only when necessary. |
| H Do limit your use of the company account for professional correspondence: | 8 it's best not to e-mail on private matters unless absolutely necessary. |
| I Do not reply to junk mail: | 9 messages with no full stops or commas are difficult to read. |
| J Do not 'flame' (send personal insults or rude messages) | 10 large files may cause the e-mail system to crash. |

XII. Speaking

1. How have email and the Internet changed the way we work and do business? Have these changes always been for the better?

2. Read and answer the questions:

- What effect has the Internet had?
- What are his views on the Internet as a way of conducting business with the outside world?
- How does he feel about the amount of information on the Internet?

3. Pay attention to italicised phrases. Find rhetorical questions, contrasting pairs of ideas, metaphors and convincing language.

So what does the Internet really mean for our everyday working lives? It means hours wasted by junk email, the loss of human contact, and drowning in *a sea of information*.

And as a medium for conducting business with the outside world, we could even say it's disadvantageous. Many *so-called* international businesses are tiny operations with hardly any resources. *I strongly believe that* most natural business relationships are face-to-face, not virtual. This is surely the only way to measure and judge any future partner.

It's true that there are millions of impressive websites which provide useful information, *but* who knows what is lurking behind them? The Web is susceptible to piracy and plagiarism. It's difficult to control the flow of information. Security can be a problem. And providing personal details is risky if they *fall into the wrong hands*.

And finally, if we ask ourselves the question '*What does the Internet actually produce?*', the answer is, 'nothing'. *It's only* a source of information, *like a giant filing cabinet*, but much less reliable.

4. Do you agree with the point of view of the author? Why/Why not?

5. Prepare a speech (up to 1 minute) to express your point of view.

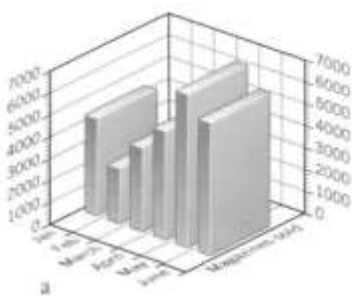
Pay attention to the structure: there should be introduction, main body and conclusion. Use rhetorical questions, contrasting pairs of ideas, metaphors and convincing language.

UNIT 11

I. Reading: *Computer Graphics*

1. Answer the questions.

- 1 Look at the pictures, which were all created on computer. Which ones are three-dimensional? What are the advantages of creating three-dimensional images?
- 2 From the pictures, can you suggest which people might use computer graphics professionally? What would they use them for?
- 3 Can you think of other professionals who use computer graphics? How do they use them?



2. Read through the text and find the answers to these questions.

- 1 What are 'computer graphics'?
- 2 What do the acronyms 'CAD', 'CAE' and 'CAM' stand for?
- 3 What are the benefits of using computer graphics in the car industry?
- 4 What are the benefits of using graphics in business?
- 5 What is 'computer animation'?

- 1 Computer graphics are pictures and drawings produced by computer. A graphics program interprets the input provided by the user and transforms it into images that can be displayed on the screen, printed on paper or transferred to microfilm. In the

5 process the computer uses hundreds of mathematical formulas to convert the bits of data into precise shapes and colours. Graphics can be developed for a variety of uses including presentations, desktop publishing, illustrations, architectural designs and detailed engineering drawings.

Mechanical engineers use sophisticated programs for applications in computer-aided design and computer-aided manufacturing. Let us take, for example, the car industry. CAD software is used to develop, model and test car designs before the actual parts are made. This can save a lot of time and money.

Computers are also used to present data in a more understandable form: electrical engineers use computer graphics to design circuits and people in business can present information visually to clients in graphs and diagrams. These are much more effective ways of communicating than lists of figures or long explanations.

Today, three-dimensional graphics, along with colour and animation, are essential for such applications as fine art, graphic design, Web-page design, computer-aided engineering and academic research. Computer animation is the process of creating objects and pictures which move across the screen; it is used by scientists and engineers to analyse problems. With the appropriate software they can study the structure of objects and how it is affected by particular changes.

Basically, computer graphics help users to understand complex information quickly by presenting it in a clear visual form.

II. Listening

1. Read the passage below and complete it. The first letters of the missing words are given as a prompt for you.

A basic tool palette

A graphics (1) p..... is the software that enables you to draw and manipulate objects on a computer. Each graphics package has its own facilities, plus a wide range of basic drawing and (2) p.....tools.

The collection of tools in a package is known as a palette.

The basic shapes which are used to make (3) g.....objects are called 'primitives'. These are usually geometric, such as lines between two points, arcs, (4) c....., polygons, ellipses and even text. You can choose both the primitive you want and where it should go on the screen.

Moreover, you can specify the (5) 'a.....' of each primitive, such as its colour, (6) l.....type, fill area, interior style and so on.

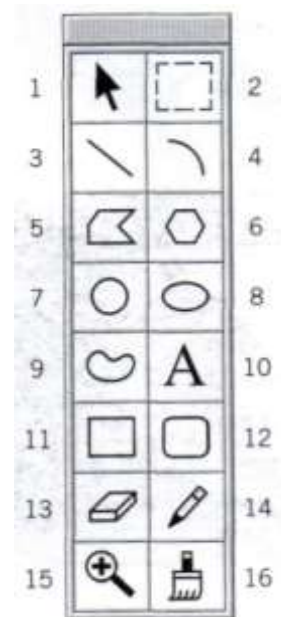
The various tools in a palette usually appear together as pop-up (7) i.....in a menu. To use one you activate it by (8) c.....on it. For example, if you want to draw a rectangle, you activate the rectangle tool and the pop-up options allow you to choose the origin of the rectangle (using the insertion point as its centre or corner) and the possibility of (9) d.....a rectangle with rounded corners.

2. Listen and check your answers.

III. Vocabulary

1. Look at the functions represented by the icons in the tool palette on the right and match them with the definitions on the left.

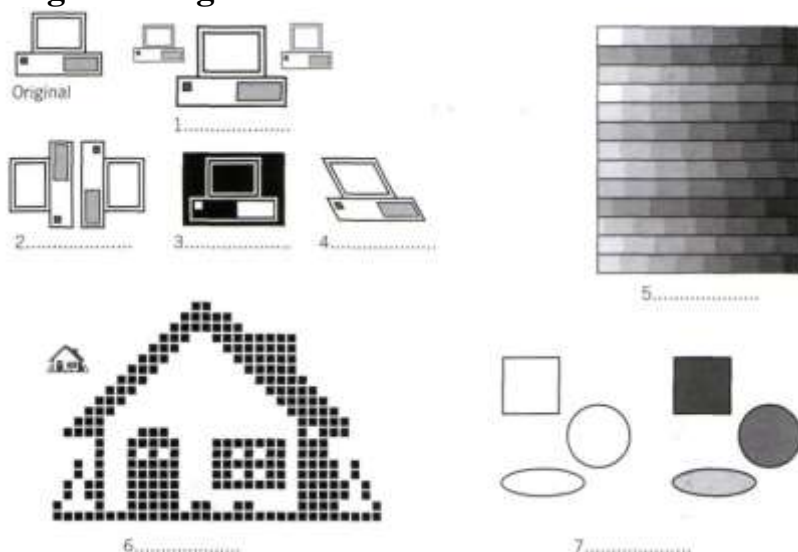
- This is used to scale the view. Similar to the command 'Zoom in/out'
- This is used to delete the part of the picture you drag it over. It is known as 'Eraser'.
- This is used to type text.
- This draws a straight line between two points.
- This is a paintbrush used to add colour and patterns. It often comes in different shapes.
- This is used to draw polygons with irregular sides.
- This is used to draw thin, free-form lines.
- These are used to select text and images.
- This draws an arc, or part of a circle.
- This draws curved, free-form shapes.
- This is used to draw a circle with two foci, known as an ellipse.
- These two are used to draw all kinds of rectangles, even ones with rounded corners.
- This is used to draw a circle.
- This is used to draw polygons with equal sides.



2. Graphics programs have several options that work in conjunction with the tools menu to enable the user to manipulate and change pictures. Look at the facilities on the left and match them with the definitions on the right:

- | | |
|-----------------------------|---|
| 1 Patterns menu | A. Turning an image round. |
| 2 Scaling | B. A tool which lets you scale the 'view' of a picture and edit a small portion of it as if you were working under a magnifying glass. It is very useful for doing detailed work as you can edit the picture one dot at a time. |
| 3 Rotating | C. Making the object larger or smaller in any of the horizontal, vertical or depth directions. |
| 4 Inverting | D. A shading technique where two different colours are placed next to each other; the human eye blends the colours to form a third one. It is also used to show shading in black and white. |
| 5 Zoom | E. A palette from which you choose a design to fill in shapes. |
| 6 Slanting | F. Reversing the colour of the dots in the selected part of a picture, so that white dots become black and black dots become white. |
| 7 Black-and-white dithering | G. Inclining an object to an oblique position. |

3. Look at the pictures and label them with the facility that has been used to change the original.



IV. Grammar: Gerunds

1. Study the following information:

Gerunds are formed by adding *-ing* to verbs. A gerund usually functions as:

- the subject of a verb, e.g. **Smoking** is bad for your health.
- the object of a verb, e.g. She has never done any **computing**.
- the object of a preposition, e.g. CAD programs are very fast at **performing drawing functions**.
- the complement of the subject, e.g. His favourite pastime is **playing** computer games.

2. Read the passage below. Find the gerunds and decide whether they function as the subject, the subject complement, the object of a verb, or the object of a preposition.

You cannot create a picture simply by specifying primitives. Instead, you must specify the primitives and their attributes, then transform them by specifying where and how you want them placed on the screen so they create your picture. Transformation means moving or otherwise manipulating the object by translating, rotating and scaling the object. Translation is moving an object along an axis to somewhere else in the viewing area.

Rotation is turning the object around an axis.

Scaling is making the object larger or smaller in any of the horizontal, vertical or depth directions (corresponding to the x, y and z axes). The term rendering describes the techniques used to make your object look real. Rendering includes hidden surface removal, shading, light sources and reflections.

3. Complete the sentences by using an appropriate gerund from those in the box.

creating	adding	clicking	processing	printing	rendering
----------	--------	----------	------------	----------	-----------

1. Graphic artists like.....colour and depth to their drawings and designs.
2. A 32-bit painting program has a complete palette of tools for.....images from scratch.
3. The speed of a microprocessor is important in.....information.
4. Before.....a document, the user should decide on the layout.
5. You can open the colour palette by.....on the corresponding pop-up icon.
6.refers to the techniques used to make realistic images.

V. Reading: *Desktop Publishing*

1. Read the text.

- 1 'Desktop publishing' refers to the use of personal computers to design, implement and publish books, newsletters, magazines and other printed pieces. Desktop publishing is really a combination of a few different processes including word processors, graphic design, information design, output and
- 5 prepress technologies, and sometimes image manipulation. There are also many applications that support these processes, including font creation applications (that allow users to design and create their own typefaces, called fonts) and type manipulation applications (that allow users to modify text in visually creative ways).
- 10 Desktop publishing centres around a **layout application**. A layout application is used to import text from word processing applications, graphics from paint and drawing applications and images from scanning or image manipulation applications, and to combine and arrange them all on a page. They typically can bring in or import many different types of files. It is this ability to
- 15 manipulate so many different items and control how they are used that makes layout software so popular and useful. This software is usually the last stop before a document is printed. Once composed and designed, these files can be printed onto film by high quality devices, called **imagesetters**, and printed on a traditional printing press.
- 20 Because imagesetters are expensive devices, most people cannot afford to buy their own. There are, however, companies called **service bureaux** that specialize in printing other people's files on imagesetters, just like copy stores make copiers available to others. Service bureaux can offer imageset output, laser printer output, colour laser printer output and even slide or film recorder output. In addition, some have colour scanning equipment.

2. Complete these sentences.

- 1 A page layout application can import and combine
- 2 Font creation software enables users to
- 3 Imagesetters are used to
- 4 Service bureaux offer services such as

3. Find the answers to the following questions:

- 1 What types of files are combined in desktop publishing?
- 2 What kinds of documents can be produced with desktop publishing software?

VI. Vocabulary: Word-building

1. Study the following information:

New words are formed in three main ways in English:

a. Affixation

- adding a prefix to the base: *print* -> *reprint*
- adding a suffix to the base: *print* -> *printer*

b. Conversion, i.e. assigning one class to another:

print, v -> *print*, n

c. Compounding, i.e. adding one base to another:

finger + *print* -> *fingerprint*

2. Look at these words, translate them and decide:

- which process of word formation has been applied
- what part of speech each word is
- where the stress falls in each word.

- | | | | |
|--------------|-------------------|-----------------|------------------|
| 1. upgrade | 5. interactive | 9. manipulation | 13. visually |
| 2. imprint | 6. printing press | 10. publishing | 14. typeface |
| 3. printed | 7. pre-press | 11. publisher | 15. professional |
| 4. print-out | 8. creative | 12. newsletter | 16. imagesetter |

VII. Listening

1. Listen to this radio interview with Rob Jackson about the importance of fonts and typography in desktop publishing and choose the correct answer.

1. What does Ms Jackson do?

- a She's an advertiser.
- b She's a font software designer.
- c She's a DTP professional.

2. Fonts refer to

- a the style of a typeface.
- b the size of a typeface.
- c the style and size of a typeface, for example: Helvetica italic in 12 point.

3. According to Ms Jackson, fonts and other type characteristics

- a** don't make any difference to a message.
- b** are important in order to communicate a message clearly and make it look attractive.
- c** help designers scale and rotate type and text.

4. Scalable fonts are stored as

- a** a whole image made up of dots, which cannot be changed.
- b** an outline which can be changed.

