

TEXT 1

An introduction to computer science

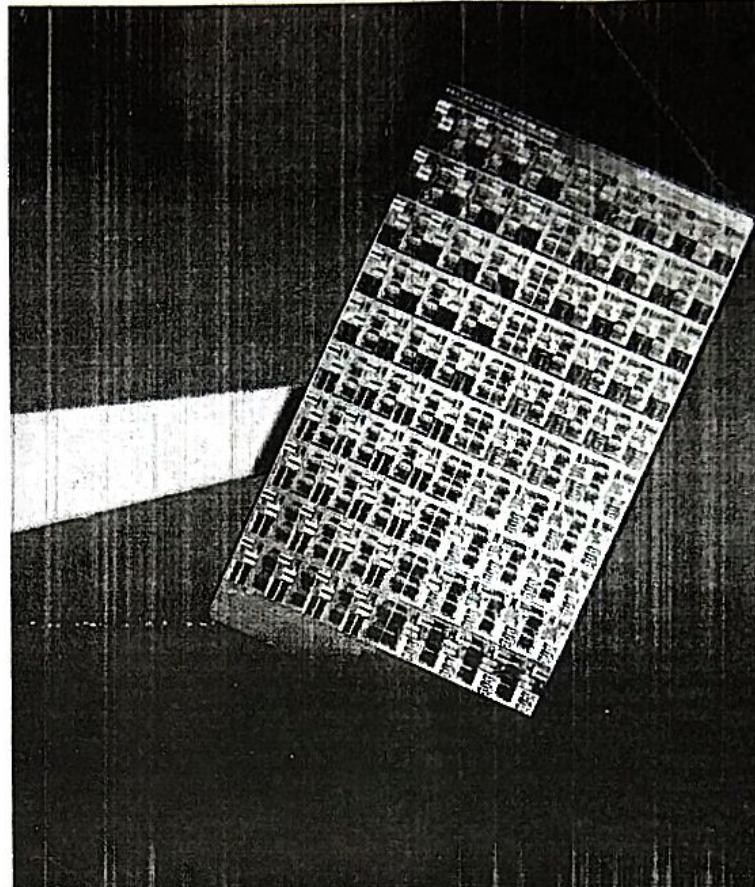
Computer science is the study of computers, **namely** their design (architecture) and their use in computations, data processing and systems control. Computer science includes engineering activities such as the design of computers and of the hardware and software that **make up** computer systems.

The **field** **encompasses** theoretical and mathematical activities, such as the design and analysis of algorithms, together with **performance** studies of systems and their components **by means of** techniques such as **queuing theory**.

It also includes estimating the **reliability** and **availability** of systems via the use of probabilistic techniques. Since computer systems are often too large and complicated **to allow** one to predict the **failure** or success of a design without thoroughly testing it, experimentation is incorporated into their development cycle.

Computer science is generally considered a separate discipline from computer engineering, **although** the two disciplines **overlap** extensively in the area of computer architecture, which is the design (and study) of computer systems.

The major sub-disciplines of computer science have traditionally been: *architecture*, including all levels of hardware design, as well as the integration of hardware and software components to form computer systems; *software* (the programs, or set of instructions, that tell a computer how to **carry out** tasks), here subdivided into software engineering, programming languages, operating systems, information systems and databases, artificial intelligence and computer graphics; *theory*, which includes computational methods and numerical analysis on the one hand, and data structures and algorithms on the other.



Teraflops Chip Intel with an 80 core processor delivers Teraflop or trillions of calculations per second – performance on a single chip. This exact chip could be available on the market.

namely: that is to say
to make up: to constitute
field: a realm of knowledge
to encompass: to contain
performance: the execution or accomplishment of work, acts, feats etc.
by means of: with the aid of

queuing theory: use of probability theory to prioritize items within a queue
reliability: the ability of a piece of equipment to work well without failing
availability: the quality of being accessible
to allow: to permit or to admit

glossary

failure: lack of success
although: in spite of the fact that
to overlap: to extend beyond a part of something
to carry out: to bring to completion
task: a piece of work that has been assigned

1. Answer the following questions.**1** What is computer science?
.....**2** What does it include?
.....**3** How is it generally considered?
.....**4** What does computer architecture deal with?
.....**5** What are the major sub-disciplines of computer science?
.....**6** How is software subdivided?
.....**7** What does theory include?
.....**2. Match each word or expression with its definition or synonym.**

- | | |
|----------------------------------|---|
| 1 computation | a discipline lower in rank |
| 2 algorithm | calculation |
| 3 extensively | seen from one point of view |
| 4 artificial intelligence | largely |
| 5 sub-discipline | any special method of solving a certain kind of problem |
| 6 on the one hand | intelligence created by man, not by nature |

3. Find adjectives in the text that mean the opposite of the following.

- | | |
|--------------------|-------|
| 1 practical | |
| 2 small | |
| 3 simple | |
| 4 connected | |
| 5 secondary | |
| 6 natural | |

Grammar Review**4. Complete by inserting a or an if necessary.**

- 1** I don't like coffee.
- 2** We have account in this bank.
- 3** My father is electrical engineer.
- 4** Apples are two pounds kilo now.
- 5** What interesting people!
- 6** My girlfriend has got blonde hair.



Future computers may be DNA based.

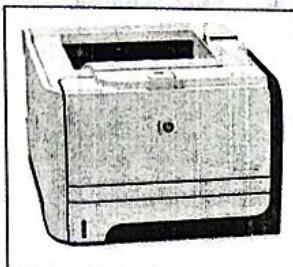
1. Group work. Read the advertisements below and associate three of the following phrases with each of them.

USB interface • surfing the web • dust and scratch removal • touching the screen •
 flashy color-shifting case • paper-size sensors • wireless technology •
 true-to-life reproductions • external Hard Disk • customizable options •
 ultra-fast printing • automatic document feeder

1
 2

3
 4

1 HP LaserJet 4200 printer series



Flexible paper handling reduces user intervention. Customizable options allow up to a 2,600-sheet input capacity. Duplexer for two-sided prints. Simple operation and paper loading- thanks to paper-size sensors and easy-to-load trays. No warm up time: the first page out in less than 9 seconds. Ultra-fast printing of 35 ppm for letter-sized documents using the 300 MHz processor and 48 MB RAM (64 MB RAM in bundles).

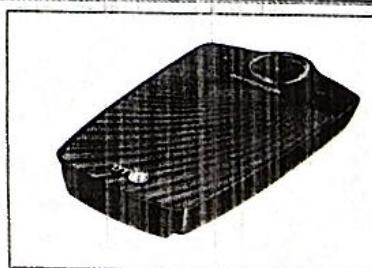
2 Epson Perfection V500 Photo Scanner

Amazing 6400 x 9600 dpi resolution. Dust and scratch removal. New ReadyScan® LED technology (with lower power consumption) for fast scan speeds. Built-in TPU – scans slides, negatives and medium format film. True-to-life reproductions with 48-bit color. Optional ADF to scan multiple documents. Optional automatic document feeder. Hi-Speed USB 2.0. Plus, with no warmup time. It's all at your fingertips with this powerful performer.

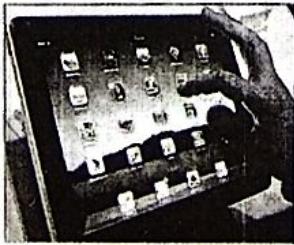


3 LG XF1 multimedia hard drive

2.5" Portable External Hard Disk, Multi Media Player, HDMI Output, 1080i. Movie file. Photo, Music Player. Looking for an external hard drive with a flashy color-shifting case, reasonably multimedia credentials, and a website, LG's XF1 is a 500GB machine with a USB interface and HDMI output to stream some high-def content straight to your set.



4 iPad



Dual-core A5 chip. 10-hour battery life. Over 200 new software features in iOS 5 and iCloud. It's just 0.34 inch thin and weighs as little as 1.33 pounds. It makes surfing the web, checking email, watching movies, and reading books so natural, you'll wonder why you ever did it any other way. And it lets you see and do everything just by touching the screen. Every iPad is built with advanced 802.11n wireless technology that automatically finds Wi-Fi networks.

2. Pair work. Read the advertisement for the HP printer and complete the following dialogue. Then build up similar dialogues with the other products advertised.

Shop assistant:

Customer: Yes, I am looking for a good laser printer.

Shop assistant:

Customer: What kind of processor does it have?

Shop assistant:

Customer: With most printers you have to wait a certain time before it warms up, I need a very speedy one.

Shop assistant:

Customer: I have noticed that when you print at the maximum speed the result is often not excellent.

Shop assistant:

Customer: What's the paper capacity?

Shop assistant:

Customer: How much does it cost?

Shop assistant:

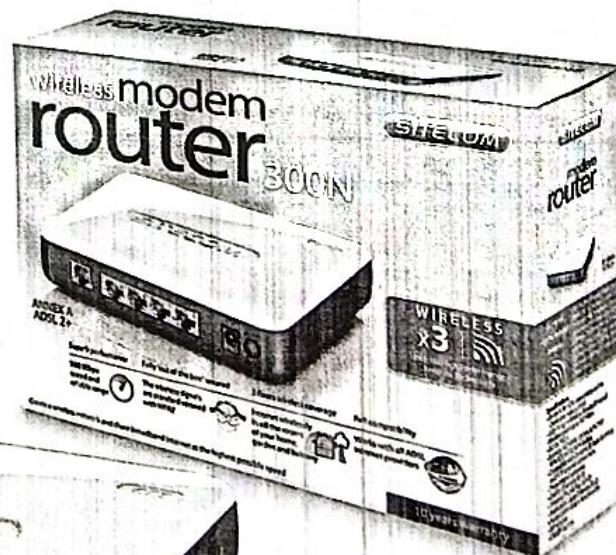
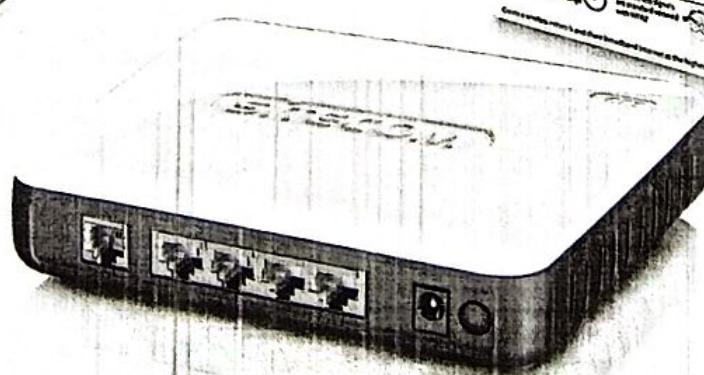
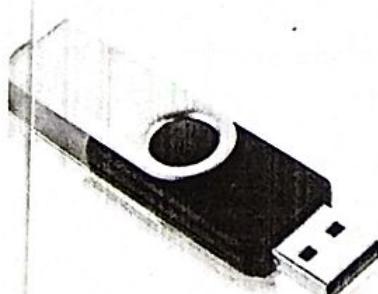
Customer: I'll think about it, thank you and goodbye.

Shop assistant:

3. Pair work. Build up a dialogue using the hints below.

Student A: You have just bought a modem but do not know how to connect it to your computer or how it works.

Student B: You give all the necessary information and talk about the advantages of connectivity.



THE PERSONAL COMPUTER



1. Read the following definitions and write down which computer peripherals they describe.

1 It is a special peripheral because it needs a flat, horizontal, smooth surface on which it can slide.

.....

2 Similar to a television screen, it is usually placed near the main unit.

3 It can produce hard copies of the things you create on the screen.

4 It is a machine that converts hard-copy text and graphics into digital form suitable for storing and processing in a computer.

5 It is a set of keys for entering data into a computer.

2. Assign each word to its proper column.

DVD • mouse • printer • keyboard • RAM • scanner • CDs • flat panel display • ROM

Memory

Input devices

Output devices

.....
.....
.....
.....
.....

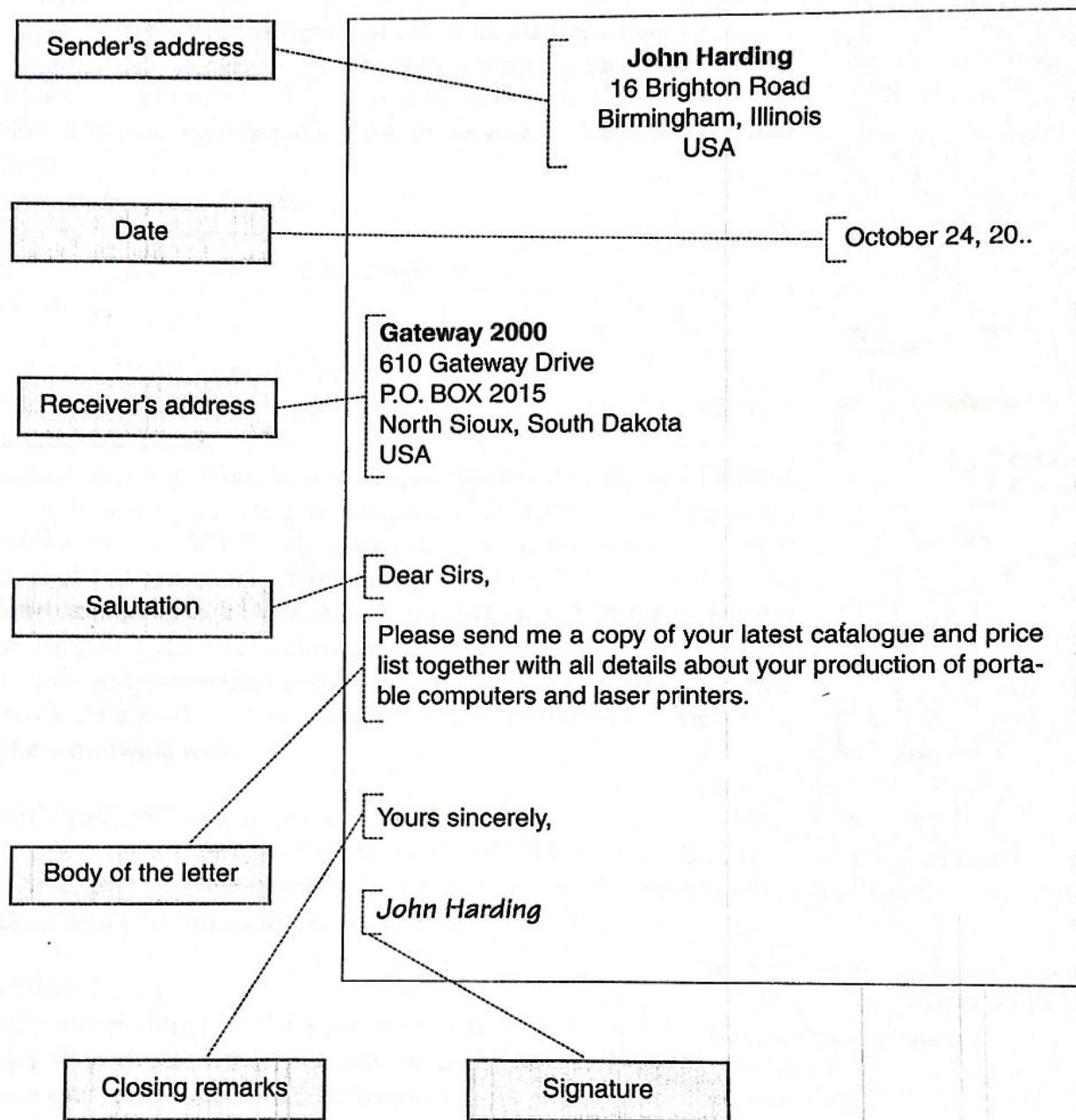
3. Read the advertisement of the multimedia hard drive on page 21 and complete the following order.

(1)	(2)
Mark Grange 12 Harbour Rd. Southampton – England				
<p>Dear Sirs,</p> <p>Thank you (3) of November 10 and the enclosed (4)</p> <p>We have studied your catalogue very carefully and (5) order:</p>				
Quantity	Item description			
12	(6)			
<p>Yours (7)</p> <p>Mr Frank Merrill Marketing Manager</p>				

Letter of Inquiry

Scrivere una lettera formale in inglese richiede delle attenzioni particolari, così come d'altra parte succede anche in italiano.

Ecco un modello da seguire per una corretta compilazione:

**ESERCIZI**

Ora prova a redigere una lettera utilizzando le informazioni date e il modello fornito alla pagina precedente.

Best Power Technology, Inc, P.O. Box 280 Washington D.C., USA / Yours faithfully / D. H. Thompson,
32 Oak Avenue, Atlanta, Georgia, Usa / please / about / your free color brochure / send me / of scanners / your production / D. H. Thompson

TEXT 1

Introduction to computer software

Categories of software

Software is the general term for any program or set of instructions used to make a computer perform a **task**. Every processor, **whether** it is inside a mainframe computer, laptop, pocket camera or cellular phone has to be given instructions in the form of a program before it can do anything at all. We define several different categories of software, namely:

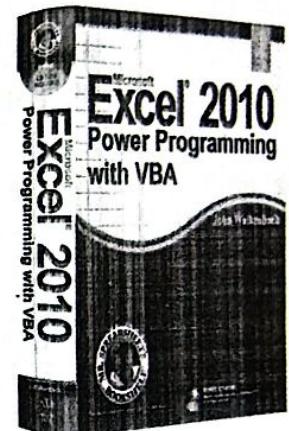
- general **purpose** application software;
- special purpose application software;
- programming languages, compilers and interpreters;
- operating systems.



