

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ЧЕРНІГІВСЬКИЙ НАЦІОНАЛЬНИЙ ТЕХНОЛОГІЧНИЙ УНІВЕРСИТЕТ

**PROFESSIONAL ENGLISH IN USE: ICT**

**(Частина II)**

**Фахові тексти та завдання для опрацювання професійної лексики  
для студентів за напрямом підготовки  
6.050102 – "Комп'ютерна інженерія"  
денної форми навчання**

Обговорено і рекомендовано  
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## ВСТУП

Згідно Програми англійської мови для професійного спілкування (2005 р.) вивчення іноземної мови повинно розвивати мовну компетенцію студентів, а також стратегії, необхідні для ефективної участі в процесі навчання та в ситуаціях професійного спілкування.

Методичні вказівки «PROFESSIONAL ENGLISH IN USE: ICT. », що включають фахові тексти та завдання, мають на меті допомогти студентам напряму підготовки 6.050102 – "Комп'ютерна інженерія" опрацювати спеціалізовану лексику, яка може знадобитися їм під час англійського професійного спілкування.

Двадцять розділів, представлених у методичних вказівках, базуються на лексичному матеріалі, що охоплює термінологію, пов'язану з персональними комп'ютерами, системами управління базами даних, операційними системами тощо. Тематика і зміст текстів, не лише відповідають вимогам програми, а й задовольняють професійні інтереси та потреби студентів. Крім того, кожен розділ містить завдання, спрямовані на розширення словникового запасу, розвиток умінь говоріння та письма.

У додатках представлений список поширених аббревіатур та англо-український словник комп'ютерних термінів.

Матеріал, вміщений у методичних вказівках, спрямований на формування у студентів лінгвістичної та фахової компетенції, дає інструменти для використання англійської мови у професійній діяльності та має привчити їх до читання оригінальної літератури за професійним спрямуванням з мінімальним використанням словника.

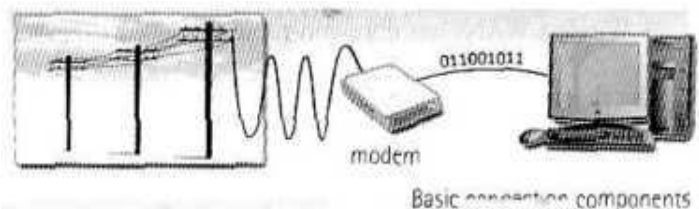
# 1 Faces of the Internet

## A What the Internet is

The **Internet** is an **International** computer **Network** made up of thousands of networks linked together. All these computers communicate with one another; they share data, resources, transfer information, etc. To do it they need to use the same language or **protocol: TCP / IP (Transmission Control Protocol / Internet Protocol)** and every computer is given an address or **IP number**. This number is a way to identify the computer on the Internet.

## B Getting connected

To use the Internet you basically need a computer, the right connection software and a modem to connect your computer to a telephone line and then access your **ISP (Internet Service Provider)**.



The **modem** (modulator-demodulator) converts the digital signals stored in the computer into analogue signals that can be transmitted over **telephone lines**. There are two basic types: **external** with a cable that is plugged into the computer via a USB port, and **internal**, an expansion card inside the computer. A **PC card** modem is a different, more versatile option for laptops and mobile phones.

At first most computers used a **dial-up** telephone connection that worked through the standard telephone line. Now a **broadband** connection, a high data transmission rate Internet connection, has become more popular: either **ADSL (Asymmetric Digital Subscriber Line)**, which allows you to use the same telephone line for voice and fast access to the Internet, or **cable**, offered by most TV cable providers.

The basic equipment has changed drastically in the last few years. You no longer need a computer to use the Internet. **Web TV** provides email and access to the Web via a normal TV set plus a high-speed modem. More recently, 3 Generation mobile phones and PDAs, personal digital assistants, also allow you to go online with **wireless** connections, without cables.

Telephone lines are not essential either. **Satellites** orbiting the earth enable your computer to send and receive Internet files. Finally, the **power-line Internet**, still under development, provides access via a power plug.

## C Components of the Internet

The Internet consists of many systems that offer different facilities to users.

**WWW**, the **World Wide Web**, a collection of files or pages containing links to other documents on the Net. It's by far the most popular system. Most Internet services are now integrated on the Web.

**Email**, or electronic mail, for the exchange of messages and attached files.

**Mailing lists** (or **listservs**) based on programs that send messages on a certain topic to all the computers whose users have subscribed to the list.

**Chat** and **instant messaging**, for real-time conversations; you type your messages on the keyboard.

**Internet telephone**, a system that lets people make voice calls via the Internet.

**Video conference**, a system that allows the transmission of video and audio signals in real time so the participants can exchange data, talk and see one another on the screen.

**File Transfer Protocol (FTP)**, used to transfer files between computers.

**Newsgroups**, where people send, read and respond to public bulletin board messages stored on a central computer.

**TELNET**, a program that enables a computer to function as a terminal working from a remote computer and so use online databases or library catalogues.

**1.1** Read A and B opposite and decide if these sentences are *True* or *False*. If they are false, correct them.

1. The Internet and the World Wide Web are synonyms.
2. Computers need to use the same protocol (TCP / IP) to communicate with each other.
3. Web TV can provide access to the Net.
4. AIXS. and cable are two types of dial-up connections.
5. External, internal and PC card are types of connections.
6. Information can be sent through telephone lines, satellites and power lines.
7. The computer IP number is a way to identify it on the Internet.

**1.2** What Internet system from C opposite should these people use?

1. I like receiving daily updates and headlines from newspapers on my computer.'
2. 'I'm doing some research and need computer access to the University library.'
3. I'd like to avoid flying to Japan to attend the meeting but I want to see what's going on there.'
4. 'I want to read people's opinions about environmental issues and express my views.'
5. 'I have designed a web page and want to transfer the data to my reserved web space.'
6. I'd like to check my students' draft essays on my computer and send them back with my suggestions.'

7. 'I don't want to spend too much money on international phone calls but I love hearing his voice.'
8. 'I live in a small village where there are no other teenagers. I wish I had the chance to meet and chat with friends.'

### 1.3 Choose the correct alternatives to complete this newspaper article.

Sharing your broadband connection with your neighbours is either the best way of making friends or the fastest way to lose them. Thanks to new European legislation, (1) *modem / wireless / telephone* technology and a firm called MyZones, several households within 300 metres of each other can now share the cost of fast (2) *broadband / dial-up / phone* access. But the more people using your network, the slower it gets. If four people are using it at once, the surfing speed is 128k. Clive Mayhew-Begg, chief executive of MyZones, says: 'Sharing broadband is just the start of a new generation of consumer-based Internet services.' It starts on July 25 when MyZones will start selling £150 starter kits. These include a wi-fi (wireless technology) point and ADSL (3) *30 / modem / Web TV* but not the wi-fi adapters you and your neighbours will need. These will cost an extra £60 or so for each computer logged on to the wireless network.

#### ***You and computers***

How to choose the right ISP? How to decide whether you should change the one you have? Here are some decisions to make. First of all you need to decide which type of connectivity (dial-up or broadband) you need depending on your requirements. Then the bandwidth (data transmission speed) they offer is another important factor. The services the ISP provides, such as the number of email addresses, space for web pages or blogs, spam and virus protection should also be taken into account. Last but not least, the cost of special software and connection fees should have an influence on your choice. With these criteria in mind, have a look at some of the available ISPs and decide which one meets your needs best.

## 2 Email

### A What an email is

An email is an electronic message sent from one computer to another that can also include attachments: documents, pictures, sounds and even computer programs.

Although it's much faster and easier to use than the post, snail mail, the two have many things in common: you send an email to a mail server (an electronic post office) where it is stored in a mail box., which holds incoming mail until the recipient downloads it. Users are given an email address and password by an Internet Service Provider (ISP).

A typical email address has three parts.



### B Anatomy of an email



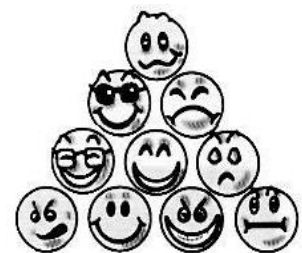
Emails usually have two main parts.

1. The header generally includes these:  
TO (name and address of the recipient)  
CC (carbon copy sent to another addressee)  
BCC (blank / blind carbon copy)  
SUBJECT (topic of the message)

2. The body (the message itself)  
Some email programs also include a signature, which added information about the sender, at

the end of the message.

You can make your message look more expressive or attractive by using smileys (also called emotions): little pictures either made with characters from the keyboard such as :-), :-o surprised, :-( sad, etc. or downloaded images and animations.



## C Spam

Spam, or junk email, is the name given to unwanted message, mainly commercial advertising. Some companies, spammers, use it extensively because it's mainly cheaper than other types of advertising: you or your Internet Service Provider pay for it.

## D Mailing lists and newsgroups

A mailing list is a basic type of discussion group that uses email to communicate. The messages are distributed to all the subscribers, i.e. everyone who belongs to the list. Newsgroups are similar. The main difference is that the message is not sent to someone's mail server but to a bulletin board where everybody can read and answer the message.

**2.1** Find words in A and B opposite that match these definitions.

1. a file that has been included as part of an email message.
2. conventional mail delivered very slowly in contrast with email.
3. symbols used to express emotions in a email.
4. the part of the email address that identifies the user of the service.
5. the computer that provides you with mail service.
6. a facility that allows users to send and receive messages via the Internet
7. the part of the email where you write the information about the addresses and subject.
8. the part of the email address that identifies the server.
9. the place where your Internet Service Provider stores new email for you.

**2.2** Look at the main parts of an email message in B. Where would you write the information below? Where additional information do the TLDs (top-level domains) of the addresses give you?

1. peterwinburn@jazzfree.com

2. Eleanor Richards

Manager

3. maryjones@arrakis.es; susanwilt@hotmail.co.uk

4. Plane tickets

5. Peter,

I've already booked the plane tickets to attend the Managers Conference. Mary and Susan are joining us.

Best wishes



**2.3** A manager is giving his colleagues some advice on how to prevent spam. Complete the Sentences with the words in the box.

mailing list      spam      email address      newsgroups      spammers

1. Never ever reply to a .....email or click on a link within the mail – this will lead to more junk email being sent to you. Unsubscribing only confirms you do actually exist, so they've hit the jackpot.
2. Don't let your email address be displayed anywhere on the Internet, including ....., chat rooms or any websites.
3. Never forward a spam to other people - ..... might be able to track their addresses too, and you could end up losing friends!
4. Send your emails on a strictly 'need to know' basis: don't include everyone on a ..... unless it is really necessary.
5. Treat your ..... Like your phone number – don't give it out randomly. Try to use a different one when shopping online.



*Married couple communicating via email at home*

### ***You and computers***

Smileys can make your email messages look much more expressive. Access the Web and download some for your future messages.

## 3 The World Wide Web

### A What the Web is

The World Wide Web, Web or WWW is a network of documents that works in a hypertext environment, i.e. using text that contains links, hyperlinks to other documents.

The files, web pages, are stored in computers, which act as servers. Your computer, the client, uses a web browser, a special program to access and download them. The web pages are organized in websites, groups of pages located on the Web, maintained by a webmaster, the manager of a website.

The Web enables you to post and access all sorts of interactive multimedia information and has become a real information highway.

### B How to surf the Web

To surf or navigate the Web, access and retrieve web pages or websites, you need a computer with an Internet connection and a web browser. After you have launched it, you must type the website address or URL. (Uniform Resource Locator), which may look like this:

<http://www.cup.org/education/sample.htm>

**http://** indicates the type of protocol that the server and browser will use to communicate. Here it is Hypertext Transfer Protocol.

**www.** shows that it is a resource on the World Wide Web.

**cup.org** is the domain name of the web server that hosts the website.

**education** is the path, the place where a web page is located.

**sample.htm** is the filename or name of a single web page.

The different parts are separated by full stops (.) and forward slashes (/). When we say a URL, we say dot (.) and slash (/).

To find interesting sites you can use search engines, where the website information is compiled by spiders, computer-robot programs that collect information from sites by using keywords, or through web indexes, subject directories that are selected by people and organized into hierarchical subject categories. Some web portals - websites that offer all types of services, e.g. email, forums, search engines, etc. - are also good starting points.

The most relevant website addresses can be stored in your computer using the bookmarks or favourites function in your browser.

Websites usually have a beginning page or home page. From this starting point you can navigate by clicking your mouse on hyperlinks in texts or images.

## C What you can do on the Web

The Web is an open door to a universe of multimedia resources that people use in many different ways. Here are just a few.

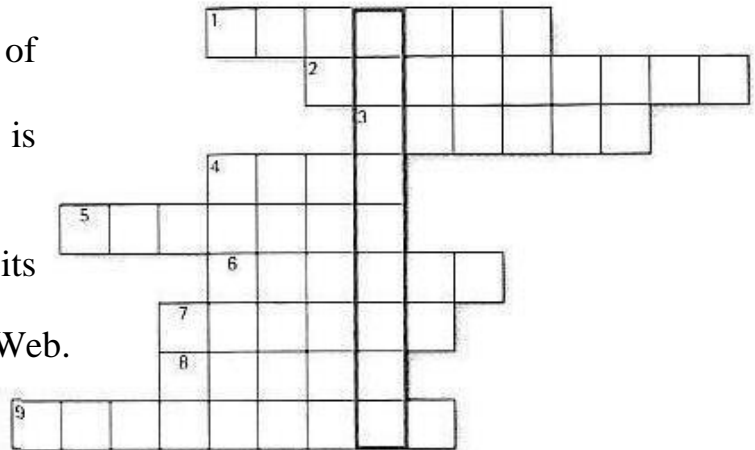
*'In my **weblog**, an electronic journal I maintain on the Web, you can read and post opinions in chronological order. In my role as **blogger**, the manager of a **blog**, I can promote this new type of discussion.'*

*'**E-learning**, education via the Web, is a great opportunity for people like me who haven't got time to attend classes.'*

*'Online shopping, i.e. **cybershopping** or **e-commerce**, saves you time and gives you the comfort of buying from your personal computer. The goods are then sent to you, so it's very easy.'*

### 3.1 Solve the clues and complete the puzzle with words from the opposite page.

1. The WWW is also called the information \_\_\_\_\_.
2. A link in a web page.
3. A website that offers a variety of services.
4. The first page of a website is the \_\_\_\_\_ page.
5. A person who keeps a blog.
6. The manager of a web page is its web \_\_\_\_\_.
7. An animal closely linked to the Web.
8. Another word for directory.
9. Another word for bookmark.



The hidden word is \_\_\_\_\_, text with links.

### 3.2 Complete these instructions about how to navigate with the words in the box.

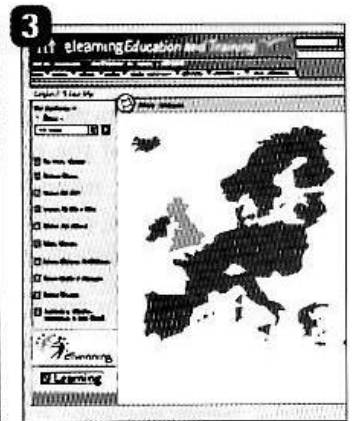
client	web page	surf	web browser
search engine	web server	website	URL

1. Start up your computer and connect to the Internet.
2. Open your \_\_\_\_\_.
3. Type the \_\_\_\_\_ to access a website.
4. Your web browser sends the request to the correct \_\_\_\_\_.
5. The server looks for the document and sends it to the \_\_\_\_\_ computer.
6. Your web browser displays the selected \_\_\_\_\_ on the screen.
7. From the home page of the \_\_\_\_\_ you can \_\_\_\_\_ to other pages
8. by clicking on hyperlinks.
9. If you want to find more websites, use a \_\_\_\_\_.

**3.3** Some students accessed the websites below. What did they use the Web for? Use words from C.

**1**

.....  
 Sunday, November 20  
 Blog comment spam: Fighting it  
 Regular posters will notice that I have turned off comments on the blog. This is because of the amount of comment spam I was getting – I was spending almost all my time deleting adverts and offensive comments! This is a temporary measure but when I turn comments back on you'll have to register to be able to comment.  
 .....



