

English for IT specialists

Student's Book

```
1 if(parameters.  
2 hql += " and p.age  
3 }  
4 TypedQuery<Person> query = em.cri  
5 if(parameters.contains("name")){  
6 query.setParameter("name", values[0].tose  
7 contains("age")){  
8 "age", Integer.valueOf(valu
```

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ТЕХНОЛОГО-ЕКОНОМІЧНИЙ КОЛЕДЖ БІЛОЦЕРКІВСЬКОГО НАУ**

**ENGLISH
FOR
IT SPECIALISTS**

Біла Церква

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Укладачі: Лендрик Наталія Миколаївна, викладач іноземної мови
Технологічно-економічного коледжу Білоцерківського НАУ,
спеціаліст вищої категорії, викладач-методист

Гріневич Оксана Юріївна, викладач іноземної мови
Технологічно-економічного коледжу Білоцерківського НАУ,
спеціаліст вищої категорії

Рецензенти: Борщовецька В.Д., кандидат педагогічних наук, доцент,
декан факультету права і лінгвістики Білоцерківського
національного аграрного університету

Бондар Н.П., викладач гуманітарних дисциплін
Технологічно-економічного коледжу Білоцерківського НАУ,
спеціаліст вищої категорії, викладач-методист

Відповідальні за випуск: Лендрик Н.М., Гріневич О.Ю.

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English for IT specialists is designed for learners who need to use the English for computing and the Internet for study and work. This book looks particularly at the language of computing and the Internet but you'll also find topics such as new technologies and jobs in ICT.

English for IT specialists offers peculiar vocabulary, syntax and discourse functions that can be beneficial for developing your linguistic competence. This book contains 20 thematic units accompanying with CD of Audio scripts. The units cover a wide range of topics from multimedia PCs and Internet issues to Programming and New Technologies.

INTRODUCTION

Professional English for IT specialists is designed for learners who need to use the English for computing and the Internet for study and work. This book looks particularly at the language of computing and the Internet but you'll also find topics such as new technologies and jobs in ICT. Just read the technical specifications of your PC or explore a few websites and you will soon realize that English is the language of computers and the Internet. In fact, in many companies English has become essential for working with computers. Besides English for IT specialists offers peculiar vocabulary, syntax and discourse functions that can be beneficial for developing your linguistic competence. Computers have involved so quickly that thousands of new jargon words are used to describe devices that didn't exist before. That is why this book is also suitable for people who use computers at home and want to improve their general knowledge of English and computers.

You can use this book on your own for self-study, or you can use it with a teacher in the classroom.

The book contains 20 thematic units, each accompanying with Audio script. The units cover a wide range of topics from multimedia PCs and Internet issues to Programming and New Technologies.

Unit 1 is about living with computers; Units 2-8 deal with hardware components; Units 9-16 range from software, creative software to computer networks and Internet security; Units 17-20 are about jobs in ICT and computers tomorrow.

Each unit consists of a thematic text and exercises to practice the lexical items presented in the text. Lexis is shown in bold, using different techniques. Many vocabulary items are illustrated. Some exercises concentrate on using words in typical contexts. Others take the form of a crossword or other type of puzzle, or a diagram, which will help you remember computer items. There are also matching exercises and word building activities which revise the use of prefixes, suffixes and compounds. Some units contain true/false exercises and texts to complete. In some exercises you will be asked to recognize the new word in order to do a task.

The illustrations can often be used by the teachers as a warm-up activity or as talking point during the lesson. Learners can do the exercises individually or in small groups. They can then compare answers with other groups or in a whole-class feedback session.

Each topic include listening exercises. The scripts for this material can be found on “Audio scripts” in the **Index**. The audio tracks are on the cd disk.

You have a possibility to use the **Index** at the back of the book to look for specific ICT terms and abbreviations.

We hope this book will facilitate your interaction with computers and help you to communicate more effectively in this digital world.

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Unit 1

Living in a digital age

1. The digital age

A Match the captions (1-4) with the pictures (a-d).

- 1 In education, computers can make all the difference _____
- 2 Using a cashpoint, or ATM _____
- 3 The Internet in your pocket _____
- 4 Controlling air traffic _____



B How are computers used in the situations above? In pairs, discuss your ideas.

C Read the text and check your answers to B.

The digital age

We are now living in what some people call *the digital age*, meaning that computers have become an essential part of our lives. Young people who have grown up with PCs and (3) mobile phones are often called *the digital generation*. Computers help students to **perform** mathematical **operations** and improve their maths skills. They are used to

access the Internet, to **do** basic **research** and to communicate with other students around (6) the world. Teachers use projectors and interactive whiteboards to **give presentations** and teach sciences, history or language courses. PCs are also used for administrative purposes — schools use word processors to **write letters**, and databases to **keep records** (9) of students and teachers. A school website allows teachers to publish **exercises** for students to **complete** online. Students can also enrol for courses via the website and parents can download official reports.

(12) Mobiles let you **make** voice **calls**, **send texts**, email people and download logos, ringtones or games. With a built-in camera you can send pictures and make video calls in *face-to-face* mode. New smartphones combine a telephone with web access, video, a (15) games console, an MP3 player, a personal digital assistant (*PDA*) and a GPS navigation system, all in one.

In banks, computers **store information** about the money held by each customer and enable (18) staff to **access** large **databases** and to **carry out** financial **transactions** at high speed. They also control the cashpoints, or ATMs (automatic teller machines), which **dispense money** to customers by the use of a PIN-protected card. People use a Chip and (21) PIN card to pay for goods and services. Instead of using a signature to verify payments, customers are asked to **enter a** four-digit **personal identification number** (*PIN*), the same number used at cashpoints; this system makes transactions more secure. (24) With online banking, clients can easily **pay bills** and **transfer money** from the comfort of their homes.

Airline pilots use computers to help them control the plane. For example, monitors **display data** about fuel consumption and weather conditions. In airport control towers, computers (28) are used to manage radar systems and regulate air traffic. On the ground, airlines are connected to travel agencies by computer. Travel agents use computers to find out about the availability of flights, prices, times, stopovers and many other details.

D When you read a text, you will often see a new word that you don't recognize. If you can identify what type of word it is (noun, verb, adjective, etc.) it can help you guess the meaning.

Find the words (1-10) in the text above. Can you guess the meaning from context? Are they nouns, verbs, adjectives or adverbs? Write *n*, *v*, *adj* or *adv* next to each word.

- | | |
|----------------------------------|------------------------------|
| 1. perform (line 4) _____ | 6. digital (line 15) _____ |
| 2. word processor (line 8) _____ | 7. store (line 17) _____ |
| 3. online (line 10) _____ | 8. financial (line 18) _____ |
| 4. download (line 11) _____ | 9. monitor (line 26) _____ |
| 5. built-in (line 13) _____ | 10. data (line 27) _____ |

E Match the words in D (1-10) with the correct meanings (a-j).


- | | |
|------------------------------------|--|
| a. keep, save _____ | g. collection of facts or figures _____ |
| b. execute, do _____ | h. describes information that is recorded or broadcast using computers _____ |
| c. monetary _____ | i. program used for text manipulation _____ |
| d. screen _____ | j. copy files from a server to your PC or mobile _____ |
| e. intergraded _____ | |
| f. connected to the Internet _____ | |

F Discuss these questions.

How are/were computers used at your college (university)?

How do you think computers will be used at the college (university) in the future?

2. Computers at work

A Listen to four people talking about how they use computers at work. Write each speaker's job in the table. 

electrical engineer secretary librarian composer		
Speaker	Job	What they use computers for
1		
2		
3		
4		

3. Language work: collocations

A Look at the **HELP BOX** and then match the verbs (1-5) with the nouns (a-e) to make collocations from the text “The digital age”.

- | | | | |
|---|----------|---|---------------|
| 1 | give | a | money |
| 2 | keep | b | a PIN |
| 3 | access | c | databases |
| 4 | enter | d | presentations |
| 5 | transfer | e | record |

HELP BOX **Collocations**

Verbs and nouns often go together in English to make set phrases, for example *access the Internet*. These word combinations are called **collocations**, and they are very common. Learning collocations instead of individual words can help you remember which verb to use with which noun. Here are some examples from the text: *perform operations, do research, make calls, send texts, display data, write letters, store information, complete exercises, carry out transactions*.

B Use collocations from A and the **HELP BOX** to complete these sentences.

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





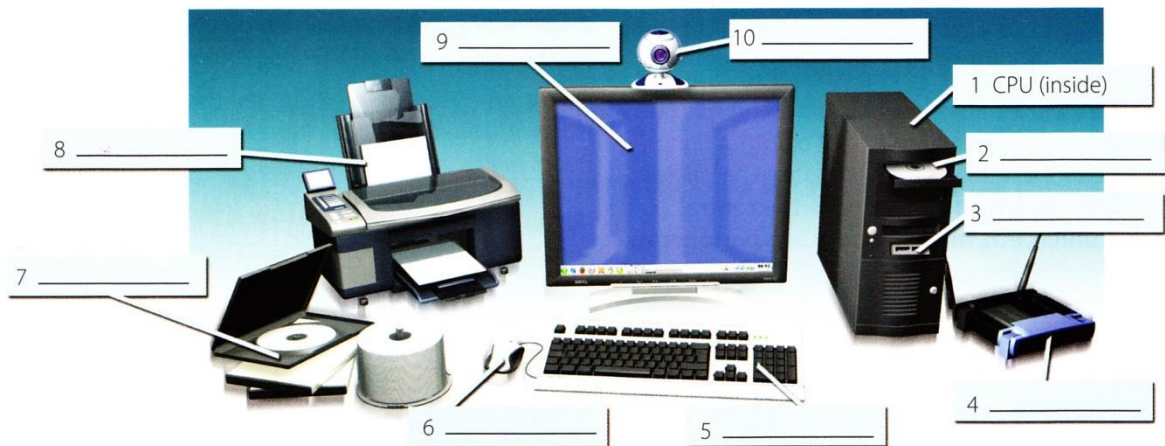
Unit 2 Computer essentials

1. Computer hardware

A Answer these questions.