General purpose application software

General purpose application software includes the common software packages that are found on most desktop computers:

- word processing software (e.g. Word, Works) for producing and saving well **laid out** documents such as business letters, technical manuals, books, memos and reports;
- spreadsheet packages (e.g. MS Excel) for working with numbers, producing **accounts** and tabulated numerical information of all types;
- computer-aided packages (e.g. TurboCAD, AutoCAD, or CAD) for producing accurate engineering or architectural **drawings**;
- telecommunications software which enables you to send and receive data over a wide area network via a modem, access the Internet, send and receive electronic mail, browse the worldwide web.



Special purpose application software

When an organisation wants to computerize some aspect of its business, it is often possible to buy an **off the shelf** package to do more or less exactly what it wants. There are **literally** thousands of specialist applications readily **available** to perform almost every task.

Operating systems

While you are using a computer to write a program or to do some word processing, the operating system is working away in the background, following instructions that determine where in memory your program or document is stored, where on the disk it will be saved, and what to do if, for example, you press some keys. No computer can function without an operating system.

MS-DOS (Microsoft Disk Operating System) is a character-based operating system. The user has to communicate with the operating system via a command **interface**, which means you have to know exactly what to type to get it to do what you want, like display a list of which files are in a particular directory on your disk. The Macintosh Operating System and MSWindows are examples of a graphical user interface, radically different from the MS-DOS command line interface.

glossary

task: any piece of work

whether: if

purpose: goal

to lay out: to set down

account: estimation

drawing: a graphic representation by lines of an object or idea

off the shelf: standard product that does not require modification for normal use

literally: in the strict sense

available: suitable or ready for use

interface: software or hardware that forms the boundary between the user and the program

1. Answer the following questions.

1 What does the term "software" mean?

2 How are instructions given to a processor?

3 What kinds of programs can we find?

4 What kind of program must we have if we want to work with numbers?

5 What software do we need if we want to use the Internet?

6 When is it important to have special purpose software?

7 Why are operating systems important?

2. Find words in the text which have the same meaning as the following expressions.

1 a powerful multi-user computer

2 computer programs that translate instructions, other programs, etc. from a high-level language into machine language

3 the programs, applications, etc. for a computer

4 computers designed to be used on a desk or table

5 short for memoranda

6 graphical user interfaces

3. Match each of the following verbs with its definition.

1 to save a to make possible or easy

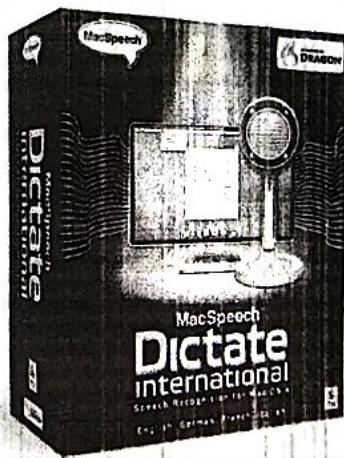
2 to produce b to keep from being lost

3 to enable c to show

4 to browse d to make or manufacture

5 to display e to take delivery of

6 to receive f to look through casually

**Grammar Review****4. Build up sentences in the comparative according to the hints given.**

1 Your computer/mine/old +

2 She/me/good/at maths +

3 Electricity/gas/economical =

4 His test/yours/accurate +

5 Coffee/tea/bad/for you +

6 Silicon/gold/conductive -

TEXT 2

Programming languages

All computers process instructions using machine code, which uses numeric codes to represent basic operations. Early programmers in the 1940s and 50s had to program using these numeric codes. Later, programs were written which translated statements into machine code so that programmers could write in something more closely resembling English which was faster and quicker to debug. There are hundreds of programming "languages" and you will probably learn one such as C, PASCAL or BASIC during your studies. Each of these languages comes with its own "translation" program (one of two types – compiler or interpreter) which will take the code you write and **turn it into** machine-**executable** form.

Most computer users today do not write programs; they use application programs. Professional software developers have created these programs using programming languages such as C.

High- and low-level languages

Computer languages may be classified as being either low-level (such as assembly language), or high-level (such as PASCAL, BASIC, PROLOG or C).

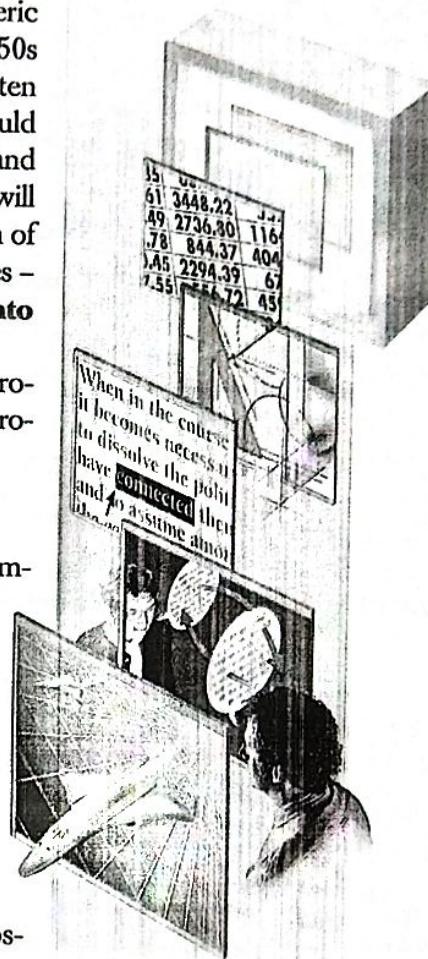
The characteristics of a low-level language are:

- they are machine oriented; an assembly language program written for one machine will not work on any other type of machine (**unless** it happens to use the same processor chip);
- each assembly language statement is generally translated into an opcode with parameters. **Hence**, programming is a **lengthy** and time-consuming business.

Assembly language is generally used when there is a requirement to manipulate individual bits and bytes, write code that executes as fast as possible, or occupies as little memory as possible.

The characteristics of a high-level language are:

- they are not machine oriented; in theory they are portable, which means that a program written for one machine will run on any other machine;
- they are problem oriented; each high-level language has structures and **facilities** appropriate to a particular use or type of problem. For example FORTRAN is for mathematical problems, whereas COBOL is for data processing applications. Some languages such as PASCAL were developed as general **purpose** languages;
- statements in a high-level language generally resemble English sentences and these languages tend to be easier to learn than assembly language. Each statement in a high-level language will be translated into several machine code instructions.



to turn into: to translate

executable: that can be executed immediately by the computer

unless: except

hence: for this reason

lengthy: very long

facility: (often facilities) something designed to serve a specific function

purpose: aim; goal

glossary

PROGRAMMING A COMPUTER



1. Number the following topics according to the order in which they appear in the text.

- a characteristics of low-level languages
- b the evolution of programs
- c different kinds of high-level language
- d what assembly language is used for
- e characteristics of high-level languages
- f various programming languages
- g what high-level languages are used for



*UNIVAC -UNIVersal Automatic Computer.
The computer was assembled in the 1950s in the USA.*

2. Find the verbs used in the text which are associated with the following nouns.

- 1 user
- 2 representation
- 3 programmer
- 4 resemblance
- 5 development
- 6 tendency

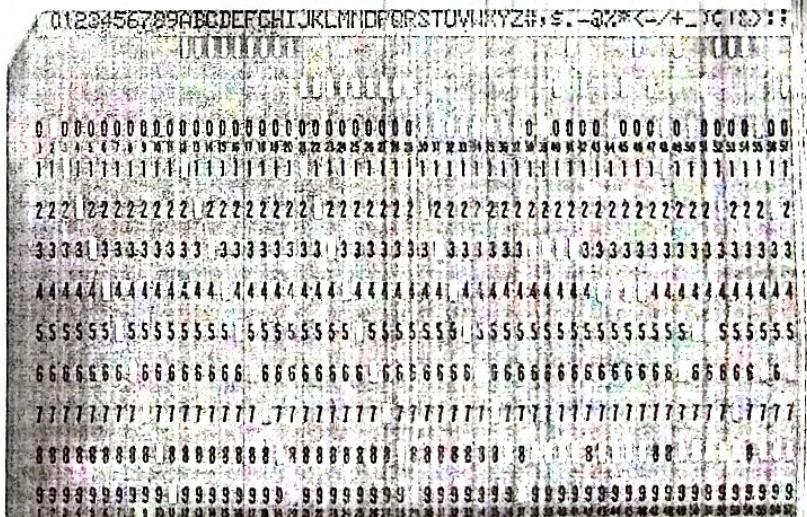
3. Match the following terms with their translation. Then write six sentences using each defined word.

- | | |
|----------------------|---|
| 1 statements | a servizi |
| 2 to debug | b molto lungo |
| 3 software developer | c trovare e correggere errori in un programma |
| 4 lengthy | d istruzioni |
| 5 facilities | e elaborazione dati |
| 6 data processing | f sviluppatore |

Grammar Review

4. Translate the following sentences.

- 1 È il film più interessante che abbia mai visto.
- 2 Questo mobile è il più vecchio della casa.
- 3 Miss Andrews è la segretaria più brava dell'ufficio.
- 4 Paul è il peggior studente della classe.
- 5 Qual è la materia più difficile che stai studiando?
- 6 È il tecnico più bravo dell'officina.



1960's 80 column punched card used to store Fortran program codes.

PROGRAMMING A COMPUTER



1. Pair work. Mark is a computer programmer, he lives in San Francisco and is looking for a job. He has found a job opportunity in a local newspaper and calls Mr Ross, for further information. Complete this telephone conversation with the appropriate sentences. When you have finished, exchange roles.

Mr Ross: Computer Links, can I help you?

Mark:

Mr Ross: All applicants must be California residents and have 50 hours of formal training in computer programming.

Mark:

Mr Ross: There will be a two hour written test.

Mark:

Mr Ross: It will cover the following areas: computer programming, system programming, application programming and computer language.

Mark:

Mr Ross: There are seven positions to be filled in the next 12 months.

Mark:

Mr Ross: Additional opportunities may occur due to normal turnover from retirements, promotions, resignations and so forth.

Mark:

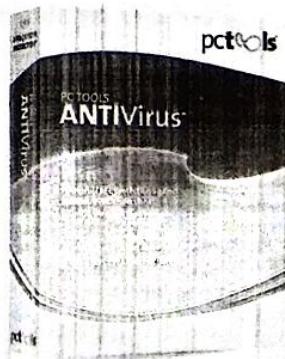
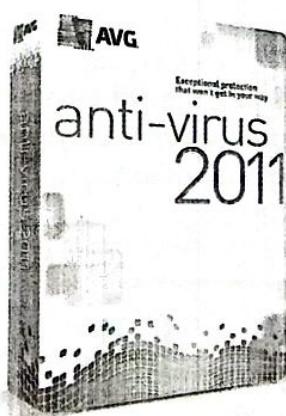
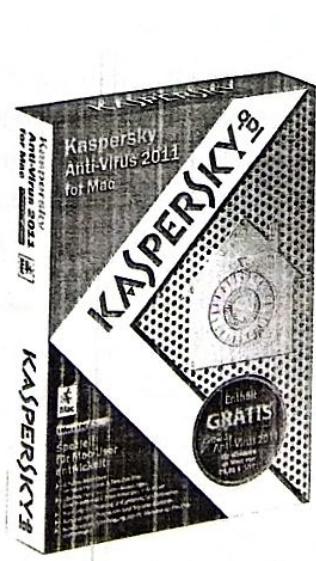
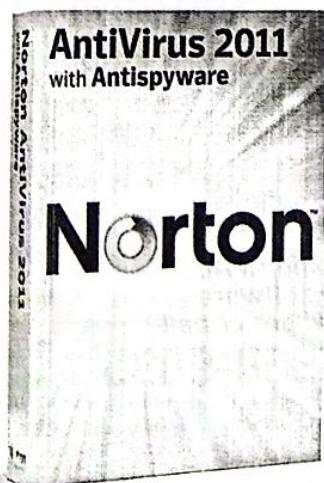
Mr Ross: All the applications have to be sent to the California Job Centre, 136 Vermont St., San Francisco.

Mark:

Mr Ross: Goodbye.

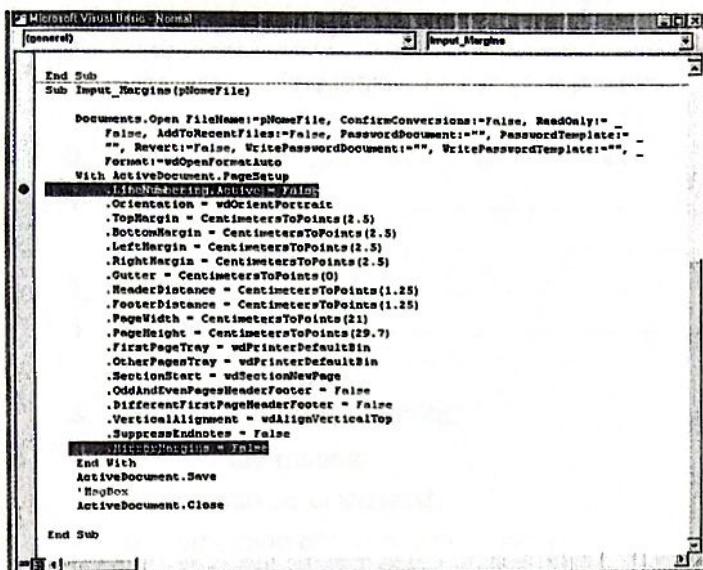
2. Group work. Answer the following questions, then discuss about them in groups.

- 1 What kind of software do you use?
- 2 Which tasks can it perform?
- 3 Are you satisfied with it?
- 4 What is your favourite software?
- Why?
- 5 Would you like to become a computer programmer? Why?



TEXT 2

Translating and running programs



```
Sub Input_Margins(pNameFile)
    Documents.Open FileName:=pNameFile, ConfirmConversions:=False, ReadOnly:=_
        False, AddToRecentFiles:=False, PasswordDocument:="", PasswordTemplate:=""_
        "", Revert:=False, WritePasswordDocument:="", WritePasswordTemplate:=""_
        "", Format:=wdOpenFormatAuto
    With ActiveDocument.PageSetup
        .LineNumbering.Active = False
        .Orientation = wdOrientPortrait
        .TopMargin = CentimetersToPoints(2.5)
        .BottomMargin = CentimetersToPoints(2.5)
        .LeftMargin = CentimetersToPoints(2.5)
        .RightMargin = CentimetersToPoints(2.5)
        .Gutter = CentimetersToPoints(0)
        .HeaderDistance = CentimetersToPoints(1.25)
        .FooterDistance = CentimetersToPoints(1.25)
        .PageWidth = CentimetersToPoints(21)
        .PageHeight = CentimetersToPoints(29.7)
        .FirstPageTray = wdPrinterDefaultBin
        .OtherPagesTray = wdPrinterDefaultBin
        .SectionStart = wdSectionNewPage
        .OddAndEvenPagesHeaderFooter = False
        .DifferentFirstPageHeaderFooter = False
        .VerticalAlignment = wdAlignVerticalTop
        .SuppressEndnotes = False
        .MirroredMargins = False
    End With
    ActiveDocument.Save
    'MsgBox
    ActiveDocument.Close
End Sub
```

The diagram summarizes the steps followed, and the software used in the creation of a source program and its conversion to executable form. The text typed in by the programmer is known as the *source code*. This has to then be translated into machine code which the computer can execute. The translation process is performed by a program called a *compiler*, and the output from this process is called the *object code*. This is stored on disk and can be run (executed) as many times as required without going back to the source code. If the compiler finds any **statements** that it cannot translate, because the programmer has made an error in the **syntax** of the statement, it will report each wrong statement either on the screen or in an error listing.

Editors

An editor is a piece of software which enables the programmer to enter and edit a program. Most programming environments have their own editor program, but programs can also be typed in using a word processor in "non-document mode". A screen editor allows the programmer to position the **cursor** anywhere on the screen and insert or delete text.

Compilers and interpreters

The text typed in by the programmer has to be translated by either a compiler or an interpreter into machine code or object code.

Linkage Editor

Once the code written by the programmer has been compiled, the object code is stored on disk. Before it can be executed, however, it has to be linked into the executable code. This is the function of the linkage editor. It puts the appropriate machine addresses in all the external calls and return instructions, so that the various modules are linked together properly.