**3.4** What are the main parts of this URL? How would you say the LTRTL?

<http://www.cambridgeol.org/exems/cpe.htm>



***You and computers***

URLs and email addresses are sometimes hard to say or can sound strange, e.g. [www.dam.mit.edu](http://www.dam.mit.edu). Access the *Professional English in Use ICT* website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity How to choose the perfect domain name.

# 4 Web design

## A HTML

Web pages are created with a special language HTML (Hyper Text Markup Language), which is interpreted by a web browser to produce hypertext, a blend of text, graphics and links.

You can view the source or raw HTML code by choosing the *View Source* option in your web browser.

To build a website you could learn how to write HTML tags, the coded instructions that form web pages, or else use an HTML editor, a WYSIWYG (What You See Is What You Get) application that converts a visual layout into HTML code. A simpler option is to use a web template provided by a web-based site builder, where you just fill in the information you want on the page.

## B Basic elements

Some of the basic elements that can be found on a web page are:

- Text, which may be displayed in a variety of sizes, styles and fonts
- Links, connections from text or graphics on the current web page to different parts of the same page, to other web pages or websites, or to external files
- Graphics, pictures created with formats such as JPEG (Joint Photographic Experts Group), which is ideal for pictures with a wide range of colours, e.g. photographs, and GIF (Graphical Interchange Format), which is good for pictures with fewer colours or with large areas of the same colour, e.g. buttons, banners and icons
- Tables, intended for the display of tabular data, but often used to create page layouts
- Frames, subdivisions of a web page allowing the display of different HTML documents on the same page.

Instructions for the presentation, the styling of elements on a page such as text or background colour, can be included in the HTML code. However, it is becoming more common to use CSS (Cascading Style Sheets) to separate style from content. This makes pages easier to maintain, reduces download time and makes it easy to apply presentation changes across a website.

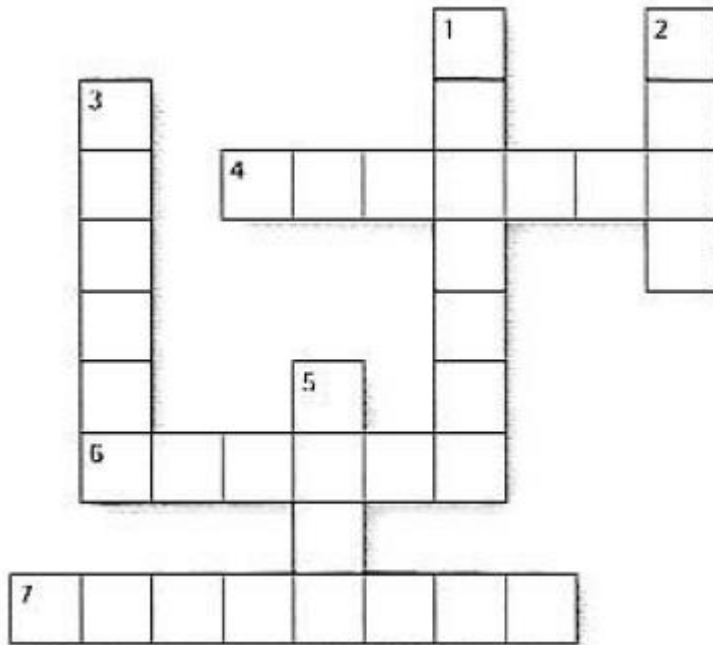
## C Video, animations and sound

Web pages can also include multimedia files: animations, audio and video files. Sounds are recorded with different audio formats. MIDI, WAV, AU and MP3 are some of the most popular ones.

Shockwave and Flash are technologies that enable web pages to include video and animations. Java applets, specific applications using that programming language, may be used to add interactivity to web pages.

To see or hear all these files, you need to download the right plug-in, the additional software that enables the web browser to support this new content.

**4.1** Solve the clues and complete the puzzle with words from A opposite.



**Across**

**4** What you see is what you get.

**6** You can make a web page using an HTML ..... .

**7** You just have to fill it in to create a web page.

**Down**

**1** Templates are found in a web-based site ..... .

**2** The instructions in HTML.

**3** Another word for raw HTML code.

**5** The language used to make web pages.

**4.2** Complete this advice about web design with words from B opposite.

A well-designed website should be neat and organized. Words should be surrounded by sufficient white space. Use dark (1) on \_\_\_\_\_ a light \_\_\_\_\_, (2) preferably white.

You can divide the page into columns with a (3) \_\_\_\_\_ or use (4) \_\_\_\_\_ to create the page layout. Usually the navigation bar appears on the left side of the page. You can display it on all the pages of your website by using a (5) \_\_\_\_\_. It is a good idea to put a (6) \_\_\_\_\_ to the top of the page at the bottom of a long text.

The graphical element of a web page is crucial. (7) \_\_\_\_\_ load slowly, so use them sparingly and for good reason. There are two common picture formats: (8) \_\_\_\_\_ for pictures with lots of colours and (9) \_\_\_\_\_, which is ideal for buttons and banners.

**4.3** Look at C opposite. Match the sentence beginnings with the correct endings.

1. A plug-in is
  2. Shockwave and Flash
  3. Multimedia files can be included
  4. Java applets
  5. MIDI, WAV, MP3 and AU
- 
- a let you interact with information on the screen.
  - b usually needed to enjoy audio and video files.
  - c are some of the common audio formats.
  - d applications help to create animations.
  - e in web pages.

### ***You and computers***

- What is it about the design that you find particularly useful or attractive?
- Is there anything you don't like?

## 5 Chatting and video conferencing

### A IRC and web chat

IRC (Internet relay chat) is a system that allows Internet users to meet in channels (or chat rooms) in order to have live conversations on the topic of the chosen channel.

To participate you need to install a chat client, a special type of software, on your computer to connect to the chat server, the computer where the meeting takes place.

Once you have logged into an IRC server or a web chat site, you have to choose a username or nickname that will identify you during the chat.

After choosing the channel, you can read the conversations type and send messages. You can post messages to everyone in the channel or have private conversations with someone.

Channels are run by channel operators, 'chanops' or just 'ops' who control the content and the people who join and may ban users or ask them to leave the room.

### B Instant messaging

IM (instant messaging) programs allow Internet users to communicate in one-to-one conversations; they are a chat room for just two people.

With programs such as *ICQ (I seek you)* and *MSN Messenger* you can maintain a list of people, called a buddy list or contact list.

The program opens up a small window where the people engaged in the conversation type their messages.

The latest IM programs also incorporate telephone, video and file-sharing facilities and are becoming an alternative to traditional video conferencing programs.



ICQ screenshot



## C Video and voice calls

Video conferencing (video call) systems allow live connection between two or more participants in separate locations using the Internet to exchange audio and video data. The users need a computer with broadband access, a webcam, a microphone and speakers. Some popular programs are *CU-SeeMe* and *Windows Netmeeting*.



A video conference allows live visual and spoken communication

The Net can also be used for online telephone conversations, either computer-to-computer or computer-to-phone, which require special software (e.g. *Net2Phone*) or an applet, a Java application that runs from the browser when you access a web page, and also a microphone, sound card and speakers.

This type of communication uses VoIP (Voice over Internet Protocol), which turns analogue audio signals, like the ones on the telephone, into digital data that can be sent via the Internet.

## D Virtual worlds

Internet users can also communicate in three-dimensional environments.

Instead of nicknames, people choose Avatars or 3D characters in order to interact with other people.



Avatar image

A popular language used to create interactive simulations within the Net is VRML (Virtual Reality Modelling Language).

**5.1** Solve the clues and complete the puzzle with words from the opposite page.

- |   |                   |
|---|-------------------|
| 1. One of the systems used for chat rooms.              | 1 _ _ C           |
| 2. The protocol needed for on line phone conversations. | 2 _ o _ _         |
| 3. The language used to build virtual simulations.      | 3 _ _ M _         |
| 4. Avatars are three ..... characters.                  | 4 _ _ m _ _ _ _ _ |
| 5. Video calls transmit ..... and video data.           | 5 _ u _ _ _       |
| 6. Another word for channel operators.                  | 6 _ _ _ n _ _ _   |
| 7. You must install a chat ..... on your computer.      | 7 _ _ i _ _ _     |



# 6 Internet Security

## A Internet crime

The internet provides a wide variety of opportunities for communication and development, but unfortunately it also has its dark side.

**Crackers**, or black-hat hackers, are computer criminals who use technology to perform a variety of crimes: virus propagation, fraud, intellectual property theft, etc.



Crackers are a new type of criminal

Internet-based crimes include **scam**, email fraud to obtain money or valuables, and **phishing**, bank fraud, to get banking information such as passwords of Internet bank accounts or credit card details. Both crimes use emails or websites that look like those of real organizations.

Due to its anonymity, the Internet also provides the right environment for **cyberstalking**, online harassment or abuse, mainly in chat rooms or newsgroups.

**Piracy**, the illegal copying and distribution of copyrighted software, information, music and video files, is widespread.

But by far the most common type of crime involves malware.

## B Malware: viruses, worms, trojans and spyware

**Malware (malicious software)** is software created to damage or alter the computer data or its operations. There are main types.

■ **Viruses** are programs that spread by attaching themselves to executable files or documents. When the infected program is run, the virus propagates to other files or programs on the computer. Some viruses are designed to work at a particular time or on a specific date, e.g. on Friday 13<sup>th</sup>. An email virus spreads by sending a copy of itself to everyone in an email address book.



An email virus spreads through an email address book

■ **Worms** are self-copying programs that have the capacity to move from one computer to another without human help, by exploiting security flaws in computer networks. Worms are self-contained and don't need to be attached to a document or program the way viruses do.

■ **Trojan horses** are malicious programs disguised as innocent-looking files or embedded within legitimate software. Once they are activated, they may affect computer in a variety of ways: some are just annoying, others are more ominous, creating a backdoor to the computer which can be used to collect stored data. They don't copy themselves or reproduce by infecting other files.

■ **Spyware**, software designed to collect information from computers for commercials or criminal purposes, is another example of malicious software. It usually come hidden in fake freeware or shareware applications downloadable from the Internet.

## C Preventative tips

■ Don't open email attachments from unknown people; always take note of file extension.

■ Run and update **antivirus programs**, e.g. virus **scanners**.

■ Install a **firewall**, a program designed to prevent spyware from gaining access to the internal network.

■ Make backup copies of your files regularly.

■ Don't accept files from high-risk sources.

■ Use a **digital certificate**, an electronic way of proving your identity, when you are doing business on the Internet. Avoid giving credit card numbers.

■ Don't believe everything you read on the Net. Have a suspicious attitude toward its contents.

**6.1** Identify the Internet crimes sentences (1-6) refer to. Then match them with the advice below (a-f).

1. Crackers try to find a way to copy the latest game or computer program.
  2. A study has revealed that half a million people will automatically open an email they believe to be from their bank and happily send off all their security details.
  3. This software's danger is hidden behind an attractive appearance. That's why it is often wrapped in attractive packages promising photos of celebrities like Anna Kournikova or Jennifer Lopez.
  4. There is a particular danger in Internet commerce and emails. Many people believe they have been offered a special gift only to find out later they have been deceived.
  5. 'Nimda' spreads by sending infected emails and is also able to infect websites, so when a use visits a compromised website, the browser can infect the computer.
  6. Every day, millions of children spend time in Internet chat rooms talking to strangers. But what many of them don't realize is that some of the surfers chatting with them may be sexual predators.
- a. People shouldn't buy cracked software or download music illegally from the Internet.

- b. Be suspicious of wonderful offers. Don't buy if you aren't sure.
- c. It's dangerous to give personal information to people you contact in chat rooms.
- d. Don't open attachments from people you don't know even if the subject looks attractive.
- e. Scan your email and be careful about which websites you visit.
- f. Check with your bank before sending information.

6.2 Fill in the gaps in these security tips with words from the box.

digital certificate malware virus scanner spyware firewall antivirus

Malicious software,(1) ..... , can be avoided by following some basic rules.

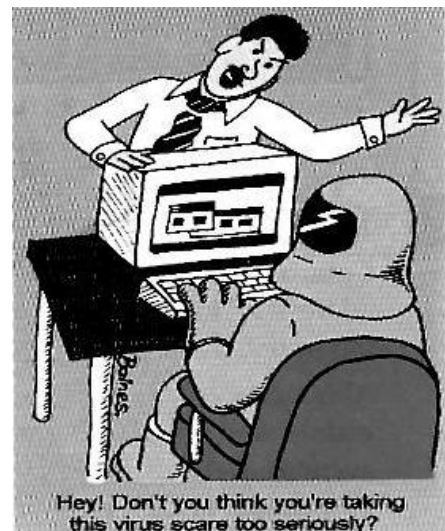
Internet users who like cybershopping should get a(2) ..... , an electronic identity card.

To prevent crackers from breaking into your internal network and obtaining your data install a (3)..... It will protect you from (4) .....

If you have been hit by a (5)..... , don't panic! Download a clean-up utility and always remember to use an (6) .....program, for example, a virus (7).....

**You and computers**

1. What do you do to prevent computer infections?
2. Do you keep your virus protection updated? The Internet has lots of websites where you can get free advice and software. What should you do to improve your computer security?



# 7 E-commerce

## A Elements of e-commerce



Virtual shopping baskets keep a record of the items you buy

E-commerce or online shopping is the process of buying and selling products and services using the Internet. It has similarities with traditional commercial activity.

A product or service, from plane tickets to books, is offered in an online shop, the seller's website. Customers select and order products, which are then paid for and delivered. The main difference is that most of the processes take place on the Web.

E-commerce websites use the following components:

- A shopping cart program, a web-based software application to keep a record of the products chosen by the customer.
- A secure socket layer (SSL) certificate, to verify that the credit card information has been securely transmitted; this is usually shown by a small padlock on the web page.
- A payment gateway, an interface between the website and the bank that accepts the electronic payment.

BrE: shopping basket  
AmE: shopping cart

## B How to buy on the Internet

The first thing to do is to look for the product in a search engine or, even better, in a comparison engine or bargain finder, to find the lowest price.

Most online shop websites are designed so that customers follow these steps to do their virtual shopping.



Online shops offer a great variety of products and good prices

You start by adding the items you want to buy to the shopping basket, or virtual shopping trolley.

When you have selected the items that you want to buy, you proceed to the payment section by clicking on the checkout button.

You may have to log in, provide your username and password, or sign up, by providing your personal data, billing and shipping address, etc., if this is the first time you have accessed the site.

You will be given an account, so you are recognized as a customer. You will be asked to enter payment details, e.g. credit card numbers, etc. Before the transaction is completed you will be asked to confirm the order and check that all the information is correct.

Finally, you log out and leave the website.

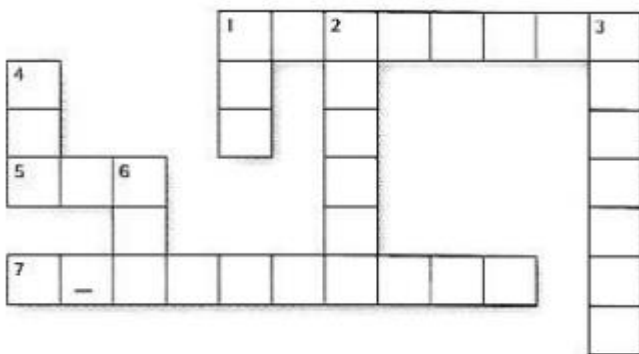
There are different types of electronic payment: credit cards or debit cards. A digital wallet, the electronic equivalent of a wallet for online shopping, holds credit card data and passwords for logging into websites. PayPal, Microsoft's Passport and Yahoo! Wallet are examples of digital wallets.

## C Types of e-business

Companies whose activity is centred on the Internet are called dotcoms, after their web addresses. However, most e-commerce businesses are bricks and clicks, as they have both a physical and online presence.

Although there are some examples of B2B commerce, business to business, e-commerce is mainly used for B2C, business to consumer, or even for C2C, consumer to consumer. Internet auctions, websites like eBay where people offer products and sell them to the highest bidder, are an example of C2C e-commerce.

**7.1** Solve the clues and complete the puzzle with words from A and C opposite.



### Across

1. One of the programs used to help shoppers while ordering on the Internet is called a ..... cart program.
5. The most common type of e-commerce.
7. The exchange of goods and services over the Web.