5. PostScript fonts were created by

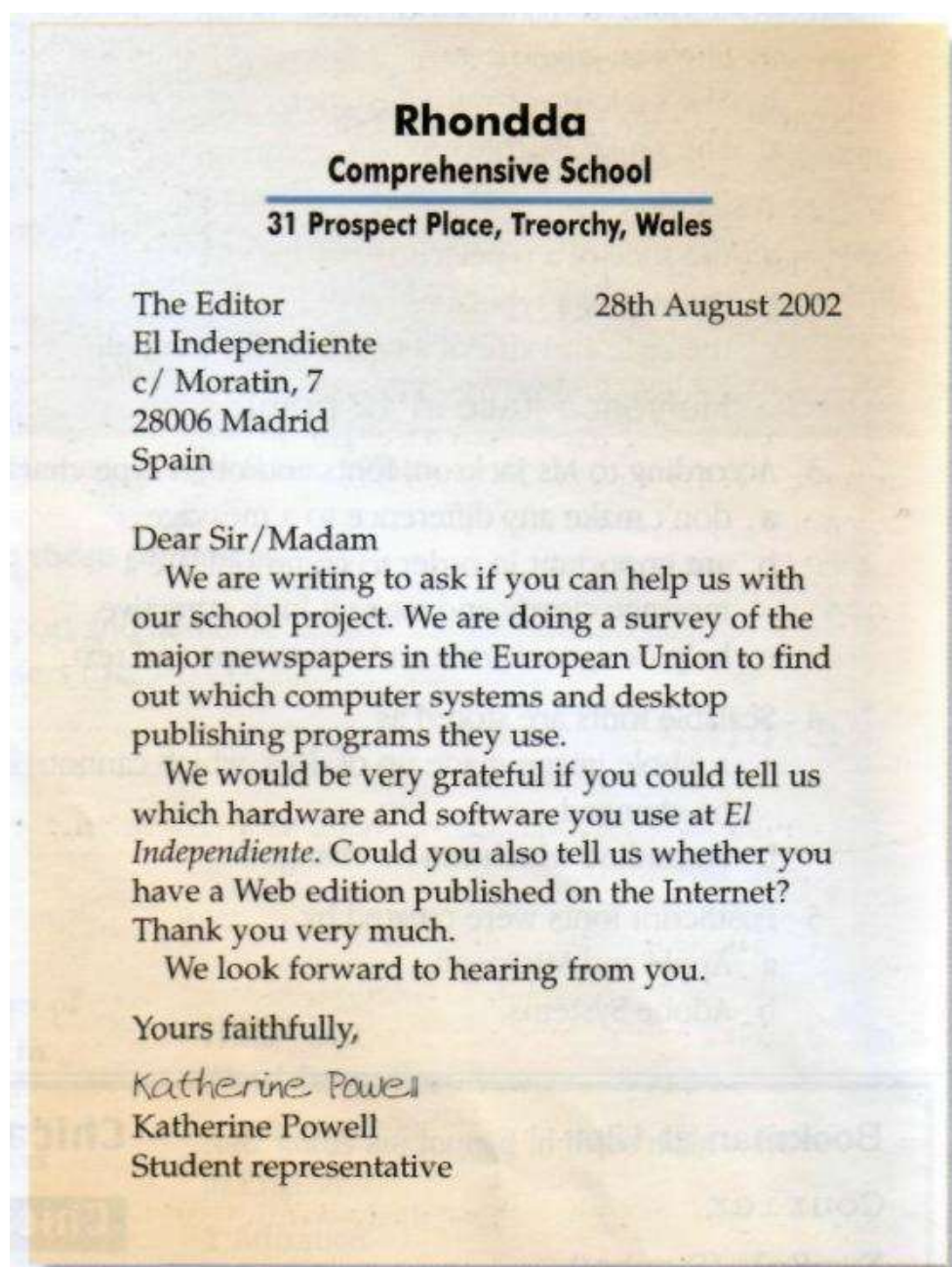
- a** Apple and Microsoft.
- b** Adobe Systems.

VIII. Writing

1. The letter below is from a group of students asking for information about the hardware and publishing software used by the newspaper *El Independiente*. Read it and note:

- the form and position of the addresses
- the polite forms of asking for cooperation:
 - *We would be very grateful if you could...*
 - *Could you also ...*
- the ways in which the letter begins and ends.

2. Write a letter to the *Morning News* asking for information about the hardware and page-layout software used in its production. Use this letter to help you.

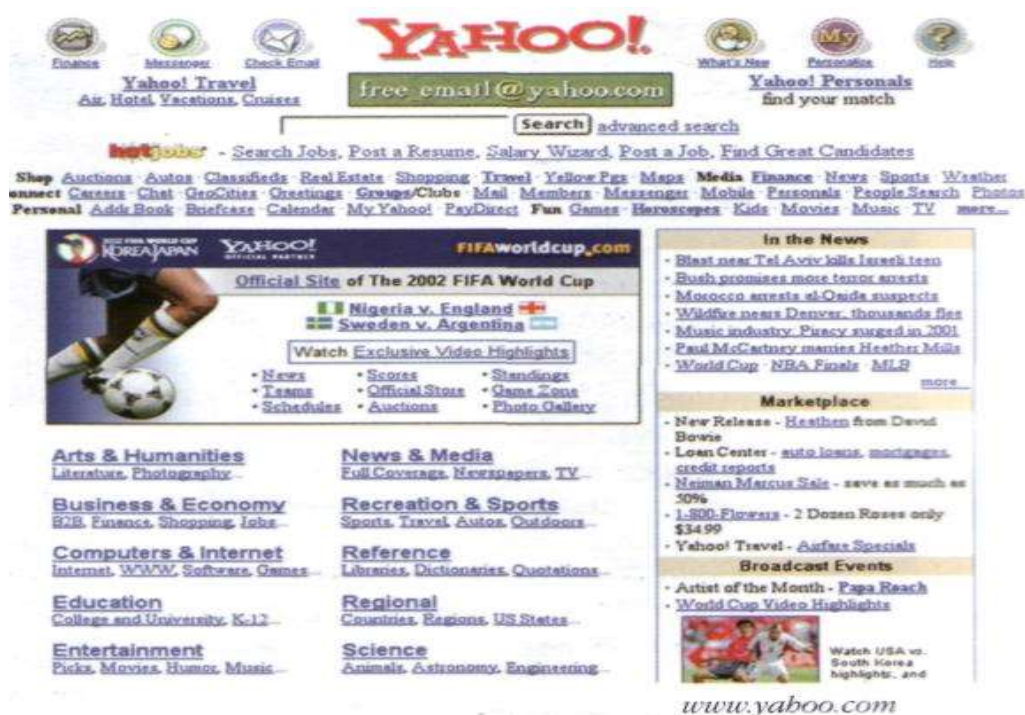


UNIT 12

I. Reading: *Creating web pages*

1. Look at the homepage of Yahoo and try to answer these questions.

- 1 Why do people create and publish web pages?
- 2 What does a website consist of?
- 3 What is a homepage? What is an Internet portal?



You can use a search engine like Yahoo to find information. It also acts as a web portal offering services such as e-mail, forums, on-line shopping and links to other sites. Specialist portals are related to particular subjects such as music, sports or news.

2. Read the

text and summarize it in Ukrainian.

If you can write and send e-mail, you can create a website on the Internet. Many web-hosting companies offer software tools that help you to build a site, such as WYSIWIG editor. You can even choose a template complete with images and start posting content in just a few minutes – and often for free!

But if you create your company website using the above tools, you might seem like an amateur. Looking professional starts with the site's URL. A company website should have its own domain, which usually includes some form of the firm's name.

Companies can pay an Internet service provider (ISP), or the web hosting company to register a domain name. Such firms can host the website by providing the hardware, such as a dedicated server, and often the software. The costs usually depend on the type of site and the amount of storage space and traffic. If your site has a lot of visitors, you may have to pay for extra bandwidth.

Another alternative is for a company to hire its own web developer to take care of the front end of a site, in other words, what the users see and use, and an IT specialist to program the back end, which is the server side of the website. Using free, open-source software will keep costs down. Once the site is online, a good content management system (CMS) should require little or no knowledge of programming or scripting to

change and update the content. If you are selling products or services over the Internet, your site will need security technology, such as Secure Sockets Layer (SSL), for exchanging payment details between the server and website.

Today, web designers worry less about the size of the homepage, because dial-up connections are less common. Broadband services such as Digital Subscriber Line (DSL) technologies offer faster access to the Internet, and web pages load much more quickly. Streaming audio or video content, as well as downloading or uploading large files, is rarely a problem.

The Web 2.0 trend has seen a rapid increase in user-generated content, such as blogs, podcasts and videos, on many sites. With the help of a web feed format, such as Really Simple Syndication (RSS), users can receive podcasts or other content automatically. A news aggregator, also called feed reader, allows users to get updates from different sites without having to visit them. If you need page impressions for advertising, you may decide against such feeds. Or you may find another way to make money with your site.

Is there a negative side to such developments? Some industry analysts say that growing traffic may slow down the Internet by 2011. Other Internet experts are less worried. Speaking to the BBC, British scientist Tim Berners-Lee, widely recognized as the creator of the Web, was confident that computer scientists “are going to look at new technologies and completely new ideas” to improve the Web.

Bandwidth – пропускна спроможність

Broadband - широкополосний

CMS – система управління контентом

Dedicated server – виділений сервер

Feed - подача

To host – хостити/розміщувати вебсайт

ISP – провайдер інтернет послуг

Open- source software – програмне

забезпечення з відкритим вихідним кодом

News aggregator – програма для підписки і читання RSS новин

Page impression – показ сторінки

Podcast – звуковий файл

RSS – формат для абонування контенту

SSL – протокол безпечних з'єднань

Template - шаблон

User-generated – згенерований

користувачем

Web 2.0 – організований користувачем контент

3. Find the right abbreviation for each sentence.

PDF DSL RSS HTML CMS SSL URL

- I've forgotten the address of that website. What's the.....again?
- You can download the report as a.....file.
- What's the.....tag for making the text bold?
- E-commerce sites require.....for payment.
- Use the.....feed to get this podcast regularly.
- It's much simpler to update the site with our new.....
- Videos download much faster now that I have a.....connection.

4. Choose the correct word.

- The site has been *high/up/on* since 1 July 2008.
- Users' computers must be set to accept *posts/tools/cookies*.

- c. Our site loads quickly, as we only clear the *cache/scripting/domain* every hour.
- d. The number of *hits/tags/blogs* to the site is increasing rapidly!
- e. When we *aggregate/generate/stream* videos, they are transferred much faster.
- f. The free software was terrible. It was full of *bugs/traffic/feeds*.
- g. All our *hyperlinks/templates/dial-ups* are marked in blue.

II. Grammar: Modal verbs

1. Study the following information:

Modal verbs are followed by infinitive without *to*. They add extra meaning to the main verb.

• CAN

Theoretical possibility: *You can add graphics to your web pages.*

Permission: *Can I use your mobile phone?* Ability: *He can draw very well.*

• COULD

Possibility or ability in hypothetical situations: *We could buy a DVD, if you had more money.*

Permission: *Could I just interrupt a minute?*

• MAY

Factual possibility: *He may like to talk about e-commerce.*

Permission: *May I use the fax now?*

In this case MAY is more formal than CAN.

• MIGHT

Weak possibility: *The prices of CPUs might go down next month.*

• MUST

Obligation: *If you suspect an e-mail has a virus, you must delete it without opening.*

Prohibition: *You mustn't open e-mail attachments from strangers.*

Logical necessity: *This looks wrong- there must be a mistake.*

We use CAN'T to express a negative conclusion.

• SHOULD

Advice: *You should update your web site.*

2. Complete the sentences using *can, could, may, might, should, can't, must*.

1. All HTML documents.....start with <HTML> .
2. If I knew the Java language, I.....include some attractive banners on my web page.
3. With a web page editor you.....create a web document easily.
4. That woman speaks with a New York accent, so she.....from the USA.
5. She.....a top model. I know some of her friends.
6. He.....be a good web page designer because he doesn't know the HTML language.
7.I use your laptop? I need to print out this report.
8. Before you start to make a website, you.....decide how to organize the content.

III. Listening

1. Think about your favourite websites.

- 1 Do you like the way they are designed? Explain why.
- 2 What elements do you think a good website should have? Make a list.

2. In this interview, Sarah Almy describes how to plan, design and publish a website. Listen and put these steps in the correct order.

- Write and format the text
- Decide the content and structure for the website
- Publish the website
- Insert computer graphics and sounds
- Keep website updated
- Weave together related pages with hyperlinks

3. Listen again and decide if these design tips are Right or Wrong.

- 1 Plan your website carefully.
- 2 Use a Web editor. It will make it easier to create your pages.
- 3 Insert photos or animations just to make the pages look attractive.
- 4 Place a large number of graphics on your pages.
- 5 Use very bright colours.
- 6 Put a lot of links on one page.
- 7 Check that all the links on your Web pages are correct.
- 8 Once they are published, update your pages regularly.

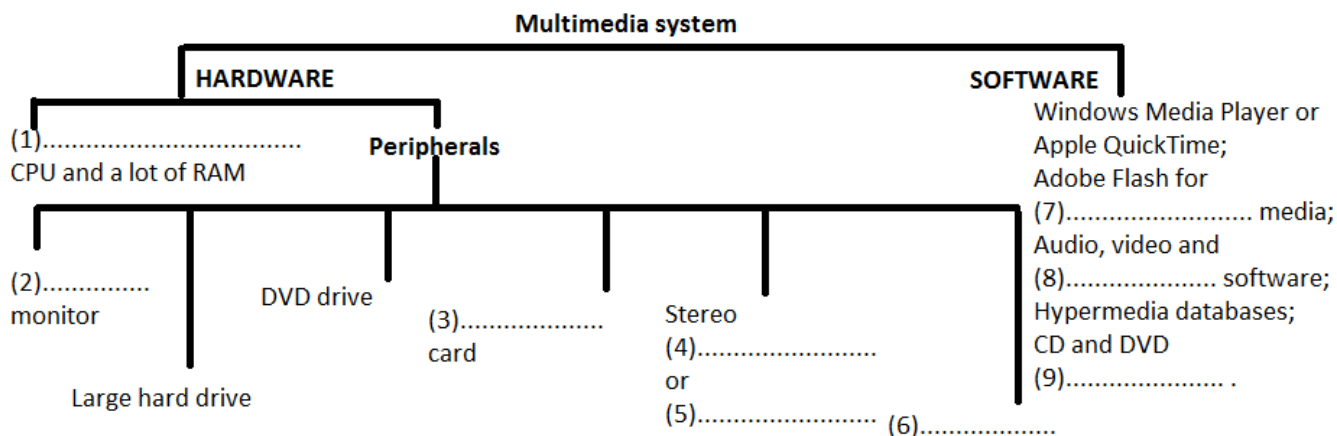
IV. Research

Find and present interesting information on:

- International standards for the World Wide Web: www.w3.org
- Language of the Web: www.netlingo.com
- Definitions of web terminology: www.webopedia.com
- From “access” to “zip”, basic vocabulary for building websites: www.w3schools.com/site/site_glossary.asp

V. Listening: *Multimedia*

1. A sales assistant is explaining the components of a multimedia system to a customer. Copy the diagram and complete it.



2. Now listen again and answer these questions.

- 1 What is multimedia?
- 2 What is the advantage of computer multimedia presentations over TV and video?
- 3 Which system software is designed by Apple for multimedia work?
 - a Windows with Multimedia control panels
 - b QuickTime

VI. Reading: *Multimedia magic!*

1. Read the texts and match them with the headings:

- Sound, Music, MIDI
- CDs and DVDs full of pictures, action and sound!
- Editing photos and making movies in a few minutes!
- The potential of using multimedia

1.....