Debuggers

A debugger is a program which helps you to find logic errors in your program. You can step through the program one line at a time, or specify a point in the source code and have the program execute up to that point (a break point) before you start to step through. You can see exactly when procedures are called and in what sequence (a **trace facility**). On some systems you can have a **printout** of the complete **contents** of memory (a **store dump**) so that you can examine all the variables.

glossary

statement: a single declaration

syntax: a set of rules

cursor: an indicator on the screen of a visual display unit

trace facility: a software tool that permits you to execute a

program step by step

printout: a printed record

content: that which is contained

dump: a printout of the contents of a computer's memory

1. Answer the following questions.

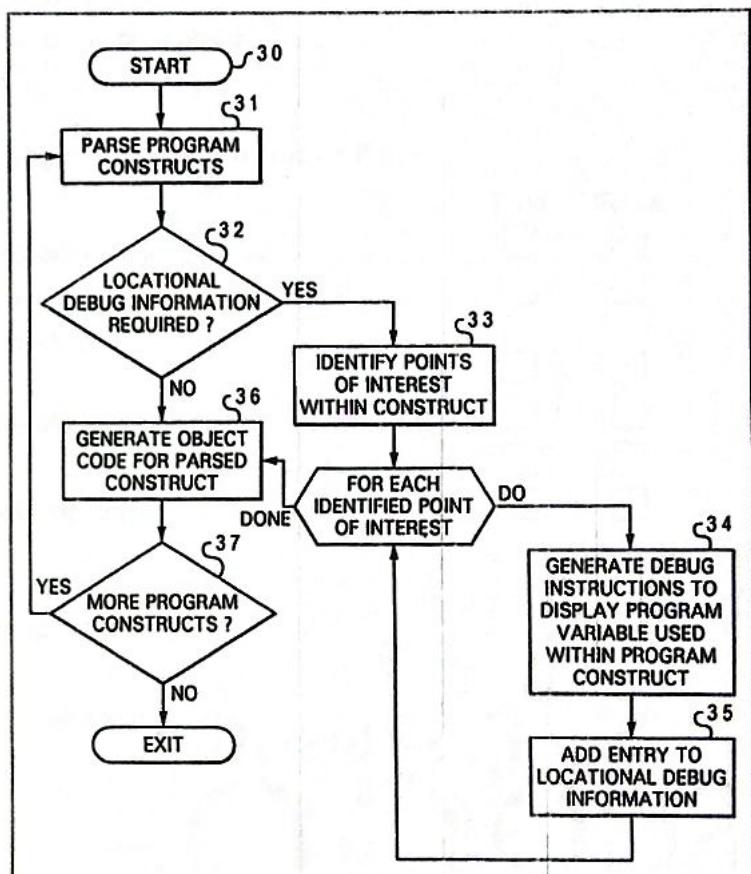
- 1 What do we call the text typed in by the programmer?
- 2 Why does it have to be translated into machine code?
- 3 What happens if the compiler finds any statement that it cannot translate?
- 4 What is an editor?
- 5 How can you find logic errors in your program?

2. Define the following words or expressions with the help of your monolingual dictionary.

- 1 machine code:
- 2 error:
- 3 code:
- 4 module:

3. Choose the right meaning.

- 1 executable means:
 - a that can be discussed
 - b something absolutely necessary
 - c that can be run
- 2 to perform means:
 - a to carry out
 - b to transform
 - c to translate
- 3 to store means:
 - a to insert
 - b to modify
 - c to preserve in location
- 4 to edit means:
 - a to write
 - b to change or modify text or data
 - c to print



Computer code.

Grammar Review

4. Answer the questions according to the hints given. Use the possessive case.

- 1 Whose hairdryer is this? (Anne)

.....

- 2 Is this your school? (my brother)

.....

- 3 Whose mothers are those ladies? (Rita and Laura)

.....

- 4 Whose party did you meet Linda at? (Susan)

.....

- 5 Who do these books belong to? (the children)



UNIT 4

1. Helen, a student, wants to attend a seminar on programming languages and talks about it with her father. Before listening to the dialogue choose the right meaning.

1 to deal with means:

- a to consider
- b to verify
- c to determine

2 to turn into means:

- a to transfer
- b to reduce
- c to be converted into

3 to creep means:

- a to pop up
- b to move along slowly
- c to change

4 to schedule means:

- a to program
- b to book
- c to take place

2. Listen to the dialogue and say whether the following sentences are True or False.

- 1 Helen wants to attend a one-year course on visual programming languages.
- 2 The seminar will start with an introduction to programming languages
- 3 Basic programming stages include: problem definition, design specification, coding and testing.
- 4 Coding is the stage when you decide exactly what the program will do.
- 5 Errors cannot occur in computer programs.
- 6 Testing is the stage in which a program is verified as being correct.

True	False
<input type="checkbox"/>	<input type="checkbox"/>

3. Listen to the dialogue again and complete this telephone call.

A: Computer-Ed Institute.

B: Yes, I would like some information about the seminar on programming languages.

A:

B: What topics will it cover?

A:

B: When is the seminar scheduled?

A:

B: Where will it be held?

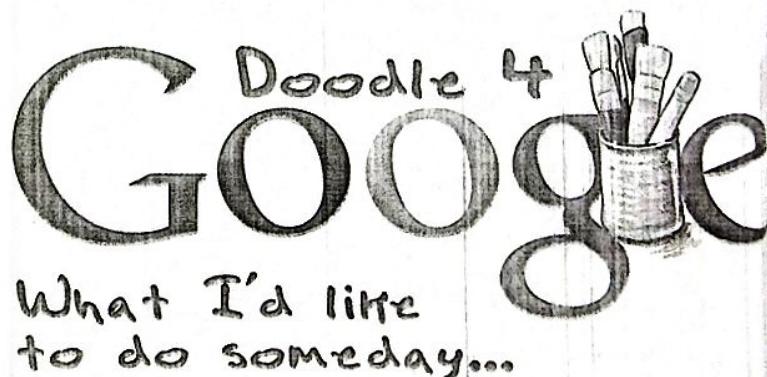
A:

B: How much does it cost?

A:

B: Thank you very much and goodbye.

A:



TEXT 3**Microprocessors**

The microprocessor made the PC possible. Technically, a microprocessor starts as silicon that has been carefully grown as an extremely pure crystal. The silicon is thinly sliced with great precision, and then the chips are **heinously** polluted by baking in hot ovens containing gaseous mixtures of highly purified **poisons** (like arsenic) that are diffused into the silicon as impurities and change its electrical properties.

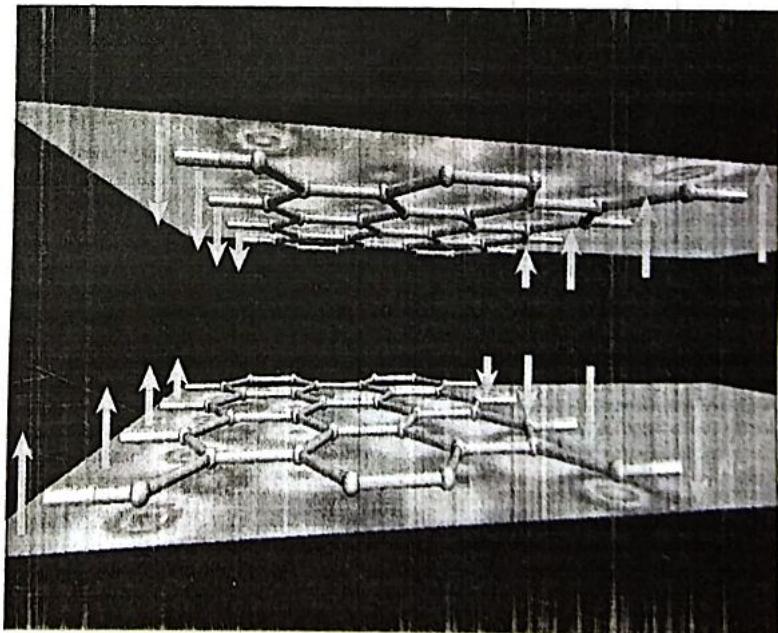
Your PC can react, learn, and remember. After all, despite its revolutionary design and construction, the operating principle of the microprocessor is exactly the same as a bread-making machine or dishwasher. As with your home appliances, microprocessor hardware was designed to carry out a specific function, and silicon semiconductor technology was **harnessed** simply to implement those functions. A microprocessor need not be made from silicon (scientists are experimenting with new semiconducting materials as organic semiconductors) nor be based on electronics. A series of gears, **cams**, and levers or a series of pipes, valves, and **pans** could carry out all the logical functions to achieve exactly the same results as your PC. Mechanical and hydraulic computers have, in fact, been built in the past.

The advantage of microprocessors is speed. Electrical signals travel at nearly the speed of light; microprocessors carry out their instructions at **rates** of a hundred thousand to two million per second. The advantage of the silicon-based form of electronics is familiarity. Fabricating silicon circuits is now routine and billions of silicon chips are made each year. Although the processes involved are precise and exotic, the required equipment and materials are **readily** available.

Graphene Nanoribbon. Troy, N.Y. – Copper's days are numbered, and a new study at Rensselaer Polytechnic Institute could hasten the downfall of the ubiquitous metal in smart phones, tablet computers, and nearly all electronics.



Graphene itself is only atom thick, about a half nanometer. A graphene transistor will perform much better than any silicon transistor, because it has much higher electron mobility than silicon.



heinously: outrageously

poison: substance causing illness or death when absorbed

to harness: to utilize the power

cam: protection on a wheel or shaft, designed to change circular motion into up-and-down or back-and-forth motion

pan: flat, shallow container

rate: standard of reckoning, obtained by relating two numbers or amounts

readily: without difficulty; easily

glossary

1. Order the following topics according to the sequence in which they appear in the text.

- 1 what a microprocessor is made of
- 2 the advantage of the silicon-based form of electronics
- 3 billions of chips a year are made
- 4 how the microprocessor works
- 5 the advantage of the microprocessor
- 6 what a microprocessor is used for

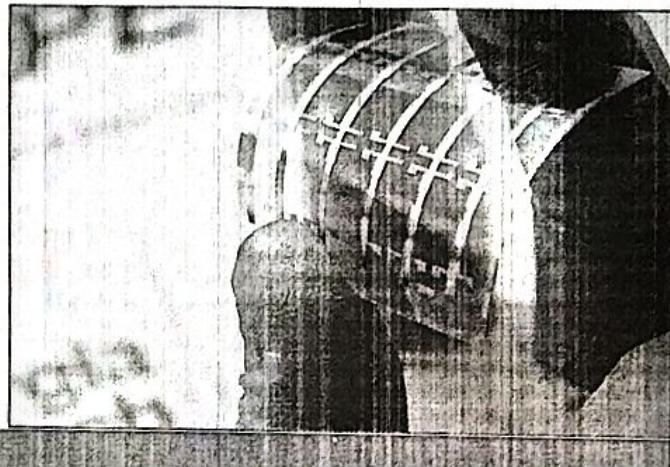
2. Match each of the following terms with its translation.

1 timing motor	a tubo
2 pot	b valvola
3 gear	c sincronizzatore
4 lever	d ingranaggio
5 pipe	e vaso
6 valve	f leva

3. Find the verbs used in the text which are associated with the following nouns.

- | | |
|------------------|-------|
| 1 maker | |
| 2 pollution | |
| 3 baker | |
| 4 design | |
| 5 implementation | |
| 6 achievement | |

*Top-gate Organic Field Effect Transistor
with a Bilateral Gate Insulator,
Georgia (USA) Institute of Technology
(TiPs - bilayer-flexible OFETs.)*



Grammar Review

4. Translate.

1 Che cosa stanno facendo quei ragazzi? – Costruiscono un muro di mattoni.

2 Pensi che otterrai quel posto?

3 È Henry Clark che di solito aziona la macchina.

4 Questo diagramma mostra come funziona il circuito.

5 Non mi piace il mio attuale lavoro, ne voglio trovare un altro.

6 George è nel cortile. Sta verniciando la bicicletta.

UNIT 5

1 A TV journalist, Bill Rock, interviews Paul Slater, an employee of a company that manufactures microprocessors. Before listening to the interview define each of the following words or expressions with the help of your monolingual dictionary.

- 1 wafer
- 2 silicon
- 3 layer
- 4 pattern
- 5 defect
- 6 flake

2 Listen to the interview and choose the right answer.

1 Paul Slater is responsible for quality-checking

- a the materials used.
- b the robotic systems.
- c the wafers.

2 The fabrication process starts with the

- a top layer.
- b bottom layer.
- c medium layer.

3 During the quality check

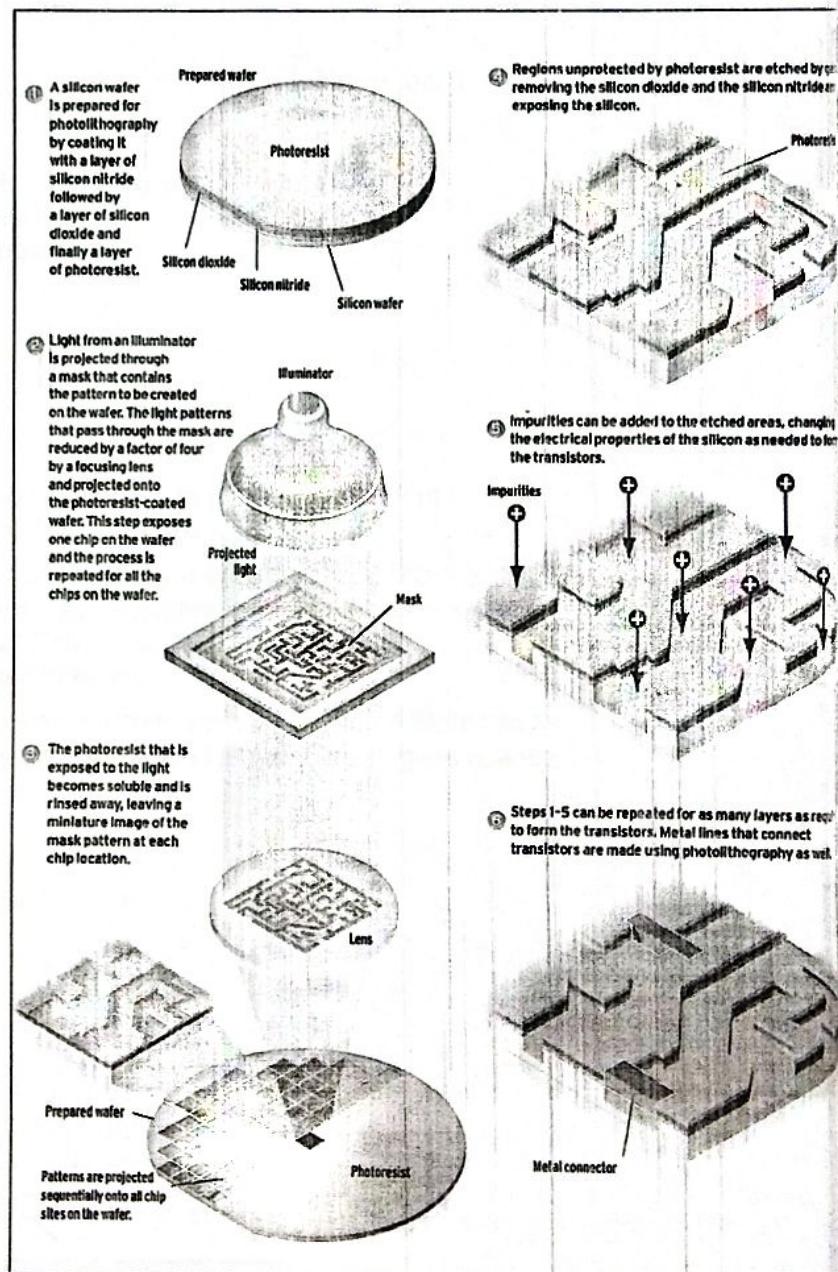
- a each wafer is checked.
- b sample wafers are checked.
- c only the first wafers are checked.

4 Putting on a bunny suit for the first time can take from

- a 10 to 15 minutes.
- b 20 to 25 minutes.
- c 30 to 40 minutes.

5 Listen to the interview again and put the following actions in chronological order.

- 1 go through a quality check
- 2 use electron beams to measure patterns
- 3 take a random sample of wafers
- 4 make an etched mask

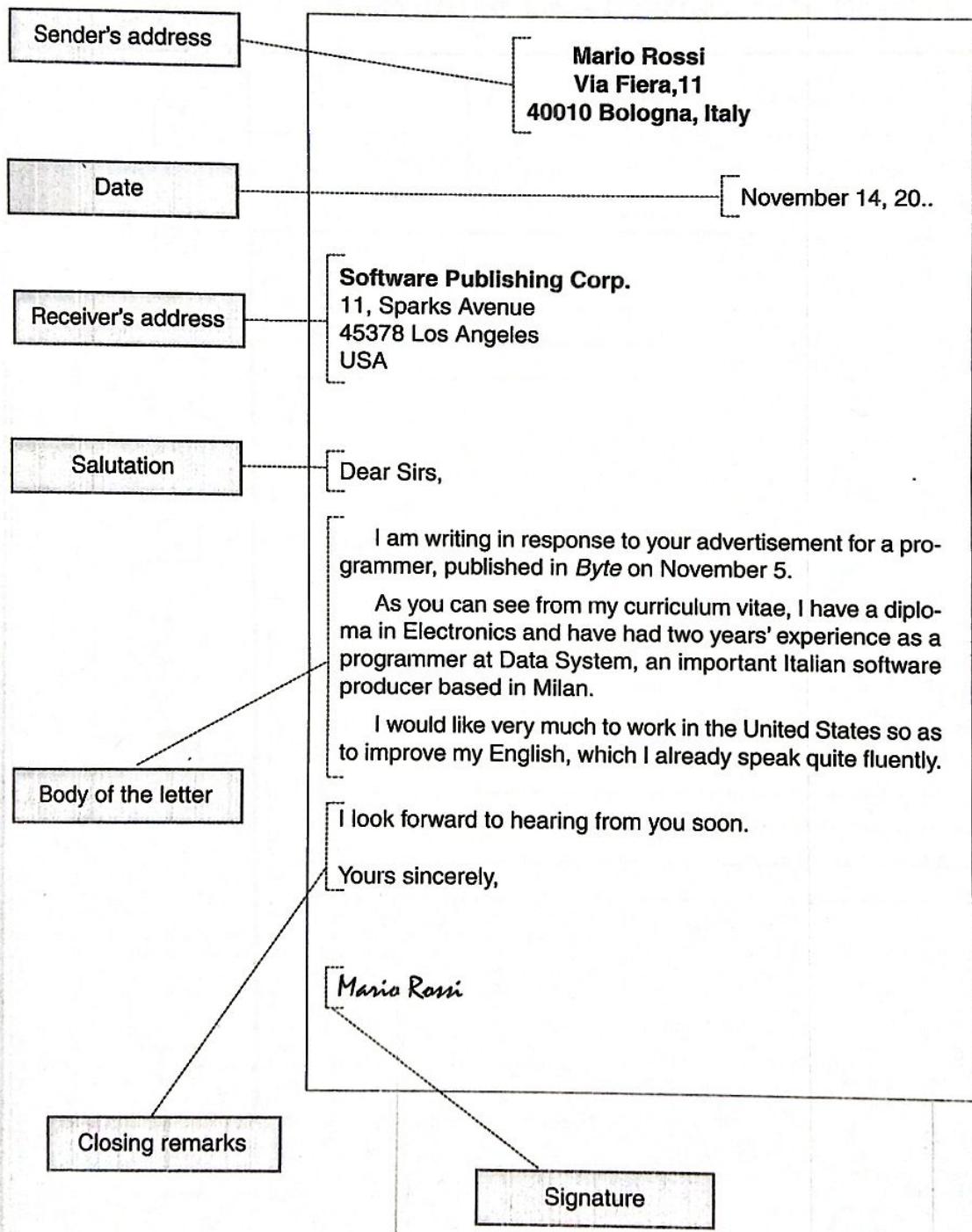


Making a chip.

