

5 Information technology 1

A Information systems **collect, organize, store, process, retrieve** and **display** information in different formats (text, video, and voice). Information technology allows very fast, automated manipulation of **digital** data and their transformation from and to **analogue**.

Two basic technologies have been responsible for the development of the necessary **hardware**: **integrated circuits** and **digital communications**. Parallel advances have been made in **software**, particularly easy-to-use software products to **create, maintain, manipulate**, and **query** files and **records**. Many of these **software programs** are designed for use both by computer professionals and enthusiastic amateurs. Another important factor is the development of **computer networks** (➔ 6).

B As technology develops, new *models* and *types* of computer appear. At the heart of all computers is the *hardware*. However, without *software*, computers are just dumb boxes, unable to perform any calculations or operations.

Models and types of computer

desktop • laptop • mainframe • notebook • server • terminal • workstation

Computer hardware

CPU (central processing unit) • dot matrix printer • expansion card • inkjet printer
keyboard • laser printer • monitor • mouse • RAM (random access memory)
scanner • screen • storage devices

Software

applet • application software • browser • database software • email software
graphics software • operating system • search engine • spreadsheet
word processing

C Many words in the field of IT come from American English. So you may see the following spellings:

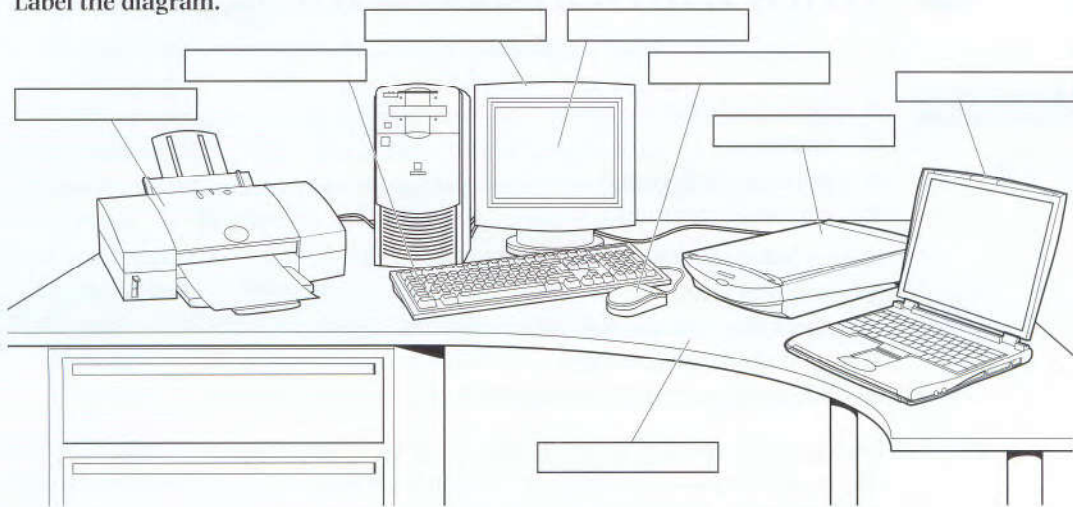
British English	American English
programme	program
analogue	analog

The area of IT is developing very quickly; and the language to describe hardware, software and applications is also evolving at a high speed. As a result new noun + noun combinations often change to single nouns

noun + noun	single noun
lap top	laptop
note book	notebook
work station	workstation
desk top	desktop

TASKS

1 Label the diagram.



2 Combine one word from A and one word from B and match it with the appropriate definition in C.

A	B	C
create	products	a monitor will do this on a computer screen
central	information	this describes the format of 0 and 1 in which information is stored
software	processing unit	these enable a computer to perform word processing, to create databases, and to manipulate numerical data
display	card	when two or more components are combined and then incorporated into a single package
digital	files	to make new programs, utilities or documents
expansion	network	a group of electronic machines connected by cables or other means which can exchange information and share equipment (such as printers and disk drives)
integrated	data	the principal microchip that the computer is built around
computer	circuits	you plug this into a slot to add features such as video, sound, modem and networking

3 Complete each gap in the following text with a phrase from the table above.

- The computer monitor will _____ so you can see it on screen.
- Information is stored on a computer as _____.
- Spreadsheet and graphic software are examples of _____.
- Digital communications and _____ have allowed developments in hardware to be made.
- In order to organise data you should _____ where you can store data.
- When several computers are linked together you have a _____.
- The part of the computer which interprets and carries out instructions is the _____.
- An _____ can be inserted in your computer to give your computer extra capabilities.