Multimedia applications are used in all sorts of fields. For example, some museums, banks and estate agents have information kiosks that use multimedia. Companies produce training programmes on optical disks, and marketing managers use presentation packages (e.g. *Microsoft PowerPoint*) to make business presentations. Teachers use multimedia programs to make video projects or to teach subjects such as music and languages. They have all found that moving images, sound and music involve viewers emotionally as well as inform them, and make their message more memorable.

The power of multimedia resides in hypertext and hypermedia. If you click on a hypertext word, you jump to another screen with more information about that subject. Hypermedia is similar, but also works with sound, graphics and video.

2.....

To capture sounds in digital format and play them *back*, modern PCs contain a sound card. This is a type of expansion card which offers two important capabilities: (i) a built-in stereo synthesizer and (ii) a system called Musical Instrument Digital Interface, or MIDI. This allows electronic musical instruments to communicate with computers. You can also listen to music on your PC. Many radio stations broadcast on the Web using a technique called 'streaming'. This lets you play an audio file in a continuous stream, while it's downloading,

before the entire file is transmitted. Sometimes bands transmit concerts on the Web in a process called 'webcast'. To listen to online music you just need a plug-in like *RealPlayer*.

3.....

There are two ways of storing photos on a computer. The first way is to use a digital camera. Photos are stored in a memory chip and then they're downloaded to the computer. The second way is to scan printed photos by using a scanner. With special software you can repair flaws, add effects and even save your photos on a CD.

Video is another important part of multimedia. Video computing refers to recording, manipulating and storing video in digital format. In fact, today you can make your own movies on your PC. This is what you have to do: First capture images with a digital video camera and then transfer the digital video to your computer. Next, with a video editing program (e.g. *iMovie*) cut your favourite segments, re-sequence the clips and add transitions and other effects. Finally, save your movie on a video CD, a DVD or a videotape. You can also place your work on the Internet.

4.....

Multimedia software is usually interactive and comes on CD-ROMs or DVDs. For example, the *Compton's Encyclopedia* enables you to read about whales, look at photos of whales, listen to whale songs, and view animated sequences. Similarly, the *Grolier Encyclopedia* lets you read about birds, view pictures of birds, and listen to recordings of their songs. Other CD-ROMs include games, guides, dictionaries and educational courses about history, science, the human body, cinema, literature and foreign languages.

2. Read the texts again and correct these statements.

- 1 Multimedia PCs cannot integrate text with graphics and video.
- 2 You don't need to have a sound board on your PC to hear speech and music.
- 3 Most multimedia software is distributed on magnetic disks.
- 4 Digital cameras store photos in a roll of film.
- 5 There are no language courses available on CD-ROM.

3. Match these terms in the box with the explanations.

a hypertext	b MIDI interface	c Video editing
-------------	------------------	-----------------

- 1 The process of manipulating video images.
- 2 A code for the exchange of information between PCs and musical instruments.
- 3 Text with hyperlinks, which take you to other pages.
- 4 A concert or other event that is transmitted over the Web.
- 5 A technique for playing sound and video files as a continuous stream, while they're downloading.

VII. Grammar: *Conditional Clauses*

1. Study the following information:

When you want to talk about a possible situation and its consequences, you use a conditional sentence. Here we examine two types of conditionals:

- **First conditional** (possible situation)

If A happens B will happen,
(present simple) (*will* + verb)

e.g. *If you **click** on the speaker icon, you'll **get** a piece of dialogue from the movie.*

In the main clause we can also have a modal (*can*), an imperative, or a present tense verb.

- **Second conditional** (unlikely situation)

If A happened B would happen,
(past simple) (*would* + verb)

e.g. *If I **had** the money, I **would** (**I'd**) **invest** in a multimedia upgrade kit.* Other modals (*could, should, might*) may appear in the main clause.

2. Identify the tenses used in the If-clause and in the main clause.

1. If you upgrade your PC, you'll be able to run multimedia applications.
2. If the marketing manager had a multimedia system, she could make more effective presentations.

3. Put the verbs in brackets into the correct form.

1. If I (get).....a sound card, I'll be able to create my own music with a MIDI.
2. If the system (have).....a SuperVGA card, we would obtain a better resolution.
3. You won't be able to play CD-ROM disks if you (not have).....a CD-ROM drive.
4. If you (come).....to the annual computer exhibition, you could see the new Macs.
5. If I could afford it, I (buy).....a Multimedia PC.

VIII. Listening: *Revision of software*

Look at the list of software products and number the items in the order in which you hear them described.

- | | |
|---|---|
| <input type="checkbox"/> Graphics and design | <input type="checkbox"/> Web editor |
| <input type="checkbox"/> Multimedia application | <input type="checkbox"/> Educational software |
| <input type="checkbox"/> DTP | <input type="checkbox"/> Musical software |
| <input type="checkbox"/> Database program | |

IX. Reading: *Multimedia on the Web*

1. Read the text.

1 Web pages can contain different multimedia elements: text, graphics, sounds,
video and animation. To identify the format or type of file, an extension (a three-
letter suffix) is usually added to the file name when it's saved on disk. The most
common text extensions are **.txt**, **.pdf**, **.doc** and **.htm** (or **.html**). Most of the text
5 files that you find on the Web have the extension **.htm**, created with the hypertext
markup language.

Graphics on the Web can include pictures, photos, paintings, image-maps and
buttons. The most common formats are **.gif** (a standard image format developed by
CompuServe) and **.jpg** or **.jpeg** (created by the Joint Photographic Experts' Group).

10 Net is a great place to find and hear hit songs, movie soundtracks and recorded
interviews. The most common formats are these:

- **.wav**: wave files can be played with Sound Recorder included with Windows
- **ra** or **.ram**: RealAudio files can be heard with RealPlayer, a plug-in you can
download from the Web.
- 15 • **.mp3**: compressed music files that can be played with an MP3 player.

You can see cartoons and movie clips on the Web, but you need the
appropriate software. Video files are usually stored in: **.avi**, **.mov** and **.mpg** (or
.mpeg) formats. To view MPEG videos you just need Video for Windows.
However, to create high-quality movie clips you need a dedicated MPEG expansion
20 card. You can also find animation and 3-D worlds. The two standard tools to
manipulate animated worlds are VRML and Java. To view a virtual animation you
need a program like QuickTime VR.

When you download files, they're probably compressed. Windows files have a **.zip**
extension. Macintosh files usually have a **.sit** extension .

2. Read the text again and find:

- 1 the function of the extension that is usually added to a file name.
- 2 the language used to create the majority of text files on the Web.
- 3 the graphics interchange format created by CompuServe to compress images.
- 4 the small program (plug-in) that lets you hear audio recordings on the Net.
- 5 the most popular video formats.
- 6 the format created by the Moving Picture Experts' Group to capture, store and
play back movies.
- 7 the extension for the files that can be decompressed with a program like *Winzip*.

Stop & Check 3

Exercise 1. Nathaniel is explaining to his classmate, David, how to set up a Macro on Microsoft Word. Complete his instructions by typing in the words in the box.

next like right first finally you what everything then then that
--

David: Nathaniel, I've been asked to set up a Macro to help me edit this document on Word, but I'm not sure how to do it. Actually, I'm not even sure what Macros do. Can you give me a hand?

Nathaniel: Sure. Macros are basically mini-programs that you can set up within a Word document which carry out automated tasks for you. One of the most useful Macros allows you to go through a whole document and delete any accidental double spaces. I'll show you how to do it. (1)....., pen up any Word document. (2)..... put in a couple of double spaces between words, just so you can check that it's worked at the end.

David: OK, I've done (3)..... now. (4)..... next?

Nathaniel: (5)....., you go to *Tools, Macros*, (6)..... click on *Record New Macro*.

David: (7)..... this?

Nathaniel: That's it. Give the Macro a name like 'Doublespace' – it has to be one word. Once you click *OK*, Word is recording your actions so that it can replicate them later. So, do the following commands: *CTRL + Home* – that takes the cursor to the start of the document – *Find and replace, Find*, then hit the space bar twice to do a double space, then click *Replace with* and hit the space bar once before clicking *Replace all*.

David: Is that (8).....?

Nathaniel: Yes, that looks good. (9)....., press the little red circle on the Macro command, which will stop the recording. The Macro should now be saved under your Macro menu, just hit *Run* to run it on any Word doc.

David: Is that (10).....? Seems quite simple. Thanks, Nathaniel.

Exercise 2. Many terms related to spreadsheets and databases are easily confused. Look at these extracts from definitions in an ICT dictionary and decide which word is being defined.

row, column, spreadsheet, worksheet, fields, records, search, sort
--

1. The vertical part of a spreadsheet.
2. The horizontal part of a spreadsheet.
3. The name of the computer program that displays data in rows and columns, and the table which displays data in rows and columns.
4. A collection of cells in one layer of an Excel file.
5. In databases, information is added to, which are grouped together into
6. You can a database for specific information, or the information by a number of different criteria.

Exercise 3. Choose the correct word to complete the list of things that you can do at a typical cybercafé.

1. *access/ get into/ enter* the Internet
2. *look for/ find/ browse* the Web
3. *web/ online/ internet* telephony
4. *multiple/ multiplayer/ many-player* gaming
5. *drink/ take/ make* coffee
6. *at/ to/ -* people

Exercise 4. Complete the following wikis about graphics with words from the box (1-11). And choose the correct forms of the words in brackets.

resolution,	CAD,	raster,	3-D,	wireframes,	texturing,	toolbox,
vector,	rendering,	computer animation,	solid modelling			

Computer graphics

There are two types of computer graphic: (1)..... graphics, where each pixel is separately defined, and (2)..... graphics, where mathematical formulae are used to draw lines and shapes. (to use) this second type of graphic results in sharper graphics with no loss of (3)..... when the object is scaled up.

During the late 1970s, personal computers became more powerful, capable of (to draw) more complex shapes and designs. In the 1980s, artists and graphic designers started (to use) personal computers as a serious and (to excite) new design tool. (4)..... (Computer Aided Design) allowed designers to make (5)..... to show the edges of an object and then add colour and filters to (to make) it look more realistic, a process known as (6)..... . They could even add light and shadow, known as (7).....

Three-dimensional, or (8)....., computer graphics became possible in the late 1980s with the invention of powerful SGI computers, which were later used to create some of the first (9)..... films at the Pixar movie studio. 3-D graphics became more popular in the 1990s, in gaming, multimedia and animation. Computer graphics continue (to become) even more detailed, due to more advanced computers and better (10)..... software applications – the tool which allows designers to make graphics appear in 3-D.

Web graphics

In the 1990s, internet speeds increased, and web browsers that could view images were released. Websites began to use the GIF format to display small graphics, such as banners and adverts. Nowadays, web browsers can (to display) a much wider variety of image formats. Plugins can expand the web browser functions to display animated, interactive and 3-D graphics, contained within file formats such as SWF and X3D.

Most modern web graphics are made with either Adobe Photoshop or Corel Paint Shop Pro. Windows users have access to MS Paint, but many people think the program has insufficient features, with only a very basic (11)..... of painting tools.

UNIT 13

I. Vocabulary

1. What is programming?

2. Complete the following definitions with the words and phrases in the box. Translate the terms and their definitions.

the various parts of the program	may occur in programs
language	binary numbers a given problem

1 **algorithm**

The step-by-step specification of how to reach the solution to

2 **flowchart**

A diagram representing the logical sequence between.....

3 **coding**

The translation of the logical steps into a programming

4 **machine code**

The basic instructions understood by computers. The processor operates on codes which consist of

5 **debugging**

The techniques of detecting, diagnosing and correcting errors (or 'bugs') which

II. Listening

Listen to Lucy Boyd, a software developer, explaining how a program is produced. Number these steps in the order you hear them.

- Provide documentation of the program.
- Understand the problem and plan the solution.
- Test and correct the program.
- Make a flowchart of the program.
- Write the instructions in coded form and compile the program.

III. Reading: *Programming languages*

1. Read the text and find answers to these questions.

- Do computers understand human languages?
- What are the differences between low-level and high-level languages?
- What is an assembler?
- What is the function of compilers?
- What do you understand by the terms source program and object program?
- In the future, could computers be programmed in Spanish, French or Japanese?

1 Unfortunately, computers can't understand ordinary spoken natural language. The only language they can understand directly is called **machine code**. This consists of the Is and Os (binary codes) that are processed by the CPU.

5 However, machine code is very difficult to write. For this reason, we use symbolic languages. Then, using a special program, they can be translated into machine code. For example, the so-called **assembly languages** use abbreviations such as ADD, SUB, MPY to represent instructions. These mnemonic codes are like labels easily associated with the items to which they refer.

10 Basic languages, where the program is similar to the machine code version, are known as **low-level languages**. In these languages, each instruction is equivalent to a single machine code instruction, and the program is converted into machine code by a special program called an **assembler**. These languages are quite complex and restricted to particular machines.

15 To make the programs easier to write and to overcome the problem of communication between different types of machines, higher-level languages were designed: BASIC, COBOL, FORTRAN or Pascal. These are all problem-oriented rather than machine-oriented. Programs written in one of these languages (known as **source programs**) are converted into a lower-level language by means of a **compiler** (generating the **object program**). On
20 compilation, each statement in a **high-level language** is generally translated into many machine code instructions.

People communicate instructions to the computer in symbolic languages and the easier this communication can be made, the wider the application of computers will be. Scientists are already working on Artificial Intelligence and the next generation of computers may be able to understand human languages.

IV. Vocabulary: Word-building

1. Look at the groups of words and decide what part of speech each word is. Then complete the sentences with the correct word.

A compile complier compilation

1. Programs written in a high-level language require....., or translation into machine code.
2. A.....generates several low-level instructions for each source language statement.
3. Programmers usually.....their programs to create an object program and diagnose possible errors.

B program programmers programming programmable

1. Most computer.....make a plan of the program before they write it. This plan is called a flowchart.
2. A computer.....is a set of instructions that tells the computer what to do.
3. Converting an algorithm into a sequence of instructions in a programming language is called.....

C bug debugger debugging

1. New programs need.....to make them work properly.
2. Any error or malfunction of a computer program is known as a.....
3. The best compilers usually include an integrated.....which detects syntax errors.

2. In the word *debug* the prefix *de-* is used. This prefix means 'to reverse an action'. Here are a few more examples: defrost, debrief, declassify, decode, decompose, decentralize.

3. Write down the base form of each verb. Translate them. And what do the verbs with *de-* mean? Can you think of any more verbs with *de-* in English? Write them down.