Applying for a Job

Sia che si debba rispondere ad un annuncio pubblicato su un quotidiano o su di una rivista specializzata, sia che ci si proponga spontaneamente per un lavoro, la lettera relativa deve essere redatta secondo precise regole e deve essere sempre accompagnata da un dettagliato curriculum vitae (vedi Skills Unit 4).

Ecco un modello da seguire per una corretta compilazione:



ESERCIZI

Ora prova a redigere una lettera utilizzando le informazioni date e il modello fornito alla pagina precedente.

Alessandro Barucci, Via Carducci 46, 20100 Milan, Italy / G. A. Electronic Services, 63 Grawby Street, London, SW1, Great Britain / I am now keen to apply for a permanent job in London / and to work for an important firm such as yours / to improve my English / I would like to apply for the post / advertised in the last issue of *Byte* / of software programmer / As you see from / I have been working / my curriculum vitae / for six years / at SATA, based in Milan, an important Italian software producer / Yours sincerely / I look forward to your reply / Alessandro Barucci

1		
2		
3		
4	Dear Sirs,	
5		
6		
7		

TEXT 2

Windows and Macintosh operating systems

Windows and Macintosh are two competing operating systems in use today. Both have gained popularity, but for different reasons. Let's take a quick look at each of them and analyse their main differences.

Microsoft Windows

It is a software operating system developed by Microsoft that, soon after its introduction, became immensely popular among the PC users. It developed on two parallel routes: one was intended for personal use, and the other one was for professional use. The versions aimed at personal use **featured** greater multimedia support and lacked networking capabilities. The professional versions of Windows offered greater networking and security features but lacked multimedia support. Windows XP was a huge success and the same can be said about the recent Windows 7 and Windows 8.

Macintosh

Also known as Mac, Macintosh refers to a brand name that includes a series of personal computers developed by Apple Inc. Apple produces Mac hardware and has its own operating system that comes with all the Macs. The Mac Operating System can be divided into two families of operating systems. One is the "Classic" Mac OS, which was the operating system of Macs until the creation of Mac OS X.

Differences between Windows and Macintosh

The first difference is that while Windows is universally used, Macintosh is used only on Apple's hardware. As Windows is used by a majority of computer users, it is more vulnerable to being **hacked**. Macintosh is considered as a more secure operating system.

While Windows focuses on office functions, Macintosh is focused on graphics and multimedia functions. Mac is considered suitable for entertainment purposes, and is popularly used for photo editing and for playing videos and music, whereas Windows is best suited for business use.

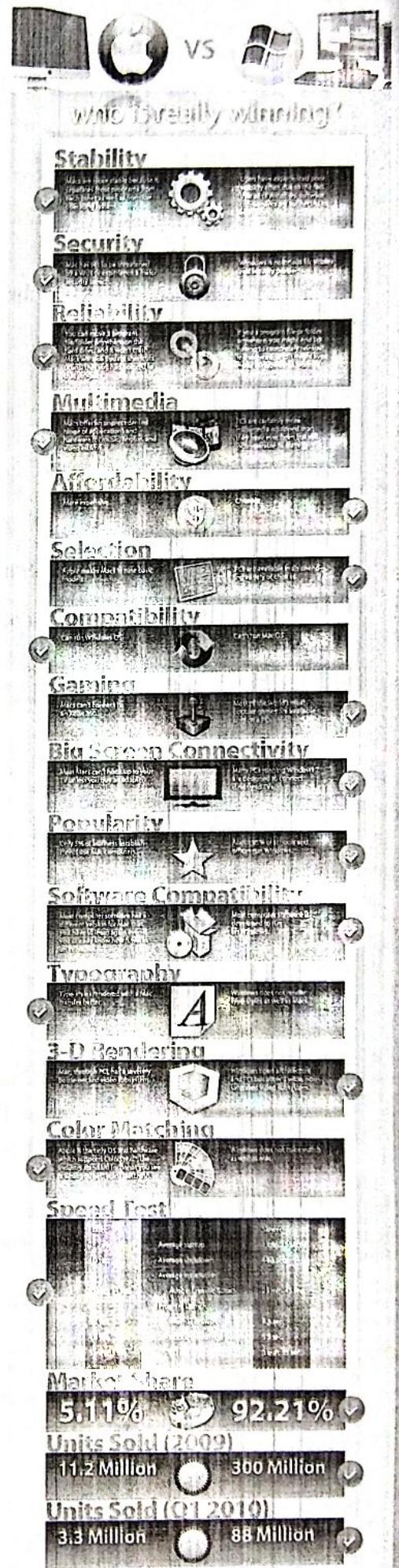
Macintosh and Windows differ in file navigation and management, and in certain other computer operations. Also, window controls and menu bars differ in their functionality in the two operating systems.

glossary

- to feature:** to include something as an important part
- to hack:** to use a computer to look at and to change information stored on another computer

So Windows and Macintosh are fairly dissimilar operating systems: each of them presents a set of advantages and disadvantages and each is meant for a distinct group of users.

Mac Vs PC.



1. Say if the following sentences are true (T) or false (F).

- 1 Windows is more prevalently used in business.
- 2 The version of Windows for personal use features great networking capabilities.
- 3 Windows 7 is older than Windows XP.
- 4 You can use Macintosh only if you have Apple's hardware.
- 5 The Macintosh operating system is less safe than Windows.
- 6 If you like editing photos or playing videos it is preferable to use Mac.

True	False
<input type="checkbox"/>	<input type="checkbox"/>

2. Find in the text the English words corresponding to the Italian ones below.

- 1 caratteristiche:
- 2 enorme:
- 3 esposto a:
- 4 adatto:
- 5 entrambi:
- 6 divertimento:

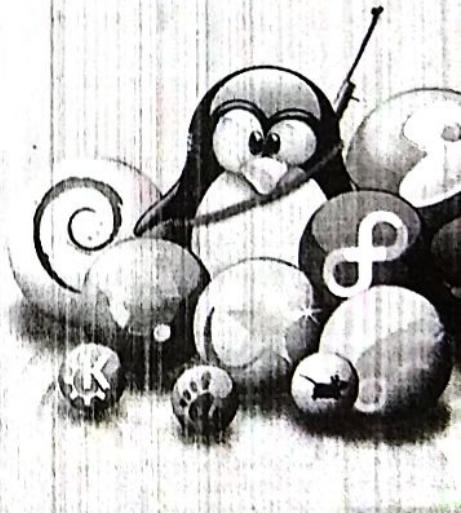


Microsoft vs all.

3. Write next to each word another one having the same theme.

ex.: different: difference

- 1 to know:
- 2 competition:
- 3 popular:
- 4 to refer:
- 5 creation:
- 6 to mean:



Grammar Review

4. Transform the sentences below by using the future form you think more appropriate.

- 1 I intend to go swimming as the weather is not very cold.

.....

- 2 We have planned to go by car as it is less expensive.

.....

- 3 A fortune teller sees wealth and good luck in your future.

.....

- 4 Joe and Liza have decided to get married next June.

.....

- 5 I intend to visit Spain one day.

.....

- 6 The weather forecast predicts heavy rain in the north of the country.

.....

UNIT 6

1. Jane Random, a journalist, has interviewed Tim Paterson, the creator of 86-DOS, the famous operating system. Before listening to the interview define the following words with the help of your dictionary.

- 1 creator
- 2 purchase
- 3 company
- 4 pressure
- 5 graduate
- 6 plan

2. Listen to the interview and choose the right answer.

- | | |
|---|---|
| 1 Paterson wrote DOS when he was | 3 Paterson works |
| <input type="checkbox"/> a twenty-four. | <input type="checkbox"/> a three days a week. |
| <input type="checkbox"/> b thirty-four. | <input type="checkbox"/> b six days a week. |
| <input type="checkbox"/> c twenty. | <input type="checkbox"/> c four days a week. |
| 2 Microsoft bought DOS for | 4 He is planning to |
| <input type="checkbox"/> a \$40,000. | <input type="checkbox"/> a retire pretty soon. |
| <input type="checkbox"/> b \$55,000. | <input type="checkbox"/> b set up a new company. |
| <input type="checkbox"/> c \$50,000. | <input type="checkbox"/> c work on a new project. |

3. Listen to the interview and complete the following sentences.

- 1 Jane is in to meet Tim Paterson.
- 2 When Microsoft offered to buy DOS, Seattle Computer was a
- 3 When I was a fresh graduate I'd go to on Saturdays and Christmas day.
- 4 I want to finish up my and enjoy life.



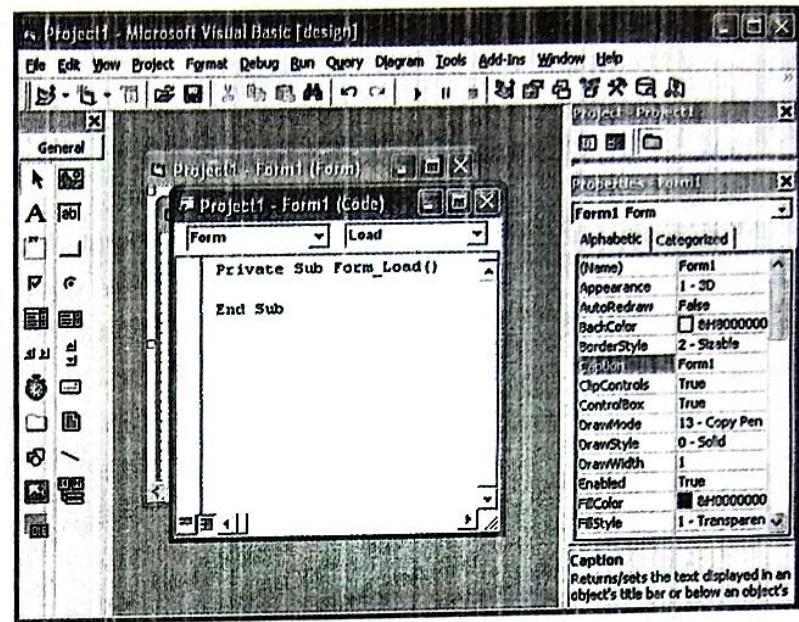
Left: Tim Paterson, the creator of DOS, the biggest-selling operating system in history. Bill Gates bought it from Seattle Computer, where Paterson worked, for \$50,000 and sold it to IBM.
Above: Steve Jobs and Steve Wozniak, the two young visionaries who built, in Jobs' garage, the first personal computer and then started Apple Computers.

TEXT 2

Objects and Visual Basic

Objects are the fundamental building blocks of Visual Basic: nearly everything you do in Visual Basic involves modifying objects. Visual Basic considers objects to be a **combination** of code and data that can be **treated** as a unit. Types of objects can be a Command button (a button that translates a user command, e.g. Cancel), a Form, a Database or a Chart.

Objects are defined by a *class*. The controls on the Toolbox represent classes while the control you place on a Form is an instance of one of these classes. The Form that you create at design time is a class and an instance of this class is created **at run time**. Visual Basic objects support Properties, Methods and Events.



Visual Basic desktop.

What Is a Property?

A Property is an attribute of an object or an aspect of its behaviour. For example, Properties of a text box include its name, its content and its **foreground** and background colours. To change the characteristics of an object, you change the values of its Properties.

What Is a Method?

A Method is an action that an object can perform: invoking a Method will cause something to happen. A PictureBox control, for example, has a PaintPicture method that draws the contents of a graphics file on a Form. Methods often have arguments that qualify how the action is performed.

What Is an Event?

An Event is an external stimulus that an object reacts to. The object executes different code sections (Event procedures) in response to Events. Events can be triggered by the user's actions (such as when a user clicks a button), or by messages originating from applications or from the system.

What Are Forms?

Forms constitute the foundation for creating the interface of an application. You can use them to add windows and dialog boxes to your application, or as containers. The term "container" is a general term referring to an object that can contain another object. Forms are containers for Controls. They have properties that determine aspects of their appearance, such as position, size and colour; and aspects of their behaviour, such as whether or not they are **resizable**. Forms can also respond to Events initiated by a user or triggered by the system.

Forms are not only used to make up the interface of an application: they are also objects that can be called by other modules in your application.

glossary

combination: association of code and data to form a software unit that performs a specific function

to treat: to consider or regard in a specified way, and deal with accordingly

at run time: while a program is executing (a "run-time library" is a library of routines that are bound to the program during execution)

foreground: the ground or parts situated, or represented as situated, in the front

resizable: whose dimensions can be modified

1. Read the text and then give a definition of the following terms.

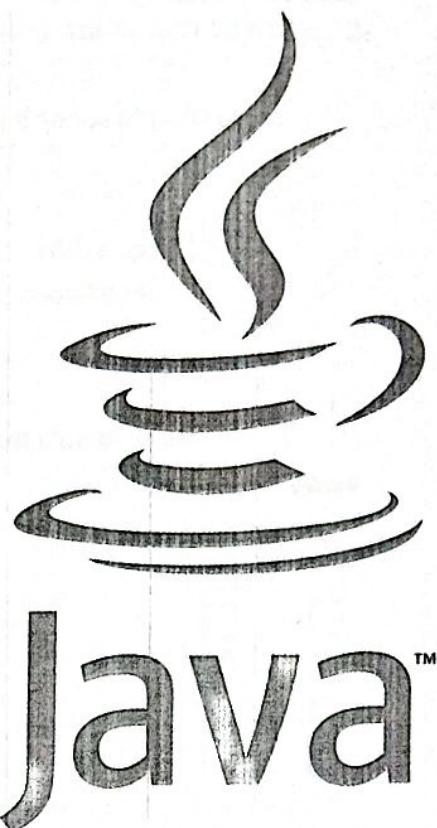
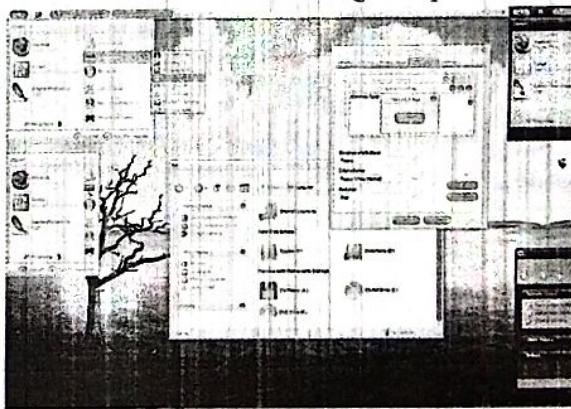
- 1 objects:
- 2 Visual Basic:
- 3 property:
- 4 method:
- 5 event:
- 6 forms:

2. Choose the right meaning.

- | | |
|--------------------------------|---------------------------|
| 1 to involve means: | 4 to refer means: |
| a to contain as a part | a to denote |
| b to remove obstructions | b to remove completely |
| c to explain | c to have a relation |
| 2 to support means: | 5 to respond means: |
| a to give up | a to stop speaking |
| b to serve as a foundation for | b to give a reply |
| c to fulfil an obligation | c to over-react |
| 3 to perform means: | 6 to trigger means: |
| a to carry out | a to become active |
| b to bring to an end | b to set off, to initiate |
| c to move about | c to destroy completely |

3. Read the text and find the English equivalents for the following Italian expressions.

- 1 elemento fondamentale:
- 2 fase di progetto:
- 3 fase di esecuzione:
- 4 documenti di grafica:
- 5 stimolo esterno:
- 6 finestre di dialogo:

*Multitasking desktop.*

Grammar Review

4. There was a blackout in your town yesterday morning at 10.00. Say what these people were doing.

- 1 I:
- 2 My parents:
- 3 Mrs Ford, a neighbour:
- 4 Mr Harrison, a doctor:
- 5 Henry, a policeman:
- 6 Gloria, a secretary:
- 7 Mr Clark, a chef:

1. Buster J has invited a computer expert to participate in his radio programme and answer the listeners' questions. Before listening to the programme, match each of the following words with its meaning.