### Down

1. Type of certificate used to make credit card transactions secure.
2. An.....shop is an Internet shop.
3. The interface needed to pay online is a payment..... .
4. The type of commerce that links two firms.
6. A type of e-commerce that some websites, e.g. eBay, have made popular.

7.2 Put these steps from shopping websites in the right order to explain the process of buying online.

1 .....  
 2 .....  
 3 .....  
 4 .....  
 5 .....  
 6 .....

a **AFFILIATE**  
 Sign up  
 Log in

b **Checkout**

c **welcome to DVD price search**  
 the smartest way to compare DVD prices online

d **Log out**

e By creating an account at ZeroPointZero you will be able to shop faster, be up to date on an order's status, and keep track of the orders you have previously made

f **Cart**

7.3 There are some drawbacks to e-commerce and people are not always happy with it. Complete the sentences with words from the opposite page.

1. .... is great until you have a complaint. Unlike a shop you have nowhere to go.
2. There have been problems with both ....., web only businesses, and ....., high street names with a web presence. Computing experts say a large part of the problem lies with the software available for customer support online.
3. Since the National Consumers' League started tracking Internet fraud some years ago, one type of e-commerce has come top for complaints about fraud: Internet ....., Four out of ten buyers reported problems such as never receiving what they had bid for.
4. If you want to reduce the risks while buying on the Web, use a ..... as a way of holding securely credit card numbers, shipping and mailing addresses.



"No thanks, just browsing."

### ***You and computers***

Have a look at different online shops. Study their design and the different elements they have used, and make a list of the type of products and services they offer.



## 8 Online banking

### A Online banking basics

Electronic banking is the general term given to the possibility of performing banking transactions through electronic communications, mainly the internet. That's why many people prefer to use the terms online banking or Internet banking.

Online services can be provided by traditional banks, brick-and-mortar banks, which, through the use of these new technologies become brick-and-click banks. Banks that don't have physical branches or ATMs are called virtual or Internet Banks.

To use these services you need a computer with internet access. Customers can also log in with a mobile phone or a PDA. The use of wireless networks to access financial institutions is known as wireless banking.



Brick-and-click banks are probably the best option to start with

### B Online banking services

*What do you use online banking for?*

'I pay bills online. I've got a list in my computer with all my payment recipients' names and account details. When I have to pay, I select the amount and the name of the payee. I can also schedule the payments, or fix the date for payments. The bank will transfer the funds, or send the money, to the selected account.'

'I check account balances. I can access and view my accounts any time, from any PC. Also, I don't need to wait for the post to get written statements from the bank. I can see and then save online statements on the bank's website. It saves time and paper.'

'I find online banking extremely convenient. I don't need to remember when my credit card expires or the date of a payment. My Internet bank sends short message notifications, warning or other information services to my email or mobile phone.'

'I trade stocks online. I contact an online broker to invest my money, and to buy and sell shares.'

## C Online security

Most online banks have introduced the concept of two-factor authentication, the simultaneous use of a least two different devices or layers of security to prevent fraud.

When you open an Internet account, you are given a confidential PIN, personal identification number, and a password and username.

For some transactions, customers are required to use a TAN, transaction authorization number, from a list provided by the bank. It can only be used once, and it acts as a second password.

Security tokens are microchip-based devices that generate a number that has to be typed by the user or read like a credit card. They are becoming a common form of two-factor authentication.

One of the best methods of identifying the user of a bank account is biometric authentication, the use of physical trait, such as a fingerprint, to allow a person to log in. Some laptops have built-in fingerprint readers, which makes online banking easier and more secure.



Security tokens provide a secure approach to online banking

**8.1** Find expressions in A opposite which have the following meanings.

- 1 Banks that offer physical locations and online services.
- 2 The type of banking where you can use mobile phone networks to perform transactions.
- 3 Banks that only do business over the Internet. (two possibilities)
- 4 Banking services (transactions, payments, etc.) offered on the internet. (two possibilities).
- 5 Banks that don't have a Web presence.
- 6 The general term that includes all sorts of banking that make use of ICT technologies.

**8.2** Read B opposite and choose the right alternative for these electronic banking transactions.

- 1 *send / trade* stocks
- 2 *pay / save* bills

- 3 *check / trade* account balances
- 4 *save online statements / stocks*
- 5 *transfer short message notifications / funds*
- 6 *schedule funds / payments*
- 7 *pay / send* short message notifications

**28.3** Complete this text with words from C opposite.

Most financial institutions offering Internet-based products should use (1).....-..... authentication to reduce the risks of account fraud and identity theft.

At present, most authentication methodologies involve three basic factors:

- Something the user knows (e.g. a (2) ....., the confidential number given by the institution)
- Something the user has (e.g. a (3) ....., the keyring-like identification number generator)
- Something that shows who the user is, i.e. (4) ..... authentication (e.g. a fingerprint).

Authentication methods that depend on more than one factor are more reliable; for example, the use of a (5) ....., a TAN (something the user knows) to log in, and then a token (something the user has) to transfer funds.

*Adapted from Federal Financial Institutions Examination Council*

***You and computers***

1 Identify the type of authentication your bank, or an Internet bank you know, uses.

2 Make a list of the advantages and disadvantages online banking may have.



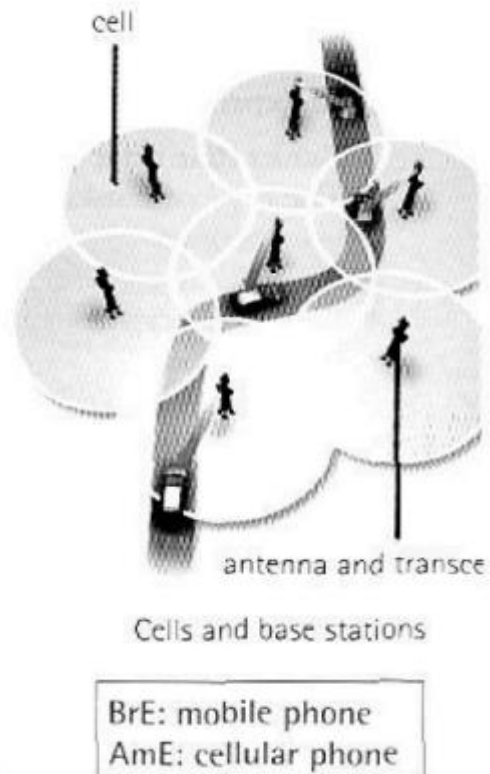
“Jason feels insecure if he’s too far from his money... but electronic bank statements have cured that!”

# 9 Mobile Phones

## A Mobile phones: definition and technology

**Mobile phones**, or **cellular phones**, are devices that enable communication to all types of telephones while moving over a wide area called the coverage area.

The term 'cellular' comes from the fact that the phone calls are made through **base stations**, communication towers or antennas, which divide the coverage area into **cells**. As you move from cell to cell the, calls are transferred to different base stations belonging to the same or a different telephone company. This capability of mobile phones is called **roaming**. The phone is said to be **out of range** when it cannot communicate with a base station.

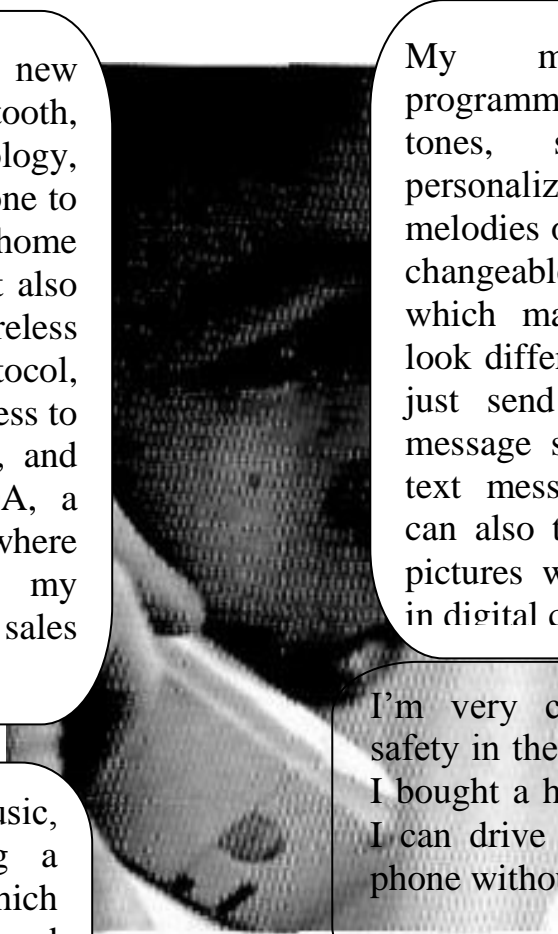


## B A brief history

- **1G, First Generation** phones started in the 1980s when Motorola introduced the first hand-held phones. They used analogue technology and the main drawback was the small number of channels that could be used at a time.
- In the 1990s, 2G mobiles introduced **digital** transmission methods that converted voice into binary information, increasing the number of channels, the speed of transmission between the phone and the base station and enabling a reduction in size. The most common standard, **GSM, Global System for Mobile communications**, started to be used at this stage. One of the features of this technology is the use of **SIMcards**, a type of smart card that contains the user's information, the connection data and the phonebook. It also enables the user to change service provider without changing the handset.
- 3G phones offer a high-speed data transfer capability. Some of these phones are called **smartphones** and combine PDA capabilities with the usual functions of a digital phone. The new communication standard, **UMTS, Universal Mobile Telecommunications System**, enables the multimedia transmissions that are becoming common nowadays.
- New standards are being developed that will open the way to new **4G phones** with an emphasis on multimedia, real-time television and radio.

## C Features and functions

Mobiles have become an essential part of our lives and there are many uses for them.



I've bought a new mobile with Bluetooth, a wireless technology, to connect my phone to other devices at home or in my office. It also has WAP, Wireless Application Protocol, which enables access to the wireless Web, and an integrated PDA, a digital assistant, where I keep my appointments and sales records.

My mobile has programmable ring tones, so I can personalize my phone's melodies or sounds, and changeable faceplates, which make the front look different. I used to just send SMS (short message service), short text messages. Now I can also take and send pictures with the built-in digital camera.

I'm mad about music, so I love having a mobile which integrates radio and MP3, the most usual music file format on the Web. I can download music from the Net and listen to it on my mobile.

I'm very concerned about safety in the car. That's why I bought a hands-free kit, so I can drive and talk on the phone without taking risks.

This mobile also has a speakerphone: I can talk without holding the handset. I also use it when I want several people to participate in the call.

**9.1** Complete this text about basic principles of mobile telephony with words from A opposite.

Mobile phones, also called (1)..... , or cell phones for short, need a network of towers or antennas to transmit calls.

In a cellular system, a city is divided into smaller sections or (2) ..... where the (3) ..... usually occupy a central position.

When you are outside your service provider's (4)..... area, your telephone may become out of (5) .....

Unless your telephone allows (6) ..... , i.e. the ability to use another service provider's network.

**9.2** Read B opposite and decide if these sentences are True or False. If they are false, correct them.

1 1G phones had a slower transmission speed than 2G.

\_\_\_\_\_

2 2G phones introduced analogue technology.

\_\_\_\_\_

3 GSM started to be used in the 80s.

\_\_\_\_\_

4 Smart phones can be used for other purposes, e.g. as a personal digital assistant.

\_\_\_\_\_

5 People won't be able to watch live TV on 4G phones.

\_\_\_\_\_

6 SIM cards enable users to keep important information.

\_\_\_\_\_

7 UMTS, the standard used in 3G phones, has made video phones a commercial reality.

\_\_\_\_\_

**9.3** Read C opposite and match the CNET.com phone reviews (1-5) to the descriptions of users who might be interested in them (a-e).

**1** This is the best multimedia phone, with a 1.3-megapixel digital camera, TransFlash card slot, Bluetooth and an MP3 player.

**2** This is the best smart phone, with wireless support (Bluetooth and Wi-Fi), WAP and email.

**3** This model is the best phone for SMS addicts, with a QWERTY keyboard and multiple messaging options.

**4** This is the best status-symbol phone, with a striking design, beautiful display and speakerphone; it's a world phone. Hands-free kit included.



**5** This phone is the best for teens, with an eye-catching pop-up display, vibration feedback for game playing, programmable ring tones and changeable faceplates.

**a** People who love talking playing games and unusual ring tones.

**d** People who want email and to surf the Web.

**b** People who prefer writing to phoning.

**e** Mobile phone fanatics who travel a lot and want to make an impression.

**c** Phone users who love taking pictures and watching videos, and music lovers.

### ***You and computers***

Mobiles can be very annoying for people around you if you don't follow certain rules.

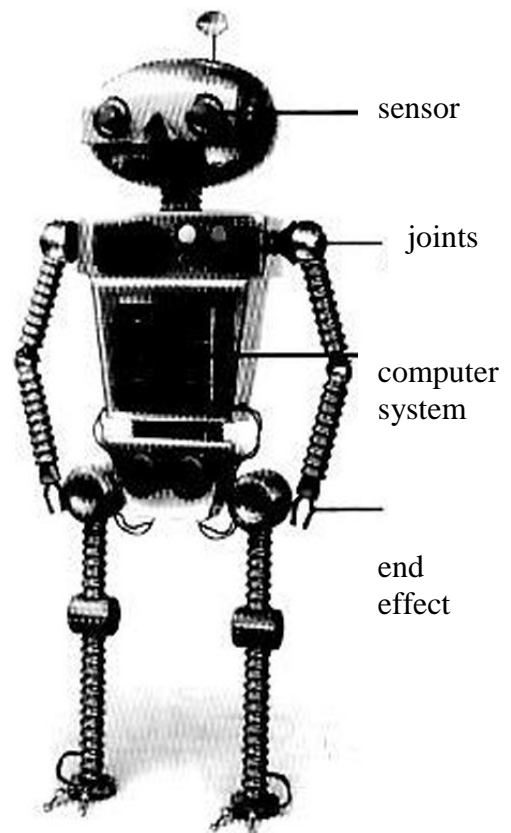
In addition, they may be harmful for your health. Access the Professional English in Use CIT website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity Are you a responsible mobile user?

# 10 Robots, androids, AI

## A Robots and automata

A **robot** is a computer-programmed machine that performs actions, manipulates objects, etc. in a precise and, in many cases, repetitive way. Robots may be **automata**, or man-like machines, whose basic components are similar to a human body.

- They have mechanical links, **joints**, which connect their movable parts.
- Their heart and muscles are the electric or pneumatic motors or systems, the **actuators**, which create the movement.
- Robots also have hands, usually tools or grippers, called **end effectors**.
- They may be equipped with cameras or infrared controls, **sensors**, which transmit information to the central system in order to locate objects or adjust movements.
- finally, robots depend on a **computer system**, the brain that directs the actions.



## B Uses for robots

The word *robot* comes from *robota*, meaning compulsory labour in Czech; similarly, robots are helpful in activities which are too dangerous, too boring or too precise for human beings.



Robotic arms are common in industry



### ***Robots in industry***

**Robotic arms**, telescopic or bending arms, are widely used in the automobile industry to paint, weld and assemble car parts. Robots are also used in electronic assembly of microchips where precision of movements is essential.

### ***Robots and space***

**Planetary rovers**, remotely-operated vehicles, and **space probes**, unpiloted spaceships, are used to explore space.

### ***Robots and health***

**Surgical robots**, which help human surgeons, are programmed to assist in very delicate microsurgery operations or mimic the surgeons' movements in telesurgery operations.

### ***Robots and safety***

**Mobile robots**, vehicles controlled by human operators, are used for defusing bombs and handling hazardous materials.



Artificial Intelligence?

## **C Artificial Intelligence**

**Artificial Intelligence (AI)** is the science that tries to recreate the human thought process and build machines that perform tasks that normally require human intelligence. It has several applications.

**Androids** are anthropomorphic robots designed to look and behave like a human being. Most androids can walk, talk and understand human speech. Some react to gestures and voice inflection. Some 'learn' from the environment: they store information and adapt their behaviour according to a previous experience.

**Expert systems** is the term given to computer software that mimics human reasoning, by using a set of rules to analyze data and reach conclusions. Some expert systems help doctors diagnose illnesses based on symptoms.

**Neural networks** are a new concept in computer programming, designed to replicate the human ability to handle ambiguity by learning from trial and error. They use silicon neurons to imitate the functions of brain cells and usually involve a great number of processors working at the same time.