V. Grammar: *Infinitives*

1. Make sentences as in the example.

Example: not easy/write instructions in Pascal: *It's not easy to write instructions in Pascal.*

- 1 advisable/test the program under different conditions
- 2 expensive/set up a data-processing area
- 3 unusual for a program/work correctly the first time it is tested
- 4 difficult for students/learn FORTRAN
- 5 important/consider the capabilities of the programming language
- 6 quite easy/write instructions in BASIC

2. Study the following information in the table:

The infinitive is used:	Examples
• after adjectives	<i>It is difficult to use machine code.</i>
• after modal verbs with <i>to-</i> , <u><i>ought to</i></u> , <u><i>used to</i></u>	- <i>I ought to make a back-up copy.</i> - <i>Using a computer is much easier than it used to be.</i>
• after modal and auxiliary verbs without <i>to</i> : <u><i>can, could, may, might, shall, should, will, would, would rather, would sooner</i></u>	- <i>Unfortunately, computers can't understand English.</i> - <i>I'd rather buy a game than a spreadsheet.</i>

4. Look at these pairs of examples and decide where there is a change in meaning. Translate the sentences into Ukrainian.

- 1 a. I remember shutting down the computer before I left the room.
b. Please remember to buy the new program.
- 2 a. They stopped to look at the flowchart.
b. They stopped looking at the flowchart.

- 3 a. I like studying languages.
b. I like to study languages in the evenings.
- 4 a. It has started to rain.
b. It has started raining.
- 5 a. He needs to work harder.
b. This hard disk needs repairing.

VI. Reading

1. Make a list of as many computer languages as you can think of.

2. Study the table, then answer the questions.

- 1 What does VXML mean?
- 2 Who created VoiceXML?
- 3 When was it developed?
- 4 What technologies does it use for input and output?
- 5 What are the most suitable applications for VoiceXML?
- 6 What do you think are the benefits of having a voice Web?

The VoiceXML language

Language	Characteristics	Uses
VXML or VoiceXML (Voice Extensible Markup Language) Created by a working group of 4 companies: AT&T, Lucent, Motorola and IBM in 2000	Based on the XML language for input, VoiceXML uses voice recognition. For output, it uses pre recorded audio content and speech synthesis (text-to-speech). To access voice web first you dial its phone number, the call is received by a telephone server and the VoiceXML pages fetched via HTTP. Finally, you get the required information. A typical VoiceXML page could be 'sports.vxml'.	Used to create voice-user interfaces. Makes Internet content accessible via voice and phone. Instead of using a web browser on a PC, you use the telephone to access voice-equipped websites via a VoiceXML interpreter (a voice browser). Applications: 1. Voice portals (telephone services where you can hear information about sports, news, traffic, etc.) 2. Voice-enabled intranets 3. Voice e-commerce 4. Home appliances controlled by voice.

III. Grammar: *The Passive*

1. Study this information:

The passive is formed with the verb **to be** in the correct tense and the **past participle** of the main verb.

*e.g. Instructions **are processed** by the CPU.*

*The computer **was invented** by Charles Babbage.*

2. Complete these sentences with a suitable verb form.

1. COBOL (use).....for business applications.
2. Original programs (write)..... in a high-level language.
3. All computer languages (must translate).....into binary commands.
4. The ADA language (develop).....in 1979.
5. In the 1970s, new languages such as LISP and PROLOG (design).....for research into Artificial Intelligence.
6. A new version of TurboPascal (release).....just.....
7. In the next century, computers (program).....in natural languages like English or French.

3. Read the passage and complete it with the verbs in the correct forms.

Visual BASIC is a programming language and an environment(1) (develop) by Microsoft in 1990. It (2) (use) to create applications for Windows operating systems.

The name 'BASIC (3)for (stand) Beginner's All- purpose Symbolic Instruction Code. The original BASIC language (4) (create) in 1965 and adopted by many programmers and PC manufacturers because it was user-friendly and easy to learn.

The adjective 'Visual' refers to the technique used to create a graphical user interface. Instead of (5) (write) a lot of instructions to describe interface elements, you just (6) (add) pre-defined objects such as buttons and dialog boxes, which can (7) (choose) from a toolbox.

It (8)..... (take) only a few minutes to create a Visual BASIC program. Using the mouse, you simply (9) (drag) and drop controls (e.g. option buttons, text boxes, icons, menu bars, etc.) into the required position, and then define their colour, size and behaviour.

Thanks to its object-oriented philosophy and interactive nature, Visual BASIC (10) (enable) the programmer to quickly create all sorts of applications from small system utilities to database programs and Internet server applications.

VIII. Listening & Writing

1. Listen to Vicky Cameron, the IT lecturer, talking to her students about C language. Copy the table and complete it with the relevant information.

<i>Develoned by</i>	<i>Date</i>	<i>Characteristics</i>	<i>Uses</i>	<i>Extensions</i>
Dennis Ritchie at	Created to replace The language is small,	Originally designed for..... Today it is used to	C++ and Object-oriented languages

UNIT 14

I. Reading

1. The term 'Java' refers to three things:

- a an island in Indonesia
- b a cup of coffee, in American slang
- c a language for Internet applications

2. Answer these questions.

- 1 What is Java, in the world of computers?
- 2 Have you seen the effects of Java programs on web pages?

3. These statements about Java are all false. Read the text and correct them.

- 1 Java was invented by Microsoft.
- 2 Small applications written in Java are called 'animations'.
- 3 With the interpreter, a program is first converted into Java bytecodes.
- 4 Java is not compatible with most computing platforms.
- 5 The Java language is single-threaded, one part executing at a time.
- 6 Java doesn't let you watch animated characters on your webpages.
- 7 ActiveX and Shockwave are not real competitors for Java.

- 1 Java is a programming language developed by Sun Microsystems which is specially designed to run on the Web. When you see a web page that uses Java, a small program called 'applet' is executed automatically. Java applets let you watch animated characters and moving text, play music and interact with information on the screen.
- 5

A.....

- Java is an object-oriented language similar to C++ , but it is more dynamic and simplified to eliminate possible programming errors. A Java program is both compiled and interpreted. First the source code (file with a Java extension) is compiled and converted into a format called bytecode (file with a class extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because there are Java interpreters, known as Java Virtual Machines, for most operating systems. Java is multi-threaded. A Java program can have multiple threads (parts), i.e. many different things processing independently and continuously.
- 10
 - 15

B.....

- People are excited about Java because it lets you create moving images and animated drawings. You can also create graphical objects (e.g. bar charts, graphs, diagrams) and new 'controls' (e.g. buttons, check boxes, pushbuttons with special properties). A web page that uses Java can have inline sounds that play in real-time, music that plays in the background, cartoon style animations, real-time video and interactive games.
- 20

C.....

One alternative technology is ActiveX, the Microsoft product for including

25 multimedia effects on web pages. Another competitor is Macromedia's Shockwave, a plug-in that lets you animate pictures, add sound and even make interactive pages so that people can play games on websites.

4. Match these headings to the corresponding paragraphs.

1. Why is Java cool?
2. Alternatives to Java
3. Characteristics of the Java language

II. Vocabulary

1. Match the words from two columns to make a common technical term.

Translate the terms.

- | | |
|---------------|--------------|
| 1 programming | a browser |
| 2 web | b error |
| 3 Java | c code |
| 4 multimedia | d protection |
| 5 source | e format |
| 6 virus | f effects |
| 7 compression | g applet |

2. Which verbs on the left are frequently found with nouns on the right?

- | | |
|---------------|--------------------|
| 1 to download | a the Web |
| 2 to play | b a source program |
| 3 to run | c files |
| 4 to browse | d an application |
| 5 to compile | e data |
| 6 to process | f music |

III. Grammar & Listening

1. Read the passage below and complete it with the correct form of the verbs in the box.

call	decide	develop	be	begin
can	rename	have	support	base

The idea for Java started in 1990 when a team of software engineers at Sun Microsystems (1).....to create a language for a handheld device that could control and interact with various kinds of electronic appliances ranging from Nintendo game boys to VCRs and TV set-top boxes. They (2).....an object-oriented programming language that Gosling (3).....'Oak', after the tree outside his window. The device (4)..... an animated character named 'Duke', which would go on to become Java's mascot.

With the advent of the Web in 1993, the company made a web browser (5).....on the Oak language. Later on, this language was adapted to the Internet and (6)..... 'Java'. The 1.0 version of Java was officially introduced by Sun in May 1995.

At that time, web pages (7).....only display- text, pictures and hyperlinks. With the arrival of Java, web designers (8).....able to include animation and interactive programs on web pages. The first major application created with Java was the Hotjava browser.

(9).....to attract serious attention from the Internet community and was soon (10).....by Netscape Navigator and Microsoft Internet Explorer. Today Java is a hot technology that runs on any computer.

2. Listen and check your answers.

3. Copy the chart and complete it with notes about the different stages in your 'computer history'.

e.g: *1985: First used computer at school.*

Possible stages:

- first computer game
- first computer lesson at school/college
- first programming language learnt
- first software used
- first computer course/qualification
- first job involving computers
- first steps on the Internet

4. Ask a partner about their computer history. For example:

'When did you first ...?' 'How long ago did you ... ?'

'How old were you when you ...?'

IV. Reading

1. Look carefully at the job advertisements and discuss with another student what personal qualities and professional abilities you would need for each job. What are the most important qualities in the list? Add some more of your own.

logical reasoning	ability to lead a team
imagination	patience and tenacity
physical fitness	ability to draw well
efficiency	being good with figures
self-discipline	willingness to take on responsibility

2. Would you like to apply for one of two jobs suggested? Why? Why not?

SENIOR PROGRAMMER

Required by ***DIGITUM***, a leading supplier of business systems to the insurance industry.

You will be able to work on the full range of development activities – analysis, design, coding, testing and implementation. At least two years' experience of COBOL is necessary.

As we are active in Europe, fluency in French, Italian or another European language is desirable.

Don't miss this opportunity to learn new skills and develop your career.

Send your CV to **CHRIS SCOTT, PERSONNEL MANAGER,**

DIGITUM, 75 PARKHILL STREET SW2 3DE

You can visit our web site at: <http://www.digitum.com>

DTP Operator

required for a leading financial magazine. We are looking for a bright, competent *QuarkXPress* operator with at least three years' experience in design and layout. Skills in *Photoshop*, *Freehand* or *Illustrator* an advantage. Ability to work in a team and to tight deadlines is vital.

Please apply in writing, with CV and samples of your work,

To: Tom Parker, Production Manager, Financial Monthly

Stockton Street, London EC1 4WW

3. Study the personal profile of Charles Graham. Which is the most suitable job for him?

- 29 years old. Married
- Education: 3 A-levels
- In-depth knowledge of Apple Macintosh equipment.
- Course in graphic design and page-layout applications from Highland Art School.
- Proficient in Adobe PageMaker.
- Diploma in word processing. Wide experience in MS Word and WordPerfect.
- Present job: Computer operator for PromoPrint, a company specializing in publishing catalogues and promotional material.

V. Grammar: *Past actives*

1. Study the information:

To speak about time references we use:

- ***for***: *We've used Microsoft Internet Explorer **for** two years.*
- ***since***: *I've been a programmer **since** 1993.*
- ***ago***: *I left university seven years **ago**.*

2. Complete the sentences below *using/or, since or ago*.

- 1 I've been looking for a job.....April.
- 2 They've used a fax machine.....the past two years.
- 3 Kate Jackson studied computer sciences.....three years.
- 4 I got married six years.....
- 5 She's been working for this firm.....1990.

3. What is the difference in meaning between these two sentences?

- a I've worked for a year as a senior programmer.
- b I worked for a year as a senior programmer.

4. Sarah Brown is one of the applicants for the job of Senior Programmer advertised in Task IV. Read her letter of application and put the verbs in brackets into the correct tense.

19 Sandford Street
London NW7 4HH2
March 1999

Mr Scott
Personnel Manager Digitum
75 Parkhill Street
London SW2 3DE

Dear Mr Scott,

I am writing to (1).....(apply) for the position of Senior Programmer which (2).....
(advertise) on 28 February in *The Times*.

I (3).....(work) as a computer programmer for the last three years. After graduation I
(4).....(work) for a year with NCR and (5).....(be) now with Intelligent Software for two
years. I design systems in COBOL for use in large retail chains. These have been very successful and
we (6).....(win) several new contracts in the UK and Europe on the strength of my team's
success.

Last year I (7).....(spend) three months in Spain testing our programs and also
(8).....(make) several short visits to Italy so I have a basic knowledge of Spanish and Italian. I
now feel ready for more responsibility and more challenging work and would welcome the
opportunity to learn about a new industry.

I enclose my curriculum vitae and look forward to hearing from you.

Yours sincerely,

Sarah Brown

VI. Listening

1. Listen to part of Chris Scott's interview with Sarah Brown and complete his notes.

Name: Sarah Brown

Address: 19 Sandford Street, London NW7 4HH

Home phone no: 0181 569 1260

Job applied for: Senior Programmer

Qualifications:

- *University:*
- *Foreign languages: Basic knowledge of Italian and Spanish*
- Work experience:*
 - *At NCR.....*
 - *What was software used for?.....*
 - *What computers were used?.....*
 - *Knowledge of databases?*
 - *Present job: Works for Intelligent Software; writes programs in COBOL*
- Reasons for applying:*

VII. Writing

1. Maria Quintana, from Spain, is interested in the job of computer operator as advertised below. Use her notes to write a letter applying for the job. You can start like this: *I'm writing to apply for ...*



requires Computer Operators

We have vacancies for experienced operators to work on their own initiative in a busy company.

You will be responsible for the day-to-day running of our data-processing . You must be highly communicative and have good problem-solving skills. We can offer an excellent salary, training and good promotional prospects to the right candidate.

Send your CV and a covering letter to

James Taylor, International Mercury Computers,

37 Charles Place, London SW10 6XX

FAX 0171-323-0571

Notes for the Curriculum Vitae

- *Cambridge Certificate of Proficiency in English*
- *Computer Sciences degree from Zaragoza University, Spain*
- *Knowledge of both Macintosh and Windows environments*
- *Two years' experience working on 'Linea Directa', a local magazine for computer users*
- *Present job: Computer operator for Graphic Colour Sl. This involves data control and editing, data preparation, and computer operating*
- *Reasons for applying: Wants to develop operating skills and move into management*

UNIT 15

I. Reading: *Channels of communication*

1. Try to answer these questions.

- 1 How can a PC be connected to another computer?
- 2 What data communication systems can you think of? Make a list.

2. Match the data communication services on the left with the requirements on the right. Then read the passage and check your answers.

- | | |
|-------------------------------------|--|
| 1 fax | a. To send a personal message to a friend who is at a different workstation. |
| 2 electronic mail | b. To send a copy of a paper document -for instance, a scientific article - from Trento University to Cambridge University. |
| 3 teletext | c. To access massive databases containing all kinds of information, or to be connected with an airline reservations service. |
| 4 local bulletin board system (BBS) | d. To receive shareware and public domain programs from a user group. |
| 5 commercial online service | e. To find out weather forecasts and sports information from the television. |

What are 'telecommunications'?