- | | |
|-------------|---|
| 1 link | a a simulation of movement created by displaying a series of pictures |
| 2 creator | b something that connects things |
| 3 gadget | c a person who creates |
| 4 ticker | d a software application used to locate and display Web pages |
| 5 animation | e an electronic device for displaying stock market quotations |
| 6 browser | f a small mechanical device |

2. Listen to the programme and decide whether the following sentences are true or false.

- | | True | False |
|---|--------------------------|--------------------------|
| 1 Wendy is calling from Birmingham. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Java was named after the country of the same name. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Java is a programming language that can only run on certain kinds of computers. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Wendy probably uses it without knowing it. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Java won't do nasty things to your computer. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Java is used for controlling tickers, chat rooms and animation sequences. | <input type="checkbox"/> | <input type="checkbox"/> |

3. Listen to the programme again and tick the topics mentioned.

- | | |
|--|---|
| <input type="checkbox"/> 1 protocols | <input type="checkbox"/> 5 applets |
| <input type="checkbox"/> 2 Net banking | <input type="checkbox"/> 6 Web servers |
| <input type="checkbox"/> 3 Mac computers | <input type="checkbox"/> 7 PCs |
| <input type="checkbox"/> 4 mobile phones | <input type="checkbox"/> 8 Web browsers |



Programming language textbooks.

TEXT 1

Tips on word processing

Before **rushing out** and buying a big desktop publishing program, check the characteristics of your word processor. They often come with **built-in** features for **laying out** documents, creating tables and even incorporating graphics. The good news is that you may be able to do everything you need just using your word processor; the bad news is that these extra features are often the reason why word processing programs run so slowly.

The obvious trap that lots of beginners fall into is using too many **fonts**. If you look at professional publications, they often use one font for the main text, another for **headlines** and minor variations for any other writing. Similarly, resist the temptation **to go** completely **overboard** with the other **embellishments**, like bold, italics or underline. Just because most programs offer a huge selection doesn't mean you have to use them all: one or two, used **sparingly**, is far more effective, and can stop the page from looking like an explosion in a printer's shop.

Avoid typing a lot of text into a desktop publishing program; word processing software is much better at handling data input. But **watch out** when you "import" text into your desktop publishing program, especially if someone else has given it to you on a disk or via e-mail. Do a quick check to make sure that exotic punctuation, like copyright symbols, apostrophes and **pound signs** have **survived** the transition.

A lot of programs – word processors and desktop publishing software – offer collections of document **templates** for popular requirements like letters, tables and newsheets. These can **save** a lot of time by doing most of the **setting-up** for you.

If you're going to send your publication out to a lot of people – or just to some important ones – do try and make sure you've spell-checked it. Some word processing programs now do this automatically and will correct common typing mistakes – "teh" instead of "the", for instance. But if you're a **stickler** for detail, make sure it's replacing mistakes with corrections that you approve of.

Some popular word processors are: *Wordperfect* (Corel), *Word Pro* (IBM Lotus), *Word* (Microsoft).

FONTS - MORE AVAILABLE!									
FRESHMAN	COSMIC	Dawn Castle	MOTOR	Kids	Chalk	Huxtable			
INDIANA SOLID	BIG TOP	Briquet		Cosmic Sans	D/AWN CASTLE				
Aardvark	Banff	EFFLORESE		Cupertino	MAIL RAY				
COLLEGIATE	Expo	MAIL RAY		Renfrew		MADFONT			
Vogue Bold	Cuckoo	Market				Storybook			
COTTAGE	YOU ARE	VACANT GAPZ		BAZOOKA					
NEWFOUNDLAND		KabanaBold	COSMIC TWO	BOOKMAN					
Team Spirit			MOUTH BREATHER						
JEFFREY	Tubular	W&L	RADIO STAR	Jester	Ragg Mop				
SABLE AION	Castanet	Switzerland Condensed	Kelmscott						
Minya	Exotic350	CG Omega	VIKING	SIGNBOARD					
Boulder	JUPITER	CenturionOld	Kristen	Diploma					
Vonnie	Stage Coach	Arial Black	Pythagoras	Sarasori					
Zelldendash	XEROGRAPHY	New Brunswick	RAGGED	Rambling					
Tomahawk	Lucida	Jokerman	PICKwick	Sarasori					
Curtis Promotions...Home of PTA Staff 1-800-962-7268									

- **to rush out:** to exit quickly; to leave in a hurry
- **built-in:** forming an integral part of a structure
- **to lay out:** to arrange
- **font:** type of character
- **headline:** line at the top of a page containing title etc.

- **to go overboard:** to be very or too enthusiastic
- **embellishment:** ornament
- **sparingly:** in an economical way
- **to watch out:** to be vigilant or alert
- **pound sign:** the symbol used to designate an English pound
- **to survive:** to continue to exist

- **template:** pattern
- **to save:** to economize
- **setting-up:** the act of making detailed plans for
- **stickler:** person who insists on something unyieldingly

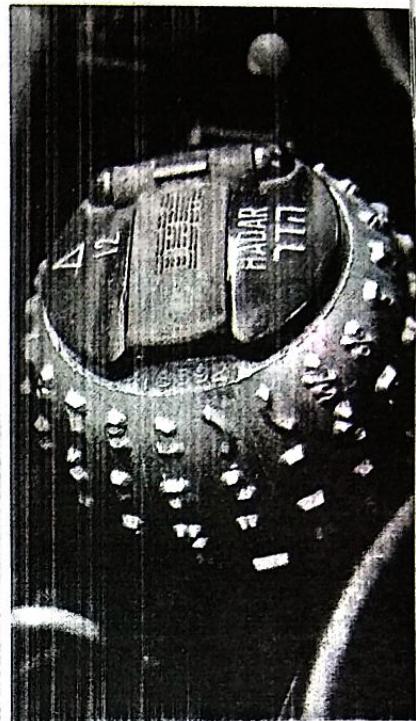
glossary

1. Match each sentence on the left with the appropriate ending on the right.

- | | |
|--|---|
| 1 Before buying a desktop publishing program it is better to check the | a a desktop publishing program. |
| 2 Beginners risk using | b your spelling automatically. |
| 3 It is better not to type too much text into | c characteristics of your word processor. |
| 4 A lot of programs offer document templates | d for letters, tables etc. |
| 5 Some programs control | e too many fonts. |

2. Find the English equivalent of the following words in the text.

- | | |
|-------------|-------|
| 1 tabelle | |
| 2 trappola | |
| 3 corsivo | |
| 4 esigenze | |
| 5 notiziari | |
| 6 dettaglio | |



Word processors Selectric
Globe of IBM WW10.

3. Match each term on the left with the appropriate meaning on the right.

- | | |
|-------------|--|
| 1 proper | a more than is due, usual or necessary |
| 2 extra | b inferior in size, importance or degree |
| 3 obvious | c free from errors or faults |
| 4 minor | d producing a decided or desired effect |
| 5 effective | e easily discovered, seen or understood |
| 6 correct | f conforming to an accepted standard |

Grammar Review

4. Insert *can/could, may/might* or *must* in the following sentences.

- 1 He come, but I'm not sure.
- 2 It was so dark that we not see anything.
- 3 The new director speak Japanese very well.
- 4 I buy a present for my mother's birthday.
- 5 He has not decided yet, but he change his job.
- 6 When you operate a machine, you follow the instructions very carefully.



Early word processors.
Pittsburg Standard typewriter, early 1900.

Un curriculum è un profilo sintetico di dati personali, background scolastico ed esperienze di lavoro. Saper scrivere un curriculum è importante e la sua corretta redazione a volte può rivelarsi determinante nell'ottenere o meno un posto di lavoro e/o impressionare favorevolmente l'esaminatore.

Osserva lo schema seguente che illustra un possibile modo di redigere un curriculum.

Europass Curriculum Vitae		Insert photograph
Personal information		
Surname(s) / First name(s)	
Address(es)	
Telephone(s)	
Fax(es) / E-mail	
Nationality	
Date of birth	
Gender	
Desired Occupational field		
Work experience		
Dates	Add separate entries for each relevant post occupied, starting from the most recent.	
Occupation or position held	
Main activities/Responsibilities	
Name/address of employer	
Type of business or sector	
Education and training		
Dates	Add separate entries for each relevant course you have completed, starting from the most recent.	
Title of qualification awarded	
Occupational skills covered	
Name/type of organisation providing education/training	
Level in national or international classification	
Personal skills/competences		
Mother tongue(s)	
Other language(s)	
Self-assessment		
European level (*)		
Language	Understanding	Speaking
Language	Listening	Reading
Language	Spoken interaction	Spoken production
(*) Common European Framework of Reference for Languages		
Social skills/competences		
Social skills/competences	Add separate entries for each relevant course you have completed, starting from the most recent.	
Organisational skills/competences		
Technical skills/competences	Add separate entries for each relevant course you have completed, starting from the most recent.	
Computer skills/competences	Add separate entries for each relevant course you have completed, starting from the most recent.	
Artistic skills/competences	Add separate entries for each relevant course you have completed, starting from the most recent.	
Other skills/competences	Add separate entries for each relevant course you have completed, starting from the most recent.	
Driving licence	State here whether you hold a driving licence and if so for which categories of vehicle.	
Additional info Annexes		
Include here any other information that may be relevant, for example contact persons, references..		
List any items attached		
NOTE: When it is necessary remove what is not relevant		

ESERCIZI

Ora prova a scrivere il tuo curriculum vitae. Elimina ciò che ritieni opportuno.

**Europass
Curriculum Vitae**

Personal information

Surname(s) / First name(s)
 Address(es)
 Telephone(s)
 Fax(es) / E-mail
 Nationality
 Date of birth
 Gender

Desired Occupational field

Work experience

Dates
 Occupation or position held
 Main activities/Responsibilities
 Name/address of employer
 Type of business or sector
Education and training
 Dates
 Title of qualification awarded
 Occupational skills covered
 Name/type of organisation providing education/training
 Level in national or international classification

Personal skills/ competences

Mother tongue(s)
 Other language(s)

Self-assessment

European level (*)

Language

Language

Understanding

Listening

Reading

Speaking

Spoken interaction

Spoken production

(*) Common European Framework of Reference for Languages

Social skills/competences

Organisational skills/ competences

Technical skills/competences

Computer skills/competences

Artistic skills/competences

Other skills/competences

Driving licence

Additional info Annexes

List any items attached

TEXT 1

Painting with a PC

There are a number of different approaches to graphics and design using computers, so it is **worth** spending a few moments to look at them each in turn.

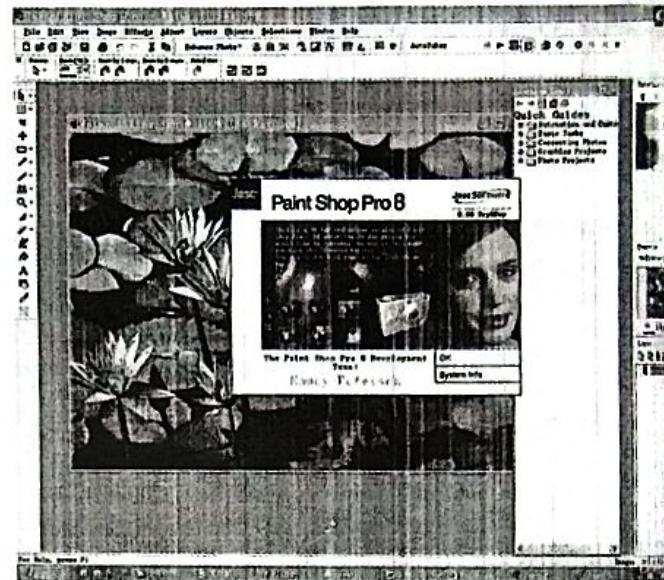
Paint software gives you enormous freedom to create colour pictures using a variety of effects. The images you create with paint software are generically referred to as **bitmaps**. If you magnify your screen, you will notice that the display is made up of tiny squares, called *pixels*. When you create an image with painting software you start by defining an image or **canvas** size. The size you choose is a horizontal and vertical area measured in pixels. If you are currently looking at a screen displaying 800 by 600 pixels, then a paint file of the same size will fill the screen right up to the **edges**.

You can "zoom" your view of an image so that, when the image is not entirely visible, you can reduce it to fit your screen. All the pixels that make up the file are still there when you zoom back: you are just not seeing them in their normal state. This is not the same as "resizing" an image where its size in pixels is irrevocably changed. You might wish to resize, for example, if you have created a picture and want to use it in a document but find that the image is too large.

Paint software also allows you to **retouch** scanned photographs, create montages of parts of different images, flip and mirror images and apply "filters" to create different effects.

Some paint software packages use *layers*.

This is a bit like putting different bits of a picture on different transparent cells and looking through several layers at once so that foreground objects are superimposed on background objects. The huge advantage of a layered approach is that if you want to change a part of an image you are more likely to be able to do so easily. Working on a single layer will enable you to "undo" your last action, say, if your hand slipped, but changing your mind later on can mean lots of extra work. *Photoshop* from Adobe introduced the idea of layers and it is the most widely used professional designers paint software. *Paint Shop Pro V5* from Jasc has just brought the same idea to a more budget priced package that is the latest version of the popular shareware paint software.



glossary

worth: good or important enough to

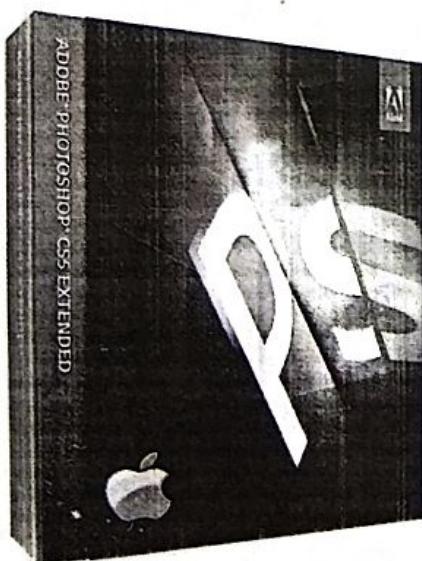
canvas: a piece of material on which a painting is made

edge: a line or border at which a surface terminates

to retouch: to improve with new touches; to modify

to slip: to slide suddenly and involuntarily

shareware: computer software distributed without initial charge, but for which the user is encouraged to pay a nominal fee to cover support for continued use



Above: *Paint Shop Pro*.
Left: *Adobe Photoshop*.

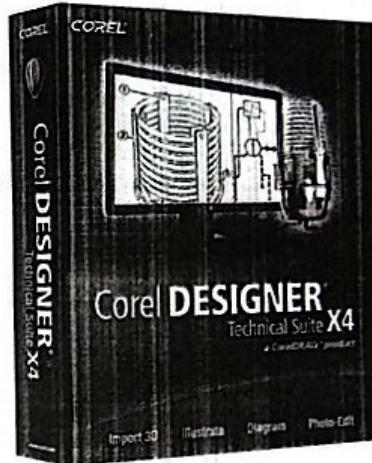
1. Read the following sentences and decide whether they are true and false.

- 1 There is only one approach to graphics and design using computers.
- 2 Paint software allows you limited freedom in creating colour pictures.
- 3 The size you choose is measured in pixels.
- 4 You can also retouch scanned photographs and create various montages.
- 5 Working in layers offers several disadvantages.
- 6 Paint Shop Pro V5 is less affordable than Photoshop from Adobe.

True	False
<input type="checkbox"/>	<input type="checkbox"/>

2. Choose the right meaning.

- | | |
|---|------------------------|
| 1 to zoom means: | 3 to resize means: |
| <input checked="" type="checkbox"/> a to drive carelessly | a to resist change |
| <input type="checkbox"/> b to focus upon | b to change the size |
| <input type="checkbox"/> c to paint | c to create |
| 2 to appear means: | 4 to flip means: |
| <input type="checkbox"/> a to satisfy | a to fly |
| <input type="checkbox"/> b to make a request | b to rotate or to turn |
| <input type="checkbox"/> c to seem | c to throw |



3. Define the following words or expressions using your monolingual dictionary.

- 1 approach:
- 2 graphics:
- 3 at once:
- 4 actually:
- 5 background object:
- 6 extra work:



Coloured pencils.

Grammar Review

4. Insert either the present perfect or the present perfect continuous of the verbs in brackets.

- 1 She (change) her job. She's working as a secretary now.
- 2 I never (take) Spanish lessons.
- 3 How long you (work) at the computer?
- 4 We (visit) York recently.
- 5 My parents (be) married for 30 years.
- 6 I just (meet) the headmaster in the corridor.

ART, GRAPHICS AND DESIGN ON THE COMPUTER



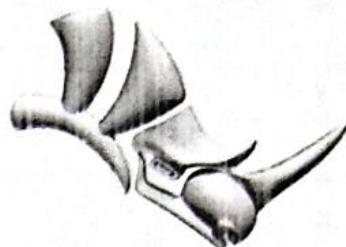
1. Read this information about the International Academy of Art of San Francisco, then complete the dialogue between Arch Goodman, a student, and a secretary of the Academy.

The Academy is a 4-year professional college that grants Bachelor and Master of Fine Arts degrees. Short programmes are also available for international students.

The Academy's flexible admissions and registration process allows you to:

- enrol as a part-time or full-time student;
- participate in our degree or non-degree programmes;
- apply for the Spring or Summer semesters;
- transfer into our undergraduate and graduate programmes;
- attend day, night or Saturday classes.

NURBS (Non-Uniform Rational B Spline)
to represent
a 3D geometry.



Rhinoceros®
NURBS modeling for Windows

The Academy welcomes applicants who are working or who have no prior art experience.

- Spring semester start: January 31st.
- Summer semester start: June 19th.

We operate 7 dormitories in downtown San Francisco. Private or shared rooms are available, based on individual need. Transportation is provided between the dormitories and the classrooms.

You can contact the International Student Admissions/Services Dept. by:

phone: (415) 472-38543; e-mail: w.doors@academyart.edu

Secretary:

Arch: Yes, I would like some information about the Academy, please.