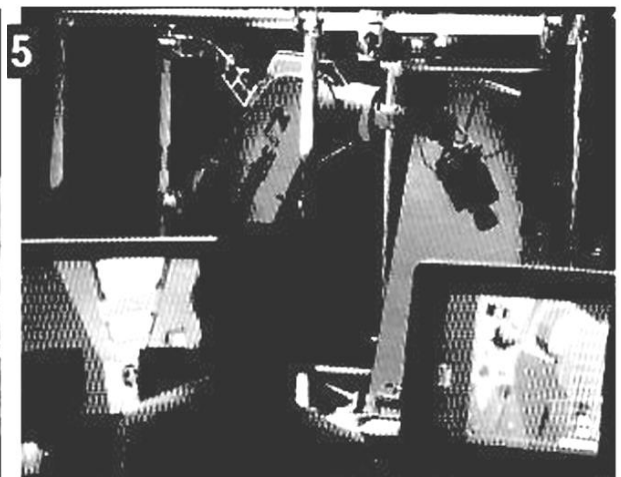
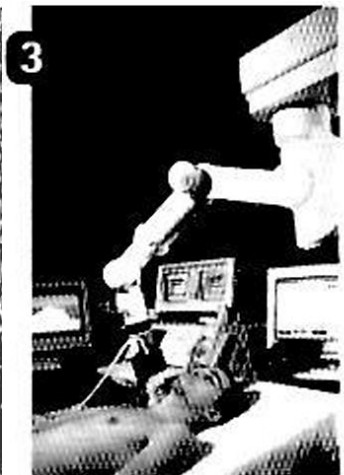
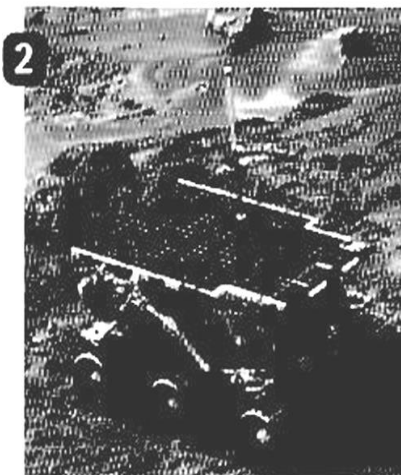
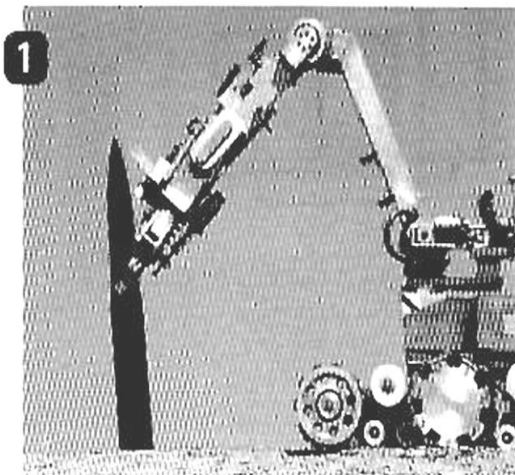
An android and a human being; can you tell one from the other?

10.1 Complete the article with words from A opposite.

### ACTION ROBOT TO COPY HUMAN BRAIN

Scientists at Aberystwyth University are working on a machine which they hope will recognize objects with cameras that will work as (1)....., and retrieve objects with an arm that will be its (2)..... . Although the arm will have (3).....that will link its muscles and an electric motor that will be the (4)....., this new (5)..... won't move like a human, i.e. it won't be like the (6).....of science-fiction films: forget *Star Wars*' C3PO. It will be desk based: no walking, or climbing stairs. The team hopes to discover how the brain performs 'multi-tasking' and to use that information to develop the (7).....to create a robot that can think for itself.

10.2 Match the pictures below to the types of robots in B opposite.




**10.3** Complete the extracts with words from C opposite.

The term  
(1).....  
..... is  
defined as  
the automation of  
intelligent behaviour,  
but can (2)  
.....  
really be  
intelligent?

(3).....  
.....are  
made of  
units that resemble  
neurons.  
They are often used to  
simulate brain activity  
and are effective at  
predicting events.

(4) .....  
..... ,  
also known as  
knowledge-based  
systems, mirror the  
structure of an expert  
s thought.

***You and computers***   
Make a list of other uses of robots at home and at work.

# 11 Intelligent homes

## A Domotics



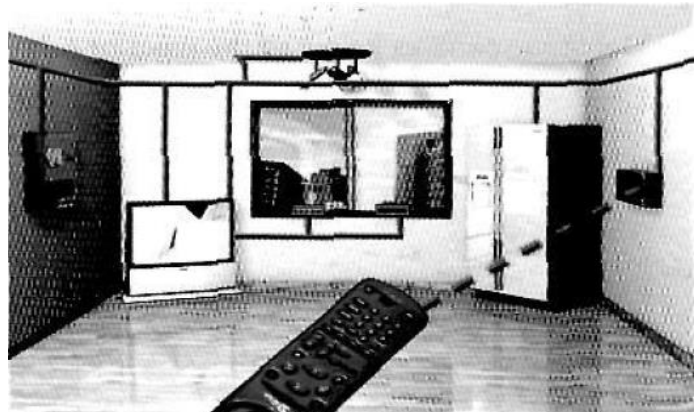
Domotics, from the Latin word *domus* plus robotics, also known as automation, involves the use of information technology applied to domestic appliances in order to create intelligent systems inside the house.

Basic intelligent devices, traditional devices with an embedded processor, have been with us for a while, e.g. microwave ovens and washing machines with computerized controls.

Intelligent homes are a wider concept: all the systems and devices are connected in a LAN, local area network, where they communicate with each other and are controlled by a central computer sometimes installed in one of the machines.

## B Control devices and networking

Intelligent homes are controlled with different types of interfaces, devices that facilitate communication between the user and the system: physical switches, touch screen, IR (infrared) remote controls, computers either at home or at a distance, telephony.



The different elements perform one of these two functions: they are either command initiators, e.g. a brightness sensor that is programmed to send an instruction when it gets dark, or command receivers, e.g. a light that turns on when it receives an instruction sent by the sensor.

Household appliances sound and video system, optical and thermal sensors, etc. can be linked with wired and wireless systems. Wired LANs use different types of cables and also electrical wiring.

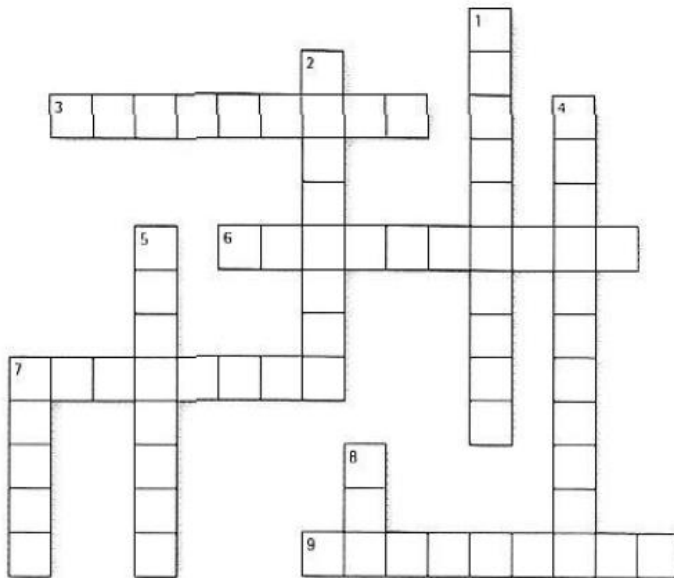
WLANs, wireless networks, use radio-frequency systems: Bluetooth, a short-range radio system used to communicate between portable devices (laptops, PDAs, mobile phones, etc.), is now frequently used to design PANs (personal area networks) inside the home.

## C Automatic operations

Intelligent systems are able to perform a series of activities to improve these areas.

Security	<ul style="list-style-type: none"> <li>– Turn on and off alarm systems and phone emergency services if needed</li> <li>– Open and close doors and gates, blinds or curtains</li> </ul>
Safety	<ul style="list-style-type: none"> <li>– Control heat and smoke sensors</li> </ul>
Comfort and economy	<ul style="list-style-type: none"> <li>– Control heating, air conditioning and electricity</li> <li>– Detect motion and switch on and off lights accordingly</li> <li>– Switch on and off hi-fi sets and home cinema; select music and programs</li> <li>– Have everything ready when you wake up: the bath running, the electric kettle on, the news headlines on your computer, etc.</li> <li>– Keep a list of the products in the fridge, make an order to a supermarket and suggest recipes</li> <li>– Provide intelligent garden watering, e.g. only when the soil is dry</li> </ul>
Assistive technology	<ul style="list-style-type: none"> <li>– Raise and lower motorized cupboards and sinks people wit mobility problems</li> </ul>

11.1 Solve the clues and complete the puzzle with words from A and B opposite.



### Across

3 A wireless standard used for PANs.

6 Touch screens, remote control and computers are different types off .....

7 The adjective which describes networks without cables.

9 A smoke sensor is an example of a command .....

### Down

1 The automatic operation of a system or process.

2 The term domotics comes from *domus* and .....

4 The adjective used to describe homes and devices that use IT technology.

5 A light switch can be used as a command .....

7 LANs where the devices are connected with cables or electrical wiring are .....

8 Personal Area Network.

11.2 Read the text and answer the questions below.

### 'Smart' homes not far away

Picture this scenario: it is a Friday night in the middle of winter and you are driving to your holiday home in the mountains for the weekend. On your way there, you send your second residence a text message which will activate the heating, so the place is nice and warm by the time you arrive. Your main residence, meanwhile, may be vacant, but you can send it an SMS to turn the lights on and off a few times, giving the impressions to potential burglars that someone is there. You can also monitor what is happening inside the house on your mobile phone – cameras inside the house will send real-time images direct to your phone. If disaster strikes, and the washing machine leaks while you are not there, your house is so clever that it will automatically turn off the water at the mains and alert you that a plumber may need calling.

Sounds far-fetched? For one family of four, these are the capabilities their home already has. They are living in an Eneo Labs show home outside Barcelona, trying out the company's smart home concept. Javier Zamora, manager of Eneo Labs, says that in as little as two years many of us will be enjoying these features. He explains that smart homes have two main components: an 'information network', which is like a human body's nervous system in that all devices inside the house are connected to it; and a 'brain', which coordinates what is inside the home and connects it to what goes on outside. He says that in the future the house will respond to voice commands.

*Adapted from www.cnn.com*

- 1 Which of the areas in C opposite are improved in this 'smart' home: security, safety, comfort and economy, assistive technology? Which one is not?
- 2 What operations is the system able to perform to improve those areas?
- 3 What interface is used to connect the user to the LAN?  
What might be used in the future?

### ***You and computers***

Would you like to make your home intelligent? Access the *Professional English in Use ICT* website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do Your dream home.



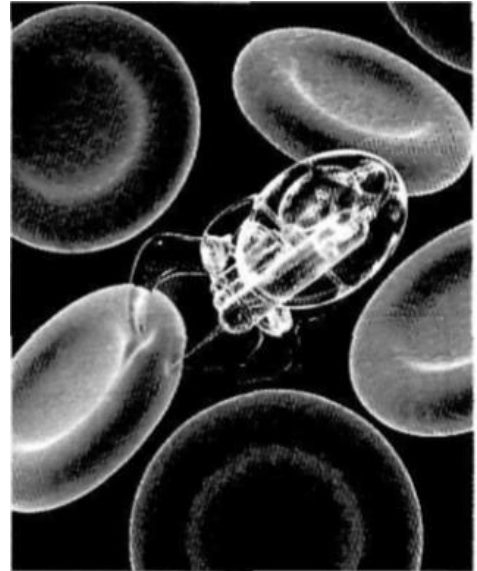
*Build your dream home*

## 12 Future trends

### A Smaller and faster

**Nanotechnology**, the science of creating and using materials or devices at molecular and atomic sizes, is going to represent a new technological revolution. These devices will fall in the range of 1 nanometre, which is equal to one billionth of a metre, to 100 nanometres (nm).

**Nanobots**, robots formed from molecules or molecular components, will be used in medicine to control and diagnose diseases. For example, they will be injected and will move through blood vessels destroying cholesterol molecules or cancer.



Artist's impression of a nanobot on a red blood cell

**Nanocomputers**, molecule-sized computers, may have the power of 100 workstations but only be the size of a grain of sand. There will be two main types of molecular computers:

- **Quantum computers**, based on quantum mechanics, may be millions of times faster than current computers. They will be so fast because they will be able to examine all possible answers to a query at the same time. This capability is made possible by qubits, **quantum bits**, which can be 0 or 1, or something in between, simultaneously.
- **DNA computers** will use **DNA biochips** to perform the same functions as silicon microchips do today but at a much faster speed.

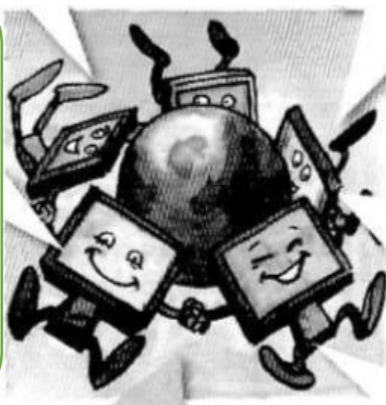
### B Computers everywhere: human-centred technologies

The relationship between people and computers will be closer.

Computers will be **embedded**, or hidden, in a variety of items. For example, we'll have **wearable computers** that will be embedded in a belt or a piece of jewellery, etc.

**User interfaces**, the systems that facilitate communication between people and computers, will resemble human communication. There will be **gesture interfaces** based on facial-hand recognition systems.

ICT devices will be mobile and multimedia: we'll watch **mobile TV** programmes on our phones, which will also access the Internet and work as a mobile office.



Computer chips can be injected under the skin: **RFIP, radio-frequency identification fogs**, might be used to track or identify people or to store information, such as medical data, although there are concerns about privacy and personal safety.

In the near future we'll be able to swim in the **immersive Internet**, a technology that will change the two-dimensional world of the Internet into a 3-D experience with three-dimensional sound and images and even the sense of touch.

By the year 2040 there might be **intelligent robots**, machines that will be able to think creatively. The processing power of computers may have reached 1,000.000,000 **MIPS (millions of instructions per second)**, the estimated speed of human thought.

**12.1** Head these extracts and replace the words in *italics* with words in A opposite.

**1** A computer of this type is a molecular computer that works biochemically. It 'computes' using enzymes that cause chain reactions.

**2** In a computer of this type, data is processed by exploiting the strange qualities of quantum physics; the building blocks of computation are not transistors but caged atoms or qbits.



**3** It has the potential to revolutionize the way we live, from creating miniaturized 'Star Trek'-like electronic gadgets to delivering medicines to specific places within the human body.

**4** The government plans to fund a study examining the feasibility of molecule-sized robotic devices that would position atoms to build complex substances and products.

**5** Scientists at an Israeli institute have developed a very small one - so small that a trillion of its kind fit into a test tube.

**12.2** Write a caption under each picture illustrating the future trends from B opposite.



1 .....



2 .....



3 .....



4 .....



5 .....



6 .....

**12.3** Match the terms with their definitions.

- |                   |   |
|-------------------|---|
| 1. quantum hits   | a. a microchip made with organic materials                |
| 2. DNA biochip    | b. the speed at which the CPU processes instructions      |
| 3. embedded       | c. the device or program used to interact with a computer |
| 4. user interface | d. subatomic particles used in quantum computers          |
| 5. MIPS           | e. fixed, integrated                                      |

### ***You and computers***

Access the Professional English in Use ICT website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity Emerging technologies.

# 13 Prefixes

## A Common prefixes

We can form new words by using prefixes and suffixes, e.g. micro-process-or

*prefix + root + suffix*

Prefixes come before the root word and

usually change its meaning. Here are some common ones in ICT.