1. Have you got a computer at home, the college or work?
2. How often do you use it? What do you use it for?
3. What are the main components and features of your computer system?

B Label the elements of this computer system.



C Read these advertising slogans and say which computer element each pair refers to.

1
Point and click
here for power
(a)

2
Displays your
ideas with perfect
brilliance (a)

3
It's quiet and
fast (a)

4
Power and
speed on the
inside (a)

Obeys every
impulse as if it
were an extension
of your hand (b)

See the difference –
sharp images and a
fantastic range of
colours (b)

...it's easy to
back up your
data before it's
too late (b)

Let your
computer's
brain do the
work (b)

5
... a big impact on the
production of the text and
graphics (a)

Just what you need: a
laser powerhouse (b)

D Find words in the slogans with the following meanings.

1. to press the mouse button _____
2. clear; easy to see _____
3. to make an extra copy of something _____
4. selection _____
5. shows _____

2. What is a computer?

A Read the text and then explain Fig. 1 in your own words.

What is a computer?

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

First, data is fed into the computer's memory. Then, when the program is run, the computer performs a set of instructions and processes the data. Finally, we can see the results (the output) on the screen or in printed form (*see Fig. 1 below*).

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

Perhaps the most influential component is the central processing unit. Its function is to execute program instructions and coordinate the activities of all the other units. In a way, it is the “brain” of the computer.

The main memory (a collection of RAM chips) holds the instructions and data which are being processed by the CPU. Peripherals are the physical units attached to the computer. They include storage devices and input / output devices.

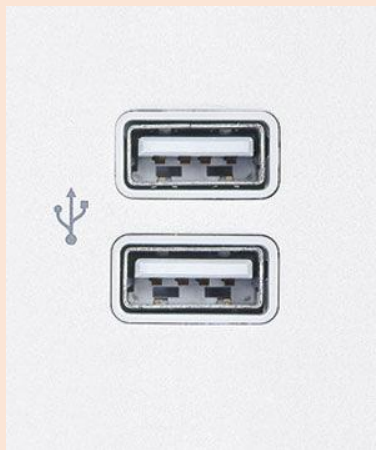
Storage devices (*hard drives, DVD drives or flash drives*) provide a permanent storage of both data and programs.

Disk drives are used to read and write data on disks.

Input devices enable data to go into the computer's memory. The most common input devices are the **mouse** and the **keyboard**. **Output devices** enable us to extract the finished product from the system.

For example, the computer shows the output on the **monitor** or prints the results onto paper by means of a **printer**.

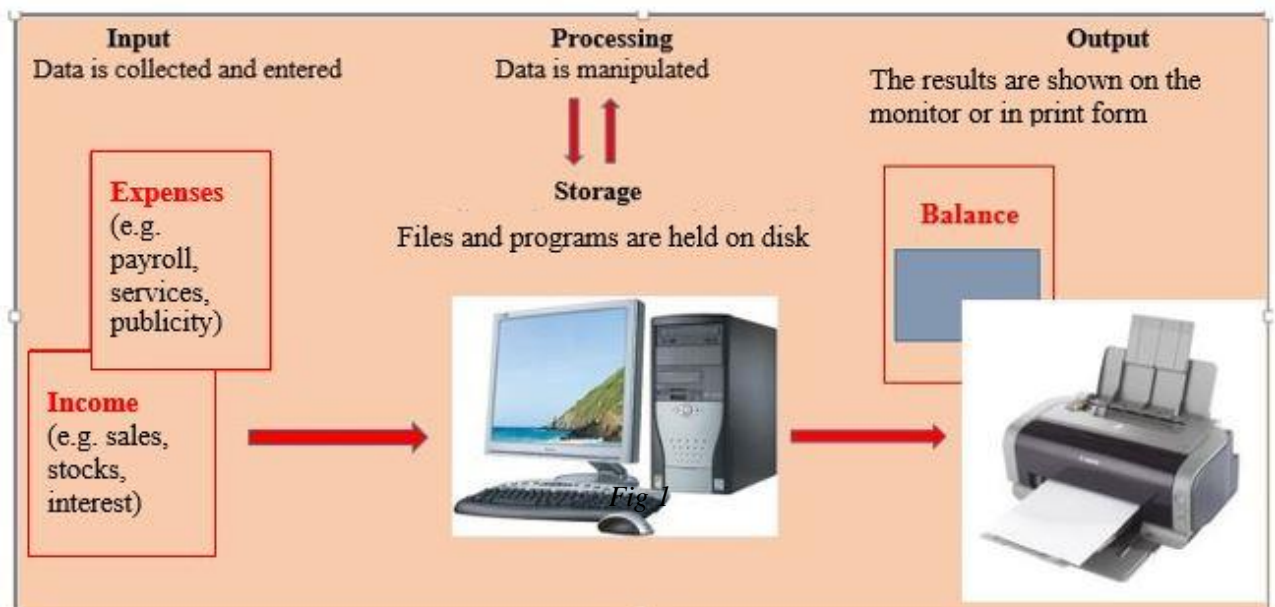
On the rear panel of the computer there are several **ports** into which we can plug a wide range of peripherals — a modem, a digital camera, a scanner, etc. They allow communication between the computer and the devices. Modern desktop PCs have USB ports and memory card readers on the front panel.



A USB port



A USB connector



B Match these words from the text (1-9) with the correct meanings (a-i).

1. software
2. peripherals
3. main memory
4. hard drive (also known as hard disk)
5. hardware
6. input
7. ports
8. output
9. central processing unit (CPU)

- a. the brain of the computer
- b. physical parts that make up a computer system
- c. programs which can be used on a particular computer system
- d. the information which is presented to the computer
- e. results produced by a computer
- f. input devices attached to the CPU
- g. section that holds programs and data while they are executed or processed
- h. magnetic device used to store information
- i. sockets into which an external device may be connected

3. Different types of computer

A Listen to an extract from an ICT class. As you listen, label the pictures (a-e) with words from the box.



laptop

desktop PC

PDA

mainframe

tablet PC



a



b



c



d



e

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



1. A mainframe computer is less powerful than a PC.
2. A mainframe is used by large organizations that need to process enormous amounts of data.
3. The most suitable computers for home use are desktop PCs.
4. A laptop is not portable.
5. Laptops are not as powerful as desktop PCs.
6. Using a stylus, you can write directly onto the screen of a tablet PC.
7. A Personal Digital Assistant is small enough to fit into the palm of your hand.
8. A PDA does not allow you to surf the Web.

4. Language work: Classifying

A Look at the HELP BOX and then use suitable classifying expressions to complete these sentences.

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

B Describe this diagram, using classifying from the HELP BOX. Make reference to your own devices.

HELP BOX

Classifying

Classifying means putting things into groups or classes. We can classify types of computers, parts of a PC, etc. Some typical expressions for classifying are:

- ... are classified into X types/categories
- ... are classified by ...
- ... can be divided into X types/categories

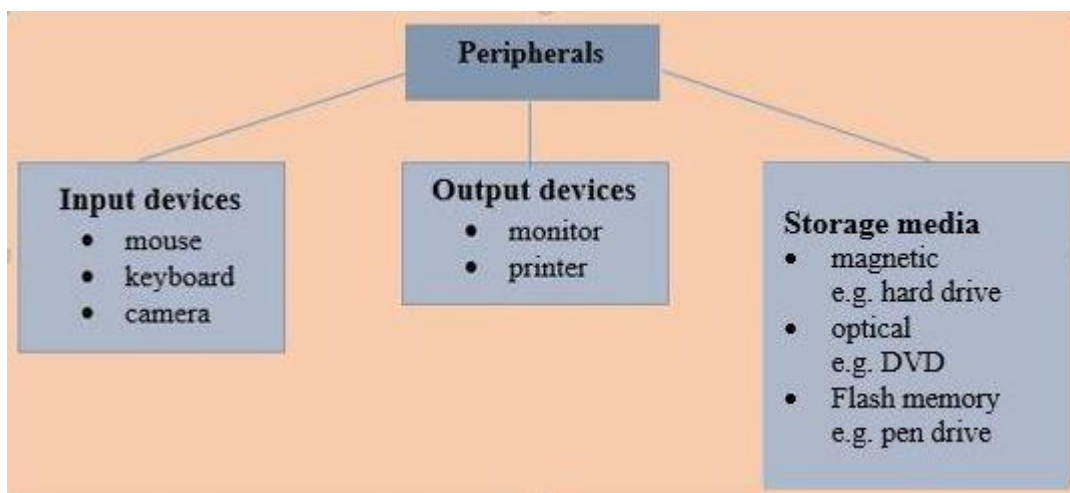
*Digital computers can be **divided into** five main types: mainframes, desktop PCs, laptops, tablet PCs and handheld PDAs.*

- ... include(s) ...
- consist(s) of ...

*The basic configuration of a mainframe **consists of** a central system which processes immense amounts of data very quickly.*

- There are X types/classes of ...
- X is a type of ...

*A tablet PC is **a type of** notebook computer.*





Unit 3

Inside the system

1. Technical specifications

A Read the advertisement and translate the technical specifications into your own language.

Dell Inspiron 9200

- Intel Core 2 Duo processor at 2.4GHz
- 2048MB RAM, expandable to 4GB
- 500GB hard drive
- Comes with Windows Vista Home Premium

B Answer these questions. If necessary, look at the Glossary.

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

2. What is inside a PC system?

A Read the text and then answer these questions.

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

B Read and translate the text.

What is inside a PC system?