Secretary:

Arch: Is prior art experience required?

Secretary:

Arch: Is it possible to enrol as a part-time student?

Secretary:

Arch: Are there night classes too?

Secretary:

Arch: When does the summer semester begin?

Secretary:

Arch: What about accommodation?

Secretary:

Arch: Who do I have to contact for student admissions?

Secretary:

Arch: Thank you very much and goodbye.

Secretary:

2. Pair work. Improvise an interview between a journalist (student A) and an employee of the Autodesk Company (student B). The journalist asks what Autodesk is, when the company was founded, who their clients are and what kinds of solutions they offer.

3. Group work. Answer the following questions in groups.

- | | |
|---|---|
| 1 What paint software do you know? | 4 What are the advantages of computer-generated images over traditional ones? |
| 2 Do you use paint software on a regular basis? | 5 Do you think that digital art will replace traditional art? |
| 3 If so, do you find it easy or difficult to use? | |

TEXT 3

Digital communications

Digital communications began to gain ground as more information being transferred became digital in nature. Computer-to-computer communication is the primary example.

Because of the advantage of using digital equipment (speed, size, and power consumption), certain aspects of communication systems were converted to digital.

Digital communications involve producing a series of pulses in the output of the source. This method (sometimes known as pulse code modulation or PCM) is used to represent the 1s and 0s of a digital signal. In simplest terms, the 1s and 0s could be represented by a presence or absence of pulses.

For example, a pulse in the output would indicate a 1 and a lack of pulse indicates a 0. Unfortunately, sending a chain of 0s, one right after the other, could lead to confusion at the other end.

Does the prolonged absence of pulses indicate one 0 or several and, if several, how many? Even more discouraging, a complete absence of pulses may mean no signal is being sent at all. To solve this problem, a timing system must be added to the communication.

Communication timing can be synchronous or asynchronous. Synchronous communication means the receiving end and the transmitting end both operate under the same timing. The timing is supplied by a clock signal that is transmitted with the communications data. In asynchronous communications, no clock signal is used to link the timing of both ends of the system. Instead the transmitting system sends a prearranged series of pulses to warn the receiving end that a signal is about to be sent. Once the transmission begins, the pulses (or lack of pulses) are still timed as before, but each end has its own clock signal to use in dividing up the signal.

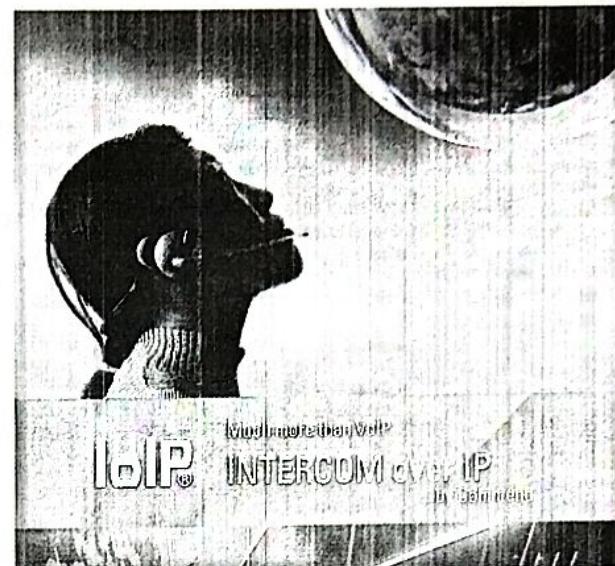
glossary

to gain ground: to make progress

timing system: a system that provides a signal of synchronization

instead: as a substitute

to warn: to make aware in advance



The latest generation in Intercom systems



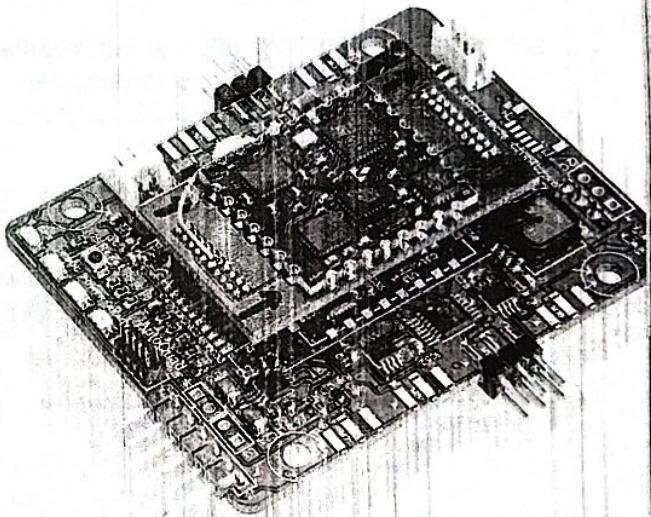
1. Read the following sentences and decide whether they are True or False.

- | | True | False |
|--|--------------------------|--------------------------|
| 1 As more information being transferred became digital in nature digital communications were used less. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Computer-to-computer communication is carried out in digital form. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Digital communications use pulse code modulation. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Pulse code modulation represents the 1s and 0s of an analog signal. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Synchronous communication means that only the receiving end uses timing. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 In asynchronous communications the transmitting system sends a prearranged series of pulses to warn the receiving end that a signal is about to be sent. | <input type="checkbox"/> | <input type="checkbox"/> |

2. Find words in the text which have the same meaning as the following expressions.

- 1 include in something:
- 2 wave-shaped:.....
- 3 a series of objects connected one after the other:
- 4 conduct by guiding:.....
- 5 arranged in advance:.....
- 6 separating:.....

*Motherboard (or mainboard)
and daughterboard
(or piggyback board)
used in digital communications.*



3. What are the opposites of the following words?

- 1 lack of:
- 2 several:
- 3 discouraging:
- 4 to add:
- 5 to supply:
- 6 to link:

Grammar Review

4. Tick the wrong sentences and correct them.

- 1 He would have made good progress if he attended school regularly.

- 2 If you turned off the radio, I could hear what you are saying.

- 3 If it wasn't so dark, I would have seen the lorry.

- 4 I'd be rich now if I would have accepted to work abroad.

- 5 If David will buy this laptop, he'll invest his money well.

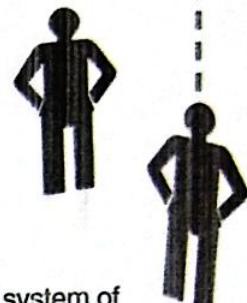
1. Pair work. Student A has bought an old radio and shows it to a friend (student B). Build up a dialogue using the prompts below.

Student A

- Greet.
- Say that you have bought an old radio.
- Say that it receives sound-only broadcasts using amplitude modulation and ask what the difference is between AM and FM.
- Ask which one is better.
- Ask why your radio does not receive FM broadcasts.

Student B

- Reply to his/her greetings.
- Ask if it receives sound broadcasts using frequency modulation.
- Answer.
- Say that FM has many advantages over the system of amplitude modulation, and that the most important of these advantages is that an FM system has greater freedom from interference and can reproduce sound with a greater degree of fidelity.
- Say that his/her radio is quite old and that frequency modulation is relatively new.



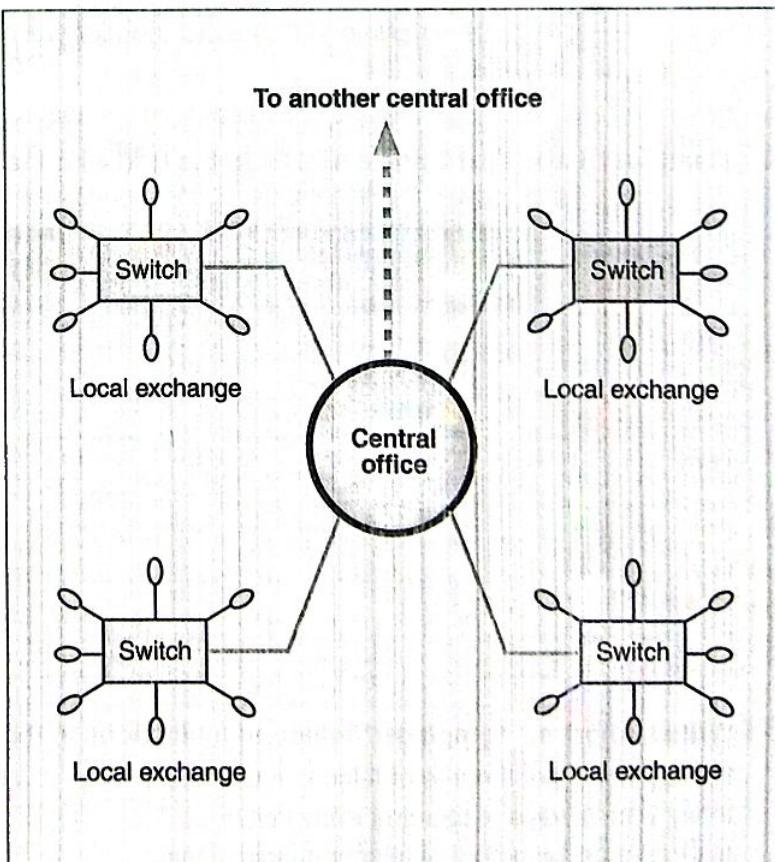
2. Pair work. Look at this diagram of a telephone network. Ellipses represent telephone sets and non-voice devices. In pairs answer the following questions.

- 1 What is the main advantage of a network?
- 2 Which function can it perform that would have been impossible in the past decades?
- 3 What are the main non-voice devices used today?
- 4 Which ones do you use?
- 5 Do you think that non-voice devices have marked a great improvement in telecommunications?

3. Group work. The development of telecommunications has marked a great change in our lives. Divide the class into two groups.

Group A: You talk about the advantages of telecommunications (i.e. the possibility to communicate with people all over the world).

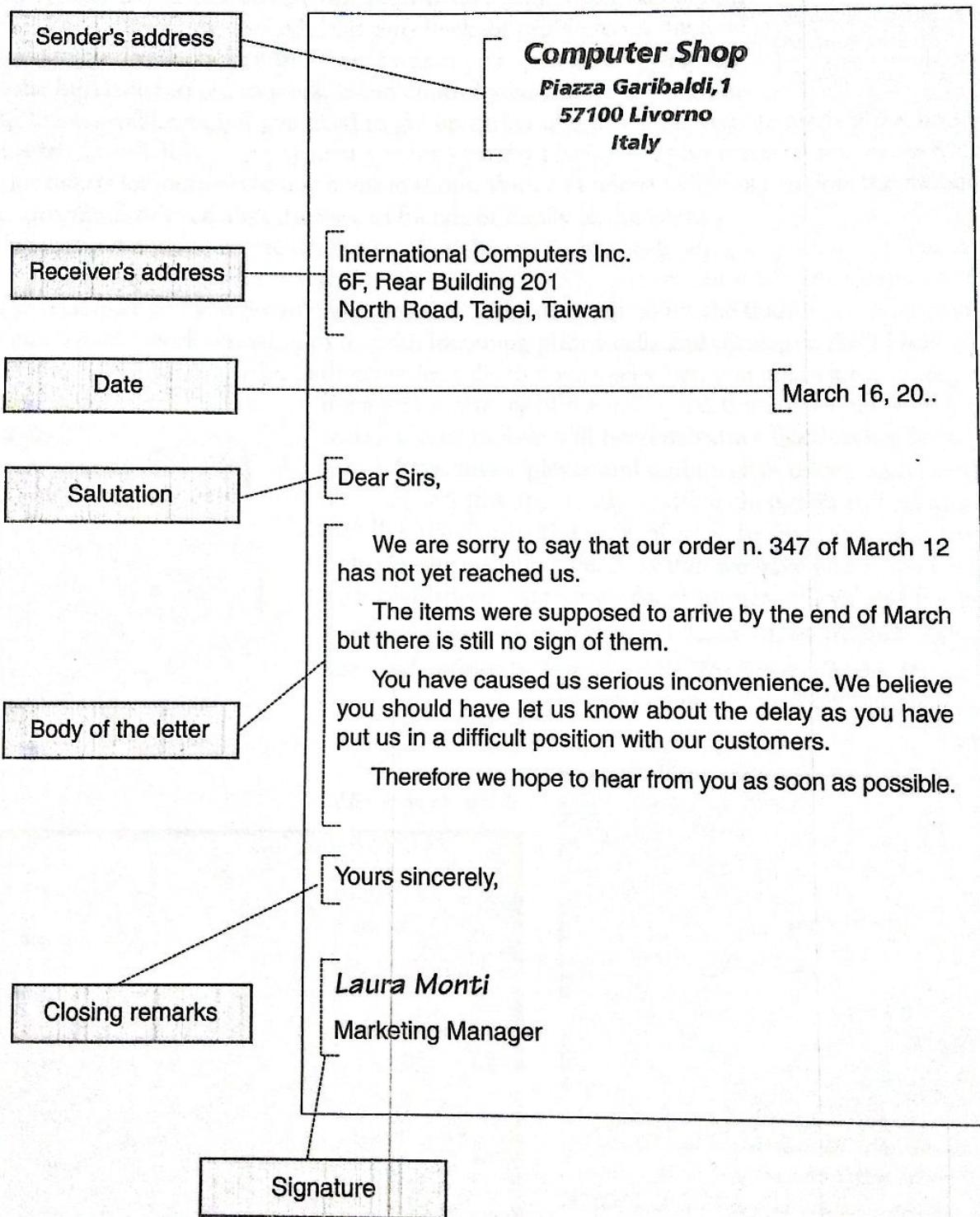
Group B: You talk about its disadvantages (i.e. the reduction of personal contacts).



Letter of complaint

Ci sono molte ragioni per cui un ordine non vada a buon fine: ritardi nella consegna, merce difettosa, merce che non corrisponde a quella ordinata e così via.

Ecco di seguito un modello di lettera che spiega come fare valere le proprie ragioni nel caso di un ordine male eseguito (letter of complaint), mentre alla pagina successiva è esemplificato un modello di lettera in cui il fabbricante si scusa per l'inconveniente causato (letter of apology).



TEXT 3

The future of mobile phones

It is 2025. Your mobile is now much more than just a communication device: it can be considered as a remote control for your life. You still call it "mobile" from habit, but it is an organizer, entertainment device, payment device and security centre, all developed and manufactured by engineers. On a typical day it will start work even before you wake. Since your mobile knows your travel schedule, it can check for problems on the road or with the trains and adjust the time it wakes you up accordingly, giving you the best route to get to work. It can control your home, re-programming the central heating if you need to get up earlier and providing remote alerts if the home security system is triggered. It is your payment system – just by placing the phone near a sensor on a barrier, you can pay for tickets for journeys or buy items in shops. With an understanding of location, the mobile can also provide directions, or even alert the user to friends or family in the vicinity.

It is your entertainment centre when away from home. As well as holding all your music files, as some phones today are able to do, it will work with your home entertainment system while you sleep to find programmes that will interest you and download them as a podcast to watch on the train or in other spare moments. It will intelligently work out what to do with incoming phone calls and messages. As it knows your schedule, it will also know, for example, to direct voice calls to voicemail when you are in a meeting, perhaps providing a text summary of the caller and the nature of the call. Leaving home without your mobile will become rather like leaving home without your wallet, keys, music player and mobile all at once – quite unthinkable.

So what will this apparently massive change in our relationship with our mobiles require in the way of new technology or extra expenditure? Actually, surprisingly little. Now that we have widespread cellular coverage, with high-speed data networks in homes, offices and points of congregations, we have all we need to get signal to the mobile.

(abridged and adapted from the article "The Future of Mobile Phones: a Remote Control for your Life, by William Webb", published in The Independent Magazine, May 2011)

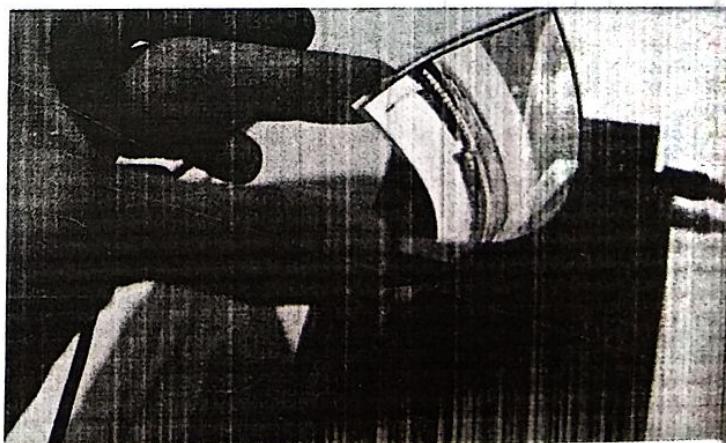
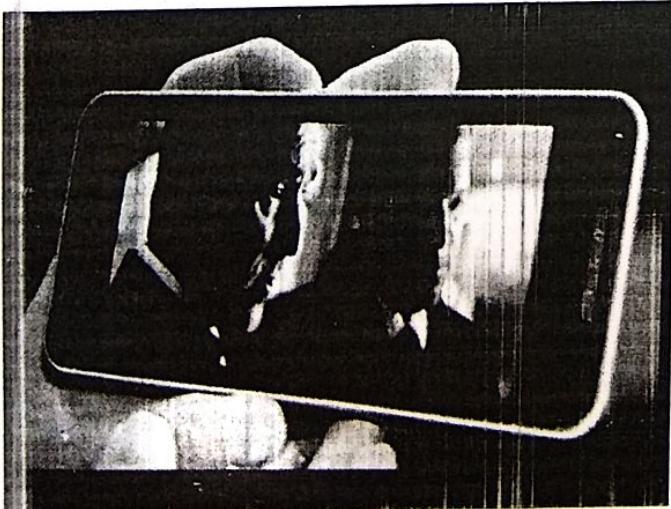
glossary

to trigger: to cause something to start

podcast: an audio or video file available on the Internet that can be downloaded



Movies on the mobile.