- Negative prefixes meaning ‘not’:

**non-** **Non-volatile** memory retains its content when the power is turned off.

**un-** An **unformatted** disk has not been ‘initialized’; it doesn’t allow data to be stored.

- Prefixes of location:

**trans-** (= across) Data **transmission** can be wired or wireless.

**inter-** (= between) The **Internet** consists of millions of computers **interconnected** in a global network.

**intra-** (= within) An **intranet** is a private network, restricted to a company’s internal use.

**extra-** (= outside, in addition to) An **extranet** links a company with its customers and suppliers.

**tele-** (= over a distance) **Teleconferencing** enables users in different places to talk and to see each other.

- Prefixes of size:

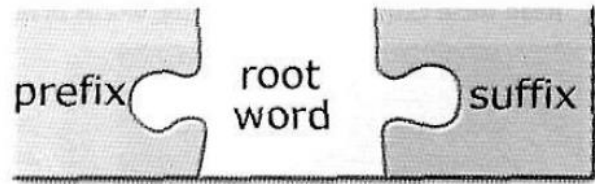
**super-** (= large, better) A **supersite** offers links to other websites on a certain topic.

**semi-** (= half, partly) A **semiconductor** is neither a good conductor nor a good insulator (e.g. silicon, used to make computer chips).

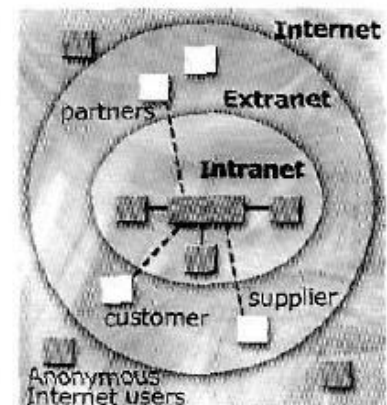
**micro-** (= small) A **microbrowser** is designed to display web pages on PDAs and mobiles.

Prefixes of size are also used in units of memory like *megabyte* and *gigabyte*.

- Another common prefix is **re-** in words like *reprint*, *rewritable* and **reboot**, to start the computer again.



Word parts are like puzzle pieces



An extranet is like an extended intranet

## B Verb prefixes

Prefixes used to form verbs which mean ‘to cause to be something’:

**en-** **encrypt:** to change data into a secret code so that only someone with a key can read it

- up- update:** to modify data in a file and thus ensure the file reflects the latest situation
- upgrade:** to add or replace hardware or software in order to expand the computer's power
- upload:** to send files to a central, often remote computer, compare with 'download'

Prefixes that mean 'the opposite of an action' or 'to reverse an action':

- de- decrypt:** to convert secretly coded (encrypted) data back into its original form
- decompress:** to restore compressed data back to its original size
- debug:** to correct errors in a program or system
- defragment:** to reorganize data stored on disk by putting files into contiguous form
- un- uninstall:** to remove hardware or software from a computer system

### C The prefixes e- and cyber-

The **e-** prefix means 'electronic'; **cyber-** describes things relating to computer networks.

- e-** The term **e-learning** refers to the use of ICT to provide education and training.  
An **e-zine** is a magazine or newsletter published online.  
**E-commerce** is the buying and selling of products or services over the Internet.

- cyber-** The electronic space in which online communication takes place is called **cyberspace**.  
**Cyberslacking** means using a company's Internet access for activities which are not work-related, e.g. emailing friends, playing games, etc.; it is also called 'cyberloafing'.

#### 13.1 Use words from A opposite to complete these sentences.

1. Medical researches in many countries exchange information through email and .....
2. .... memory (e.g. ROM or flash memory) is able to hold data when switched off.
3. Blogs and web portals are examples of .....; they offer news, opinions and web links.
4. .... are used for making integrated circuits and computers.
5. I'll post the agenda for next week's meeting on the company's .....
6. A home network is two or more computers ..... to form a local area network.

**13.2** Complete these definitions with words from A opposite.

1. .... : a disk that is completely blank, so information can't be recorded onto it
2. .... : a network that allows communication between a company and the people it deals with
3. .... : the process of sending data over a communication channel
4. .... : to restart the computer, without switching it off completely
5. .... : a web browser designed for small screens on hand-held devices

**13.3** Complete these sentences with words from B opposite and make any necessary changes.

- 1 The program ran so slowly, I had to un..... it.
- 2 Your financial information is fully en..... and cannot be accessed.
- 3 Messages encrypted using a public key can only be de..... by someone with the corresponding private key.
- 4 The computer compresses and de..... a colour image in less than a second.
- 5 Once you've written a program, you have to test it and de..... it to remove all errors.
- 6 In cyberspace, 'up.....' means to send a file.
- 7 You can easily up..... you files by adding or deleting information.
- 8 To de..... your hard disk you need a disk optimizer, a program that will reorder your files.
- 9 There are minimum system requirements for your PC to be suitable for ..... to Windows Vista.

**13.4** Complete this text with words from C opposite.

The term 'cyber' first appeared in the word 'cybernetics', coined by Norbert Wiener in 1948 as the science of communication and control. In the 1960s new 'cyber' words emerged, such as *cybermen* and *cyborg*, referring to a being that is part robot, part human.

In 1984 William Gibson popularized the term (1) ..... in his novel *Neuromancer*. He used it to describe a futuristic, virtual world of computers, but now it refers to the Internet.



A cybercafé

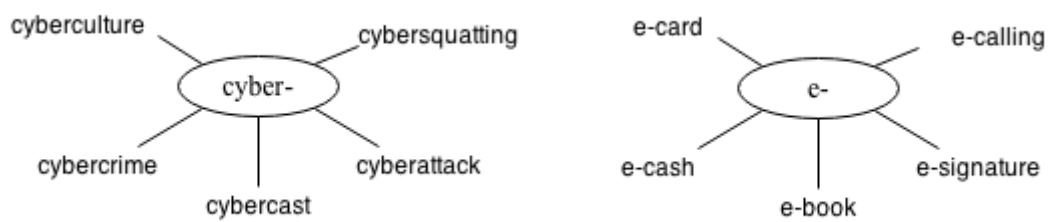
Other common words are *cyberworld*, *cybercafé*, *cyberphobia* (a fear of computers). Companies are now worried about (2) ..... : employees using the Net to do things that have nothing to do with their jobs, e.g. chat with friends.

The e- prefix is often added to activities that have moved from the physical world to the electronic alternative, e.g. *email* and *e-shopping*.

Other well-known examples are: (3) ....., small magazines that are available on the Internet; (4) ....., doing business electronically on the Net; and (5) ....., providing instruction via optical discs, the Web or satellite TV.

### ***You and computers***

With the help of an online computer dictionary, find the meaning of these words.



# 14 Suffixes

## A Common suffix

Suffixes change the class of the root word. For example, by adding the suffix -er, the verb *publish* becomes the noun *publisher*. Suffixes can tell you if a word is a noun, adjective, verb or adverb.

Suffixes for jobs:

<b>-er</b>	<i>manufacture</i> <i>webmaster</i>	The two major manufactures of processor chips are Intel and AMD
<b>-eer</b>	<i>engineer</i> <i>auctioneer</i>	Greg is a software engineer, which means he writes computer programs.
<b>-or</b>	<i>animator</i> <i>operator</i>	He worked as a computer animator on Toy Story.
<b>-ant</b>	<i>IT consultant</i> <i>IT assistant</i>	She's a computer consultant and specializes in e-commerce, data protection and IT strategies.
<b>-ian</b>	<i>technician</i> <i>electrician</i>	A computer technician installs, troubleshoots and upgrades hardware and software.
<b>-ist</b>	<i>typist</i> <i>scientist</i>	Anyone who works as a typist may develop a problem with their hands.

Other common suffixes in ICT:

Nouns	<b>-ion, -ment, -ics, -ity</b> (activity, state)	compression, management, robotics, electricity
Adjectives	<b>-able, -ible</b> (able to be) <b>-ful</b> (ful of), <b>-less</b> (without)	programmable (keyboard), convertible (format) colorful, colorless (picture)
Verbs	<b>-ize, -ise</b> (to make)	Synthesize (music – to make it with a synthesizer)

## B Word families

It is useful to know how to build up word families by adding suffixes. Look at these examples:

<b>Nouns</b>	<b>Verbs</b>	<b>Adjectives</b>	<b>Adverbs</b>
magnet, magnetism	magnetize	magnetic, magnetized	magnetically
recorder, recording	record	recordable, recorded	
digitizer, digitizing	digitize	digital, digitized	digitally

Adding a suffix may change the pronunciation. Look at how the stress changes in these words:

<u>pho</u> tograph	pho <u>to</u> grapher	pho <u>to</u> graphic	pho <u>to</u> graphically
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## C We love “wares”

The suffix **-ware** refers to products of the same type. In computing, *software* refers to programs executed by a computer, as opposed to the physical devices on which they run – the *hardware*. It is commonly used to form jargon terms for classes of software.

- **freeware:** available free of charge, but protected by copyright; it differs from free software, which can be changed and distributed subject to license
- **shareware:** distributed similarly to freeware, except that it requires payment after a trial period
- **malware:** designed to infiltrate or damage a computer (e.g. viruses, Trojan horses, spyware)
- **spyware:** designed to monitor the actions of your computer and send this data via the Net
- **adware:** devised to display advertisements; some includes spyware
- **groupware:** enables a group of people connected to a network to work on the same project



Be careful of spyware!

### 14.1 Which IT professionals from A opposite are described here?

1. a person who designs and maintains software applications
2. a person who gives expert, professional advice
3. a person who uses graphics software to make or edit animated pictures
4. a person who is employed to type letters, reports and other documents
5. a person or enterprise that produces goods in large numbers, using machines
6. a specialist in the technical details of computers

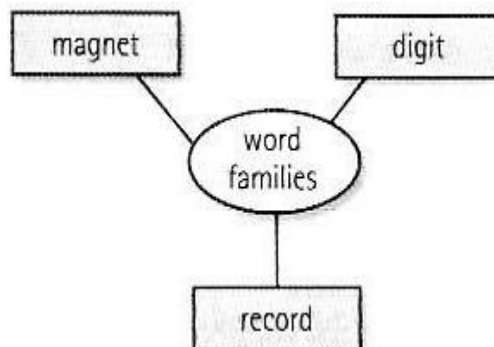
### 14.2 Complete each sentence using the word in brackets and the correct suffix from A opposite.

1. IBM's BluesGene is the most .....supercomputer. (POWER)
2. Most library databases are .....via the Internet. (ACCESS)
3. I'll email my report to you as an ..... (ATTACH)
4. This book will show you how to ..... your small business. (COMPUTER)
5. An ..... optical disc allows data to be deleted and new data to be recorded on it. (ERASE)

6. The growth of the Internet has increased the need for effective data ..... (SECURE)
7. The combination of ..... and new textile materials has made it possible to create musical jackets and smart shirts that can read our heart rate. (ELECTRON)
8. Bluetooth is a ..... technology designed to connect computers, mobile phones and other devices, replacing direct cable links. (WIRE)
9. Aircraft flight ..... is used to train pilots. (SIMRLATE)

**14.3** Look at the word families in B opposite and complete these sentences with the correct word.

- 1 From kitchen magnets to computer disks, ..... plays a central role in the technology of everyday life.
- 2 Hard disks are ..... storage devices.



- 5 A video ..... is used to convert analogue video into digital video files.
- 6 Sound and pictures can be stored ....., as on a CD.

- 3 My digital voice ..... has a storage capacity of 2GB.
- 4 Blu-Ray Disc is a new ..... optical disc format developed by electronic manufacturers.

**14.4** Look at C opposite. What type software do these descriptions refer to?

1. software that transmits data about your Web surfing habits without your consent
2. also known as 'try before you buy' software
3. short for malicious software
4. software that periodically pops up advertising material
5. collaborative software
6. programs that you don't have to pay for



"Do you still refuse to run pirated software?"

### You and computers

Access the *Professional English in Use ICT* website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity *More 'wares'*.



# 15 Compounds

## A Compound nouns

Compound nouns consist of two or more words used together as a single word, e.g. *hard drive*. In a compound there is a headword and one or more modifiers.



Modifiers can refer to different things:

- material, e.g. **silicon chip** = a chip made of silicon
- use or function, e.g. **search engine** = a program used to find information on the Web activity or -profession, e.g. **software engineer** = a person who designs software
- place, e.g. **web portal** = a site on the Web that acts as a gateway to other sites

Compound nouns are written in different ways:

- as two separate words, e.g. **control panel** = a utility that lets you configure and adjust a system
- as two words joined with a hyphen, e.g. **self-test** = an automatic examination of a device
- as one word, e.g. **clipboard** = a holding place for text or graphics you've just cut or copied

Unfortunately there are no rules. For example, you may see *clip art*, *clip-art* and *clipart*. Some compounds change over time, for example two words - *web site* - become hyphenated after a time, and then eventually end up as one word - *website*.

The two parts may be:

1 noun + noun **address bus** = a set of wires that identifies locations, addresses, in the main memory

**bandwidth** = the rate at which data flows through a cable or network

**mail merge** = a tool that combines a standard letter with a mailing list to create personalized letters

2 adjective +

**broadband** = high-speed connection, e.g. cable or ADSL Internet access

noun                    **shortcut** = a small file, 1KB in size, that links to a real file stored elsewhere

**smart card** = a plastic card that contains a small chip

3 verb or verbal

**scrollbar** = part of a window that lets you move through a document

noun + noun            **recording head** = a mechanism that transfers data to a disk

4 verb + particle        **add-on** = a hardware or software module that can be added to a computer

**set-up** / **setup** = the way in which a program or device is configured

Compound nouns normally have the main stress on the first part and a secondary stress on the second part, e.g. screen saver

## B Compound adjectives

Compound adjectives are made up of two words, normally with hyphens between them. The second part is often a past participle.

A **menu-driven** program lets you select a command from a menu.

A **voice-activated** product is activated by the user's voice. **Object-oriented** programming is based on objects and their effects on each other, rather than on a series of instructions.

Other common patterns include:

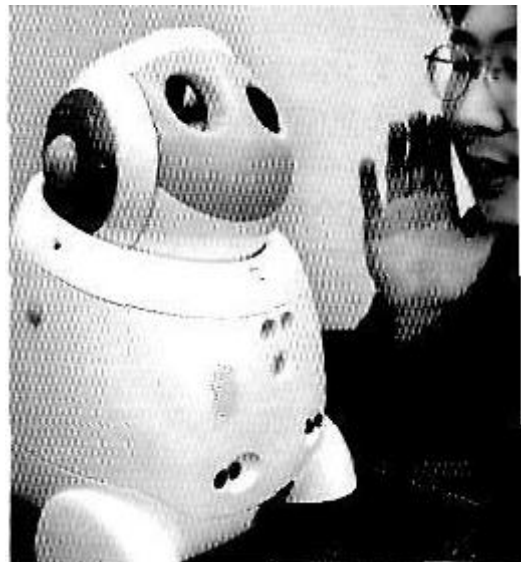
noun + present participle

**Space-saving** PCs take up very little desktop space.

noun + adjective

A **hands-free** device does not require the hands for operation.

A **stand-alone** computer or business can operate on its own.



An experimental robot received voice-activated instructions

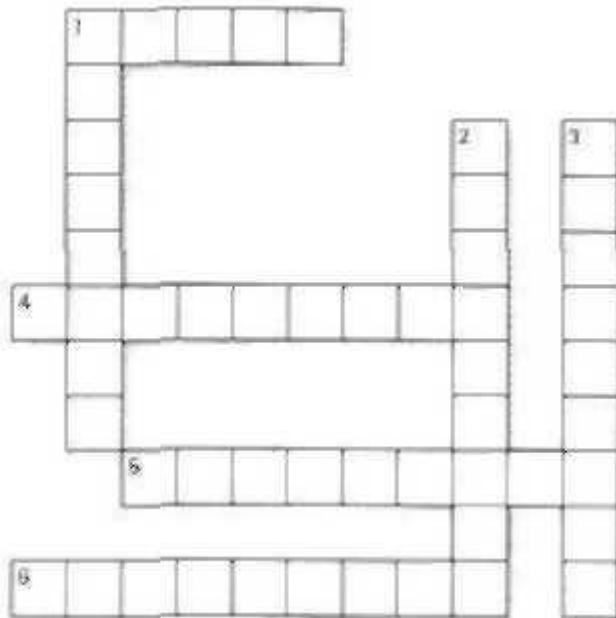
**15.1** Look at A opposite. Which compound do these definitions refer to?