Processing

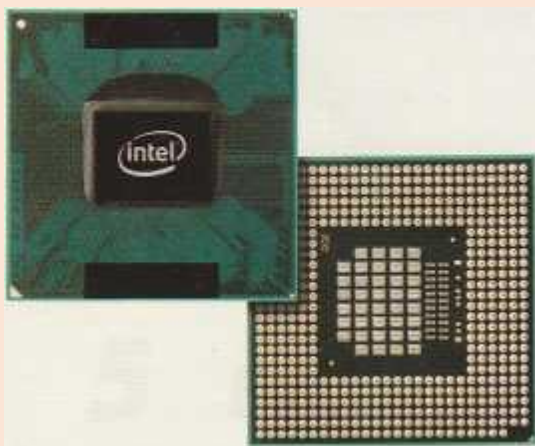
The nerve centre of a PC is the **processor**, also called the **CPU**, or **central processing**

unit. This is built into a single **chip** which executes program instructions and coordinates the activities that take place within the computer system. The chip itself is a small piece of silicon with a complex electrical circuit called an **integrated circuit.**

The processor consists of three main parts:

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

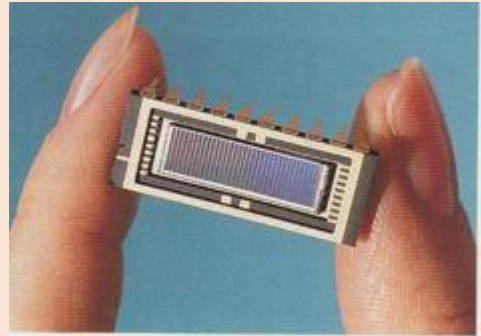
The power and performance of a computer is partly determined by the speed of its processor. A **system clock** sends out signals at fixed intervals to measure and synchronize the flow of data. **Clock speed** is measured in gigahertz (**GHz**). For example, a CPU running at 4GHz (*four thousand million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



*The Intel Core2 Duo processor;
other chip manufactures
are AMD and Motorola*

RAM and ROM

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



A RAM chip

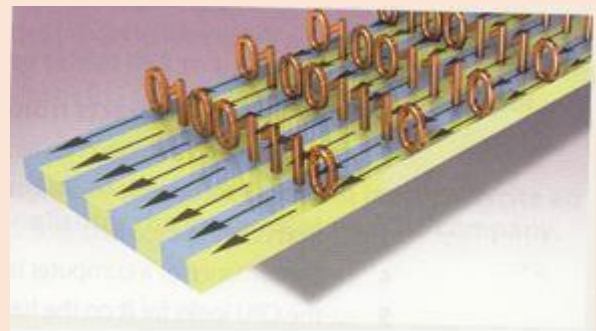
RAM capacity can be expanded by adding extra chips, usually contained in small circuit boards called dual in-line memory modules (**DIMMs**).

Buses and cards

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

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

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



A data bus

3. Language work: defining relative clauses

Look at the HELP BOX and then complete the sentences below with suitable relative pronouns. Give alternative options if possible. Put brackets round the relative pronouns you can leave out.

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

HELP BOX

Defining relative clauses

- We can define people or things with a defining(restrictive) relative clause. We use the relative pronoun **who** to refer to a person; we can also use **that**.

*A blogger is a person **who/that** keeps a web log (blog) or publishes an online diary.*

- We use the relative pronoun **which** (or **that**) to refer to a thing, not a person.

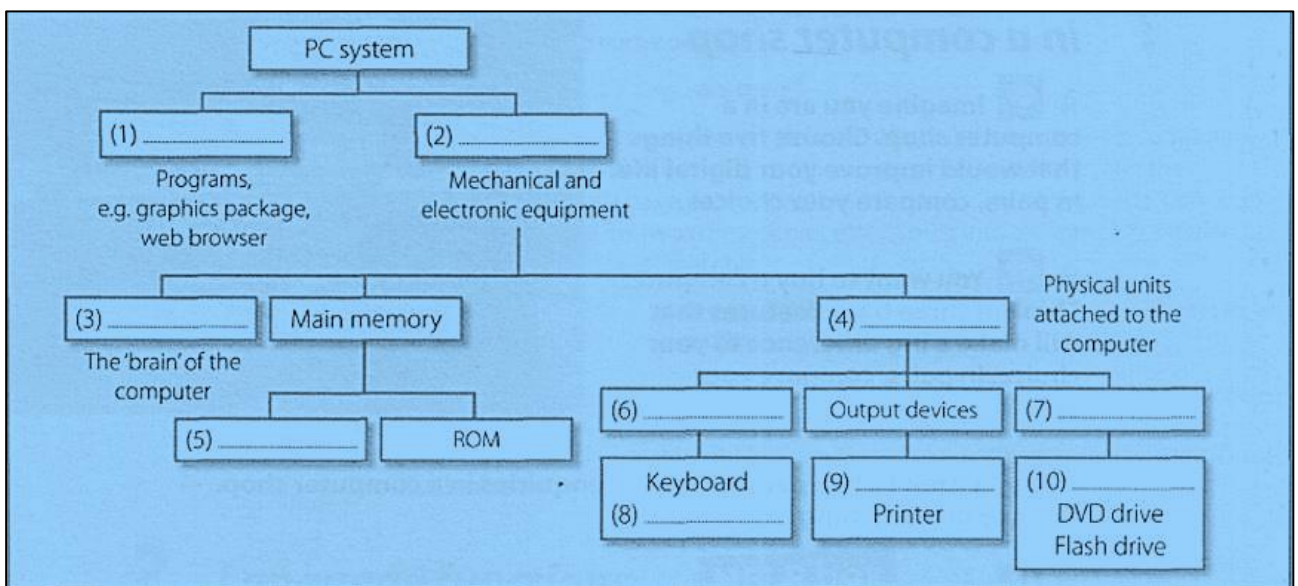
*This is built into a single chip **which/that** executes program instructions and coordinates the activities that take place within the computer system.*

- Relative pronouns can be left out when they are the object of the relative clause.

*The main circuit board (**which/that**) you have inside your system is called the motherboard...*

4. A PC system

A Complete the diagram of a PC system. Look at Units 1, 2 and 3 to help you.



B Listen to a teacher explaining the diagram to her class and check your answer.



5. Your ideal computer system.

A Make notes about the features of the computer that you would most like to have. Think about the features in the box.

CPU Speed Optical disc drives Wireless connectivity
Minimum/maximum RAM Monitor Ports and card memory slots
Hard disk Software

B Describe your ideal computer system. Give reasons for your choices.

Useful language

It's got...

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

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

The hard disk can hold...

I need a large, flat LCD screen because...

As for the Internet, ...





Unit 4 Type, click and talk!

1. Interacting with your computer

Read the description of input devices and then label the pictures (1-8) with words from the text.

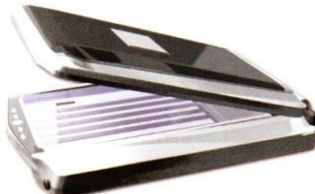
<p>Input devices are the pieces of hardware which allow us to enter information into the computer. The most common are the keyboard and the mouse. We can also</p>	<p>interact with a computer by using one of these: a light pen, a scanner, a trackball, a graphics tablet, a game controller or a microphone.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



1 _____



2 _____



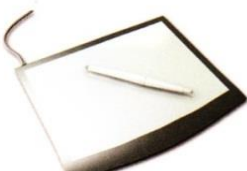
3 _____



4 _____



5 _____



6 _____



7 _____



8 _____

2. Describing input devices

A Listen to a computer technician describing three input devices. Write which devices he's talking about. 

- 1 _____ 2 _____ 3 _____

B Listen again and complete these extracts. 

- This device is _____ enter information into the computer.
- ... it may also _____ function keys and editing keys _____ special purposes.
- This is a device _____ the cursor and selecting items on the screen.
- It usually _____ two buttons and a wheel.
- ... the user _____ activate icons or select items and text.

6. It _____ detecting light from the computer screen and is used by pointing it directly at the screen display.
7. It _____ the user _____ answer multiple-choice questions and ...

3. Describing functions and features

Look at the **HELP BOX** and then use the notes below to write a description of the Sony PlayStation 3 controller.



Sony PlayStation 3 controller

Functions

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

Features

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

HELP BOX

Describing functions

in the listening, the mouse was described using **for + gerund**:

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

There are other ways of describing a device's function:

- **used + to + infinitive**
*It's **used to control**...*
- relative pronoun + verb
*This is a device **which controls** ...*
- relative pronoun + **used + to + infinitive**
*This is a device **which/that is used to control** ...*
- **work by + gerund**
*It **works by detecting** light from the computer screen.*

Describing features

We can describe features like this:

*An optical mouse **has** an optical sensor instead of a ball underneath.*

*It usually **features** two buttons and a wheel.*

*You **can** connect it to a USB port.*

*A wireless mouse **works/operates** without cables.*

*It **allows** the user **to** answer multiple-choice questions and...*

4. The keyboard

A Label the picture of a standard keyboard with the groups of keys (1-5).

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



A PC-compatible keyboard

B Match the descriptions (1-8) with the names of the keys (a-h). Then find them on the keyboard.

- | | |
|---|-----------------|
| 1. A long key at the bottom of the keyboard. Each time it is pressed, it produces a blank space. | a. arrow keys |
| 2. It moves the cursor to the beginning of a new line. It is also used to confirm commands. | b. return/enter |
| 3. It works in combination with other keys. For example, you press this key and C to copy the selected text. | c. Caps Lock |
| 4. It removes the character to the left of the cursor or any selected text. | d. shift |
| 5. It produces UPPER CASE characters. | e. tab |
| 6. It produces UPPER CASE letters, but it does not affect numbers and symbols. | f. space bar |
| 7. It moves the cursor horizontally to the right for a fixed number of spaces (in tabulations and data fields). | g. backspace |
| 8. They are used to move the cursor, as an alternative to the mouse. | h. Ctrl |

5. Mouse actions

Complete this text about mouse with verbs from the box.

click double-click drag grab select move control

Mouse actions

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

A mouse has one or more buttons to communicate with the computer. For example, if you want to place the insertion point or choose a menu option, you just (3) _____ (press and release) on the mouse button, and the option is chosen.

The mouse is also used to (4) _____ text and items on the screen. You can highlight text to be deleted, copied or edited in some way.