- 1 This term refers to the transmission of information over long distances using the telephone system, radio, TV, satellite or computer links. Examples are two people speaking on the phone, a sales department sending a fax to a client or someone reading the teletext pages on TV But in the modern world, telecommunications mainly means transferring information from one PC to another via modem and phone lines (or fibre-optic cables).

What can you do with a modem?

- A modem is your computer's link to the external world. With a modem you can exchange e-mail and files with friends and colleagues; you can access the Web and search for information about the stock market, current affairs, entertainment, etc.; you can participate in newsgroups and live conversations; you can make bank transactions and buy things from the comfort of your home. You can also access your office from your computer at home or your laptop in a hotel room. Today a lot of companies find it more efficient to have some employees doing their work at home. Using a modem, they transfer their work into the office where it is printed and distributed. The list of applications is endless.

What do you need to telecommunicate?

- 15 You just need a PC (or a terminal), a modem connected to the computer and the telephone line, and communication software. Once you have installed and

configured your modem, you can communicate with people through bulletin boards and online services.

Local bulletin boards

20 Bulletin board systems (BBS) are frequently free because they are run by enthusiasts and sponsored by user groups or small businesses. The person who administers the BBS is called *sysop* (system operator). You can use a BBS to download artwork, games and programs, or you can participate in ongoing discussions. You can also upload (send) programs, but make sure they are shareware or public domain programs.

Online service providers

25 To gain access to the Net you must first open an account with a service provider.

- **Internet service providers** give you a software package, username, password and access phone number. You can then log on to the Internet and browse the web, download files from FTP sites, and send and receive e-mail. Most ISPs charge a flat monthly or annual fee that gives you unlimited access.
- **Commercial online services** e.g. America Online, CompuServe and the Microsoft Network. They differ from dedicated ISPs in two ways: (1) they use a smooth, easy-to-use interface, and (2) they have extra services for members only (but they charge higher prices). For example, they offer airline reservations, professional forums, etc.

30

Modems

35 Your PC is a digital device (it works with Is and Os). However, the telephone is an analogue device, designed to transmit the sounds of the human voice. That's why we need a modem — a bridge between digital and analogue signals. The word 'modem' is an acronym for MOdulator/DEModulator. When a modem modulates, it sends rapid on/off pulses. The computer on the other end translates (demodulates) those signals into intelligible text or graphics. Modem transmission speeds are measured in kilobits per second. The conventional modem transmits data at 56 kbps; a cable modem offers speeds of up to 2 Mbps-, and an ADSL

40 modem supports data rates of 1.5 to 9 Mbps

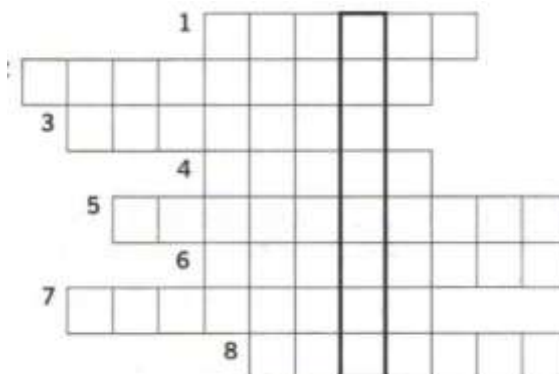
3. Match and link the pairs of expressions that have the same meaning.

file of structured data	BBS	facsimile machine	FTP	sysop	kilobits
per second	system operator	modem	Internet relay chat	phone network	
fax	database	bulletin board system	IRC	modulator/demodulator	file
transfer protocol	kbps	telephone wires			

4. Complete the sentences by using a term from the list. Then write the words in the crossword.

modem	network	online	download	newsgroups
	services	account	telephone	

- When you are connected to the Internet you are described as being..... ;
- To communicate via the Internet you need a PC, a modem and aline.
- To have access to the Internet you must first open anwith an Internet service provider.
- You need a.....to convert computer data into a form that can be transmitted over the phone lines.
- The public discussion areas on the Internet are called.....
- You can use a BBS toclip-art, games and shareware to your PC.
- CompuServe and America Online offer exclusive..... to their customers.
- The Internet is a global of computer networks.



II. Vocabulary: *Word building*

1. In pairs, look at the words below and decide:

- what part of speech each word is
- where the stress falls on each item.

tele- means 'at/over a distance'

- | | | | |
|--------------|---------------|--------------------|----------------|
| 1 telegram | 5 teletype | 9 telegraphic | 13 telescope |
| 2 telephoto | 6 teletext | 10 telegraphically | 14 telescopic |
| 3 televise | 7 telegraph | 11 telepathy | 15 telephonist |
| 4 television | 8 telegrapher | 12 telepathic | |

2. Now write down some words formed by adding these prefixes.

- auto-* (means 'self')
- trans-* (means 'across from one place to another')
- inter-* (means 'between', 'among')

III. Listening

1. Answer these questions.

- What is a cybercafe?
- What services would you expect when entering a cybercafe?

2. Listen to this interview with Daniel Sturdy, the manager of an Internet cafe in London. Then say whether these sentences are true (T) or false (F).

1. A cybercafe is a cafe where you can have access to the Internet and related services.
2. You can talk to people over the Internet as if you were speaking on the phone.
3. They don't help people who have problems while using the Internet.
4. A private e-mail account costs \$10 a month.
5. At the moment they have got many international users.
6. You have to pay long-distance rates on the Internet.
7. In the cafe area you can sit, drink coffee and chat to people.
8. Most of the computers are in an upstairs area.

IV. Reading: *Security and privacy on the Internet*

1. Answer these questions.

- 1 Is it technically possible for computer criminals to infiltrate into the Internet and steal sensitive information?
- 2 What is a hacker?
- 3 Can viruses enter your PC from the Internet?

2. Match these texts with the correct pictures.

- | | |
|---|--|
| <ol style="list-style-type: none"> 1 Web browsers warn you if the connection is not secure; they display a message when you try to send personal information to a server. 2 Private networks use a software and hardware mechanism, called a 'firewall', to block unauthorized traffic from the Internet. | <ol style="list-style-type: none"> 3 You have to type your user name and password to access a locked computer system or network. 4 An open padlock in Netscape Communicator indicates the page is not secure; a closed padlock indicates the page is encrypted |
|---|--|



3. Read the text and find answers to these questions.

1. Why is security so important on the Internet?
2. What security features are offered by Netscape Communicator and Internet Explorer?
3. What security standard is used by most banks to make online transactions

secure?

4. How can we protect and keep our e-mail private?
5. What methods are used by companies to make internal networks secure?
6. Which ways can a virus enter a computer system?

- 1 There are a lot of benefits from an open system like the Internet, but we are also exposed to hackers who break into computer systems just for fun, as well as to steal information or propagate viruses. So how do you go about making online transactions secure?

5 **Security on the Web**

- The question of security is crucial when sending confidential information such as credit card numbers. For example, consider the process of buying a book on the Web. You have to type your credit card number into an order form which passes from computer to computer on its way to the online bookstore. If one of the
- 10 intermediary computers is infiltrated by hackers, your data can be copied. It is difficult to say how often this happens, but it's technically possible.

To avoid risks, you should set all security alerts to high on your Web browser. Netscape Communicator and Internet Explorer display a lock when the Web page is secure and allow you to disable or delete 'cookies'.

- 15 If you use online bank services, make sure your bank uses digital certificates. A popular security standard is SET (secure electronic transactions).

E-mail privacy

- Similarly, as your e-mail message travels across the net, it is copied temporarily on many computers in between. This means it can be read by unscrupulous people
- 20 who **illegally** enter computer systems.

The only way to protect a message is to put it in a sort of 'envelope', that is, to encode it with some form of encryption. A system designed to send e-mail privately is *Pretty Good Privacy*, a freeware program written by Phil Zimmerman.

Network security

- 25 Private networks connected to the Internet can be attacked by intruders who attempt to take valuable information such as Social Security numbers, bank accounts or business reports.

- To protect crucial data, companies hire security consultants who analyse the risks and **provide** security solutions. The most common methods of protection are passwords
- 30 for access control encryption and decryption systems, and firewalls.

Virus protection

- Viruses can enter a PC through files from the Internet or bulletin board systems. If you want to protect your system, don't open attachments from strangers and take care **when** downloading files from the Web. (Plain **text** e-mail alone can't pass a virus.)
- 35 Remember also to update your software as often as possible, since new are being created all the time.

* **hacker:** a person who obtains unauthorized access to computer data

** **cookies:** small files used by Web servers to know if you have visited their site before

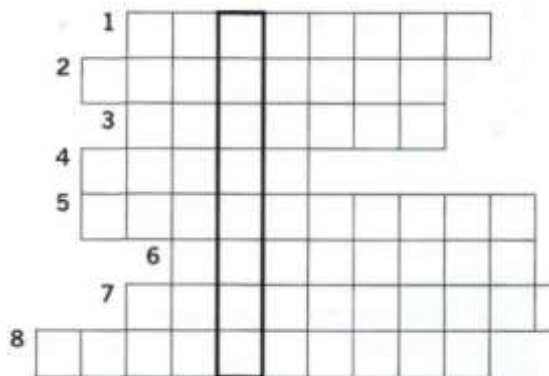
*****certificates**: files that identify users and Web servers on the net, like digital identification cards

*****encryption**: the process of encoding data so that unauthorized users can't read it

******decryption**: the process of decoding encrypted data transmitted to you

4. Complete these sentences by using a term from the text. Then write the words in the puzzle.

1. Users have to enter a p.....to gain access to a network.
2. You can download a lot off.....or public domain programs from the net.
3. Hundreds of h.....break into computer systems every year.
4. A computer v.....can infect your files and corrupt your hard disk.
5. The process of encoding data so that unauthorized users can't read the data is known as e..... .
6. A.....is a device which allows limited access to an internal network from the Internet.
7. You can include an a.....as part of your e-mail message.
8. This company uses d.....techniques to decode secret data.



V. Listening

1. Listen to Diana Wilson, a member of the Internet Safety Foundation. She is talking about cyberspace's dangers and benefits for children. Complete the notes in this table.

Benefits:

- The Internet brings benefits for (1).....and entertainment.

Risks:

- manipulation of children
- invasions of (2).....
- child (3).....
- violence and neo-Nazi (4)

Solutions:

- There are websites (5).....for children.
- Internet (6).....programs let parents block objectionable Web sites.
- Websites should (7).....their content with a label, from child-friendly to over 18-only.

But this may limit free expression.

VI. Reading: *Hackers!*

1. Read the text in order to answer these questions.

- 1 Which hacking case inspired the film *War Games*?
- 2 Why was Nicholas Whitely arrested in 1988?
- 3 How old was the hacker that cracked the US defence computer in October 1989?
- 4 Who was known as 'Dark Dante' on the networks? What was he accused of?
- 5 Which computer club showed on TV a way to attack bank accounts?
- 6 What type of virus infected thousands of PCs in 2001?

- Sept '70 John Draper, also known as Captain Crunch, discovers that the penny whistle offered in boxes of Cap'n Crunch breakfast cereal perfectly generates the 2,600 cycles per second (Hz) signal that AT&T used to control its phone network at the time. He starts to make free calls.
- Aug '74 Kevin Mitnick, a legend among hackers, begins his career, hacking into banking networks and destroying data, altering credit reports of his enemies, and disconnecting the phone lines of celebrities. His most famous exploit - hacking into: the North American Defense Command in Colorado Springs - inspired *War Games*, the 1983 movie.
- Jul '81 Ian Murphy, a 23-year-old known as Captain Zap on the networks, gains instant notoriety when he hacks into the White House and the Pentagon.
- Dec '87 IBM international network is paralysed by hacker's Christmas message. Union Bank of Switzerland 'almost' loses J32 million to hacker-criminals. Nicholas Whitely is arrested in connection with virus propagation.
- Jul '88
- Oct '89 Fifteen-year-old hacker cracks US defence computer.
- Nov '90 Hong Kong introduces anti-hacking legislation.
- Aug '91 Israelis arrest 18-year-old for hacking foreign banking and credit card networks.
- Dec '92 Kevin Poulsen, known as 'Dark Dante' on the networks, is charged with stealing tasking orders relating to an Air Force military exercise. He is accused of theft of US national secrets and faces up to 10 years in jail.
- Feb '97 German Chaos Computer Club shows on TV the way to electronically obtain money from bank accounts using a special program on the Web.
- May '99 Computer criminals propagate a lot of viruses through the Internet.

A massive 'denial of service' attack is launched against websites like

Feb'00 Yahoo, Amazon and eBay.

Aug '01 'Code Red' computer worm infects many PCs through the Internet.

VII. Grammar: *The past simple (revision)*

Look at the text in Task VI again and put the verbs into the past.

Example: *In September 1970, John Draper discovered that the penny whistle ... generated... He started to make free calls.*

VIII. Speaking & Writing

1. Look at the list of cybercrimes and discuss these questions in small groups.

Crimes on the Internet:

- Virus propagation
- Software piracy
- Stealing data and passwords by using a sniffer program
- IP spoofing (making one computer look like another to gain unauthorized access)
- Fraudulent use of credit card numbers
- Child pornography
- Violence and racist propaganda

1. What type of crime is more dangerous?
2. What measures can be taken by governments against computer crime?
3. Personal information - address, salary, civil and criminal records - is usually kept or sold by governments and industries in electronic databases. Is personal privacy in danger?
4. Is it right to put restrictions on the contents of the Internet?

2. Write a summary of the discussion. Then present your view to the rest of the class.

UNIT 16

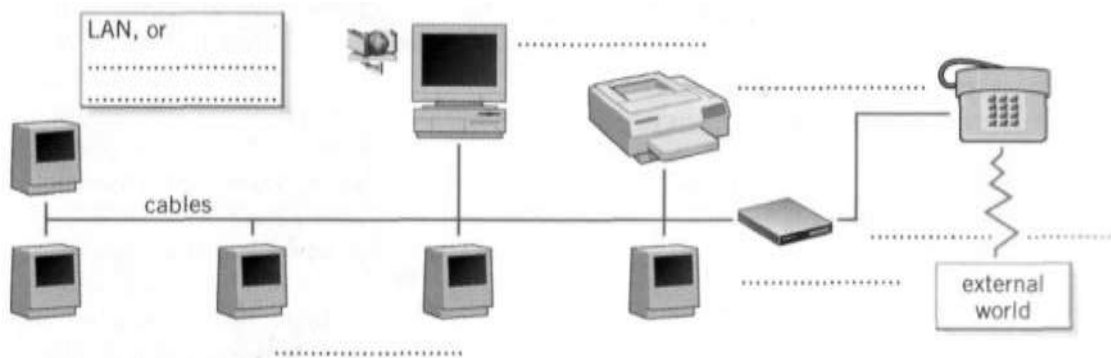
I. Listening

1. Answer these questions.

1 What is a computer network?

2 What are the benefits of connecting computers and peripherals in a network?

2. Listen to the description of this computer network. Label the different elements.



4. With a partner, list some places where you may find a local area network.

II. Reading: *Network configurations*

1. Read the text and match the technical terms on the left with the explanations on the right.

- | | |
|------------------|---|
| 1 network | a. the hardware that emits and receives signals in a network |
| | b. a network contained in a relatively small area |
| architecture | c. the arrangement of nodes in a communication system (i.e. the distribution of elements in a network) |
| 2 LAN | d. a device that translates protocols between different types of networks (e.g. it can link networks of PCs and Macs to mainframes and minicomputers) |
| 3 computer nodes | e. a special unit of data which acts as a key on a Token Ring network; only the machine in possession of this piece of software can transmit on the network |
| 4 transceiver | f. a set of rules that allows the exchange of information over a network |
| 5 protocol | g. computer devices interconnected in a network |
| 6 gateway | |
| 7 token | |

- 1 **A network** is a group of devices (PCs, printers, etc.) or 'nodes' connected by communications circuits so that users can share data, programs and hardware resources. A network has two main elements: the **physical structure** that links the equipment and the **software** that allows
- 5 communication.