1. a small piece of silicon which is used in computers
2. a site that offers email, news, forums, web searching, online shopping and links to other sites
3. a utility used to adjust computer settings such as fonts, sound and networks
4. the read/write head of a disk drive
5. a computer bus used by the CPU to communicate memory locations

**15.2** Complete these sentences with a compound from A opposite.

1. enables you to combine two files, one containing names and addresses and the other containing a non-specific letter intended for multiple recipients.
2. A USB headset is a useful....., the ideal accessory for your computer games and music.
3. The printer's..... didn't identify any errors.
4. Because the Web has no central organization, every Web surfer needs a.....- a special sire that locates other sires based on words or phrases you type in.
5. They are seeking a.....to help write and test a new operating system.

**15.3** Complete the puzzle with compound nouns.



**Across**

- 1 the configuration of hardware and software
- 4 a bar that allows you to select the portion of the document you want to see
- 5 an area that holds the things you copy, ready to be pasted anywhere else a type of data transmission that
- 6 a type of data transmission that provides fast Internet access

**Down**

- 1 a special file which redirects to another file or program
- 2 a small card with an embedded microchip
- 3 the amount of data that can be transmitted along a channel

**15.4** Complete these sentences with a compound adjective from B opposite.

1. A.....-.....Telephone allows people with limited mobility to dial and answer the phone with just the sound of their voice.
  2. A fax machine is a.....-.....device, so it does not require any other device to function.
  3. A -.....application is operated by making choices from menus instead of giving instructions on a keyboard.
  4. In some countries it is obligator)' to use a.....-.....car kit when you are using a mobile phone while driving.
  5. An ..... - ..... language like C++ lets the programmer concentrate on individual units (e.g. a piece of text, a graphic or a table) and give each object functions which can be changed easily.
- They've launched a new.....-..... computer, an entire PC embedded inside a keyboard.



space-saving PC

### ***You and computers***

Access the Professional English in the ICI website at [www.cambridge.org/elt/iet](http://www.cambridge.org/elt/iet). Then do the activity *Combinations with 'card' and 'web'*.

# 16 Collocation

## A What a collocation is

A collocation is a pair or group of words that are often used together. You need to learn them in order to sound natural in English. For example, in computing we say ‘attach a file’, not ‘enclose a file’.

New collocations are particularly common in ICT. Notice the combinations that are worth learning from these reviews.

With the Nokia 770 Internet Tablet you can browse your favorite sites and catch up on Your email – from right where you are. Whether you’re relaxing on the sofa or enjoying the moment at your favorite café, if you have broadband access over Wi-Fi, the Nokia 770 Internet Tablet gives you instant wireless access to the Web. You can also stream files, tune in to Internet radio and News Reader, or play your favorite videos and music.

A Blu-ray Disc is a new optical disc that provides five times more data storage than a DVD, with a capacity of 25 GB (single-layer) and 100 GB (four-layer). Unlike current DVDs, which use a red laser to read and write data, Blu-ray uses a blue laser (which is where the format gets its name). Blu-ray disc can record and play back high-definition television and digital audio, as well as computer data. Blu-ray Disc players are fully back ward compatible with CD/DVD formats. They also let users go online and download subtitles.

## B Some types of collocations

### Verb + noun

The easiest way to connect to the Internet is by using a DSL modem.

A DSL modem can transmit data at high speed.

Your ISP will probably give you a CD with instruction on how to install the software on your PC.

Once you are online, you can access the Web or send and receive emails.

You may like to burn CD’s i.e. copy your favorite songs or important files onto CDs.

### Verbs with particles

Can you show me where the microphone plugs into the computer?

If you want to log onto your account you will need your user ID and password.

Computer criminals are getting better at hacking into other people’s computers.

### Adjective + noun

High-speed networks and multimedia phones allow customers to view live TV.

To send outgoing mail and retrieve incoming mail, you need to configure the email settings.

Most teenagers use instant messaging to chat with friends.

Electronic commerce – from a PC, digital TV or mobile phone – offers competitive prices.

Wireless hotspots provide Wi-Fi Internet access in airports, hotels and other places.

Users can interact with a virtual environment through the use of VR displays and data gloves.

Typical interactive TV uses are voting in polls, video on demand and shopping from home.

### **Adverb + adjective**

Don't send highly sensitive information via email or fax unless it is encrypted.

This movie is freely available on the Internet, so it can be downloaded free of charge.

### **Phrases**

When you chat in a chat room, you are interacting in real time since it is immediate.

A USB device is a good example of plug and play; you install it and use it immediately.

To drag and drop, just click on the object and drag it to a different location.

## **16.1** Look at A opposite. Match each word on the left with its partner on the right.

- |                   |                       |
|-------------------|-----------------------|
| 1 high-definition | a Internet radio      |
| 2 read and write  | b disc                |
| 3 play            | c videos and music    |
| 4 tune in to      | d television          |
| 5 broadband       | e data                |
| 6 optical         | f your favorite sites |
| 7 browse          | g compatible          |
| 8 fully backward  | h access              |

## **16.2** Answer these question using collocations from B opposite.

1. What sort of location or access points can be used to surf the Net without wires?
2. What feature allows an electronic device to be used as soon as it is connected to a computer?
3. If you are gaining illegal or unauthorized access to computer data, what are you doing?
4. If you want to move a picture to a new location, what do you do?
5. What expression is used to refer to personal, confidential or classified information?

**16.3** Read these statements by computer users and complete them with suitable collocation.

1. 'I have a program that monitors both incoming and ..... Mail and also block spam.'
2. 'With a webcam you can add video to online chats and ..... messaging. Simply ..... the software included, plug the webcam ..... your PC, and start having video conferences.'
3. 'This software enables you to burn ..... And DVDs containing and data files.'
4. 'I use a media player to ..... audio and video files from the Web; I can play them directly.'
5. 'NetMeeting allows us to perform video conferencing in ..... time, without any delay.'
6. 'We have decided to make the material ..... available on the Web.'
7. 'I often log ..... my Internet bank account to make payments; I never forget to log off.'

**36.4** Complete the collocations in this text.

### **Fast connections**

Connecting to the (1)..... using DSL lines, cable TV and increases bandwidth dramatically, making the Web more useful. Increased speed has ignited an explosion of (2)..... commerce, video on demand, telecommuting, collaborative scientific projects, video conferencing and (3)..... environments.

### **Internet2, shaping the future**

Internet2 is not a single network, but a consortium of hundreds of (4)..... network linked by fibre-optic backbones that span the United States and link to other countries. The network transmits (5)..... at speed, up to 2.4 gigabits per second – 45,000 times faster than a 56 Kbps modem – allowing scientist to test their laboratory discoveries in the real world.

The next-generation network went (6)..... in February 1999, linking a number of universities around the world. When it is in commercial use, services will be available like (7)..... television, virtual 3-D videoconferencing, and much more.

### **A new kind of Web**

While PCs were once the primary means of accessing the Internet, we're now seeing Internet-enabled devices such as PDAs and cell phones that send and receive (8)..... and access the (9)..... . Soon, everything from your car to your refrigerator will be connected to the global network, all communicating with each other wirelessly.

### ***You and computers***

Access the Professional English in Use ICT website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity Word combinations relating to mobile phones.

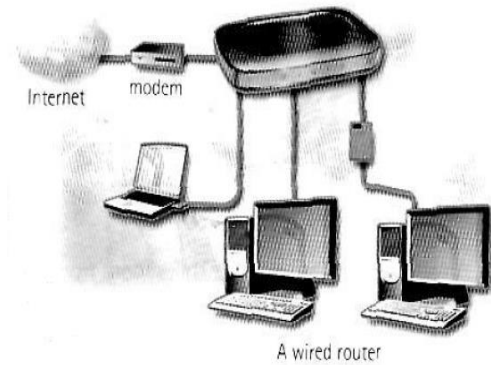
# 17 Defining and classifying

## A Describe function

We define an object by describing its function and properties.

For example, we can define a 'router' like this:

A router is a device **used to** transmit data between two computers or networks.



There are other ways of describing its function:

- **for + -ing (for transmitting)**
- relative pronoun + verb (**which/that** transmits)
- relative pronoun + **is used + to** + infinitive (**which/that is used** to transmit)

We can define people and places like this:

A blogger is a person **who** keeps a Web log (blog) or publishes an online diary.  
 An address bar is the area in your browser display **where** the web address is displayed.

- We use **which** or **that** to refer to things.
- We use **who** or **that** to refer to people.
- We use **where** (= at which) to refer to places.



A wireless router is a device **which** allows computers to communicate via radio waves

## B Classifying from general to specific

'Classifying' means putting things into group or classes. We can classify types of music, parts of a computer, classes of software, etc.

<i>Typical expressions</i>	<i>Examples: classifying storage media</i>
<p><b>... are classified into X categories</b>  <b>... can be divided into X types</b></p>	<p>Storage media <b>are often classified into three categories:</b> magnetic, optical and flash memory.</p>
<p><b>... include</b>  <b>... consist of</b>  <b>... is made up of</b>  <b>... is composed of</b>  <b>... comprise</b></p>	<p>Magnetic storage media <b>include</b> tape cartridges, floppies and hard disks.                      A hard disk <b>consists of</b> several disks (platters) and their read-write heads.                      Optical storage media <b>comprise</b> CDs, DVDs, and high-definition video discs, which <b>include</b> two competing formats: HD – DVD and Blue-ray.</p>



<b>types</b> <b>There are X classes of ...</b> <b>categories</b>	<b>There are two basic types</b> of flash memory: flash memory cards – used in digital cameras – and USB flash drives, also called pen drives.
--	--

## C Classifying from specific to general

We can also classify from the specific to the more general. We can say, for example, that ‘a word processor (*specific*) is a type of software (*general*)’.

<i>Typical expressions</i>	<i>Examples</i>
<b>... is a type of</b> <b>... are parts /</b> <b>components of</b> <b>... constitute</b> <b>... make up</b>	DCR <b>is a type of</b> software which recognizes characters. A PC card radio and router <b>are</b> two basic <b>components of</b> a wireless network. The RAM and the ROM <b>constitute</b> the main memory. The <b>System</b> and <b>Finder</b> programs <b>make up</b> the Mac OS.

**37.1** Look at A opposite. Match the two halves to make correct definitions.

- |   |   |
|---|---|
| <b>1</b> A web browser is a program<br><b>2</b> A host is a computer<br><b>3</b> The inbox is the location<br><br><b>4</b> A ripper is a piece of software<br><b>5</b> A newbie is somebody | <b>a</b> where emails are kept when they are received.<br><b>b</b> used for displaying web pages.<br><b>c</b> who is new to an activity such as using a PC or the Internet.<br><b>d</b> used to provide data and services to other computers.<br><b>e</b> which is used to extract files from a CD/DVD and convert them to other formats. |
|---|---|

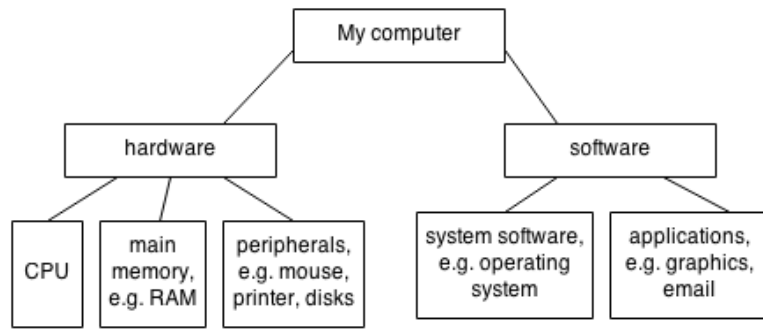
**37.2** Correct the underlined errors in these definitions. Use *who*, *that*, *which* or *where*.

- 1 Mobile TV Broadcasting is a system who lets you watch TV on a PDA or mobile phone.
- 2 A computer geek is a someone which is an enthusiastic user of computers, sometimes to an obsessive degree.
- 3 The Recycle Bin is the folder that deleted files are stored until you decide to delete them completely.
- 4 Digital Terrestrial TV is a technology where allows you to receive more channels and a better picture through a conventional aerial instead of a satellite dish.

**17.3** Look at B and C opposite. Underline all the classifying expressions in this text.

**Computer organization**

A Computer consists of hardware and software. The CPU, main memory and peripherals constitute what is known as hardware – the physical parts. The control unit, the arithmetic-logic



unit and the registers are the basic parts of the CPU. The RAM and the ROM make up the main memory. Peripherals are classified into three types: input, output and storage devices.

Software can be divided into two categories: (i) system software, which includes operating systems, programming software and system utilities, and (ii) application software, which comprises programs that let you do specific tasks (e.g. graphics, email).

**37.4** Complete the sentences with a classifying expression from the box.

there are two types of ...    ... is composed of    ... is a type of  
 ... are made up of    there are four main classes of ...

1. .... microchips: (i) microprocessors, used as CPUs in computers, (ii) memory chips, used to store data, (iii) digital signal processors, used in mobiles and digital TVs, and (iv) application-specific integrated circuits, used in cars and appliances.
2. In the future, people may have biochips inserted under their skin, Biochips ..... two components: a small chip, called a transponder, and a scanner.
3. A network ..... two or more computers connected together to share information and resources.
4. .... network architecture: peer-to-peer, where all PCs have the same capabilities and client-server (e.g. the Internet), where servers store and distribute data, and clients access this data.
5. Bluetooth ..... wireless technology for transferring data between devices.

***You and Computers***

Draw a diagram classifying the hardware and software components of your PC. You can use exercise 37.3 to help you. Include as many details and devices as possible.

# 18 Qualifying and comparing

## A Choosing a computer

### *How to make the right decision*

What to look for in a computer? How much do I need to spend? Where should I start?

*Top Personal Computer* hopes to help you make the right decision.

The first question you have to ask yourself is what you'll use the computer for. Then you can decide what system will fit your needs by considering the following factors:



You need expert advice when buying a new computer

- 1.1 The quality you need and the price you are willing to pay: you can buy a **low-end**, mid-range or **high-end** computer.
- 1.2 Three basic features make a big difference: the CPU speed, the amount of RAM and the size of the hard drive. To run **highly demanding** applications you'll need a **fast** processor, **plentiful** RAM and a **spacious** disk.
- 1.3 If you already have peripherals and software, you'll have to ensure they are compatible and can be used with the new computer.
- 1.4 If you want to use the system for some time, it should be **expandable**, i.e. it should allow you to add on new peripherals.
- 1.5 Most standard computers offer **integrated**, built-in, sound cards. If you're keen on music you should also buy **separate**, external, speakers.
- 1.6 Finally, make sure the system you buy is **reliable**, i.e. it's not likely to go wrong. Check that you will receive a warranty and good technical support.

## B Comparing qualities

Comparing and finding differences or similarities are common function on ICT. When you want to buy a new device, or you read articles about the latest computer or mobile phone, or need to make a decision about the most suitable ICT system for you, you may have to use and understand expressions like the ones in these examples.

### *Comparison*

A flat-panel monitor is	slimmer	than	a CRT.
A PDA is	more manageable	than	a laptop.
Laser printers offer	higher quality	than	in-jet models but
ink-jet printers cost	less money.		
You can type	more easily		with a separate keyboard.
Free programs are	as good	as	proprietary ones.
A broadband line is	the best option		to download multimedia.

**Contrast**

While a dial-up connection is usually cheap, it is very slow. A scanner can be useful but it isn't an essential peripheral. Unlike CRT monitors, TFT ones are light.



**Similarity**

Both brand name and clone computers have similar features. Online shops as well as local retailers offer good value hardware.

While consoles are better option if you just want to play games, PCs support more applications and are easier to upgrade.

**18.1** Complete the extracts with adjectives from A opposite.

I wanted a powerful computer to work with (1) ..... multimedia applications, so I decided to buy a (2) ..... computer with a (3) ..... microprocessor, good graphics and sound cards and (4) ..... RAM.

I didn't know whether to buy a new or a use desktop. I just need it to write documents, but I was advised to buy as much as I could afford. Finally I bought a (5) ..... but new desktop with 256 megabytes of memory, enough for my needs.

I didn't want my new computer to become outdated too quickly. That's why I made sure it would be easily (6) ..... with enough space for add-in cards.