The mouse is widely used in graphics and design. When you want to move an image, you position the pointer on the object you want to move, press the mouse button, and (5) _____ the image to a new location on the screen. Similarly, the mouse is used to change the shape of a graphic object. For example, if you want to convert a square into a rectangle, you (6) _____ one corner of the square and stretch it into a rectangle.

The mouse is also used to start a program or open a document: you put the pointer on the file name and (7) _____ on the name — that is, you rapidly press and release the mouse button twice.



Unit 5

Display screens and ergonomics

1. Your computer screen

In pairs, discuss these questions.

1. What type of display do you have: a cathode ray tube or an LCD flat screen?
2. What size is the screen?
3. How can you change the picture using the controls?
4. Can you watch TV on your PC monitor?

An Apple Mac flat screen monitor



2. How screen displays work

A Complete these definitions with the words from the box. Then read the text “How screen displays work” and check your answers.

resolution pixel aspect ratio colour depth video adapter plasma screen

1. _____ — the smallest unit on a display screen or bitmapped image (usually a coloured dot)
2. _____ — an expansion card that generates the video signal sent to a computer display
3. _____ — the width of the screen in proportion to its height
4. _____ — also called gas discharge display
5. _____ — the number of pixels contained in a display, horizontally and vertically
6. _____ — the number of bits used to hold a colour pixel; this determines the maximum number of colours that can be displayed

B Read the text again and answer these questions.

1. What do CRT and LCD stand for?
2. How is the screen size measured?

3. What technology is used by active-matrix LCDs?
4. Which unit of frequency is used to measure the brightness of a display?
5. What substance produces light and colour when hit by electrons in a CRT monitor?
6. What are the three advantages of OLED displays?

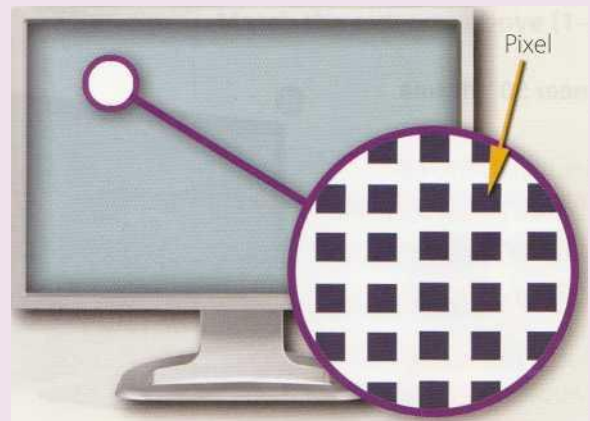
How screen displays work

Displays, often called **monitors** or **screens**, are the most-used output device on a computer. They provide instant feedback by showing you text and graphic images as you work or play.

Most desktop displays use **Liquid Crystal Display (LCD)** or **Cathode Ray Tube (CRT)** technology, while nearly all portable computing devices, such as laptops, incorporate LCDs. Because of their slimmer design and lower energy consumption, LCD monitors (also called **flat panel** or **flat screen** displays) are replacing CRTs.

Basic features

Resolution refers to the number of dots of colour, known as **pixels** (*picture elements*), contained in a display. It is expressed by identifying the number of pixels on the horizontal and vertical axes. A typical resolution is 1024x768.



A pixel is a combination of red, green and blue subpixels

Two measurements describe the size of your display: the **aspect ratio** and the **screen size**. Historically, computer displays, like most televisions, have had an aspect ratio of 4:3 — the width of the screen to the height is four to three. For widescreen LCD displays, the aspect ratio is 16:9, very useful for viewing DVD movies, playing games and displaying multiple windows side by side. High-definition TV also uses this format. The viewable screen size is measured diagonally, so a 19" screen measures 19" from the top left to the bottom right.

Inside the computer there is a **video adapter**, or graphics card, which processes images

and sends signals to the monitor. CRT monitors use a **VGA (video graphics adapter)** cable, which converts digital signals into analogue signals. LCD monitors use a **DVI (digital video interface)** connection.

Colour depth refers to the number of colours a monitor can display. This depends on the number of bits used to describe the colour of a single pixel. For example, an old VGA monitor with an 8-bit depth can generate 256 colours and a SuperVGA with a 24-bit depth can generate 16.7 million colours. Monitors with a 32-bit depth are used in digital video, animation and video games to get certain effects.

Display technologies

An **LCD** is made of two glass plates with a liquid crystal material between them. The crystals block the light in different quantities to create the image. **Active-matrix LCDs** use **TFT (thin film transistor)** technology, in which each pixel has its own switch. The amount of light the LCD monitor produces is called brightness or luminance, measured in cd/m^2 (candela per square metre).

A **CRT** monitor is similar to a traditional TV set. It contains millions of tiny red, green and blue phosphor dots that glow when struck by an electron beam that travels across the screen and create a visible image.

PCs can be connected to **video projectors**, which project the image onto a large screen. They are used for presentations and home theatre applications.

In a **plasma screen**, images are created by a plasma discharge which contains noble (non-harmful) gases. Plasma TVs allow for larger screens and wide viewing angles, making them ideal for movies.

Organic Light-Emitting Diodes (OLEDs) are thin-film LED displays that don't require a backlight to function. The material emits light when stimulated by an electrical current, which is known as electroluminescence. They consume less energy, produce brighter colours and are flexible — i.e. they can be bent and rolled up when they're not being used.

3. Choosing the right display device

A Listen to five customers in a computer shop describing their display device needs. Which device (a-e) would you recommend to each person? In pairs, discuss your choices and give reasons for them. 

Speaker 1 _____

Speaker 4 _____

Speaker 2 _____

Speaker 5 _____

Speaker 3 _____

NEC Multisvn LCD Monitor

Screen size: 17"

Resolution: 1280x1024 (SXGA)

Aspect ratio: 5:4

Brightness: 400 cd/m²

a



Dell UltraSharp LCD monitor


Widescreen 24" flat panel

Resolution: 1920x1200

Colour support: 16.7 million

Multiple video inputs, flash-card slots and USB ports

b



Cambridge-Hitachi interactive whiteboard


Allows interaction with a projected computer image

Board size: 78"

Connected to the PC via USB

Pointing device: cordless pen

c




Pioneer 50" Plasma TV

Resolution: 1280x768 (XGA)

Blu-ray Disc recorder

5.1 surround sound system
(Five audio channels plus one subwoofer)



d

Portable projector

DLP (Digital Light Processing) Technology

Resolution: 1024x768

Projection screen



e

B In pairs, discuss which of the display devices you would most like to own. Give reasons for your choice.

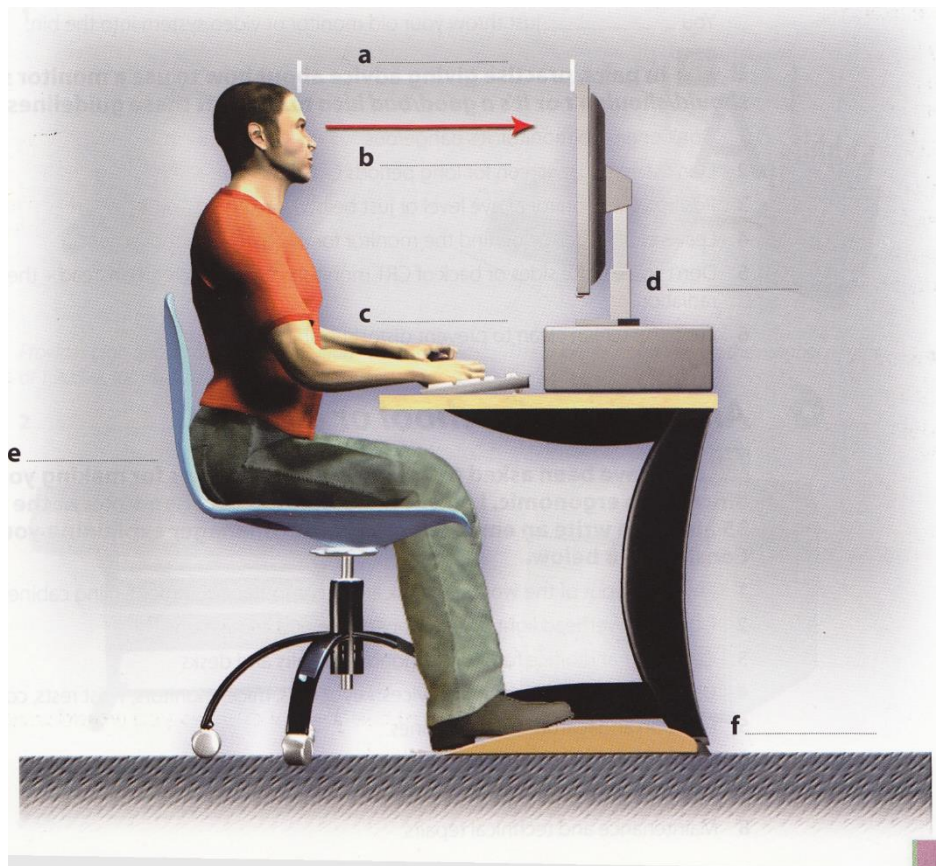
4. Ergonomics

A Listen to Tony Clark, an expert in computer ergonomics, talking to some office workers about health and safety. What health problems associated with computer use do the office workers mention? 

B Listen again and complete these extracts. 

1. Get a good chair, one that _____ your lower back and is _____ ...
2. Make sure your feet rest firmly _____ or on a footrest.
3. Position the keyboard _____ your elbows, with your arms _____ the work surface ...
4. ... position the monitor at, or just below, _____ .
5. You should sit at _____ from the front of the monitor, about 50 to 70 centimetres away.
6. ... a kind of stand that lets you move the monitor _____, so you can use it at the correct angle and height.

C Match the extracts above (1-6) with the correct parts of the diagram (a-f).



Ergonomics — the study of how people interact safely and efficiently with machines and their work conditions

5. Language work: instructions and advice

A Look at the HELP BOX and then complete these health and safety guidelines with should/shouldn't.