Samsung is making science fiction a reality with whiz-bang AMOLED displays that can bend and flex like a sheet of paper and transparent AMOLED technology. It can be rolled up like a newspaper and can even survive impacts with a hammer.

1. How will the new mobiles affect our way of living in the future? Select information from the text and make notes next to each heading.

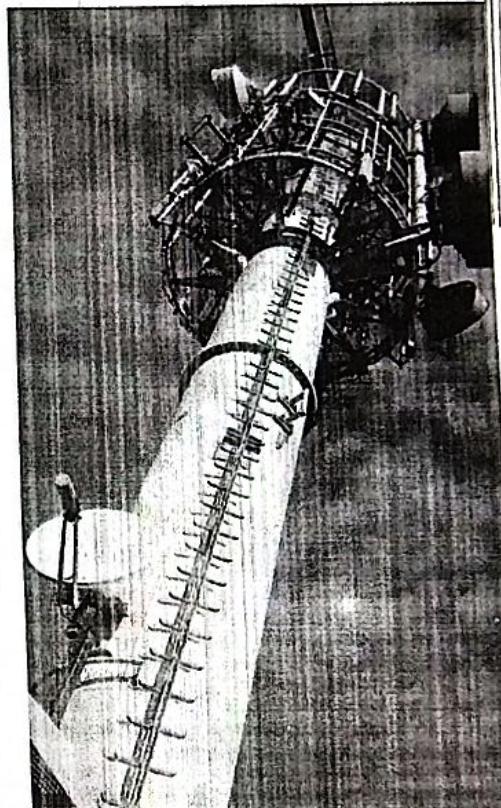
- 1 Life at home:
- 2 Work:
- 3 Entertainment:

2. Complete the sentences with words taken from the text.

- 1 I find it hard to to working in such a small office.
- 2 We took the fastest to the coast, so we arrived on time.
- 3 Our goes off at 11pm and comes on again at 7 am.
- 4 The door closed with a loud bang and that the alarm.
- 5 It's only a village, so there isn't much for young people here.
- 6 The company has suffered from a increase in manufacturing costs.

3. Find synonyms to each of the following words.

- 1 to work out:
- 2 expenditure:
- 3 widespread:
- 4 to alert:
- 5 intelligently:
- 6 schedule:



Grammar Review

4. Translate.

1 Una nuova fabbrica verrà aperta il mese prossimo.

.....

2 Questa lettera deve essere firmata da Mr Thomson.

.....

3 Il mio portafoglio è stato rubato!

.....

4 Il laboratorio dovrebbe essere tenuto sempre in ordine.

.....

5 Le chiavi vengono lasciate di solito nel cassetto.

.....

6 La fabbrica fu costruita negli anni Sessanta.

TEXT 1

LANs and WANs

Computers can communicate with other computers through a series of connections and associated hardware called a "network". A network offers the advantage that data can be exchanged rapidly, and software and hardware resources can be shared. One type of network, LAN (local area network), consists of several PCs or **workstations** connected to a special computer called a "server", often within the same building. Sometimes one building will contain a few small LANs, and occasionally a LAN will **span** a group of nearby buildings. The computer server keeps all of a networked group's data and enables LAN workstations or PCs to be set up without large storage capabilities. Each PC may have "local" memory specific to itself, but the bulk of the storage resides on the server.

There are many advantages offered by LANs, such as the fact that costly resources like printers can be shared by all of the computers. Then central backup can take place automatically at regular intervals, so a user will be able to retrieve work that has been **deleted** by mistake. A distinctive feature of LANs is that they are typically owned, controlled and managed by a single person or organization.

WANs (wide area networks) cover large geographical areas. Computers can connect to these networks to use facilities in another city or country. External communication links such as satellites, microwaves or telecommunication links will be used to connect the network. The connection must normally be paid for because the links are external. LANs may be connected to WANs via a special **gateway**. WANs differ from LANs in several important ways. One of these is that most WANs are not owned by an organization but rather exist under collective or distributed ownership and management.

glossary

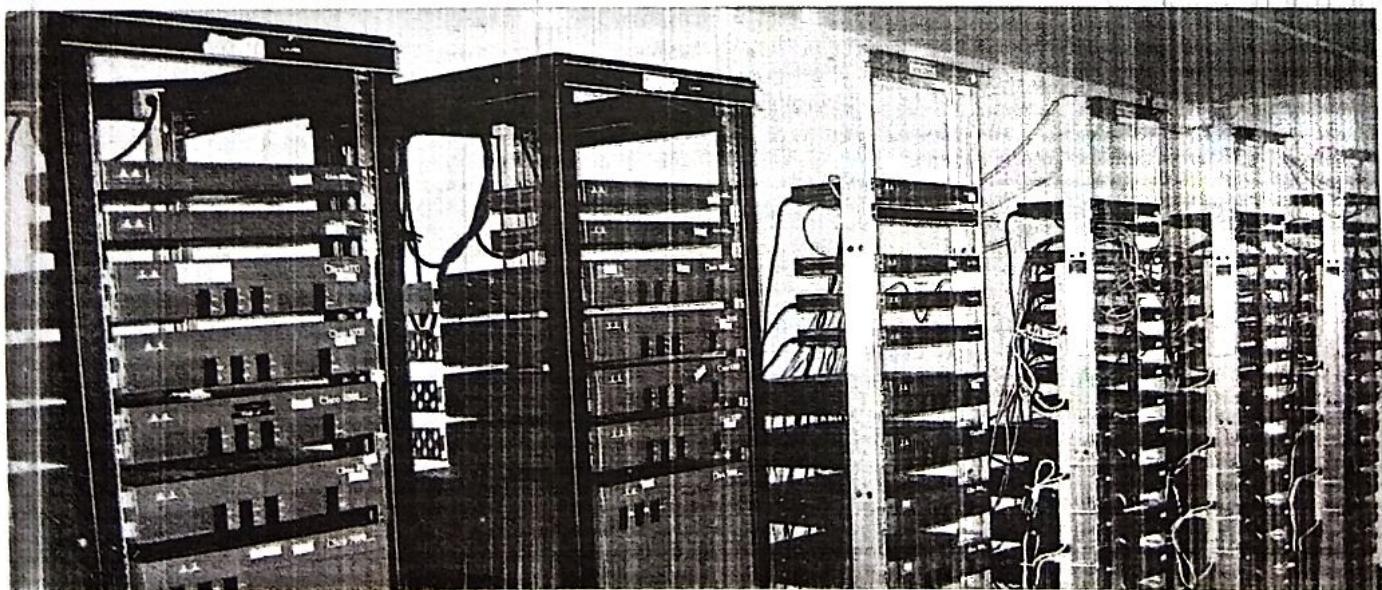
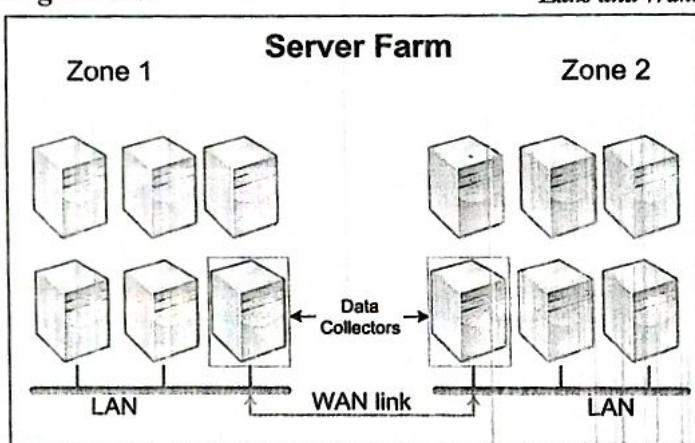
workstation: a computer attached to a mainframe

to span: to go from one side of something to the other

to delete: to remove, to cancel

gateway: in a LAN, a computer system and its associated software that permit two networks using different protocols to communicate with each other

Lans and Wan.



Server rack. Cisco Network Assistant now supports up to 40 devices, including any combination of supported switches and routers.

NETWORKS, TYPES AND TOPOLOGIES



1. Say if the following sentences are True or False.

- | | True | False |
|---|--------------------------|--------------------------|
| 1 A network includes all of the connections among computers. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Computers in a network exchange information quickly. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 LANs can't be arranged outside a single home or office. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 The network data are stored in the computer server. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Each computer in a LAN must have its own high-resolution printer. | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 All work is saved together on the computer server. | <input type="checkbox"/> | <input type="checkbox"/> |

2. Rearrange the following topics according to the order in which they appear in the text.

- 1 communication links in WANs
- 2 LANs ownership
- 3 what a network consists of
- 4 what wide area networks are
- 5 the task of the computer server
- 6 what local area networks are

3. Find synonyms for the following words.

- 1 to span:
- 2 to link:
- 3 to delete:
- 4 large:
- 5 to own:
- 6 to use:

Grammar Review

4. Delete in each sentence the preposition which doesn't go with the adjective.

- 1 Are you angry with/to me for my delay?
- 2 Everyone was very shocked about/at the news.
- 3 Have you seen my motorbike? I'm very proud of/with it.
- 4 The student sitting in the first row is excellent in/ at mathematics.
- 5 I didn't know that Liza was married with/to an electrical engineer.
- 6 He feels very excited about/on the proposal of working abroad for some time.



UNIT 17

1. Judith, an employee, is talking to her boyfriend Marvin about Local Area Networks and internetworking. Before listening to the dialogue match each of the following verbs with its meaning.

- | | |
|--------------|--|
| 1 to show | a to join together |
| 2 to work | b to make greater in size |
| 3 to install | c to fix in position |
| 4 to expand | d to make visible |
| 5 to link | e to move in the way that a liquid does |
| 6 to flow | f to be engaged in bodily or mental activity |

2. Listen to the dialogue and choose the right answer.

1 A network of computers was installed:

- a a few months ago.
- b two years ago.
- c a few weeks ago.

2 The boss is thinking of internetworking because:

- a the company is moving abroad.
- b it is the latest technology.
- c the company is expanding.

3 Internetworking means linking:

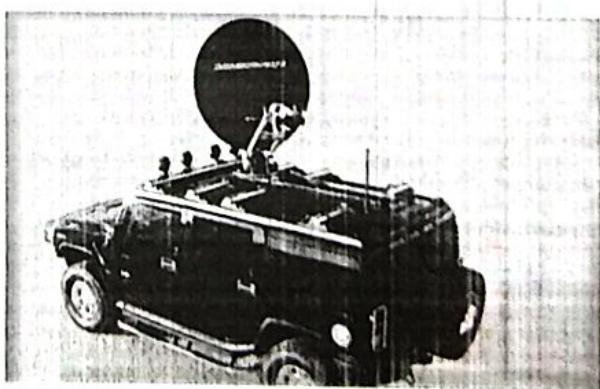
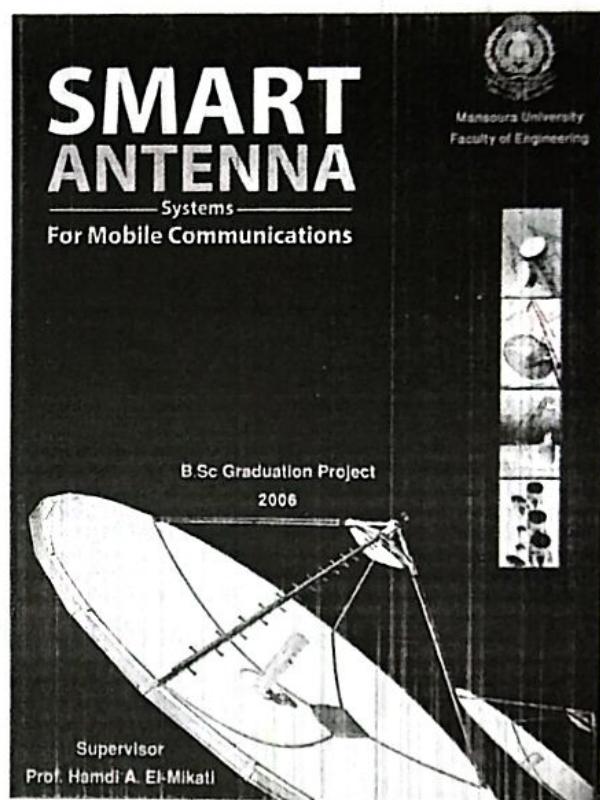
- a single computers.
- b individual LANs.
- c telephone systems.

4 Information may flow:

- a unaltered.
- b very slowly.
- c differently.

3 Listen to the dialogue again and tick the topics mentioned.

- 1 the Internet
- 2 advantages of internetworking
- 3 bridges, routers and switches
- 4 an explanation of internetworking
- 5 packets
- 6 internetwork topologies
- 7 network address
- 8 internetwork protocols



Hummer. The mobile satellite dish and trailer will acquire and connect at broadband speeds in less than 3.5 minutes anywhere, in any environment, no matter where you are on the planet.

TEXT 1**ISO-OSI protocols**

In 1984, in order to allow equipment from different suppliers to be networked, the ISO (International Organization for Standardization) proposed a strict set of rules, called *protocols*, covering standards for physical connections, cabling, modes and speed of transmission, data formats, error detection and correction. This means that any pieces of equipment using the same communication protocol can be connected together.

Manufacturers are gradually incorporating some of these standards into a number of their products, but it is **unlikely** that total standardization will be **achieved** for some time, if ever. Where two devices have different protocols, they can often still communicate via a "protocol conversion computer".

THE ISO-OSI SEVEN LAYER MODEL

OSI is an abbreviation for Open Systems Interconnection, and a model for OSI (implying that equipment from any manufacturer can be connected to any other manufacturer's equipment) has been under development since 1977. A hierarchy of seven layers has been identified, as described below.

Application, Presentation, Session and Transport Layers (levels 7, 6, 5 and 4)

These layers pertain to computer science and deal with problems of different high level software systems that communicate between each other. They will be analysed later (see Text 2).

The other levels are more specifically for electronics technicians.

Network Layer (level 3) The function of this layer is to perform the routing of information around the network, connecting adjacent nodes in the network and also carrying out **accounting** functions to enable the network owner to charge users.

Data Link Layer (level 2) The physical data transmission media used in a network are subjected to interference which can corrupt data and the Data Link Layer handles any data transmission errors. The techniques used for receipt and acknowledgement of data by a receiver are handled in this layer.

Physical Layer (level 1) This layer is concerned with standards for the mechanical, electrical and procedural aspects of interface devices; for example, the number of pins a network connector should have. It is concerned with how binary data is transmitted along the communication channel.

supplier: a person who provides what is needed or wanted
unlikely: improbable
to achieve: to attain a goal

**glossary**

accounting: the system of recording and summarizing business and financial transactions
receipt: a quantity or amount received

1. Complete the following sentences. Your answers must be related to the concepts contained in the text.

- 1 In 1984 the ISO established some rules for
- 2 The main advantage of following the protocols is that
- 3 Total standardization is
- 4 When two devices have different protocols they can occasionally communicate through
- 5 OSI has seven layers: four are more specific for computer science and three for

2. Define the following verbs with the help of your monolingual dictionary.

- | | |
|-------------------------|---------------------|
| 1 to cover: | 4 to perform: |
| 2 to incorporate: | 5 to charge: |
| 3 to identify: | 6 to corrupt: |

3. Choose the right meaning.

- | | |
|---|---|
| 1 strict means::
a precise
b demanding obedience
c unclear | 4 owner means:
a occupier
b associate
c possessor |
| 2 detection means:
a cover
b finding out
c discover clues | 5 to acknowledge means:
a to recognize
b to learn
c to refuse |
| 3 routing means:
a establishing a path
b pointing in the right direction
c deviating | 6 pin means:
a a short flat wire
b piece of wood
c a terminal on a connector |

Grammar Review**4. Turn into reported speech.**

- 1 He says, "I have German classes three times a week."
.....
- 2 They say to me, "We are studying to become electricians."
.....
- 3 Our father said to us, "I don't like your new friends."
.....
- 4 The secretary said to Mr Taylor, "I have just called Mr Brown on the phone."
.....
- 5 Fred said to her, "I forgot to lock the door."
.....
- 6 Mary said to me, "I will arrive tomorrow."
.....