**18.2** Complete these sentences with adjectives from A opposite.

1. Although many computers on the market have hard disk drives with a capacity of 80 to 160 GB, many home users want more ..... drives because of their need for additional storage.

2. This 'Wireless Enterprise Communicator' is the first realistic alternative to carrying around ..... devices. It offers an ..... mobile phone. GPS, hardcode reader and hand-held computer.

3. Before you subscribe to a music subscription service, make sure you have a ..... player that supports the music formats available.

4. Systems and devices are becoming more and more ..... because reliability means manufactures save money by having fewer tech support calls.

**18.3** Complete the text about the advantages and disadvantages of laptops and desktops with words from B opposite.

(1) ..... desktops and laptops have (2) ..... components but they are built in a different way.

(3) ..... desktops have (4) ..... space to expand the system, they are less manageable (5) ..... laptops. On the other hand, laptops are fully portable: they are lighter and (6) ..... and so more practical if you travel a lot and need to take your computer with you.

(7) ..... desktops, the screen, keyboard and mouse of a laptop are integrated. However, most laptop owners prefer to have a separate mouse (8) ..... the touchpad. Similarly, as the keyboard is miniaturized, some people buy an external one for use at home. You can type (9) ..... easily if you use a full-size keyboard.

A laptop's CPU is slower (10) ..... access to data may be quicker, so its performance can be (11) ..... good as a desktop's.

It's hard to say what the (12) ..... option is. But remember: in the computer world, (13) ..... smaller the device, the more money it costs.

### ***You and computers***

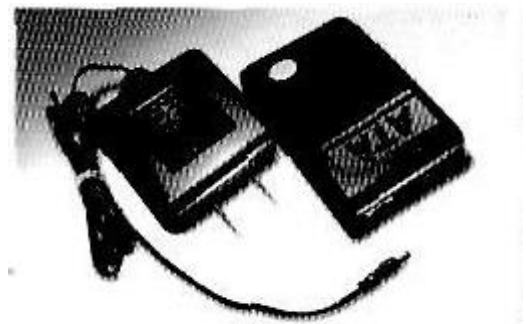
Access the Professional English in Use ICT website at [www.cambridge.org/elt/ict](http://www.cambridge.org/elt/ict). Then do the activity Compare before you buy.

# 19 Describing technical processes

## A technical process: how VoIP works

With VoIP, Voice over Internet Protocol your voice is digitized and then broken into small data packets.

To make a phone call, an analogue telephone must **be hooked up**, linked to an ATA, an analogue telephone adaptor. When you pick up the receiver and dial a number, the tones **are**



**converted** by the ATA to digital data and temporarily stored. When your friend picks up the phone, a session **is set up**, established, between both computers. During the conversation the systems transmit packets of data that are sent back and forth through your VoIP company's call processor. They are received by the ATA and converted to the analogue audio signal that you hear. When you hang up, a signal is sent by the ATA to finish the session.

ATAs enable online telephone

VoIP calls can also be delivered via an IP telephone with an Internet connection.

When describing a technical process, we often use the present simple passive, e.g. *is digitized / are converted / is set up*, to explain how something is made or used. The agent *is* not as important as the process. Compare these sentences:

### Active

Someone *sets* up a session.

### Passive

A session *is set* up.

The ATA *receives* packets.      Packets *are received* by die ATA

## B The use of the passive

The passive is often used to describe areas of computing. Look at these examples:

## B

### **Input, process, output:**

The data is fed into the computer system.  
Instructions are processed by the CPU.  
The results are displayed on the monitor.

### **Storage:**

Today a lot of information is held, kept, on optical discs. The data in the hard disk should be defragmented, rearranged, so it can be accessed more quickly.

### **Computer components and configuration:**

The icons and taskbar can be customized, configured, to cater for your needs.  
Your computer system may need to be upgraded, improved, by adding devices or updating software

### **Internet:**

Messages are posted, sent, to a newsgroup where they are threaded, grouped, by subject. Files can be uploaded, transmitted, to another computer by using FTP, File Transfer Protocol.

## C Sequencing a process

The use of time and sequence connectors means we can show the different stages of a process.

### *Typical connectors*

### *Examples*

First... Then / Next ... Finally ...

First the computer is switched on. Then the OS is booted. Finally the application is run.

As ...

As the laser printer drum rolls, the toner gets stuck to it and reproduces the original image.

After / Once ...

After you have had a program for a while, it may have to be updated.  
Once a CD-R has been written to, you can't alter the data.

Before ...

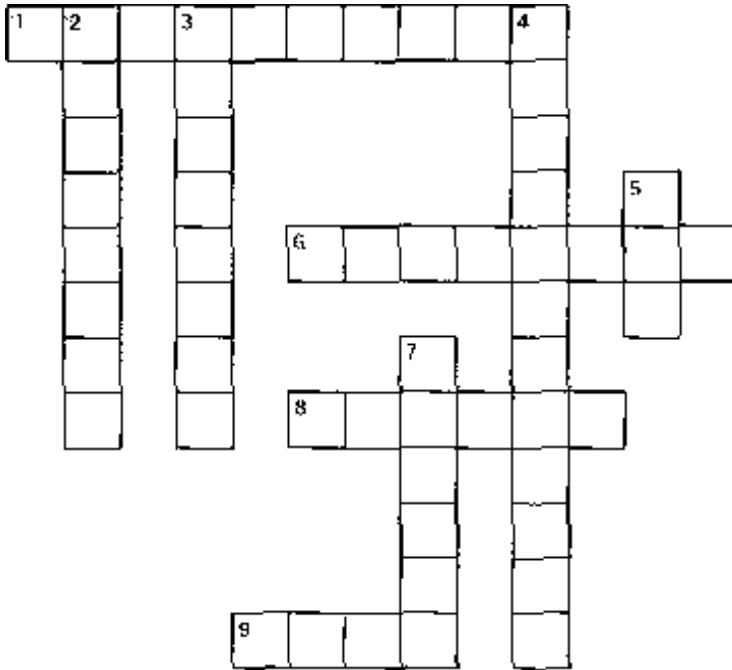
Before you can recover the files that have been deleted, you must unformat the hard disk.

### **19.1** Complete the sentences with verbs from A and B opposite.

1. In order for your voice to travel over the Net as email does, it must be.....from an analogue to a digital signal, i.e. it must be..... and then broken into small envelopes of data called Internet Protocol packets .Voice communication that is..... in this way is what's known as Voice over IP.

2. The Pocket Weather Tracker, which is the size of a mobile phone, measures temperature, humidity and barometric pressure. The results are..... on an easy-to-read LCD screen.
3. One football coach who uses high-tech training methods says: 'We have 11 cameras strategically positioned on the stands and they film an entire match. Then the recording is..... into a main computer and 24 hours later we have a CD-ROM disc which presents everything in a tactics board format.

**19.2** Solve the clues and complete the puzzle with verbs from A and B opposite.



**Across**

- 1 It has been\_\_\_\_\_, i.e. laid out according to the user's specifications or needs.
- 6 The web page will be\_\_\_\_\_to the server, where it will be published.
- 8 Different peripherals can be\_\_\_\_\_up to a PC.
- 9 More data is\_\_\_\_\_on a DVD than on a CD.

**Down**

- 2 After my computer had been\_\_\_\_\_by adding more RAM, it had better performance.
- 3 In an Internet discussion group

the messages are in reply to an initial post.

- 4 The disk was\_\_\_\_\_ to optimize the data storage.
- 5 A video conference was\_\_\_\_\_ up to present the new products to the customers.
- 7 A lot of responses to that controversial message were\_\_\_\_\_ to the newsgroup.

**19.3** Rearrange the paragraphs in the text below by referring to the connectors in C opposite.

- a Then a pure silicon crystal is cut into thin wafers, which are covered with two other layers of protective materials.
- b First engineers design the construction plans for the chip.
- c After the chemical treatment, the chip undergoes a process that alters its electrical properties.
- d Chip production today is based on photolithography. Here is a sequential description of the process.
- e Finally when all the components are ready, metal is added to Connect the components to each other.



f Next UV-light is shone through the mask and onto the wafers. The protective materials break apart on the parts of the chip that are hit by light. Then it has to be treated with chemicals before the protective material can be removed.

***You and computers***

With the help of the information in this unit, explain the process you follow when you want to write a document using your computer. You might need the following verbs:

switch on   boot up   run   type in   edit   insert   save   print   switch off

# 20 Troubleshooting

## A Troubleshooting and help desks

Sally Harrison is a help desk technician. She works at a help desk, a computer support centre where people phone for help with their computer problems.

'In my job I have to talk to the computer user to find the source of a problem and try to fix it on the phone.

We offer computer assistance for all types of problems. Some people prefer to use the word debugging when we solve programming errors and use troubleshooting when we solve problems encountered while using information technology tools.

Sometimes there are no problems with either of them and it's a PEBCAK, the problem exists between the chair and keyboard, i.e. it's a user's problem.

I generally start by asking the customer if there has been an error message, a warning of a problem displayed by the application inside a dialogue box, a small window that provides information about the problem and an interface of communication with the user. One of the most frightening messages is the one shown with a BSoD, or Blue Screen of Death, a blue screen that shows an unrecoverable system error.'



## B Describing the problem

People ask the help desk technician for help with problems like these.

1. 'My printer is producing fuzzy, nor clear, printouts.'
2. 'I get a lot of error messages. Some of my files won't open. They're corrupted, damaged.'
3. 'The monitor flickers, the image is unsteady.'
4. 'My optical drive fails: it won't read or write discs.'
5. 'My machine is running very slowly and it shows low memory error messages.'
6. 'My computer is behaving strangely. I think it's got a virus.'
7. 'I get a 401 message: I'm unauthorized, not allowed to enter that website.'
8. 'I've tried to access a website but I get a 404 Not Found message, as if it didn't exist.'
9. 'I try to connect but I get this message: Network connection refused by server.'

## C Making guesses and giving advice

Help desk technicians have to sort out the different reasons for the problem and suggest ways to fix it. Look at some of the expressions that can be used.

- Turn the computer off and on again. It often works.
- You should check that dust is not affecting the computer cooling fan, the device that prevents the parts inside the computer from overheating.
- Why don't you reboot, restart, the system again?
- If this doesn't work, use a recovery tool, a software application to restore your deleted data.
- You should back up your files in the future, make copies.
- If I were you, I'd get a UPS, an uninterruptible power supply, a device to maintain the continuous supply of electric power.

**20.1** Complete these sentences with words from A opposite.

1. Your computer may have a virus if it has symptoms like these:
2. Windows won't start and an ..... tells you that it's because important files are missing.
3. An unfamiliar message pops up in a ..... The message is usually unrelated to programs you're running or asks for confidential information such as passwords.
4. A bug is a coding error in a computer program. That's why some people say that ..... is the art of taking bugs out — programming is the art of putting them in.
5. The company is improving the ..... for computer users. They are introducing 'answer-express' to handle all kinds of technology support and online advice.
6. The firm is seeking a ..... to join the team. The successful candidate will be responsible for ..... and resolving problems for internal staff as well as external users.

**20.2** Match the pieces of advice (a—i) with the problems (1-9) in B opposite

- a. Haven't you got any antivirus software installed? If I were you, I'd try a free online scan.
- b. Why don't you reset the refresh rate of your monitor?
- c. You may have made a mistake while typing your password. You can't access a website if you aren't recognized as a guest. Try typing it again.
- d. The computer may be overheating. Check there's nothing blocking the flow of air. You should also use a recovery tool to retrieve your files.
- e. Your system must be running short of memory. You'd better add some more RAM.
- f. That message shows the web server is busy. Why don't you wait and try again later?

- g. Your discs or perhaps your lens might be dirty. Use some special disc polish.
- h. It might mean that the page is no longer on the Internet. Check the URI. again. If that doesn't work, you could use a search engine to find similar pages.
- i. The print heads of your printer must be clogged, obstructed with ink. Run the clean cartridge routine or wipe them with a cloth and distilled water.

**20.3** Here are some preventative tips to stop disasters before they start. Complete the text with words from C opposite.

- Your PC has a mortal enemy: heat. Since the most common cause of overheating is dirt you should ensure that your CPU (1) ..... doesn't become clogged by cleaning it with compressed air.
- Check your power protection: if there are frequent voltage spikes or power outages in your area, get a (2) ..... to power your PC.
- Remember your (3) ..... software is essential so you won't lose important information. It's always essential to (4) ..... all the files you'll need in the future.
- Evaluate your hard disk's health with its error-checking
- Finally, if disasters do happen, remember that it's always useful to (5) ..... off and on the computer or (6) ..... the OS.

### ***You and computers***

1. I Lost some important files.
2. The monitor was flickered.
3. My Computer displayed an error message.
4. It ran short of memory.
5. The monitor showed a blue screen with a warning message.

## ACRONYMS AND ABBREVIATIONS

**ADSL** Asymmetric Digital Subscriber Line  
**AI** Artificial Intelligence  
**AIM** AOL Instant Messenger  
**ALU** Arithmetic Logic Unit  
**AMD** Advanced Micro Devices  
**ASCII** American Standard Code for Information Interchange  
**AT&T** American Telephone & Telegraph company  
**ATA** Analogue Telephone Adaptor  
**ATM** Automated Teller Machine  
**AVI** Audio Video Interface  
**BASIC** Beginner's All-purpose Symbolic Instruction Code  
**BBS** Bulletin Board System  
**Bcc:** Blind  
**BIOS** Basic Input/Output System carbon (or courtesy) copy  
**bit** binary digit  
**bps** bits per second  
**CAD** Computer-Aided Design  
**Cc:** Carbon (or courtesy) copy  
**CCD** Charge-Coupled Devices  
**CD** Compact Disc  
**cd/m<sup>2</sup>** Candela per square metre  
**CD-R** Compact Disc-Recordable  
**CD-ROM** Compact Disc-Read Only Memory  
**CD-RW** Compact Disc-Rewritable  
**CERN** Conseil Europeen pour la Recherche Nucleaire  
**COBOL** COmmon Business- Oriented Language  
**CPU** Central Processing Unit  
**CRT** Cathode RayTube  
**CSS** Cascading Style Sheets  
**CTP** Computer To Plate  
**CU** Control Unit  
**DAB** Digital Audio Broadcasting  
**DAW** Digital Audio Workstation  
**DBMS** Database Management System  
**DDR** Double Data Rate (RAM)  
**DIMM** Dual In-line Memory Module  
**DLP** Digital-Light processing  
**DMB** Digital Multimedia Broadcasting  
**DNS** Domain Name System  
**dpi** dots per inch  
**DTP** Desktop Publishing  
**DTTV** Digital Terrestrial television  
**DVB-H** Digital Video Broadcast-Handheld

**DVD-/+RW** Digital Versatile Disc- Rewritable  
**DVD** Digital Versatile Disc or Digital Video Disc  
**DVD-R** Digital Versatile Disc- Recordable  
**DVD-ROM** Digital Versatile Disc-Read Only Memory  
**DVI** Digital Video Interface  
**EEPROM** Electrically Erasable Programmable ROM  
**EPS** Encapsulated PostScript  
**FAQ** Frequently Asked Questions  
**FORTRAN** FORMulaTRANslation  
**FTP** File Transfer Protocol  
**GB** Gigabyte (1,024 megabytes)  
**GHz** Gigahertz  
**GIF** Graphic Interchange Format  
**GIS** Geographic Information System  
**GNU** Gnu's Not UNIX  
**GPS** Global Positioning System  
**GSM** Global System for Mobile communication  
**GUI** Graphical User Interface  
**HDD** Hard Disk Drive  
**HD-DVD** High Definition-Digital Versatile Disk  
**HDTV** High-definition Television  
**HP** Hewlett-Packard  
**HTML** Hypertext Markup Language  
**HTTP** Hypertext Transfer Protocol  
**Hz** Hertz  
**I/O** Input/Output  
**IBM** International Business Machines  
**ICQ** I Seek You  
**ICT** Information and Communications Technologies  
**IM** Instant Messaging  
**IP** Internet Protocol  
**IR** Instruction Register  
**IrDA** Infrared Data Association  
**ISP** Internet Service Provider  
**IT** Information technology  
**JPG** (or JPEG) Joint Photographic Experts Group  
**k** 1 kilo, used to denote a thousand; 2 1,024 bytes  
**KB** kilobyte (1,024 bytes)  
**LAN** Local Area Network  
**Laser** Light Amplification by Stimulated Emission of Radiation  
**LCD** Liquid-Crystal Display  
**LISP** LISt Processing  
**.mov** QuickTime movie  
**Mac** Macintosh computer  
**MAN** Metropolitan Area Network