1. If you type a lot at your computer each day, you _____ buy an ergonomic keyboard; it can help reduce the risk of repetitive strain injury.
2. You _____ place your mouse within easy reach and support your forearm.
3. If you decide to build your own PC, protect yourself from electric shocks. You _____ touch any components unnecessarily.
4. You _____ always use a copyholder if you are working from documents. The best position is between the screen and the keyboard, or at the same height as the screen; this can reduce neck, back and eyestrain.
5. Irresponsible disposal of electronic waste can cause severe environmental and health problems. You _____ just throw your old monitor or video system into the bin.

B In pairs, practise giving advice about how to use a monitor safely using *should/shouldn't* or *It's a good/bad idea to*. Look at these guidelines for help.

1. Don't open the monitor. It's dangerous.
2. Don't stare at the screen for long periods of time.
3. Position the monitor at eye level or just below.
4. Leave enough space behind the monitor for unobstructed movement.
5. Don't sit near the sides or back of CRT monitors. Use LCD screens instead - they're free from radiation.
6. Keep the screen clean to prevent distorting shadows.

HELP BOX

Instructions and advice

- We use the imperative to give instructions.
Get an adjustable chair.
Don't put your monitor in front of a window.
- We use **should** and **shouldn't** + infinitive to give advice or to talk about what we think is a good or bad idea.
You should look down at the monitor, not up.
You shouldn't use a monitor that's fuzzy or distorts the image.
- We can also give advice by using set phrases like **It's a good idea to** or **It's a bad idea to** + infinitive.
It's a good idea to have a monitor with a tilt-and-swivel stand.





Unit 6

Magnetic storage

1. Types of magnetic drive

A Look at the pictures and descriptions below and find the following.

1. the name of the hard drive on a PC platform
2. the type of hard drive that plugs into a socket at the back of a computer
3. the system that works in sequential format
4. the size and storage capacity of a floppy disk

A 3.5" floppy drive and diskette

A floppy disk drive uses 3.5" disks, which can store 1.44MB of data; it is usually Assigned to the A: drive. Floppy drives are becoming increasingly rare.



The inside of a hard drive

Most PCs have one internal hard drive, usually called C: drive. It is used to store the operating system, the programs and the user's files in a convenient way. A hard drive can hold hundreds of gigabytes of data.



A portable external hard drive

External hard drives are connected to the USB or FireWire port of the computer. They can be as small as a wallet but can have as much capacity as internal drives; they are typically used for backup or as secondary storage



Magnetic tapes and drive

A tape drive reads and writes data on tapes. It is sequential-access — i.e. to get to a particular point on the tape, it must go through all the preceding points. Tapes can hold hundreds of gigabytes of data and are used for data collection, backup and archiving.



B Complete these sentences with words from the box.

capacity storage archiving hold secondary

1. There are basically three types of magnetic _____ device available to the computer user — hard drives, diskettes and tapes.
2. The _____ of a 3.5" floppy disk is only 1.44MB.
3. Hard drives can _____ hundreds of times more data than floppy disks.
4. A portable hard drive is a good choice for _____ storage.
5. Magnetic tapes are used for _____ information that you no longer need to use regularly.

2. Buying a portable hard drive

A Sue wants to buy a new drive. Listen to her conversation with the sales assistant. Does she buy anything?



B Listen again and answer these questions.



1. What is the storage capacity of the lomega eGo portable hard drive?
2. How much information can be stored on the Edge DiskGo model?
3. Which hard drive is good for mobile professionals?
4. How much does the lomega eGo drive cost?
5. How much does the Edge DiskGo cost?



3. Magnetic storage

A Read the text and then identify a sector and a track in Fig.1.

B Read the text again and decide whether these sentences are true or false. Correct the false ones.

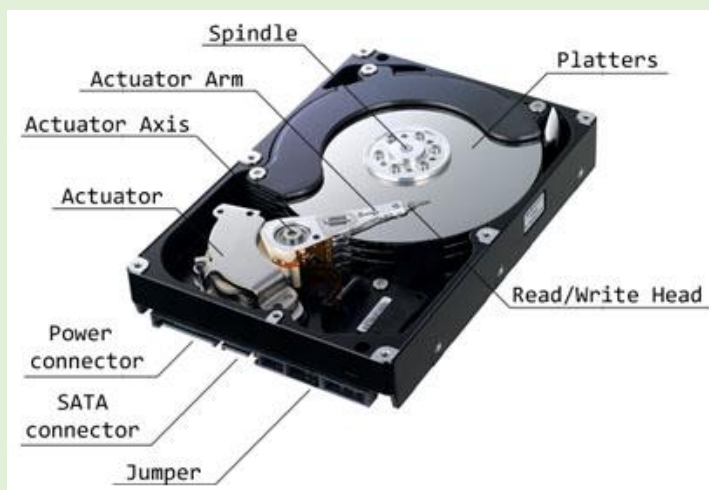
1. A hard drive spins at the same speed as a floppy disk drive.
2. If you format a hard drive that has files on it, the files will be deleted.
3. Hard drives cannot be partitioned to run separate operating systems on the same disk.
4. *Seek time* and *transfer rate* mean the same thing.
5. Disk drives are not shock resistant, especially in operating mode.

Magnetic storage

Magnetic storage devices store data by magnetizing **particles** on a disk or tape.

A **floppy disk** is so called because it consists of a flexible sheet of plastic, coated with iron oxide — a magnetizable material. A floppy disk drive spins at 360 revolutions per minute (*rpm*), so it's relatively slow.

However, a **hard drive** spins at over 7,200 rpm and stores data on a stack of metal rotating disks called **platters**. This means you can store much more data and retrieve information much faster.



New disks need to be **formatted**

before you can use them, unless they come preformatted from the manufacturer. When the disk is formatted, the operating system (*OS*) organizes the disk surface into circular **tracks** and divides each track into **sectors**. The OS creates a **directory** which will record the specific location of files. When you save a file, the OS moves the **read/write head** of the drive towards empty sectors, records the data and writes an entry for the directory.

Later on, when you open that file, the OS looks for its entry in the directory, moves the read/write heads to the correct sector, and reads the file in the RAM area. However, formatting erases any existing files on a disk, so do not format disks on which data that you don't want to lose is stored.



Fig. 1

The OS allows you to create one or more **partitions** on your hard drive, in effect dividing it into several logical parts. Partitions let you install more than one operating system (*e.g. Windows and Linux*) on your computer. You may also decide to split your hard drive because you want to store the OS and programs on one partition and your data files on another; this allows you to reinstall the OS when a problem occurs, without affecting the data partition.

The average time required for the read/write heads to move and find data is called **seek time** (or **access time**) and it is measured in milliseconds (*ms*); most hard drives have a seek time of 7 to 14 ms. Don't confuse this with **transfer rate** — the average speed required to transmit data from the disk to the CPU, measured in megabytes per second.



Toshiba's 1.8" hard drive; mini hard drives are used in small gadgets, such as PDAs and wristwatches

How to protect your hard drive

- Don't hit or move the computer while the hard drive is spinning. Hard drives are very sensitive to vibration and shocks, especially when they are operating; when the read/write head touches the rotating disk, it can scratch and damage the disk surface. This is known as **head crash**.
- You shouldn't turn your computer off and on quickly. Wait at least ten seconds to ensure that the drive has stopped spinning.
- Check your hard drive regularly for logical and physical errors. To check and repair a drive, you can use a disk diagnosis utility like Windows ScanDisk.
- To minimize the risk of data loss or corruption, you should install an up-to-date virus scanner. You should also **back up** your hard drive regularly.

C Match these words (1-5) with the definitions (a-e).

- | | |
|--------------------|---|
| 1. formatted | a. a file system that defines the structure for keeping track of the files |
| 2. directory | b. the part of a drive that reads and records data on a disk |
| 3. read/write head | c. to make a copy of data or software in case the original disk is damaged |
| 4. head crash | d. initialized; when the tracks and sectors on magnetic disks are set |
| 5. back up | e. a serious disk malfunction; when the read/write head touches the rotating disk |

4. Language work: precautions

A Look at the HELP BOX and then match the instructions (1-6) with the pictures (a-f).

1. Do not expose discs to heat or direct sunlight.
2. Check for viruses before opening files you receive from the Web or via email.

3. Make backup copies of your files.
4. Don't shake or move the computer violently while the hard drive is spinning.
5. Keep your discs away from water and humidity.
6. Hold discs by the edges, or by one edge and the centre hole.



HELP BOX

Precautions

- We use the imperative to give precautions and warnings.

Check your hard drive regularly for logical and physical errors.

*... formatting erases any existing files on a disk, so **do not format** disks on which data that you don't want to lose is stored.*

- We use **should** + infinitive without *to* to give advice or to talk about what we think is right.

*... you **should** install an up-to-date virus scanner.*

- We use **shouldn't** + infinitive without *to* to give advice or to talk about what we think is wrong.

*You **shouldn't** turn your computer off and on quickly.*

B What you should or shouldn't do to protect your data. Use the suggestions below.

Example: discs on top of each other (stack)

You shouldn't stack discs on top of each other. / Don't stack discs on top of each other.

1. your anti-virus program regularly, since new viruses are created everyday (update)
2. discs in a protective case (store)
3. passwords and security devices to protect confidential information (use)
4. on discs with permanent marker pens (write)
5. the disc into the disc drive carefully (insert)
6. floppies or hard drives near magnets; they can damage the data stored on them (leave)

Note: disc (optical media); disk (magnetic storage media)

5. Word building

Look at the words in the boxes. Are they nouns, verbs, adjectives or adverbs?
Write *n*, *v*, *adj* or *adv* next to each word and then complete the sentences below.

magnet _____	magnetic _____	magnetically _____
magnetism _____	magnetize _____	magnetized _____

- _____ is the science of magnetic phenomena and properties.
- Floppy disks and hard drives are _____ storage devices.
- Data is recorded on a disk in the form of _____ spots called *bits*.

fragment _____	fragmentation _____
defragmenter _____	fragmented _____

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



*In a fragmented disk,
a file is stored in
non-continuous sectors*



*In a defragmented disk,
a file is stored in
neighbouring sectors.*

6. Explaining hard drive precautions

A friend has sent you an email explaining that she has just lost all of the information on her PC because of a head crash. Write a reply explaining the following.