The physical distribution of nodes and their circuits is known as network 'topology' or 'architecture'. The software consists of the **protocols**, i.e. the rules which determine the formats by which information may be exchanged between different systems. We could say that cables and transceivers (the
10 architecture) allow computers to 'hear' one another, while the software is the 'language' that they use to 'talk' to one another over the network.

As regards the cables, they consist essentially of the transceiver - the hardware that sends and receives network signals. At present the most widely used transceivers are Token Ring, Ethernet and LocalTalk. Token Ring is the
15 most common method of connecting PCs and IBM mainframes. Most Token Ring adapters transmit data at a speed of 16 megabits per second. With Ethernet, data is transmitted at 100 Mbits/sec. The newest version, Gigabit Ethernet, supports data rates of 1 Gb per second. Ethernet provides a very robust, trouble-free architecture with good levels of performance. *In this*
20 *regard*, Ethernet is the best solution for fast and intensive activity.

LocalTalk transceivers are the cheapest of all because they are directly included in each Macintosh. However, they're a bit slow, which is why most Macs come with built-in Ethernet.

As for protocols, these are rules which describe things like transmission
25 speed and physical interfaces. The Token Ring protocol avoids the possibility of collisions. To transmit data, a workstation needs a **token**, and as there is only one token per network, holding one guarantees sole use of the network. With Ethernet there are other options, of which TCP/IP (Transmission Control Protocol/Internet Protocol) is perhaps the most useful since it allows different
30 operating systems to communicate with each other. *With regard to* LocalTalk networks, they use AppleTalk protocols. The Macintosh operating system includes the AppleTalk manager and a set of drivers that let programs on different Macs exchange information.

LANs can be interconnected by gateways. These devices help manage
35 communications and control traffic on large networks. They change the data to make it compatible with the protocols of different networks.

2. In the sentence *As for protocols, these are rules ...*, the expression *as for* marks the theme of the sentence.

Look at the words in the box below and combine them to make nine similar phrases of reference meaning 'concerning'. You can use words more than once. Look back at the text to find some of them.

with	to	in	for	as	on	the	regard	this
reference		of	respect		regards			matter

III. Reading: *WANs and worldwide communications*

1. Try to answer these questions.

- 1 What is a WAN?
- 2 How can computers be linked up over a long distance?
- 3 What are the advantages of optical-fibre cables over telephone lines?
- 4 What is the function of communications satellites?

2. Now read the passage and find out if your answers were correct.

1 For long-distance or worldwide communications, computers and LANs are usually connected into a wide area network (WAN) to form a single, integrated network. The largest WAN in existence is the Internet.

5 Networks can be linked together by either **telephone lines** or **fibre-optic cables**. For example, ISDN (integrated services digital network) and ADSL (Asymmetric Digital Subscriber Line) are an international standard for transmitting digital text, sound, voice and video data over telephone lines. On the other hand, FDDI (fibre distributed data interface) is an optical-fibre network. It transmits data at great speed - 100 megabits per second. A variation
10 called FDDT transmits data at 200 Mbps. FDDI networks are typically used as backbones for wide area networks.

Modern telecommunications use fibre-optic cables because data can be transmitted at a very high speed through the extremely wide bandwidths of glass fibres. The fibre system operates by transmitting light pulses at high frequencies
15 along the glass fibre. This offers considerable advantages: (i) the cables require little physical space; (ii) they are safe because they don't carry electricity; (iii) they avoid electromagnetic interference.

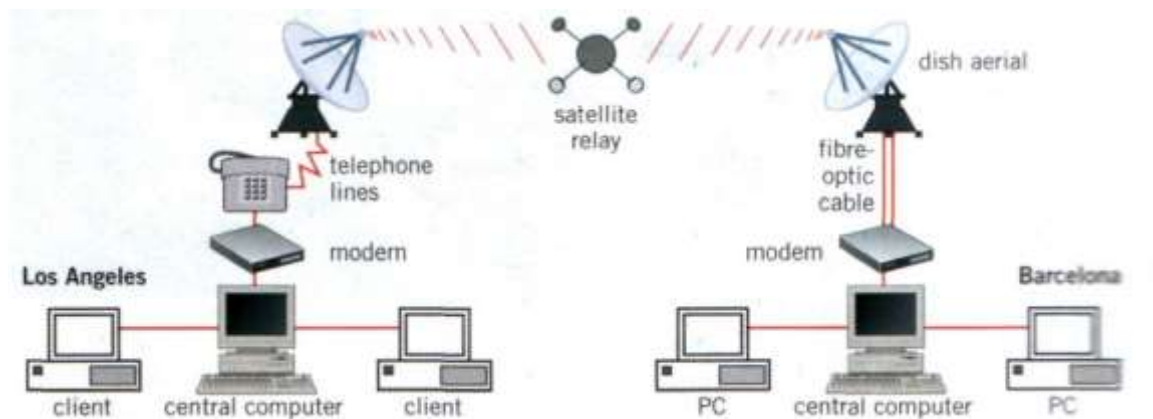
Networks on different continents can also be connected via **satellite**. Computers are connected by a modem either to ordinary telephone wires or
20 fibre-optic cables, which are linked to a dish aerial. This aerial has a large concave reflector for the reception and sending of signals. Then, when signals are received by the satellite, they are amplified and sent on to workstations in another part of the world.

IV. Speaking

1. In small groups, study and discuss the illustration below. Then prepare a description and give an oral report to the class.

- This diagram represents a wide area network or WAN. Two networks are linked via satellite. One network is in and consists of..... The other LAN is in..... and contains
- In Los Angeles, the computers are connected to the telephone lines by However, in Barcelona
- The satellite receives signals from.... Then the signals are retransmitted to.....

- The purpose of this integrated network may be..... It allows large companies and institutions to.....



V. Reading: *New Products*

1. Read the texts about high-tech devices and technologies. What are they? Can you imagine your life without them today? Why?/ Why not?

1. Not long ago, mobile phones could just transmit voice and SMS messages. Now they can display Internet information thanks to the Wireless Application Protocol or WAP.

Some hybrid models combine a phone with a PDA. They look like a regular phone with a dialpad and a small screen on its front. But if you flip up the front cover you find a larger screen that is touch-sensitive. Some include a virtual keyboard which pops up when you want to enter email text or a WAP address.

But the future is called 'third-generation' (3G) mobiles. They transmit a caller's picture and voice simultaneously. UMTS mobile phones deliver users information, e-commerce, games and videoconferencing via fixed, wireless and satellite networks.

2. Internet TV sets allow you to surf the Web and have e-mail while you are watching TV, or vice versa. Imagine watching a film on TV and simultaneously accessing a Web site where you get information on the actors in the film. This is ideal for people who are reluctant to use PCs but are interested in the Internet.

WebTV was the first company which brought Internet services to TV viewers through a set-top computer box. Another option is WorldGate's technology, which offers the Internet through cable TV.

The model built by OEM Metec integrates a complete Windows PC in a TV set. The next generation of Internet-enabled televisions will incorporate a smart-card for home shopping, banking and other interactive services.

3 Virtual reality lets people interact with artificial objects and environments through three-dimensional computer simulation. In a VR system, you are hooked to a computer through a controlling device, such as a glove, and head-mounted displays give you the feeling of being propelled into an artificial three-dimensional world. The

computer brings to life events in a distant, virtual world using databases or real-time objects and sounds. Your senses are immersed in an illusionary, yet sensate, world.

VR can be applied to anything from video games, testing a motor vehicle, visiting a virtual exhibition, to checking out imaginary kitchen designs.

4 Bluetooth is a standard wireless technology designed to connect mobile phones, computers and other devices, replacing direct cable links. Since it uses high-frequency radio waves, the transfer of data and voice is very fast. All data are protected by advanced methods of encryption and authentication.

Bluetooth was initiated by Ericsson and the objective was to eliminate cables between mobile phones, PC cards, headsets, etc. Today it is supported by companies such as Nokia, IBM, Toshiba and Intel.

With Bluetooth, a handheld computer can be used to surf the Internet wherever you are, or to transfer files with other participants in meetings. Mobile phones will soon be used to control all sorts of gadgets in the house, from TV sets to refrigerators.

2. Match the terms on the left with the explanations on the right.

- | | |
|------------------------------|---|
| 1 Internet-enabled TV | a. location on the Internet where a company puts web pages |
| 2 Website | b. technology that allows users to see a computer simulated world in which they can move |
| 3 virtual reality | c. TV set used as an Internet device |
| 4 WAP | d. device that can handle multiple data types including voice and video |
| 5 wireless | e. protocol that enables mobile phones to access Internet information |
| 6 3G mobile phone | f. without the use of cables |

VI. Listening

1. Look at the computer in the photo and answer the questions about it.

- 1 What is different about this computer?
- 2 How do you enter information?
- 3 What kind of screen do you think it has: a cathode ray (CRT) or a liquid-crystal display (LCD)?
- 4 What sort of power supply do you think it uses?



tube

2. Listen to this interview with Tom Bryant, a writer with a computer magazine.

Are the following sentences true (T) or false (F)?

1. Palmtops are a type of handheld computers.
2. Palmtops have a mouse and a keyboard as input devices.
3. Handheld computers run Windows XP.
4. Some pen computers come with operating systems that can recognize handwriting.
5. Handhelds are primarily designed to organize and communicate personal information.
6. You cannot transmit data from handheld computers to desktop PCs and peripherals.
7. Business people will make up a large section of the handheld market.

3. Read this extract from the interview and fill in the missing words. The first letter of each missing word is given.

Interviewer: Some portable computers are referred to as laptops, and others as

(1)p..... . Can you explain the difference?

Tom: Sure. Laptops are simply smaller versions of desktop PCs, but they can run similar applications. However, palmtops are (2)h.....computers and weigh less than 2 pounds; they're used as PC companions or as personal (3) d.....assistants.

Interviewer: And what are the basic features of palmtops?

Tom: Well, these handheld devices run on rechargeable alkaline batteries, and have small (4) k.....and high-contrast LCD (5) s..... . Sometimes they have buttons for launching applications and a stylus or (6) p.....which is used for interacting with a touch-sensitive screen.

Interviewer: Do they need specialized operating (7) s.....?

Tom: Yes. They usually run Palm OS from Palm Computing or Pocket PC OS, the system developed by Microsoft for mobile-computing devices. Some pen-based systems can also (8) r.....handwritten characters and convert them into editable text.

Interviewer: Right. What sort of things can you do with handheld computers?

Tom: They're usually designed to store personal (9) i..... They have, for example, a calendar, an address book, a note pad, a calculator, and a voice recorder. They may also come with a built-in (10) m..... and Internet software which lets you send and receive e-mail from a payphone, a hotel or even a plane.

4. Listen again and check your answers.

VII. Grammar: *Making Predictions*

1. Study the following information:

You can speak about the future using:

Future with will/shall

A computer program will be the world chess champion.

• Future continuous (will be + present participle)

In twenty years' time, some people will be living in space, inside a computerized colony.

• Future perfect (will have + past participle)

By 2020, new technology will have revolutionized communications.

• Special structures

- Possibility (*may/might/could*)

Scientists may discover new electronic components.

- Probability (*likely to*)

Talking machines are likely to be built.

- Certainty (*certainly, definitely, certain to*)

Working hours will definitely become shorter with the help of computers.

Prices are certain to go up.

2. Expand these sentences using the future perfect tense.

- 1 In ten years' time/a lot of people/ connect their television to the telephone line.
- 2 Portable PCs/replace/ desktop PCs/in a few years' time.
- 3 With the help of computers/ doctors/find/cure/AIDS and cancer/by the year 2010.
- 4 By this time next year/software manufacturers/make/hundreds of new programs.
- 5 By 2020/post offices and bookshops/disappear.
- 6 By this time next year/I/buy/ handheld computer.

3. Here are some predictions made by an intelligent supercomputer. In small groups, write your own predictions.

• Work/Jobs

e.g. *By the year 2030 human labour in industry will have been replaced by robots.*

Yours:

• Homes

e.g. *Families will have robots to do the housework.*

Yours:.....

• Education/Schools

e.g. *By the end of the next century, every student in every school in the world will have a PC.*

Yours:.....

- Money/Holidays
e.g. *Cash will disappear.*
Yours:.....

VIII. Translation. Translate the text into English.

Сучасний комунікатор на середину 2008 року має вражаючі параметри. Це пристрій розміром 12х16х1,5 сантиметри з чутливим до натиснення QVGA-екраном до 3 дюймів по діагоналі і віртуальною клавіатурою. Він має два процесори: головний, з частотою приблизно 400МГц, і «легкий» - телефонний, який підтримує більшість стандартів і протоколів GSM-зв'язку, а також протокол зв'язку 3G третього покоління (GSM, GPRS, EDGE 850, 900, 1800, 1900 MHz; HSDPA, UMTS). Працює цей пристрій під управлінням WM 6.0 чи WM 6.1. В ньому є GPS-модуль, який дозволяє отримувати супутникові навігаційні дані на будь-яку з встановлених навігаційних програм. До речі, новий стандарт вдвоє перевищив об'єми оперативної та внутрішньої пам'яті – до 128 та 256 мегабайт відповідно. Такий комунікатор має 2 фотокамери: основну (з тримегапиксельним сенсором, автофокусом і світлодіодним спалахом) і фронтальну (з VGA-розділенням, для розмов в 3G мережах). Камери здатні знімати і відео. Також необхідною є можливість підключення додаткової пам'яті. Як правило, це реалізується у вигляді слота для microSD-карток. А що ж нам принесе найближче майбутнє?