IRREGULAR VERBS

	1 st form Infinitive (to)	2 nd form Simple Past	3 rd form Past Participle	
1.				
1.	(a)rise	(a)rose	(a)risen	sorgere
2.	awake	awoke	awoken	svegliarsi
3.	be	was, were	been	essere
4.	bear	bore	born	portare, partorire
5.	beat	beat	beaten	battere
6.	become	became	become	divenire
7.	begin	began	begun	cominciare
8.	bite	bit	bitten	mordere
9.	blow	blew	blown	soffiare
10.	break	broke	broken	rompere
11.	choose	chose	chosen	scegliere
12.	come	came	come	venire
13.	do	did	done	fare
14.	draw	drew	drawn	tirare, disegnare
15.	drink	drank	drunk	bere
16.	drive	drove	driven	guidare (auto)
17.	eat	ate	eaten	mangiare
18.	fall	fell	fallen	cadere
19.	fly	flew	flown	volare
20.	forbid	forbade	forbidden	proibire
21.	foresee	foresaw	foreseen	prevedere (futuro)
22.	forget	forgot	forgotten	dimenticare
23.	forgive	forgave	forgiven	perdonare
24.	freeze	froze	frozen	congelare
25.	give	gave	given	dare
26.	go	went	gone	andare
27.	grow	grew	grown	crescere
28.	hide	hid	hidden	nascondere
29.	know	knew	known	sapere, conoscere
30.	ride	rode	ridden	guidare, cavalcare
31.	ring	rang	rung	suonare/campanello
32.	run	ran	run	correre
33.	see	saw	seen	vedere
34.	shake	shook	shaken	agitare
35.	sing	sang	sung	cantare
36.	speak	spoke	spoken	parlare
37.	steal	stole	stolen	rubare
38.	swear	swore	sworn	giurare
39.	swim	swam	swum	nuotare
40.	take	took	taken	portare (via)
41.	throw	threw	thrown	gettare
42.	wear	wore	worn	indossare
43.	write	wrote	written	scrivere
2.				
1.	bring	brought	brought	portare (qui)
2.	build	built	built	costruire
3.	burn	burnt	burned	bruciare
4.	buy	bought	bought	comprare
5.	catch	caught	caught	acchiappare
6.	deal	dealt	dealt	trattare
7.	feed	fed	fed	nutrire
8.	feel	felt	felt	sentire, provare

IRREGULAR VERBS

1 st form Infinitive (to)	2 nd form Simple Past	3 rd form Past Participle	
9. fight	fought	fought	combattere
10. find	found	found	trovare
11. get	got	got	ottenere
12. have	had	had	avere
13. hear	heard	heard	udire
14. hold	held	held	(man)tenere
15. keep	kept	kept	prendere
16. lead	led	led	condurre
17. lean	leant	leant	pendere
18. learn	learnt	learnt	imparare
19. leave	left	left	lasciare
20. lose	lost	lost	perdere
21. make	made	made	fare
22. mean	meant	meant	significare
23. meet	met	met	incontrare
24. pay	paid	paid	pagare
25. say	said	said	dire
26. sell	sold	sold	vendere
27. send	sent	sent	mandare
28. sink	sank	sunk	affondare
29. sit	sat	sat	sedere (-rsi)
30. sleep	slept	slept	dormire
31. smell	smelt	smelt	odorare
32. spell	spelt	spelt	dire la parola a lettere
33. spend	spent	spent	spendere
34. stand	stood	stood	stare (in piedi)
35. sweep	swept	swept	spazzare
36. teach	taught	taught	insegnare
37. tell	told	told	dire, raccontare
38. think	thought	thought	pensare, credere
39. understand	understood	understood	capire
40. win	won	won	vincere

3.

1. bet	bet	bet	scommettere
2. broadcast	broadcast	broadcast	trasmettere
3. cast	cast	cast	lanciare
4. cost	cost	cost	costare
5. cut	cut	cut	tagliare
6. fit	fit	fit	adattare (-rsi)
7. forecast	forecast	forecast	prevedere (tempo)
8. hit	hit	hit	colpire
9. hurt	hurt	hurt	ferire, far male
10. let	let	let	permettere, lasciare
11. put	put	put	mettere
12. quit	quit	quit	smettere, abbandonare
13. read	read	read	leggere
14. reset	reset	reset	riordinare, azzerare
15. set	set	set	ordinare
16. shut	shut	shut	chiudere
17. split	split	split	dividere, spaccare
18. spread	spread	spread	diffondere, spargere
19. sweat	sweat	sweat	sudare
20. upset	upset	upset	disordinare, sconvolgere

TECHNICAL GLOSSARY

- accommodate (to):** to provide what is wanted or needed
- account:** estimation
- accrue (to):** to come as a natural increase or advantage, especially financial
- actually:** really
- add-on:** an additional item
- added:** joined, united
- addition:** the joining of one thing to another thing
- afford (to):** to be able to bear the cost of; to permit
- alike:** similar
- allow (to):** to permit
- alloy:** mixture of two or more chemical elements, at least one of which is a metal
- although:** in spite of the fact that
- amount:** quantity
- amplification:** increment of strength of voltage or current
- and so on:** continuing in a similar manner
- appliance:** a piece of electrical equipment
- apply oneself (to):** to concentrate one's thoughts on a task
- approach:** a means of addressing a problem
- argue (to):** to debate, to disagree
- arrangement:** a group of things in a particular position
- as well:** also
- aside:** out of consideration
- assume (to):** to presume
- static galvanometer:** a sensitive galvanometer used to measure electrical charge
- static needle:** a needle without orientation or directional characteristics; having no tendency to change position
- attempt (to):** to try
- available:** suitable or ready for use
- axle:** a pin or rod that rotates (usually connecting two wheels to transmit mechanical power)
- backward:** in a reverse or contrary direction or way
- beam:** a directional flow of particles or radiation
- besides:** in addition; moreover
- beyond reach:** unattainable
- block:** a group of data words or digits; area, neighbourhood
- blow (to):** to stop functioning or be destroyed because of excessive current
- bond (to):** to connect or bind
- branch:** a portion of a network consisting of one or more two-terminal elements in series
- breach:** an infraction or violation, as of a law or promise
- breakthrough:** an important discovery or development
- browser:** a computer program that resides on your computer enabling you to use the computer to view WWW documents and access the Internet
- bunch:** collection of things of the same sort placed or fastened together
- by convention:** by general, usu. unspoken, agreement or consent
- cable:** set of wires covered by plastic
- cam:** protection on a wheel or shaft, designed to change circular motion into up-and-down or back-and-forth motion
- carrier:** small box containing chips (also called a package)
- carry out (to):** to put into execution
- chance:** possibility
- charge:** expense or cost
- circuit board:** a flat card used as a base on which electronic components are placed and then connected together by wires
- circuit breaker:** an electromagnetic device that opens a circuit automatically when the current exceeds a predetermined value
- claim:** an assertion of something as a fact
- closed vessel:** a container or structural envelope in which materials are processed, treated, or stored
- coating:** thin layer or covering
- coaxial cable:** a transmission line in which one conductor is centred inside and insulated from an outer metal tube that serves as the second conductor
- collect (to):** to bring or gather together
- come in pairs (to):** to come in sets of two
- concern:** a matter that engages a person's attention, interest, or care
- concerned with:** having as its object
- conducting device:** an element that can be crossed by electric current
- consumption:** the amount consumed
- content provider:** something that provides data and/or information to the customer
- contribute (to):** to help to bring about
- convert (to):** to change
- convey (to):** to transmit
- copper coil:** length of copper wire wound in a spiral to conduct electric current
- core:** central part
- costly:** expensive
- countless:** innumerable
- coupling:** the act of joining together
- cross:** mix, combination
- crucial:** very important
- cryptography:** the science of preparing messages in a form which cannot be read by those not privy to the secrets of the method employed
- customize (to):** to build, fit, or alter according to individual specifications
- dam:** barrier built to keep back water and raise its level
- decrease (to):** to make less; to cause to diminish
- deplete (to):** to reduce the amount of something
- design (to):** to plan
- design:** drawing and planning
- despite:** in spite of
- detect (to):** to discover
- dial up (to):** to connect
- dielectric:** insulating
- differential amplifier:** circuit that amplifies the difference of voltage between two input pins

digital content company: a company that deals in digital information	film: a thin coating or covering, stratum	Interface: software or hardware that forms the boundary between the user and the program
disable (to): to make unfit	flat-panel display: display having a flat surface and only a few centimetres thick (usually found in notebook computers).	Interweave: to interlace, to connect
discrete: separate	flip (to): to switch or turn over	inventory: a list of products on hand
displaced: moved from the usual position	flow (to): to move smoothly	involve (to): to cause to become associated with; to have as a necessary consequence
display: show	focus (to): to concentrate	Issuer: a person or company that puts something into circulation or emits something
disposal: the act of getting rid of something	fuel tank: the fuel-storage component of a car	journal: a written account of what one has done each day
divert (to): to turn something aside from a given and a determined course	fuel: a substance that can be burnt to produce heat or power	keep (to): to maintain
downstream: towards the mouth of a river	further: in addition	knowledge: information acquired through learning or experience
drawing: a graphic representation by lines of an object or idea	fuse: a device for opening an electric circuit when the current therein becomes excessive, containing a section of conductor which melts when the current through it exceeds a rated value	lack: the fact or condition of not having enough
electric charge: a basic property of elementary particles of matter; the charge of an object may be a positive or negative number or zero	gain: increase	landscaping: planned scenery
electric spark: a short-duration electric discharge due to a sudden breakdown of air or some other dielectric material separating two terminals, accompanied by a momentary flash of light	garbage disposal: an electric device used to reduce food waste by grinding	lay out (to): to set down
emphasise (to): to give special force or prominence to	gate: barrier used to control the passage of something	layer: a level of material (esp. one of several) covering a surface
employ (to): to make use of	gist: main point	lead: a conductor (usu. a wire) conveying electric current from a chip to an external circuit
encounter (to): to meet	go on strike (to): to withhold one's labour with the aim of improving working conditions and/or pay	leakage current: an escape of electrical current
engine: machine that converts energy into power or motion	goal: aim, target	lengthy: very long
enhance (to): to improve	half a turn: half a revolution	link (to): to join
erase (to): remove recorded matter from a magnetic medium	handling: controlled	literally: in the strict sense
etch (to): to impress deeply	harness (to): to use; to utilize the power	load: any point where a user extracts power from a system; something heavy that has to be supported
ever-increasing: increasing continuously	heinously: outrageously	log onto (to): to connect to
executable: that can be executed immediately by the computer	hence: due to the mentioned fact or premise; for this reason	look like (to): to appear
explore (to): to examine	however: except that	loop: a closed path or circuit over which a signal can circulate; closed pipe containing water
facility: (often facilities) something designed to serve a specific function; a building, special room or structure that facilitates or makes possible some activity	ignition: the process of starting a fuel mixture burning	magnified: made greater in size, status, or importance
fault: a defect or point of defect in a circuit	impurity: an atom of a different element	maintenance: keeping something in good condition; the work of keeping something working
faulty: marked as defective	in a matter of: within (referring to time)	make up (to): to compose; to form
feature (to): (here) to show	in addition to: besides	manageable: governable
feed (to): to supply	in short: briefly	manner: way
field: an area or space in which forces can be felt	inch: measure of length (2.54 cm)	manufacturing: production of goods
	increase (to): to become greater	mask: protection that preserves parts of photoresist coating from the light
	index: indication	maximize (to): to increase as much as possible
	instead of: in place of	melt (to): to change a solid to a liquid state by the application of heat
	integration: the process of combining hundreds, or thousands of components in a single chip	

merely: simply	perform (to): to do; to execute	relocate (to): to move to a new place or area
mileage: the number of miles a vehicle will travel on a given amount of fuel	photosensitive polymer: synthetic material that reacts to light	rely on (to): to depend upon
misrepresentation: an incorrect representation	pin: one of the connectors on an integrated circuit	replacement: substitution
mnemonics: the process or technique of improving or developing the memory	pioneering: being the first to develop new methods	repository: a place where things are stored
mock-up: a usually full-sized scale model of a structure	pipeline: tube through which liquids or gases can flow	requirement: a thing demanded
mutual: exchanged equally	piping: a system of hollow tubes	reservoir: place (often an artificial lake) where water is stored
narrowcast (to): to transmit, as by cable, data reflecting the interests of a specific group of viewers, subscribers, or listeners	pitch: how high or low a musical note or someone's voice is	reset (to): to place in position again
nearly: almost but not quite; approximately	plant: an industrial installation	resistor: a device having resistance to the passage of electronic current
need (to): to require	plug (to): to connect	responsive: responding esp. readily and sympathetically to appeals, efforts, influences
neighbouring: located immediately next to	plug into (to): to connect to	retailing: the business of selling goods directly to consumers
newly: recently	poison: substance causing illness or death when absorbed	retrain (to): to train anew
off the shelf: standard product that does not require modification for normal use	power (to): to give energy	retrieve (to): to get something back
oil rig: machinery for drilling for oil	power distribution grid: system of cables, for distributing electric current over a large area	revised: correct
once: on one occasion; when	power failure: temporary shutdown of electricity	revolution: complete turn of a wheel
operation: the way in which something works	predictable: that can be indicated in advance; foreseeable	route (to): to send someone or something by a selected way
operational amplifier: analog integrated circuit that amplifies the input voltage	prevent (to): to stop	rule: law
otherwise: in another or different way; differently	printed circuit board: a flat piece of material such as plastic which holds chips and other small electronic components	safeguard (to): to protect
outflow: an outward flow	pro-actively: able to react to events and make them happen	safely: free from risk
outlet: a power line termination from which electric power can be obtained by inserting the plug of a line cord	process (to): to deal with information by putting it through a system or a computer	sale: a special disposal of goods, as when prices are reduced
over the years: through time	provide (to): to furnish	sampling: process of obtaining a sequence of instantaneous values of a wave
overall: general: including everything; total; viewed as a whole	publishing: the business of the commercial production of information, literature, etc.	saving: any reduction in expense, time, labour
overcome (to): to prevail over, to surmount	pull up (to): to bring (one's vehicle)	scrape (to): to deprive of an outer layer
overload: overburden	purpose: aim; goal	semiconductor: a solid or liquid material, able to conduct electricity at room temperature more readily than an insulator, but less easily than a metal
owe (to): to be indebted	queue: a file or line, esp. of people waiting their turn	set: number of things of the same kind
package: plastic or ceramic box in which chips are packed	radiate (to): to spread	shaft: a rod that turns
pan: flat, shallow dish, container	rate: amount; standard of reckoning, obtained by relating two numbers or amounts	shortcoming: deficiency, limit
party: participant	rather: quite	show (to): to make visible
path: a connection between two points	readily: without hesitation	shrink (to): to become smaller or more compacted
pathway: a walk or way for the use of people travelling on foot	related: connected	shunt (to): (said of an electricity current) to divert or to be diverted
pattern: configuration	reliability: condition referred to people or things that can be trusted; the ability of a piece of equipment to work well without failing	silicon: a non-metallic element occurring widely in silica and silicates

size: the spatial dimensions, proportions or extent	tailpipe: exit pipe for exhaust fumes	vacuum cleaner: apparatus which picks up dust, dirt etc. by suction
skilled: specialized	take over (to): to take the place of	vacuum tube: an electron tube evacuated to such a degree that its electrical characteristics are essentially unaffected by the presence of residual gas or vapour; an electron tube from which the air has been evacuated, formerly used extensively in radio and electronics
slave: a person held in servitude	tap (to): (here) to use or take things from a large supply	variable: a quantity whose value changes at some stated or calculable rate
slice (to): to cut into slices	task: any piece of work; assignment	via: by means of
slightly: lightly, scantily	term (to): to name	viable: capable of working, functioning, or developing adequately
smelting: fusion	therefore: for that reason	view (to): to regard in a particular light
socket: a single device or one part of another device with a set of holes which a plug fits into	through: across, from beginning to end	VoIP: voice over Internet protocol
soldering: welding	thus: consequently; in this or that manner; in this way;	wafer: a very thin slice of a semiconductor crystal used as substrate for solid-state circuitry
solid-state: said of a device that depends on a combination of electrical and magnetic phenomena within a solid that is usually a semiconductor material	tidal: connected with tides, which are the regular changes in the level of the sea	wage: a payment for labour or services
source: supply; the circuit or device that supplies signal power or electric energy	tirelessly: indefatigably; without tiring	water wheel: wheel that is made to revolve by the weight of water
spin (to): to rotate	torsion balance: an instrument, consisting essentially of a straight vertical torsion wire whose upper end is fixed while a horizontal beam is suspended from the lower end; used to measure minute gravitational, electrostatic, or magnetic forces	way: manner
spinning: rotating	tough: resistant	whatever: any thing, event, circumstance etc.
spot-welding: joining pieces of metal by the use of an electric arc	toward: in the direction of	wheelchair: a chair mounted on wheels especially for use by people incapacitated through illness
state (to): to express in words	track (to): to follow a path	whether: if
statement: assertion	trail: a trace or mark left by something; aftermath	whole: entire
steam: water vapour	transaction: a business agreement	widely: extensively; to a large extent or degree
step: one action in a series of actions with a view to affecting a purpose	transistor: a semi-conductor device with three connections, capable of amplification in addition to rectification	wire: a single metallic conductor designed to carry current in an electric circuit; long thin piece of metal
stock exchange: a place where financial transactions are carried out	trim (to): to remove excess material; to put in good order	wiring: a system of wires, that provides a house with electricity; the installation and utilization of a system of wires for the conduction of electricity
stock market: a market for stocks and shares	trip (to): to release (a spring, wheel, or other mechanical part)	withdrawal: the act of taking money from an account
storage: keeping things until they are needed	turn (to): to move round a point	wonder (to): to ask oneself
store (to): to accumulate; to collect and keep something for a future use; to place or leave in a location such as a computer memory for preservation or later use or disposal	turn into (to): to translate	yield (to): to produce
strand: a thin single piece of thread, hair, wire	turnstile: a mechanical barrier that permits access in a single direction	zip (to): to move fast
stream: a series	twofold: consisting of two parts	
suit (to): to adapt	undergo (to): to pass through	
supersede (to): to supplant	unless: except	
supply: a quantity of something; an available source; stock, store	update (to): to bring up to date by adding new information or making corrections	
support (to): to provide for	utility duct: any structure that carries more than two types of public utility lines	
surrounding: that is around and nearby	utility pole: a pole used to support overhead power lines.	
switch gear: the aggregate of switching devices for electric motor control		