- Why the head crash happened
- What precautions she should take with her new PC to avoid similar problems in the future
- What steps she could take to back up her files



Unit 7

Optical Storage


1. CDs and DVDs

A In pairs, discuss these questions.

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

B How do you say these expressions in your language?

1. optical disc
2. laser beam
3. backward-compatible

C Paul wants to buy some blank discs. Listen to his conversation with the sales assistant and check your answers to A. 

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

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



Note: disc (optical media); disk (magnetic storage media)

2. Optical discs and drives

A Read the text and find the following.

1. the advantages and disadvantages of optical discs over magnetic disks
2. the storage capacity of a double-sided, dual layer DVD

3. the difference between a DVD burner and a DVD recorder
4. the feature of a portable DVD player which allows the user to play different formats
5. two possible successors to DVDs
6. where the Blu-ray format gets its name from

Optical discs and drives

Optical discs can store data at much higher densities than magnetic disks. They are therefore ideal for multimedia applications where images, animation and sound occupy a lot of disc space. Furthermore, optical discs are not affected by magnetic fields, meaning that they are secure and stable, and can be transported through airport metal detectors without damaging the data. However, optical drives are slower than hard drives.

CDs and DVDs

At first sight, a **DVD** is similar to a **CD**. Both discs are 120 mm in diameter and 1.2 mm thick. They also both use a **laser beam** to read data. However, they are very different in internal structure and data capacity. In a DVD, the **tracks** are very close together, thus allowing more tracks. The **pits** in which data is stored are also smaller, so there are more pits per track. As a result, a CD can hold 650-700MB, whereas a basic DVD can hold 4.7GB. In addition, a DVD can be **double-sided** and **dual layer**, with a capacity of 17GB.

CDs come in three different formats:

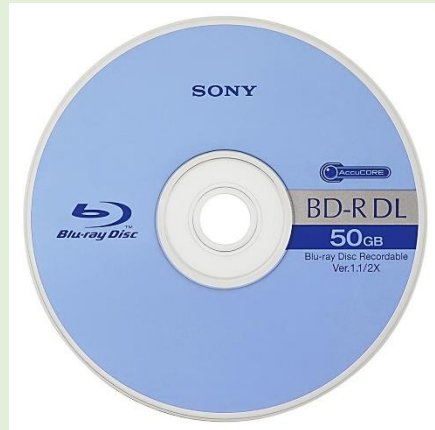
- CD-ROMs (**read-only memory**) are read-only units, meaning you cannot change the data stored on them (for example, a dictionary or a game).
- CD-R (**recordable**) discs are write-once devices which let you duplicate music CDs and other data CDs.
- CD-RW (**rewritable**) discs enable you to write onto them many times, just like a hard disk.

DVDs also come in several formats:

- DVD-ROMs are used in DVD computer drives. They allow for data archiving as well as interactive content (for example, an encyclopedia or a movie).
- DVD-R or DVD+R can only be recorded on once.
- DVD-RW or DVD+RW discs can be erased and reused many times. They are used to back up data files and to record audio and video.

HD-DVD and Blu-ray discs

These two competing formats are expected to replace current DVD as the standard for watching movies at home. On one side are Toshiba, Microsoft and the DVD Forum, who support the **High Definition-DVD (HD- DVD)**. Sony, Panasonic, Samsung, JVC and many movie studios are behind the **Blu-ray** format.



A Sony Blu-ray disc

A Blu-ray disc has a capacity of 25GB (*single layer*), 50GB (*dual layer*) and 100GB (*four layer*). Unlike DVDs, which use a red laser to read and write data, Blu-ray uses a blue- violet laser, hence its name. Blu-ray discs can record and play back high-definition television and digital audio, as well as computer data.

B Read the text again and make notes about the features of CDs, DVDs and Blue-ray discs.

	Capacity and formats	Possible uses
CD		
DVD		
Blu-ray		

3. Language work: connectors 2

A Look at these extracts from the text and put the words in *italics* into the correct column of the table.

1. They are *therefore* ideal for multimedia applications...
2. *Furthermore*, optical discs are not affected by magnetic fields.
3. *However*, they are very different in internal structure and data capacity.
4. *As a result*, a CD can hold 650-700MB, *whereas* a basic DVD can hold 4.7GB.
5. *In addition*, a DVD can be double-sided and dual layer...

Indicating addition	Making contrasts	Explaining the results or effects of something

B Look at the HELP BOX and check your answers. How do you say these connectors in your language?

C Choose the correct word in brackets to complete these sentences.

1. (Although / Consequently) CDs and DVDs are similar in size and shape, their data structure is very different.
2. DVDs hold more data than CDs. The pits burnt into the disc are smaller than on a CD, and the tracks are closer together. (On the other hand / As a result), DVDs can have up to four recording layers.
3. A Blu-ray disc drive costs a lot of money (but/so) you should use it carefully.
4. Blu-ray is expected to replace DVD over the coming years (because / besides) it offers much greater storage capacity.
5. Both Blu-ray (and / in addition) HD-DVD devices are backward-compatible with current CDs and DVDs, meaning you can play your old discs on the new players.
6. Sony has invested millions of dollars in the development of Blu-ray technology. The success of Blu-ray is (whereas / therefore) vital for the company's future.

HELP BOX

Connectors 2

We also use connectors for the following purposes:

- Indicating addition
furthermore **in addition**
besides **moreover**
and
- Making contrasts
however **whereas**
although **but**
on the other hand
- Explaining the results or effects of something
therefore **as a result**
so **thus**
consequently **because**

4. Choosing storage devices

Look at the products in the computer catalogue and choose the most suitable device for the purposes (1-6). Give reasons for your choices. Try to use some connectors from the HELP BOX.

1. to keep the operating system and the programs on a home computer
2. to watch a movie on a plane or in the back seat of a car
3. to hold your favourite photos and music
4. to make backup copies and to transport files between computers in a big company
5. to hold historical records in the National Library
6. to read, write and re-write high-definition video and TV

Seagate hard drive

Superfast 8ms hard drive. Capacity ranges from 80GB to 1TB.

Iomega portable hard drive

160GB, 2.5" external hard drive. An affordable way to back up all your data, from business documents to emails.

LaCie DVD drive

16x DVD writer with free Nero DVD burning software. Can play and record both DVD+R and DVD-R discs, plus their rewritable counterparts, as well as all types of CD.

Panasonic portable DVD player

8" portable LCD DVD Player with Car Kit. Compatible with DVD-Video, CD, JPEG image CD and MP3-formatted audio CD.

Sony Blu-ray disc drive

Sony's Vaio AR laptop is the first portable Blu-ray studio, which includes a Blu-ray disc drive and a TV tuner, alongside a 17" widescreen display and a 2GHz Intel Core Duo processor.

Toshiba USB flash drive

High-speed 16GB pen drive with a built-in MP3 player. Plugs directly into any USB connection.

Useful language

For this use, the ... is the most appropriate because...

The ... has ... so I'd choose it for ...

However, ... is good for ... because ...

In a big company, it would be a good idea to...

Well, that depends on ...

I agree / I disagree.



Unit 8 Flash memory

1. Flash-based gadgets

Flash memory is used in many handheld devices. Match the descriptions (1-6) with the pictures (a-f).

1. This handheld console lets you play games stored on ROM game cards, which have a small amount of flash memory to save user data, for example high scores.
2. This flash memory card is used as 'digital film' to store images on a digital camera.
3. This wireless LAN card allows laptop and PDA users to access the Internet from any Wi-Fi access point.
4. This USB flash pen drive is the latest mobile drive for your computer.
5. It looks like an ordinary watch, but this USB drive from Edge Tech can store up to 1GB of flash memory. It will let you save and transfer your photos, songs and data files easily.
6. This flash-based player provides everything you need to play music and store data on the go. It also comes with a built-in FM radio and voice recorder.



2. Memory in a flash

A Look at the title of the text. Why is it a suitable title for an article about flash memory? Read the first paragraph of the text to find out.

B Read the whole text and answer these questions.

1. What is flash memory?
2. What are the differences between RAM memory and flash memory?
3. What can devices which use multi-level cell technology do?

4. What are the differences between flash drives and external hard drives?
5. What is the advantage of using U3 technology in flash drives?
6. How much data can a flash memory card hold?
7. What is the name of the flash card created by Sony for its digital cameras?

Memory in a flash!

Flash memory is a type of **non-volatile** memory that can be electronically erased and reprogrammed. Its name was invented by Toshiba to express how much faster it could be erased — 'in a flash', which means 'very quickly'.

Unlike RAM, which is **volatile**, flash memory retains the information stored in the chip when the power is turned off. This makes it ideal for use in digital cameras, laptops, network switches, video game cards, mobile phones and portable multimedia players. In addition, it offers fast read access times (*although not as fast as RAM*), with transfer rates of 12MB per second. Unlike ROM chips, flash memory chips are rewritable, so you can update programs via software.

Inside the chip, data is stored in several floating gate transistors, called **cells**. Each cell traditionally stores one bit of data (1 = erased and 0 = programmed). New devices have a multi-level cell structure so they can store more than one bit per cell. The chips are constructed with either **NOR** or **NAND** gates.

NOR chips function like a computer's main memory, while NAND works like a hard drive. For example, in a camera, NOR flash contains the camera's internal software, while NAND flash is used to store the images.

Flash memory is used in several ways:

- Many PCs have their BIOS (*basic input/output system*) stored on a flash memory chip so it can be updated if necessary.
- Modems use flash memory because it allows the manufacturer to support new protocols.