XI. Research

Find and present information about:

- disadvantages of communicators
- new advanced Information Technologies

Stop & Check 4

Exercise 1. Complete the definitions from an online dictionary by the correct verb forms, then choose the correct terms to these definitions from the box.

Object code, Machine code, Source code, Programming language,
Low-level language, High-level language, Assembly language, Markup language

1.: general term for a formal language *used to write/ for to write/ writing* instructions that can *to be/ be/ being* translated into machine language and then executed by a computer.
2.: a set of instructions that a computer can *to understand/ understand/ understanding* directly; it is expressed in binary code and is very difficult *to write/ write/ writing*.
3.: a type of low-level language that uses abbreviations such as ADD, SUB and MPY *to represent/ represent/ representing* instructions; then translated into machine code using an assembler.
4.: a language such as an assembly language, which does not *to need/ need/ needing* a compiler or interpreter.
5.: developed *to make/ make/ making* programs easier *to write/ write/ writing*; for example, FORTRAN, BASIC, C and Java.
6. : the original work of a programmer, which must *to be/ be/ being* translated by a compiler.
7.: instructions that a compiler *to generate/ generates/ generating* from source code written in higher-level language, for example C++.
8.: a language for *to create/ create/ creating* web documents.

Exercise 2. Complete the following blog entry, by the passive form of the verbs in brackets.

23rd May

We had an interesting discussion about mobile phones in class today. Opinion (1).....(divide) about whether they're a good thing or not. Despite the fact that mobile phones (2)(invent) to make our lives more convenient (supposedly!), it's clear that we've become totally dependent on them. Most of the class even use them to watch videos or listen to music.

They're expensive, too. Most people said they spent over £20 a month on their phone, despite the fact that free calls and text messages (3)(include) in most tariffs these days. Part of the problem is that MMS messages aren't free, and many calls (4)(make) during the day, when the free minutes don't count.

There was also some worry about the potential health problems of mobile phones. Despite all the warnings, mobile phones (5)(use) by children as young as five or six these days! The really worrying thing is that the true damage done by mobile phones (6)(not know) until we're all much older. By then, it'll be too late! No one was suggesting that they should (7)(ban), but clearly more research needs to (8) (do).

Posted by Gemma H

Exercise 3. Anthony and Beth are discussing a magazine article about new technologies. Complete their conversation by choosing the correct verb forms.

Nanotechnologies

A: Have you seen this article in the New Scientist? It's all about new technologies. It's fascinating.

B: Go on. How *are our lives going to change/ will our lives be changing?*

A: It's predicting that pretty soon scientists *are going/ will* to be able to make devices like computers and robots using single cells and atoms.

B: Wow. To do what?

A: Well, they're talking about being able to treat diseases at a cellular level by injecting one of these miniature robots, or using the technology to make new, more flexible materials from carbon atoms.

B: What *will they think of/ will they be thinking of* next?

Artificial intelligence

A: Well, it's funny you should ask. The article goes on to talk about things like robotics and androids.

B: Androids?

A: Yeah. It says that by 2050, scientists *will build/ will have built* androids that look like humans and have the capacity to interact like humans.

B: I don't think I like that idea. I think it *will be/ will have been* more trouble than it's worth. Imagine everything that could go wrong!

Smart homes

A: OK, I think you *will like/ will be liking* this next one more. How about having a computer that controlled all of the appliances and electronic equipment in our house? It would save money because the house would know when you weren't home, and it'd make sure everything was turned off.

B: It *will probably be/ will probably have been* expensive, though, I imagine.

A: Who knows how much things *will cost/ will be costing* in future! Perhaps *we'll all have lived/ we'll all be living* on the Moon by then!

RFID

B: What does that last bit of the article say? The bit with the photo of that small microchip?

A: Hang on a minute, I *am going to have/ will have* a look. Umm...it's talking about a type of technology that uses radio waves and these things called 'tags' to identify people.

B: People? So they could embed in me of these tags in me?

A: Well, in theory, yes. But they're mainly used on animals – so you can track your pet if they vanish – and on products in shops – so that they can stop people stealing.

B: Mmm. It still sounds suspicious to me.

A: Well, it does say here that some organizations are worried about privacy issues.

GLOSSARY

A

Access time, *n* – час вибірки, час доступу

Acoustic coupler, *n* – акустичний з'єднувач

ADA, – Ада (мова програмування)

Additive colours, *n* – адитивні кольори

Address, *n* - адреса

Adobe Systems, *n* – Адобі системс (назва компанії)

Algorithm, *n* – алгоритм

Alias, *n* – псевдонім

Animation, *n* - анімація

Applets, *n* – аплети

Application generator, *n* – генератор прикладних програм

Application program, *n* – прикладна програма

ARPANet, *n* – сіть-попередниця Інтернет

Arithmetic logic unit (ALU), *n* – пристрій арифметичної логіки

Arrow keys, *n* – кнопки переміщення курсору вправо/ вліво

Assembler, *n* – асемблер (програма, що транслює програму на мові асемблера в машинний код)

Assembly language, *n* – мова асемблера

Attachment, *n* – додатки

Attributes, *n* – характеристики

Authentication, *n* – аутентифікація

Avatar, *n* – аватар (синтетичний інтерактивний об'єкт)

B

Backbone, *n* – магістраль мережі

Backing storage, *n* – підтримуючий запам'ятовуючий пристрій

Back-up, *n* – резервне дублювання

Back up, *v* – виконувати резервне дублювання

Bandwidth, *n* – пропускна здатність

Batch processing, *n* – пакетне опрацювання даних

Baud, *n* – бод

Binary system, *n* – бінарна система

Bit map, *n* – карта відображення інформації; карта у вигляді сукупності бітів; бітове відображення

Bit-mapped display, *n* – дисплей з поелементним зображенням

Boot, *v* – завантажувати

Browser, *n* – браузер

Bug, *n* – збій, помилка

Bulletin board, *n* – редколегія (система телеконференції зв'язку з відкритим доступом для користувачів мережі передачі даних)

Bus, *n* – канал

Byte, *n* – байт

C

Cable modem, *n* – кабельний модем

Cathode ray tube (CRT), *n* – катодно-променева трубка

Cell, *n* – ячейка

Central processing unit (CPU), *n* – центральний процесор

Channel, *n* – інформаційний канал

Character, *n* – символ, знак

Chat, *n* – чат

Chip, *n* – чип

Chooser, *n* – реквізит робочого столу комп'ютера Macintosh, що дозволяє вибирати сервер і принтери для користування

Clipart, *n* – ілюстративна вставка, графічний фрагмент

Clipboard, *n* – буфер обміну

Coding, *n* – кодування

Colour palette, *n* – кольорова палітра
Command, *n* – команда
Communications port, *n* – порт зв'язку
Compact disk, *n* – компакт диск
Compatibility, *n* – поєднуваність, відповідність
Compiler, *n* – компілююча програма
Compression, *n* – компресія
Configuration, *n* – конфігурація
Control unit (CU), *n* – блок управління
Cookies, *n* – невеликий фрагмент даних про передісторію звернень даного користувача до даного веб-серверу, що автоматично створюється сервером на машині користувача
Co-processor, *n* – пристрій для виконання операцій з плаваючою точкою
Cracker, *n* – програма взлому
Crash, *n* – аварійне завершення програми, повна відмова системи
Cyberspace, *n* – кіберпростір

D

Data, *n* – дані
Database, *n* – база даних
Data communication system, *n* – процесор передачі даних
Data transfer rate, *n* – швидкість передачі даних
Debug, *v* – корегувати, виправляти помилки
Debugger, *n* – програма корегування, виправлення
Decryption, *n* – декодування
Desk accessory, *n* – настільні аксесуари
Desktop, *n* – робочий стіл
Desktop publishing (DTP), *n* – настільні видавничі засоби

Dial up, *v* – приєднуватись до Інтернет через телефон
Dialog box, *n* – діалогове вікно
Digitize, *v* – оцифровувати
Directory, *n* – каталог, папка
Disk, *n* – диск
Disk drive, *n* – дисковод
Dithering, *n* – згладжування переходів
Domain name, *n* – ім'я домену
Dot-matrix, *n* – точково-матричний
Download, *v* – закачувати

E

Edit, *v* – редагувати
Electronic mail (e-mail), *n* – електронна пошта
Encrypt, *v* – кодувати
Encryption, *n* – кодування
EPS, *n* 'Encapsulated PostScript'. – інкапсульований PostScript (назва мови опису файлів, направлених на друк, і формату, зображення в якому може бути роздруковане на PostScript-пристрої)
Execute, *v* – виконувати
Expansion slots, *n* – гніздо для розширювальних модулів

F

Fault tolerance, – відмовостійкість
Fax, *n* – факс
Field, *n* – поле
File, *n* – файл
File compression, *n* – стиснення файлу
File server, *n* – файловий сервер
Finger, *n* – служба Internet, що надає інформацію про те, на якому сайті є обліковий запис іншого користувача.
Firewall, *n* – брандмауер

Firmware, *n* – програмно-апаратні засоби; вбудовані програми; "защити програми"

Flame, *n* – флейм, злісний вислів, коментар в Інтернет

Floppy disk, *n* – дискета, гнучкий диск

Flowchart, *n* - блок-схема

Folder, *n* – папка, каталог, директорія

Font, *n* – шрифт

Resident font, - резидентний шрифтовий комплект (в дисплеях)

Format, *n* - формат

Format a disk *v* – форматувати диск

Fragmentation, *n* - фрагментація

Frames, *n* – фрейм, рамка

Freeware, – вільні програмні засоби (програми без вихідного коду, які можна вільно розповсюджувати)

Function key, *n* – функціональна клавіша

G

Gateway, *n* – шлюз

Gigabyte, *n* 1,024 megabytes. - гігабайт

Gigahertz, *n* – гігагерц

Graphics tablet, *n* – графічний планшет

Graphical user interface (GUI), *n* графічний інтерфейс користувача

H

Hacker, *n* - хакер

Hard disk, *n* – жорсткий диск

Hardware, *n* – апаратне технічне забезпечення

Hexadecimal system, *n* – шістнадцятирічна система

High-level language, *n* – мова високого рівня

Home page, *n* – домашня сторінка

Host, *n* – 1. головна обчислювальна машина 2. хост (пристрій, підключений до мережі, що використовує протоколи TCP/IP)

Hyperlink, *n* - гіперпосилання

Hypermedia, *n* - гіперсередовище, гипермедіа (розширений у порівнянні з гіпертекстом метод організації мультимедійної інформації, що охоплює різні типи середовищ)

Hypertext, *n* -гіпертекст

Hyphenation, *n* – 1. розміщення дефісів 2. розміщення переносів 3. розділення на склади 4. (автоматичний) перенос (частини слова у наступну строку з розміщенням знаків переносу)

I

Icon, *n* – значок, зображення, піктограма, іконка

Image map, *n* – відображення зображення

Imagesetter, *n* – комп'ютерний фотонабірний пристрій, система візуального виводу, система відображення (друкуючий пристрій, здатний виводити результати роботи безпосередньо на папір чи плівку)

Inch, *n* - дюйм

Indentation, *n* - структуроване розміщення тексту, введення відступів

Ink-jet printer, *n* – струменевий принтер

Input, *n* – вхідний пристрій, введення даних

Input, *v* – вводити дані

Integrated package, *n* – інтегрований пакет прикладних програм (орієнтованих на вирішення комплексу взаємопов'язаних задач)

Interface, *n* – інтерфейс

Internal memory, *n* - внутрішня пам'ять, оперативна пам'ять

Internet, *n* – інтернет

Internet telephony, *n* – інтернет-телефонія, забезпечення мовного телефонного і факсимільного зв'язку засобами інтернету

Interpreter, *n* - інтерпретуюча програма

Intranet, *n* - технологія створення корпоративної локальної мережі підвищеної надійності з обмеженим доступом, що використовує мережеві стандарти і мережеві програмно-апаратні засоби, аналогічні з інтернетом

IP address, *n* - IP-адреса (використовується для ідентифікації вузла в мережі і для встановлення інформації маршрутизації; складається з ідентифікатора мережі (network ID) та ідентифікатора хосту (host ID), присвоєного адміністратором мережі)

J

Java, *n* - мова Java

(машинонезалежна об'єктно-орієнтована мова, розроблена фірмою Sun Microsystems для створення розподілених прикладних веб-систем)

Joystick, *n* - джойстик

Justification, *n* - вирівнювання (масивів знаків чи тексту)

K

Kerning, *n* - встановлення міжзнакового інтервалу

Keyboard, *n* - клавіатура

Kilobit, *n* – кілобіт

Kilobyte, *n* кілобайт

L

Laptop, *n* - ноутбук

Laser printer, *n* – лазерний принтер

Lightpen, *n* – світлове перо

Link, *n* – канал зв'язку, передачі даних

List server, *n* - сервер (списків) розсилки, (комп'ютерна програма, що автоматично розсилає електронною поштою повідомлення всім адресатам зі списку)

Load, *v* – завантажувати

Local area network (LAN), *n* – локальна мережа, (з'єднані разом швидкісним каналом комп'ютери та інші пристрої, розміщені на незначному віддаленні один від одного (кімната, будівля, підприємство))

Login, *n* – 1. початок сеансу (роботи з терміналом) 2. вхід в систему 3. реєстраційне ім'я (що повідомляється користувачем при вході в систему)

Log on, *v* – входити в мережу шляхом вводу імені і паролю

Log off, *v* - виходити з мережі

Low-level language, *n* - мова низького рівня

M

Machine code, *n*– машинний код, система команд

Macro, *n* - макрос

Mailing list, *n* - список розсилки (список адрес електронної пошти, який можна вказувати в листі в якості адреси)

Mail merging, *n* – функція підготовки стандартних листів

Mainframe, *n*– універсальна обчислювальна машина

Main memory, *n* - основна пам'ять, основний запам'ятовуючий пристрій;

оперативна пам'ять, оперативний
запам'ятовуючий пристрій

Megabit, *n* - мегабіт

Megabyte, *n* - мегабайт

Megahertz, *n* - мегагерц

Menu bar, *n* – стрічка меню

Microchip, *n* - мікročіп

Microprocessor, *n* - мікропроцесор

Mnemonic, *n* - мнемосхема

Modem, *n* - модем

Monitor, *n* - монітор

Mouse, *n* - мишка

Multimedia, *n* - мультимедіа

Multitasking, *n* - багатозадачність

(організація обчислювальних процесів
в операційній системі, при якій
комп'ютер виконує одночасно (або
псевдоодночасно) декілька задач

N

Netiquette, *n* - мережевий етикет
(правила хорошого тону для інтернет-
користувача)

Network, *n* – мережа, мережевий
графік

Newsgroups, *n* - (мережева теле)
конференція (мережева служба, що
розсилає інформацію з певної теми)