**MB** Megabyte (1,024 kilobytes)  
**MHz** Megahertz  
**MIDI** Musical Instrument Digital Interface  
**MIPS** Million Instructions Per Second  
**MMS** Multimedia messages  
**Modem** MOdulator/DEModulator  
**MP3** MPEG-1 Layer-3 Audio  
**MPEG** Moving Pictures Experts Group  
**ms** millisecond  
**NIC** Network Interface Card  
**NUI** Network User Identifier  
**OCR** Optical Character Recognition  
**OLE** Microsoft's Object Linking and Embedding standard  
**OLED** Organic Light-Emitting Diodes (display)  
**OOP** Object Oriented Programming  
**OS** Operating System  
**.pdf** portable document format  
**PAN** Personal Area Network  
**PC** 1 Personal Computer; 2 Program Counter  
**PCL** Printer Control Language  
**PDA** Personal Digital Assistant  
**PDL** Page Description Language  
**PGP** Pretty Good Privacy  
**PIN** Personal Identification Number  
**pixel** picture element  
**png** portable network graphic  
**ppm** pages per minute  
**PPP** Point to Point Protocol  
**.ra** RealAudio file  
**RAM** Random Access Memory  
**RGB** Red, Green, Blue  
**RFID** Radio-Frequency identification  
**RIM** Research In Motion  
**RIP** Raster Image Processor  
**RISC** Reduced Instruction Set Computer  
**ROM** Read Only Memory  
**rpm** revolutions per minute  
**RSI** repetitive strain injury  
**RSS** Really Simple Syndication or Rich Site Summary  
**SDRAM** Synchronous Dynamic Random Access Memory  
**SIM (card)** Subscriber Identity Module  
**SMS** Short Message Service  
**SMTP** Simple Mail Transfer Protocol  
**SQL** Structured Query Language  
**SSL** Secure Sockets Layer

**SXGA** Super XGA (Extended Graphics Array)  
**TAN** Transaction Authorization Number  
**TB** Terabyte (1,024 gigabytes)  
**TCP/IP** Transmission Control Protocol / Internet Protocol  
**TFT** Thin Film Transistor (display)  
**TIFF** Tagged Image File Format  
**UMTS** Universal Mobile Telecommunications System  
**URL** Uniform Resource Locator  
**USB** Universal Serial Bus  
**VAT** Value Added Tax  
**VCR** Videocassette Recorder  
**VDU** Visual Display Unit  
**VGA** Video Graphics Adapter/Array  
**VoiceXML** Voice Extensible Markup Language  
**VoIP** Voice over Internet Protocol  
**VRML** Virtual Reality Modelling (or Markup) Language  
**.wav** Windows wave audio file  
**W3** See **Web** in Glossary  
**WAI** Web Accessibility Initiative  
**WAN** Wide Area Network  
**WAP** 1 wireless access point; 2 Wireless Application Protocol  
**Wi-Fi** Wireless Fidelity  
**WiMAX** Worldwide Interoperability for Microwave Access  
**WIMP** Window, Icon, Menu (or mouse) and Pointer WPWord Processing  
**WWW** World Wide Web  
**WYSIWYG** What You See Is What You Get  
**XGA** Extended Graphics Array  
**XML** Extensible Markup Language  
**WXGA** Wide XGA (Extended Graphics Array)



## ENGLISH UKRAINIAN VOCABULARY

<b>UNIT 1</b>	
internet	інтернет
international	міжнародний
net	мережа
transmission control protocol / internet protocol	протокол управління передачею / інтернет-протокол
IP number	число IP
ISP (Internet Service Provider)	Інтернет-провайдер
modem	модем
telephone lines	телефонні лінії
external	зовнішній
internal	внутрішній
PC card	карта ПК
a dial-up	комутований
broadband	широкозмуговий
ADSL (Asymmetric Digital Subscriber Line)	асиметрична цифрова абонентська лінія
cable	кабель
web TV	веб-ТВ
wireless	бездротовий
Satellites	супутники
power-line Internet	ВЧ-Інтернет
WWW, World Wide Web	всесвітня павутина
email	електронна пошта
mailing lists	списки розсилки
chat	чат
instant messaging	обмін миттєвими повідомленнями
Internet telephone	інтернет телефон
video conference	відеоконференція
File Transfer Protocol (FTP)	протокол передачі файлів
newsgroups	групи новин
<b>UNIT 2</b>	
attachments	вкладки
snail mail	звичайна пошта
mailbox	поштова скринька
recipient	одержувач
header	заголовок

signature	підпис
unwanted message	небажане повідомлення
spammers	спамери
mailing list	список адресатів
newsgroups	групи новин
bulletin board	дошка оголошень
conventional mail	звичайна пошта
booked	замовляти

### UNIT 3

World Wide Web, Web or WWW	Всесвітня павутина, Веб
network	мережа
hypertext	гіпертекст
contains links	містить посилання
hyperlinks	гіперпосилання
highway	автошлях
surf	серфінг
browser	браузер
URI (Uniform Resource Locator)	уніфікований адресу ресурсу
Hypertext Transfer Protocol	протокол передачі гіпертексту
domain name	доменне ім'я
subject categories	тематичними категоріями
bookmarks	закладки
browser	браузер
located on the web	розташовані в мережі
interactive multimedia information	інтерактивна мультимедійна інформація
home page	головна сторінка
type of protocol	тип протоколу

### UNIT 4

HTML(Hyper Text Markup Language)	HTML (мова гіпертекстової розмітки)
source	джерело
raw HTML	сира HTML
HTML tags	HTML-теги
editor	редактор
WYSIWYG (What You See Is What You Get)	WYSIWYG (що бачиш, те й отримуєш)
web template	веб-шаблон
web-based site builder	будівельник веб-сайтів
links	посилання

graphics	графіка
JPEG (Joint Photographic Experts Group)	об'єднана група експертів по фотографії
GIF (Graphic Interchange Format)	графічний формат обміну
tables	таблиці
frames	кадри
background	фон
CSS (Cascading Style Sheets)	каскадні таблиці стилів
multimedia files	мультимедійні файли
MIDI (Musical Instrument Digital Interface)	цифровий інтерфейс музичних інструментів
WAV (Waveform Audio Format)	хвильовий аудіо формат
shockwave	ударна хвиля
flash	флеш
Java applets	Java-аплети
plug-in	підключати
<b>UNIT 5</b>	
IRC (Internet relay chat)	IRC (Ретрансльований чат в Інтернеті)
instant messaging	миттєві повідомлення
buddy	приятелі
incorporate	об'єднують
video conferencing (video call)	відеоконференції (відеодзвінки)
broadband access	широкосмуговий доступ до Інтернету
VoIP (Voice over Internet Protocol)	передача голосу по інтернет - протоколу
three-dimensional	тривимірне середовище
VRML (Virtual Reality Modelling Language)	мова моделювання віртуальної реальності
interact	взаємодіяти
<b>UNIT 6</b>	
cracker	зломник (хакер)
scam	шахрайство
phishing	фішинг
cyberstalking	кібердомагання
piracy	піратство
malware	шкідливе програмне забезпечення
virus	вірус
worm	черв
trojan horse	троянський кінь («троян»)
spyware	шпигунське програмне забезпечення

antivirus program	антивірусна програма
scanner	сканер
firewall	брандмауер
digital certificate	цифровий сертифікат
<b>UNIT 7</b>	
e-commerce	електронна комерція
online shopping	інтернет шопінг/інтернет купівля
online shop	інтернет-магазин
shopping cart program	програма-кошик
secure socket layer (SSL)	шар захищених сокетів
payment gateway	платіжний шлюз
shopping basket	кошик для покупок
checkout button	кнопка оформлення замовлення
to log in	увійти в систему
to sign up	zareєstrуватися
account	обліковий запис
to log out	вийти з системи
digital wallet	електронний гаманець
dotcom	дотком
brick and click	цегла й клік
B2B (business to business)	бізнес до бізнесу
B2C (business to consumer)	бізнес до споживача
C2C (consumer to consumer)	споживач до споживача
internet auction	інтернет-аукціон
<b>UNIT 8</b>	
brick-and-mortar bank	традиційний банк (без можливості користування онлайн послугами)
brick-and-click bank	банк, який має відділення і який надає можливість користуватися своїми послугами в інтернеті
ATM (automated teller machine)	банкомат
branch	відділення
PDA (personal digital assistant)	кишеньковий персональний комп'ютер
to pay bill	оплатити рахунок
financial institutions	фінансові установи
payee	одержувач платежу
convenient	зручний
to trade stocks	торгувати акціями

authentication	ідентифікація
to prevent fraud	запобігати шахрайства
physical trait	фізична особливість
fingerprint	відбиток пальця
<b>UNIT 9</b>	
mobilephone	мобільний телефон
cellular phone	сотовий телефон
coveragearea	зона покриття
basestation	базова станція
roaming	роумінг
out of range	поза зоною
1G(FirstGeneration)	перше покоління
2G(SecondGeneration)	друге покоління
digital	цифровий
GSM (Global System for Mobile communications)	глобальна система мобільного зв'язку
SIMcard	сім-карта
smart phone	смартфон
3G(ThirdGeneration)	третє покоління
UMTS (Universal Mobile Telecommunications system)	універсальна система мобільного зв'язку
4G(FourthGeneration)	четверте покоління
bluetooth	блютуз
WAP (Wireless Application Protocol)	протокол бездротових додатків
PDA (PersonalDigitalAssistant)	кишеньковий персональний комп'ютер
MP3 (MPEG-1 or MPEG-2 Audio Layer 3)	мп3
programmable ringtones	мелодії, що програмуються
changeable faceplates	Змінні лицьові панелі
SMS (short message service)	служба коротких повідомлень
built-in digital camera	вбудована цифрова камера
hands-free kit	набір для використання без рук
speakerphone	гучномовець
<b>UNIT 10</b>	
robot	робот
automata	автомати
joints	суглоб
actuators	приводи
computer system	комп'ютерна система

robotic arms	маніпулятори
planetary rovers	планетоходи
space probes	космічні зонди
surgical robots	хірургічні роботи
mobilerobots	мобільні роботи
artificial Intelligence (AI)	штучний інтелект
androids	андроїди
expert system	експертна система
neural networks	нейронні мережі
<b>UNIT 11</b>	
intelligent	розумний
automation	автоматизація
to involve	включати в себе/містити
to apply	застосовувати
domestic/household appliances	побутова техніка
intelligent systems	інтелектуальні системи
an embedded processor	вбудований процесор
microwave ovens	мікрохвильова піч
washing machine	пральна машина
computerized control	комп'ютеризоване управління
interface	інтерфейс
to facilitate communication	полегшувати зв'язок
physical switch	фізичний перемикач
touch screen	сенсорний екран
remote control	пульт дистанційного керування
a brightness sensor	датчик/сенсор яскравості
to send an instruction	відправляти команду
command receiver	командний приймач
radio-frequency system	радіочастотна система
a short-range radio system	радіосистема близької дії
portable devices	портативні пристрої
security/safety	безпека
alarm system	сигналізація
emergency service	аварійна служба
gates	ворота
blinds	жалюзі
curtains	штори
air conditioning	кондиціонер
assistive technology	допоміжні технології
people with mobility problems	люди з обмеженими фізичними можливостями

heating	отопление
disaster	катастрофа
<b>UNIT 12</b>	
nanotechnology	нанотехнології
nanobots	нанороботи
nanocomputer	нанокомп'ютер
molecule-sized	розміром з молекулу
quantum computers	квантові комп'ютери
quantum mechanics	квантова механіка
quantum bits	квантові біти
simultaneously	разом, одночасно
DNA	ДНК
DNA biochip	біочіп ДНК
subatomic	субатомний
embedded	вбудований
wearable computers	переносні комп'ютери
user interface	інтерфейс користувача
gesture interface	жестовий інтерфейс
mobile TV	мобільне телебачення
RFIP (radio-frequency identification fogs)	ідентифікаційні радіочастотні тумани
immersive Internet	занурення в Інтернет
intelligent robots	інтелектуальні роботи
MIPS (millions of instructions per second)	мільйон команд в секунду
<b>UNIT 13</b>	
data transmission	передача даних
interconnected	взаємопов'язаний
conductor	провідник
semiconductor	напівпровідник
insulator	діелектрик
PDA, Personal Digital Assistance	КПК, Кишеньковий Персональний Комп'ютер
to reboot	перезавантажити
to encrypt	шифрувати
to decrypt	розшифровувати
e-zine	електронний журнал
cyberslacking	«кібер-халява» – використання доступу до Інтернету на роботі для задоволення особистих цілей

integrated circuit	інтегральна схема
agenda	порядок денний
completely blank	повністю порожній
hand-held device	ручний пристрій
corresponding	відповідний
system requirements	системні вимоги
to coin	створювати, вигадувати
to emerge	з'являтися
e-signature	електронний підпис

### UNIT 15

compound	з'єднання
noun	іменник
refer	звертатися
gateway	вхід, ворота
separate	розділяти
hyphenated	написаний через дефіс
bandwidth	ширина смуги
merge	злиття, з'єднання
link	посилання
hyphen	дефіс
recover	відновлювати
definition	визначення
enable	давати змогу
intended	призначений
seek	шукати

### UNIT 16

collocation	словосполучення
order	порядок
to attach file	прикріпити файл
to enclose a file	додавати файл
particularly	особливо
broadband access	широкосмуговий доступ
capacity	потужність
current	струм
to burn	спалювати
to retrieve	витягувати
virtual environment	віртуальна середа
display	дисплей
interactive TV	інтерактивне телебачення



highly sensitive	високочутливий
multimedia phones	мультимедійні телефони
to configure	конфігурувати
interacting	взаємодіє
illegal	незаконний
unauthorized	несанкціонований
payment	оплата
bandwidth dramatically	пропускна здатність
collaborative scientific projects	спільні наукові проекти
<b>UNIT 17</b>	
to transmit data	передавати дані
address bar	рядок адреси
to be made up of	складатися з
to comprise	включати, містити
to constitute	становити, являти собою
to make up	складати
newbie	новачок
appliance	прилад, пристрій
<b>UNIT 18</b>	
low-end	один із найдешевших (про товар)
high-end	один із найдорожчих (про товар)
plentiful	великий, багатий (про кількість, обсяг)
spacious	великий, просторий
compatible	сумісний
expandable	той, який можна розширити
integrated	інтегрований
to be keen on	цікавитися або захоплюватися (чимось)
external	зовнішній, додатковий
speaker	динамік
warranty	гарантія
ICT (Information and Communications Technology)	інформаційно-комунікативна технологія
CRT (Cathode-Ray Tube)	електронно-променева трубка (тут монітор на електронно-променевих трубках)
barcode	штрих-код
to subscribe	підписуватися
manageable	контрольований, впорядкований

low-end	один із найдешевших (про товар)
high-end	один із найдорожчих (про товар)
<b>UNIT 19</b>	
be hooked up	бути підключеним
established	заснований, визначений
converted	зконвертований
temporarily	тимчасово
pick up	підіймати
hang up	вішати трубку
storage	зберігання, сховище
rearrange	перебудовувати
be customized	бути налаштованим
alter	змінювати
recover	відновлювати
humidity	вологість
entire	повний
clue	ключ , підказка
controversial message	дискусійне повідомлення
newsgroup	група новин
coach	тренер
reproduce	відтворювати
digital	цифровий
<b>UNIT 20</b>	
troubleshooting	пошук несправностей
help desk	довідкова служба
to fix	виправляти
debugging	налагодження
tool	інструмент
application	програма
keyboard	клавіатура
frightening message	лякаючі повідомлення
blue screen of death	синій екран смерті
fuzzy	нечіткий
corrupted	пошкоджений
flicker	мерехтить
fails	зазнавати невдачі
low memory	недостатньо пам'яті
virus	вірус
unauthorized	неавторизований

refuse	відмовлятися
cooling fan	охолоджуючий вентилятор
reboot	перезавантажувати
recovery tool	інструмент для відновлення
uninterruptible power supply	джерело безперебійного живлення

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