- **USB flash drives** are used to save and move MP3s and other data files between computers. They are more easily transported than external hard drives because they use **solid-state** technology, meaning that they don't have fragile moving parts that can break if dropped. However, USB flash drives have less storage capacity than hard drives.
- New **U3 smart drives** allow users to store both applications and data. They have two drive partitions and can carry applications that run on the host computer without requiring installation.
- **Flash memory cards** are used to store images on cameras, to back up data on PDAs, to transfer games in video consoles, to record voice and music on MP3 players or to store movies on MP4 players. They are as small as a stamp, and capacity can range from 8MB to several gigabytes. The only limitation is that flash cards are often not interchangeable between devices. Some formats include: CompactFlash, Secure Digital, MultiMedia Card, miniSD card, and xD-Picture Card. Sony has its own product called the Memory Stick, used in its digital still cameras, video camcorders and the PlayStation Portable. The photos stored in a digital camera can be offloaded to a computer via cable or wirelessly. Another option is to have a **flash card reader** permanently connected to your PC; you simply eject the card from the camera and put it into the reader instead of having to plug the camera in.

The future of hard drives may be **hybrid** hard drives. Hybrid hard drives combine a magnetic hard disk *and* flash memory into one device. This allows computers to boot, or start, more quickly, and also reduces power consumption.



San Disk's card readers read and write to just about every flash memory card

3. Language work: word building

A Look at the **HELP BOX** and then, using affixation, conversion and compounding, try to make as many words as you can from *blog*, *mail* and *print*. Use a dictionary and the Internet to help you.

blog	mail	print
blogger (a person who writes a blog)	to mail (the verb form)	printout (the pages produced by the printer)

B Choose the correct word in brackets to complete this description of a digital voice recorder. Use a dictionary to help you.



Olympus WS-320M digital voice recorder

Slim, attractive, and highly functional, the Olympus WS-320M digital voice recorder packs 1GB of internal flash memory into its **1** (lighted/lightweight/lighten) housing, letting you record up to 277 hours of high-quality audio in WMA

format. It's ideal for **2** (record/recordable/recording) notes or long lectures, interviewing people, or capturing song ideas before they disappear. As an added bonus, the WS-320M can store up to 266 WMA or MP3 songs for high-quality stereo **3** (player/playback/playoff).

The WS-320M features five separate file **4** (folds/folding/folders), capable of holding 199 files each, so you can organize nearly 1,000 files by subject, theme or other category. Users also have the choice of four recording modes: HQ for high-quality audio, LP and SP for extended recording times, and ST HQ for stereo recording. And thanks to the voice **5** (activation/activate/active) option, users don't need to press a single button to start recording – the WS-320M will record as soon as the built-in microphone picks up sound.

Perhaps the most convenient feature, however, is the built-in USB **6** (connector/connect/connected), which eliminates the need for a USB cable. Once this is connected, you can **7** (downloadable/download/upload) music files, images or documents from your PC, in effect turning the recorder into a small hard drive. You can even transfer voice recordings to *your computer* for **8** (store/storage/storeroom) or multimedia use.

HELP BOX

Word building

We can create new words from existing words in three main ways:

Affixation (adding a prefix or suffix)

Adding a prefix:

volatile —► **non-volatile**

date —► **update**

Adding a suffix:

erase —► **erasable**

install —► **installation**

Conversion (turning a noun into a verb, or a verb into a noun, etc.)

network (noun) —► **to network** (verb)

*We **networked** all the PCs in the office.*

*We created a **network** of all the PCs in the office.*

Compounding (putting two or more words together)


hand + held —► **handheld**

*I bought a new **handheld** last week.*

Compounds can be written as two separate words (**flash card**), as two words joined with a hyphen (**solid-state**), or as one word (**handheld**). Unfortunately, there are no rules, and some compounds even change spelling over time. For example, **web site** began as two words, then became hyphenated (**web-site**) and is now written as one word - **website**. Always check your dictionary or Google if you are not sure.

In pronunciation, compounds normally have the main stress on the first part, and the secondary stress on the second part, for example '**video** ,game.

4. Describing flash drives

A Listen to a salesperson at his stand at a consumer electronics show describing two flash products to a potential customer. Which product (a or b) is the visitor most interested in? 

- a. The Dragon flash drive
- b. The Dragon MP4 player

B Listen again and tick (v) which features the salesperson mentions for each device. 

Features	Dragon flash drive	Dragon MP4 Player
Back up computer data	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Transport files between PCs	<input type="checkbox"/>	<input type="checkbox"/>
Audio and video playback	<input type="checkbox"/>	<input type="checkbox"/>
FM radio tuner	<input type="checkbox"/>	<input type="checkbox"/>
Voice recorder	<input type="checkbox"/>	<input type="checkbox"/>
Games	<input type="checkbox"/>	<input type="checkbox"/>

C Listen again and answer these questions. 

1. What is the storage capacity of the Dragon flash drive?
2. How do you connect it to the computer?
3. According to the salesperson, what are the advantages of a USB flash drive over a DVD or an external hard drive?
4. Some portable media players are also known as MP4 players. Why?
5. What is the screen size of the Dragon MP4 player?
6. How long does the battery last?



An MP4 player

USB drives are typically designed to attach to a key ring, such as the Cruiser freedom USB flash drive



D Choose a flash-based device that you own and describe it. Use the Useful language box and the features and questions from the listening text to help you.

E You have received a text from a friend at a computer show. Write a short reply.



Useful language

It has a storage capacity of ...

It features ... and ...

It supports multiple formats:
... and ...

You can ... and ...

Its battery life is ...





Unit 9

The operating system (OS)

1. The function of the operating system

A Discuss these questions.

1. How many operating systems can you think of? Make a list.
2. What is the function of an operating system?

B Complete the text with words from the box. If necessary, look at the Glossary.

application software operating system software system software

The set of program instructions that tell the computer what to do is known as (1) _____ . It can be classified into two basic categories:

- the (2) _____ , which includes all the programs that control the basic functions of a computer (*e.g. operating systems, programming software, device drivers and utilities*).
- the (3) _____ , which comprises programs that let you do specific tasks. Typical applications include word processing, databases, educational programs, email and video games.

The (4) _____ is a set of programs that control the hardware and software resources of a computer system. Typical functions include handling input/output operations, running programs and organizing files on disks.

2. GUI operating systems

A Discuss these questions.

1. What does *user-friendly* mean?
2. Do you think most operating systems are user-friendly? Give reasons for your answers.

B Read the text and decide which adjectives in the box best describe a GUI.

user-friendly slow accessible text-based intuitive complex graphics-based

C Read the text again and answer these questions.

1. What kind of OS was used in the early 80s: text-based or graphics-based?
2. What is the contribution of Macintosh computers to the development of graphic environments? What does the acronym WIMP stand for?
3. How do you run a program on a computer with a graphical interface?
4. What is *multitasking*?
5. Which multi-user OS is used on large, powerful computers?
6. What is the benefit of using open-source software, for example Linux?
7. Which Microsoft platform is used for pocket PCs, mobiles and portable media centres?

The term **user interface** refers to the standard procedures that the user follows in order to interact with a computer. In the late 1970s and early 80s, the way users accessed computer systems was very complex. They had to memorize and type a lot of commands just to see the contents of a disk, to copy files or to respond to a single prompt. In fact, it was only experts who used computers, so there was no need for a user-friendly interface.

In 1984, Apple produced the Macintosh, the first computer with a mouse and a **graphical user interface (GUI)**. Macs were designed with one clear aim: to facilitate interaction with the computer. A few years later, Microsoft launched Windows, another operating system based on graphics and intuitive tools. Nowadays, computers are used by all kinds of people, and as a result there is a growing emphasis on accessibility and user-friendly systems.

A **GUI** makes use of a **WIMP** environment: **w**indows, **i**cons, **m**enus and **p**ointer. The background of the screen is called the **desktop**, which contains labelled pictures called **icons**. These icons represent **files** or **folders**. Double-clicking a folder opens a window which contains **programs**, **documents**, or more nested folders. When you are in a folder, you can launch a program or document by double-clicking the icon, or you can drag it to another location. When you run a program, your PC opens a window that lets you work with different tools. All the programs have a high level of consistency, with similar toolbars, menu bars, buttons and dialog boxes. A modern OS also provides

access to networks and allows multitasking, which means you can run several programs — and do various tasks — at the same time.

The most popular operating systems are:

- The **Windows** family — designed by Microsoft and used on most PCs. The most recent version is Windows Vista.
- **Mac OS** — created by Apple and used on Macintosh computers.
- **Unix** — a multi-user system, found on mainframes and workstations in corporate installations.
- **Linux** — open-source software developed under the GNU General Public License. This means anybody can copy its source code, change it and distribute it. It is used in computers, appliances and small devices.
- **Windows Mobile** — used on most PDAs and smartphones (*PDAs incorporating mobile phones*).
- **Palm OS** — used on Palm handheld devices.
- **RIM** — used on BlackBerry communication devices. Developed by Research In Motion.
- The **Symbian OS** — used by some phone makers, including Nokia and Siemens.

These computer platforms differ in areas such as device installation, network connectivity or compatibility with application software.

D Translate these terms and expressions into your own language. Use a dictionary or the Internet to help you.

1. user interface _____
2. procedures _____
3. commands _____
4. tools _____
5. desktop _____
6. nested folders _____
7. launch a program _____
8. source code _____

E Label the interface features (a-j) on the screenshot of Apple's Mac OS X operating system with words in bold from this list.