Newsreader, *n* – програма, що
розсилає статті членам мережевої
конференції

Node, *n* – вузол

O

Object language, *n*– вихідна мова
транслятора

Object-oriented programming, *n* -
об'єктно-орієнтоване програмування
(технологія програмування, заснована
на абстракції поняття об'єкта (типу),
що виражена в механізмах визначення
й використання класів (class))

Octal system, *n*– восьмирічна система

Offline, *adj* – 1. автономний режим
роботи пристрою, при якому він не
керується з боку комп'ютера. Слугує
для проведення профілактичних
робіт, обслуговування, настройки чи
ремонту, для пошуку інформації в
Web без підтримки безперервного
зв'язку з користувачем 2. поза
інтернетом

Online, *adj* – підключений до
інтернету

Operating system, *n* - операційна
система

Optical character recognition, *n* –
оптичне розпізнавання знаків

Optical disk, *n* – оптичний диск

Optical fibre cable, *n* – волокно-
оптичний кабель

Output, *n* 1. вихід; вивід 2. вихідний
пристрій 3. вихідний сигнал 4.
вихідні дані; результат обчислення 5.
вихідна потужність

Output device, *n* – пристрій виводу

P

Page description language, *n* – мова
опису сторінок (дозволяє поєднувати
текстову і графічну інформацію, що
видається на різні пристрої друку)

Palmtop, *n* – кишеньковий комп'ютер

Parallel port, *n* – паралельний порт

Pascal, *n* – Паскаль, мова
програмування

Password, *n* - пароль

Pattern, *n* - шаблон

Peripherals, *n*– периферійне
обладнання

Phosphor, *n*– фосфор, люмінофор

Pica, *n* - піка а) в видавничих
системах - одиниця виміру
горизонтальної й вертикальної

розмітки сторінки. Її точне значення - 0,166 дюйма, але в багатьох пакетах верстки в цілях спрощення розрахунків прийнято наближене значення 1/6 дюйма б) в друкуючих пристроях з рівноширинними шрифтами піка означає шрифт розміром 12 пунктів і щільністю друку 10 знак/дюйм

Piracy, *n* - піратство

Pixel, *n* - піксель

Platform, *n* - платформа, інструментальний комплекс

Plot, *v* - креслити графік

Plotter, *n* - плоттер, програма графічного виводу

Plug-in, *n* - додатковий програмний модуль

Point, *n* - точка. У піці 12 точок, у дюймі - 72.27

Pointer, *n* - курсор

Port, *n* - порт

PostScript, *n* - мова PostScript (мова опису сторінок - спеціалізована мова програмування, розроблена фірмою Adobe Systems, що підтримує масштабовані шрифти й високоякісну графіку)

Primary colours, *n* - основні кольори

Primitives, *n* - базовий елемент

Printer, *n* - принтер

Printer driver, *n* - драйвер принтера

Program, *n* - програма

Programming, *n* - програмування

Protocol, *n* - протокол (формат повідомлень, узгодження і правила, за якими відбувається обмін інформацією між комп'ютерами чи системами)

Proxy, *n* - модуль доступу (напр., до інтернету) ; програма-посередник, агент (механізм, завдяки якому одна система представляє іншу у відповідь

на запити протоколу; проку-системи використовують в мережевому управлінні, щоб звільнитися від необхідності реалізації повного стеку протоколів для таких простих пристроїв, як модеми)

Q

Quit, *v* - вийти з програми

R

Random access memory (RAM), *n* - оперативний запам'ятовуючий пристрій

RAM cache, *n* - кеш (швидкодіюча буферна пам'ять великого об'єму, що використовується для зберігання копій областей оперативної пам'яті з найбільш частим доступом

Read only memory (ROM) *n* - постійна пам'ять

Real time, *adj* - в реальному часі

Reboot, *v* - перезавантажити

Record, *n* - 1. запис 2. зона (на магнітній плівці) 3. запис (структурна одиниця інформації)

Recording head, *n* - записуюча голівка

Refresh rate, *n* - частота поновлення

Resolution, *n* - роздільна здатність

Router, *n* - маршрутизатор (пристрій для з'єднання мереж, які використовують різні архітектури і протоколи; здійснює вибір одного з декількох шляхів передачі мережевого трафіку, а також фільтрацію повідомлень для локальної мережі)

Routine, *n* - 1. операція 2. підпрограма

S

Save, *v* - зберігати

Scale, *v* – змінювати масштаб

Scanner, *n* - сканер

Scrapbook, *n* - текстографічний буферний файл

Screen saver, *n* – зберігач екрану (програма, що гасить екран чи виводить на нього зображення що рухається, коли користувач не працює з машиною)

Scroll, *v* - прокручувати

Search engine, *n* – пошукова машина в Інтернеті, напр. Yahoo, Altavista, Lycos.

Secondary memory, *n* - пам'ять другого рівня

Sector, *n* – сектор (найменший фізичний блок пам'яті диску)

Serial port, *n* – послідовний порт

Shareware, *n* - програми, для використання копій яких необхідно сплатити за ліцензію

Silicon chip, *n* - кремнієвий чіп

Single in-line memory module (SIMM), *n* - модуль пам'яті з однорядним положенням виводів

Smileys, *n* - смайли

Snail mail, *n* – звичайна пошта в порівнянні з електронною, факсом і т. д. (з натяком на низьку швидкість)

Software, *n* – програмне забезпечення

Source program, *n* - програма на вхідній мові (транслятора)

Spell checker, *n* - блок орфографічного контролю

Spooler, *n* – 1. спулер (програма-планувач, яка приймає документи, надіслані користувачем на друк, зберігає їх і надсилає один за одним на доступний принтер) 2. програма підкачки чи відкачки даних

Spreadsheet, *n* – електронна таблиця

Streaming, *n* – потік, передача даних потоком (невеликими частинами)

Style, *n* - стиль

Subroutine, *n* – стандартна підпрограма

T

Tag, *n* - 1. тег, ознака, дескриптор 2. таг (текст розмітки документа в HTML-форматі, що не відображається) 3) ярлик, етикетка (супроводжуючі блоки повідомлень в мережі, що передаються) **Teletext**, *n* телетекст, відеографія віщання

Telex, *n* - телетекс, система передачі між терміналами, що відображає кадри інформації у вигляді, що передається джерелом сигналу

Telnet, *n* - мережевий теледоступ (протокол віртуального терміналу в наборі інтернет-протоколів; дозволяє користувачам одного хосту підключатися до іншого віддаленого хосту і працювати з ним як через звичайний термінал)

Terabyte, *n* 1,024 гігабайт

Terminal, *n* – 1. термінал 2. клема

Thesaurus, *n* - тезаурус

Three-dimensional (3-D), - трихвимірний

Token, *n* – 1. позначення, знак 2. мітка, ярлик, маркер, засіб ідентифікації (група атрибутів захисту) 3. естафета (передбачена комбінація бітів чи службовий кадр, що дозволяють мережевій станції зайняти лінію для пересилки інформаційного кадру і потім передати маркер наступній станції в логічному кільці) 4. мовленнєвий зворот, лексема

Track, *n* – 1. доріжка, канал, тракт 2. доріжка перфорації 3. провідник
Trackball, *n* - кульковий покажчик; кульковий маніпулятор
Transceiver, *n* – приймач-передавач
Two-dimensional (2-D) - двовимірний
Typeface, *n* – гарнітура шрифту
Typeset, *v* - набирати

U

UNIX, *n* - багатокористувацька багатозадачна операційна система, розроблена Кеном Томпсоном (Ken Thompson) й Денісом Рітчі (Dennis Ritchie) в компанії AT&T Bell Laboratory в 1969 р. для використання в міні-комп'ютерах; сьогодні існує в різних формах; вважається потужною ОС, яка менш машинозалежна, ніж інші ОС; написана мовою C
Update, *v* – 1) редагувати 2) обновляти
Upgrade, *v* – 1) змінювати 2) підвищувати можливості
Upload, *v* – завантажувати у віддалений комп'ютер (по лінії зв'язку)
Usenet, *n* - користувацька мережа, мережа Usenet (розподілена система електронних дошок об'яв, що впорядкована по групах новин цієї мережі)
User-friendly, *adj* – зручний для користувача
User interface, *n* – інтерфейс користувача
Utility, *n* - 1) обслуговуюча програма 2) параметр, корисна властивість

V

Virtual interface, *n* – віртуальний інтерфейс (для зв'язку з віртуальним пристроєм)
Virtual reality, *n* - віртуальна реальність (комп'ютерна система моделювання з генерованими тривимірними візуальними "світами", що доступні користувачу, зі зворотнім зв'язком)
Virus, *n* - вірус (фрагмент коду, здатний при активації нелегально "чіплятися" до інших програм чи документів й таким чином переміщуватись між комп'ютерами (на дискетах чи по сіті), часто виконуючи різні шкідливі дії, які перешкоджають нормальному функціонуванню системи)
Voxel, *n* - воксель, елемент об'ємного зображення (найменший тривимірний елемент об'єму, що несе в собі змістовну інформацію)
W
Web, *n* - всесвітнє павутиння, веб
Website, *n* - веб-сайт, інтернет-сайт (сукупність об'єднаних спільним змістом веб-сторінок, розміщена на якомусь інтернет-сервері під певним доменним іменем й реалізуюча віртуальне представництво організації чи окремої персони в інтернеті)
Wide area network (WAN), *n* - глобальна сіть (сіть, що забезпечує передачу інформації на значні відстані з використанням комутуємих й виділених ліній чи спеціальних каналів зв'язку)
Widow, *n* - вікно
Window-based, *adj* – заснований на використанні вікон

Word processor, *n* - текстовий процесор (програма підготовки й редагування тексту)

Word wrap, *n* - загортання тексту (процедура переносу слова що не вміщується у наступний рядок при роботі в текстовому редакторі)

Workstation, *n* - 1) робоча станція (сітвовий комп'ютер, що використовує ресурси серверу) 2) автоматизоване робоче місце, АРМ

ACRONYMS

ACK positive ACKnowledgement

ADB Apple Desktop Bus

ADC Analogue to Digital Converter

ADSL Asymmetric Digital Subscriber Line. Typically the upstream data flow is between 16 and 640 kilobits per second while the downstream data flow is between 1.5 and 9 megabits per second. ADSL also provides a voice channel

AI Artificial Intelligence

AIFF Audio Image File Format

ALGOL ALGOrithmic Language, a problem-oriented, high-level programming language for mathematical and scientific use

ALU Arithmetic Logic Unit

AMD Advanced Micro Devices, manufacturer of microprocessors

API Application Program Interface

ASCII American Standard Code for Information Interchange

ASF Advanced Streaming Format, introduced by Microsoft for the transmission of real-time video and audio over the Net

AT Advanced Technology. The AT was born in 1984 with the introduction of the IBM PC AT. Most ATs have 286 processors

AT&T American Telephone & Telegraph company

ATM 1 Adobe Type Manager 2 Automated Telling Machine

AVI Audio Video Interface, a video format

BASIC Beginner's All-purpose Symbolic Instruction Code
Bcc Blind carbon copy. Addresses in the Bcc: line of an e-mail will receive a copy of the message but the identity of the recipients will be kept secret

BBS Bulletin Board System

BCPL system programming language from which the language C was derived

BIOS Basic Input/Output System

bit binary digit

bps bits per second

BUS Binary Unit System C A high-level language designed for system programming, usually (but not exclusively) for software development in the UNIX environment

CAD Computer-Aided Design

CAE Computer-Aided Engineering

CAI Computer-Assisted Instruction

CALL Computer-Assisted language

CAM Computer-Aided Manufacturing

CASE Computer-Aided Software-Engineering

Cc Carbon copy. Addresses on the Cc: line of an e-mail will receive the same message.

CD Compact Disk

CD-R Compact Disk-Recordable

CD-ROM Compact Disk-Read Only Memory

CD-RW CD-Rewritable

CGA Colour Graphics Adaptor

CMYB Cyan, Magenta, Yellow, Black

COBOL COmmon Business-Oriented Language

COM Computer Output on Microfilm

cps 1 characters per second 2 cycles per second

CPU Central Processing Unit

CR Carriage Return

CRT Cathode Ray Tube

CU Control Unit

DA Desk Accessory

DAC Digital to Analogue Converter

DAT Digital Audiotape. DAT decks are becoming the standard for professional music recording

DBMS DataBase Management System

DD 1 Disk Drive 2 Double Density

DDE Dynamic Data Exchange

DEC Digital Equipment Corporation

DivX Digital Video Express, video compression format based on MPEG-4

DNS Domain Name System

DOS Disk Operating System

dpi dots per inch

DRAW Direct Read After Write

DR DOS Digital Research disk operating system

DS disks double sided disks

DTP Desktop Publishing

DTV Desktop Video

DVD Digital Video Disk (or Digital Versatile Disk)

DVI Device Independent

DVI Digital Video Interactive

EAROM Electrically Alterable Read-Only Memory

ECMA European Computer Manufacturers' Association

EDIF Electronic Data Interchange Format

EGA Enhanced Graphics Adaptor

EOD Erasable Optical Disk

EPRAM Erasable Programmable RAM

EPS(F) Encapsulated PostScript (file)

FAQ Frequently Asked Questions, a file containing answers to questions that the Internet users frequently ask

FD Floppy Disk

FDD Floppy Disk Drive

FDDI Fibre Distributed Data Interface

FDHD Floppy Disk High Density

FORTRAN FORMula TRANslation

FPU Floating-point Unit

FTP File Transfer Protocol

GB Gigabyte (1,024 megabytes)

GCR Group-Coded Recording (format to recognize disks, Macintosh)

GHz Gigahertz, equivalent to one thousand megahertz

GIF Graphic Interchange Format

GNU Gnu's Not UNIX

GSM Global System for mobile Communication; it allows transmission of voice and data on mobile phones.

GUI Graphical User Interface

HD 1 Hard Disk 2 High Density disk

HDD Hard Disk Drive

HDTV High-definition Television

HP Hewlett-Packard

HTML Hypertext Markup Language, codes used on the Web pages

HTTP Hypertext transfer Protocol, the method by which Web pages are transferred from an Internet site to your PC

Hz Hertz (unit of frequency equal to one cycle per second), named after Heinrich Hertz

IAC Inter-application Communications
IBM International Business Machines
IC 1 Interface Converter (Card) 2
Integrated Circuit
ICR Intelligent Character Recognition
IDE Integrated Drive Electronics: a
standard hard disk controller
IGES Internal Graphics Exchange
Specification
I/O Input/Output
IP Internet Protocol

IRC Internet Relay Chat
ISA Industry Standard Architecture. An
ISA bus is 16 bits wide
ISDN Integrated Services Digital
Network
ISO International Standard Organization
ISP Internet Service Provider
IT Information Technology

JPEG Joint Photographic Experts'
Group: standard in image compression