6 Information technology 2

A A **network** includes:

- – techniques
- – physical connections
- – computer programs

used to **link** two or more computers.

Network users can:

- – **share files**, printers and other resources
- – send **electronic messages**
- – **run** programs on other computers

Each network operates according to a set of computer programs called network **protocols** for computers to talk to one another. Computer networks can now be **interconnected** efficiently through **gateways**. The biggest network is the **World Wide Web**. It consists of a large number of smaller interconnected networks called **internets**. These internets may **connect** tens, hundreds, or thousands of computers. They can share information with each other, such as **databases** of information. The internet allows people all over the world to **communicate** with each other effectively and inexpensively.

B Before a network can operate, it needs physical *connections* so that signals can be transmitted. After the network has been connected, it is ready for *operation*.

Network connections

bandwidth • baud • bits per second (bps) • optical fibre • packet
receive • signal • transmit • transmission speed • twisted pair

Network operation

configure • download • hack • hub • install • internet service provider (ISP)
local area network (LAN) • switch • transmit • upload • web page • website
wide area network (WAN) • wireless

C A prefix comes at the beginning of a word and usually has a specific meaning, for example inter = between.

Look at the following prefixes and their use in the above IT words/phrases:

prefix	meaning of prefix	example of use
inter-	between	internet, interconnect, interactive, international
intra-	within	intranet, e.g. company intranet
trans-	across	transmit, transfer, transaction
co-/com-/con-	with	combine, compatible, connect, configure
up-	up (to internet)	upload
down-	down (from internet)	download, downtime, i.e. when the network is down (not working)

TASKS

1 Choose the correct word in each of the following.

- 1 The speed with which a modem can process data is measured in _____.
a) bandwidth b) bits per second (bps) c) signal
- 2 Cables consisting of several copper wires each with a shield are known as _____ cables.
a) twisted pair b) optical fibre c) power cables
- 3 Computers that are connected together within one building form a _____.
a) WAN b) ISP c) LAN
- 4 If you transfer a file from a remote computer to your computer, you _____.
a) download b) upload c) run
- 5 To send out information is to _____.
a) signal b) packet c) transmit
- 6 A document containing information and graphics that can be accessed on the internet is _____.
a) a website b) a web page c) the World Wide Web

2 Complete the words in the following sentences by adding the prefix *inter-*, *intra-*, *trans-*, *com-*, *con-*, *up-* or *down-*.

- 1 Last month computer _____ time cost the company over €10,000 in lost production.
- 2 The computers in the production department have now been successfully _____ connected with those in the planning department.
- 3 Once you have completed payment details the data will be _____ mitted via a secure link.
- 4 We cannot network these computers because the systems are not _____ patible.
- 5 Many companies distribute internal documents on their own _____ net.
- 6 Once the home page has been completed, we'll be ready to _____ load the site.
- 7 Cables are being laid throughout the building as the network requires physical _____ nections.
- 8 Using the network he was able to _____ bine the data from different reports.

3 Here is a list of instructions for someone wanting to set up a small network. Put the instructions in the correct order.

- a Make wiring and layout plans for your network.
- b Hook up the network cables by connecting everything to the hub.
- c Check that each computer has an IP address and give it a name.
- d If you're installing a small network, twisted pair will be adequate. However, in order to span greater distances and to minimize magnetic and electrical interference use fibre optic cable.
- e Decide on the type of network you want to install. To enable you to transfer large amounts of data, choose Fast Ethernet (100BaseT).
- f Install network adapters in the computers.
- g Add an internet gateway to your network to set up a shared internet connection.
- h Install driver software for the adapter driver and install client software to share printers and files.
- i Check which protocols are installed and add any other protocols you require.
- j Get the hardware you need: an Ethernet adapter card for each computer that doesn't have an Ethernet port, a hub if you've got more than two computers, cables and wall jacks.