- **desktop**: the background screen that displays icons and folders
- **window**: a scrollable viewing area on screen; it can contain files or folders
- **icon**: a picture representing an object; for example, a **document**, **program**, **folder** or **hard drive icon**
- **folder**: a directory that holds data, programs and other folders
- **menu bar**: a row of words that open up menus when selected
- **drop-down (pull-down) menu**: a list of options that appears below a menu item when selected
- **scroll bar**: a horizontal or vertical bar that is clicked and dragged in the desired direction
- **dock**: set of icons at the bottom of the screen that give you access to the things you use most



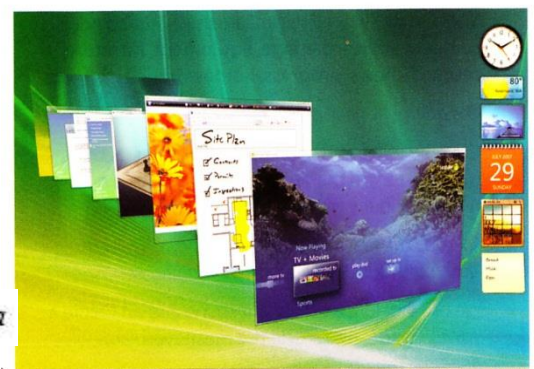
F Compare the Mac OS X user interface with a Windows or Linux interface. What are the similarities and differences? Which features do you prefer from each interface?


3. Windows Vista

A Listen to a podcast interview with Bill Thompson, a program developer, and answer these questions.

1. Why is Windows so popular?
Give two reasons.
2. Which Windows Vista edition is aimed at high-end PC users, gamers and multimedia professionals?

Windows Vista




B Listen again and complete this fact file. 

Windows Vista editions	Other features	Internet and security	Windows programs
<p>(1) _____ is designed for users with basic needs, such as email and internet access.</p> <p>Home Premium is for advanced home computing and (2) _____.</p> <p>The Business edition is ideal for (3) _____.</p> <p>The Ultimate edition is the most complete.</p>	<p>The user interface has been redesigned with new icons and a new (4) _____.</p> <p>It offers support for the latest technologies, from DVD creation to (5) _____.</p>	<p>Internet Explorer is more reliable and secure.</p> <p>The Security Centre includes an (6) _____ program called Windows Defender, and a firewall that protects your computer from (7) _____.</p>	<p>The most popular is still (8) _____, a suite that includes the (9) _____, Word; an email program; the Excel spreadsheet program; and the (10) _____, program, PowerPoint.</p>

4. Language work: countable and uncountable nouns

A Look at the HELP BOX and decide if these nouns from the fact file in 3B are countable, uncountable or either, depending on the context. Write C, U, or C and U.

user _____	email _____	computing _____
edition _____	entertainment _____	interface _____
icon _____	technology _____	security _____
		spyware _____

COUNTABLE AND UNCOUNTABLE NOUNS 


NOUNS


}

Countables


Uncountables

COUNTABLES: you CAN count them.
For example:

One 

Three 

UNCOUNTABLES: you CAN'T count them.
For example:



HELP BOX

Countable and uncountable nouns

- Countable nouns are people or things that we can count. They have a singular and a plural form (e.g. **file, program, system, application**).
- Uncountable nouns are things that we can't count. They have no plural form (e.g. **software, music, robotics, multimedia, networking, storage**).

*A lot of **software** these days is open-source.*

Not: *A lot of ~~softwares~~ these days ~~are~~ open-source.*

- Some words are countable in many languages but uncountable in English, and are used with a singular verb (e.g. **advice, damage, equipment, furniture, research, news, progress, homework**).

*The **advice** he gave me **was** very useful.*

- Countable nouns must have a determiner (**a, the, my, this**, etc.) in the singular, although this is not necessary in the plural.

*I deleted **the file** yesterday.*

*I lost more than 300 **files** when my computer crashed.*

We use **a** before a consonant sound and **an** before a vowel. The definite article **the** means *you know which one/ones I mean*.

B Complete this text with *a, an, the* or *nothing*.

Linux is (1) _____ operating system and it was initially created as (2) _____ hobby by a young student, Linus Torvalds, at the University of Helsinki in Finland. Version 1.0 of the Linux Kernel* was released in 1994. (3) _____ Kernel, at the heart of all Linux systems, is developed and released under GNU General Public License, and its source code is freely available to everyone.

Apart from the fact that it's freely distributed, (4) _____ Linux's functionality, adaptability and robustness has made it the main alternative for proprietary Unix and Microsoft operating systems. IBM, Hewlett-Packard and other giants of the computing world have embraced Linux and support its ongoing development. More than (5) _____ decade after its initial release, Linux is being adopted worldwide, primarily as (6) _____ server platform. Its use as a home and office desktop operating system is also on the rise.

The operating system can also be incorporated directly into (7) _____ microchips in a process called (8) _____ embedding, and it is increasingly being used this way in appliances and devices.

*The Kernel provides a way for software and other parts of the OS to communicate with hardware.



Unit 10

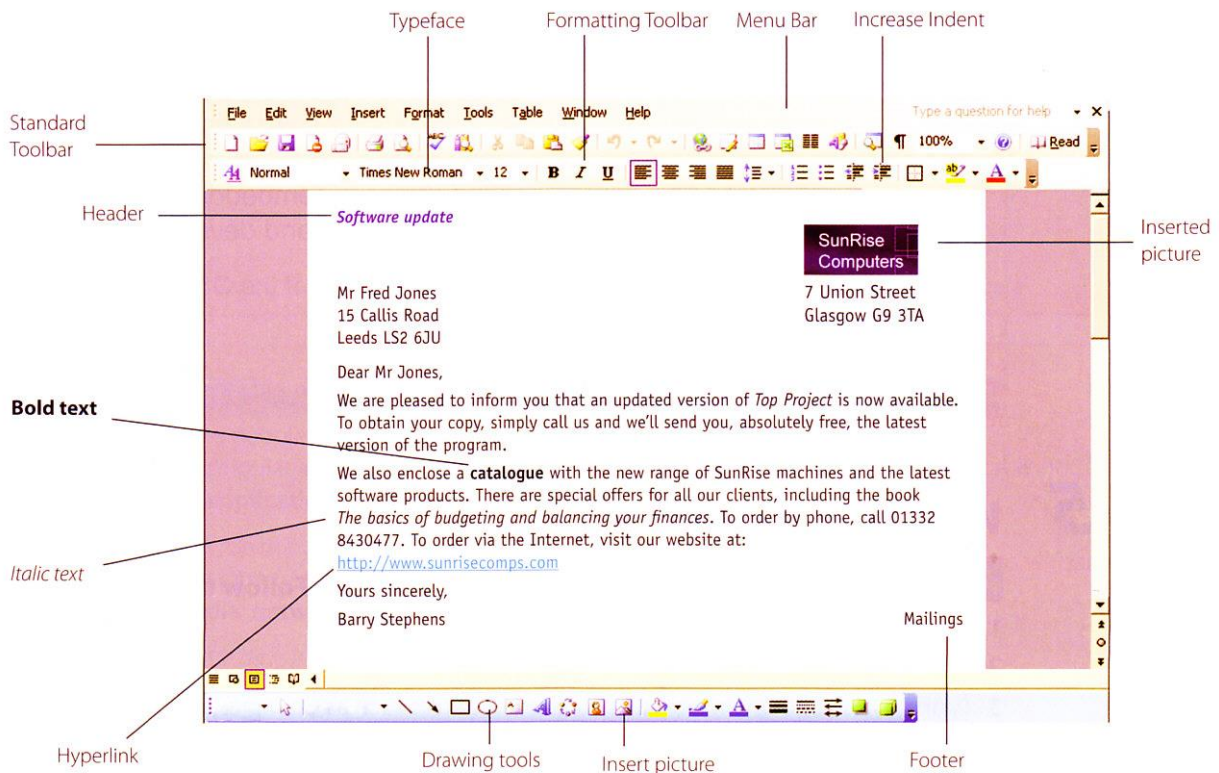
Word processing (WP)

1. Word processing features

A Discuss these questions.

1. What is a word processor?
2. What kind of tasks do people use word processors for?
3. How many different word processing programs can you name? Which do you think is the most popular?

B Look at this screenshot from Microsoft Word and translate the labelled features and functions into your own language.




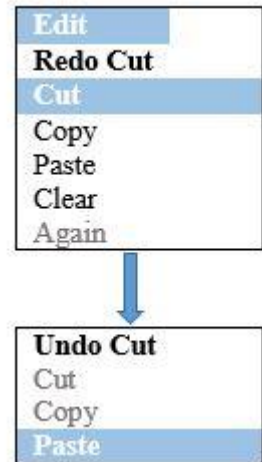
C Complete these sentences with the correct features and functions above.

1. The Standard _____ lists the icons to save or print a document, spell check, etc.
The _____ Toolbar is the area for changing font, alignment, indentation, etc.
2. A font consists of three elements: _____, type style and type size. For example, Palatino bold at 10 points.

3. Type style refers to a visual characteristic of a typeface, for example, *B* for _____, / for _____ and *U* for underlined.
4. If you need to change indentation — the space between the page margin and where the text aligns — you can click the Increase or Decrease _____ buttons.
5. The _____ and _____ commands allow you to specify customized texts at the top and bottom of every page.

2. The Cut and Paste technique

A Listen to two friends, Anna and Ben, Talking about how to move text in Word. How many steps are involved in carrying out the *Cut and Paste* task? 



B Listen again and complete the dialogue. 

Anna: Ben, do you know how I can move this paragraph? I want to put it at the end of this page.

Ben: Er... I think so. (1) _____, use the mouse to select the text you want to move. (2) _____ choose the *Cut* command from the Edit menu.

Anna: (3) _____?

Ben: Yes. The selected text disappears and goes onto the clipboard.

(4) _____ you find where you want the text to appear and you click to position the insertion point there.

Anna: Mm, OK. Is that (5) _____?

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

Anna: OK, I've (8) _____. Is that (9) _____?

Ben: Yes, that's it. If you make a mistake, you can choose *Undo* from the Edit menu, which will reverse your last editing command.

Anna: Brilliant! Thanks a lot.

Ben: That's OK, it's my pleasure.



3. Language work: giving and following instructions

A Look at the **HELP BOX** and then correct six mistakes in this dialogue.

A: I need a photo for my curriculum vitae. How do I insert one into this Word document?

B: Well, now choose *Insert* on the Menu bar.

A: As this?

B: Yes. From the Insert menu, select *Picture*. As you can see, this displays a drop-down menu with different options: *Clip Art, From File, From Scanner, Chart*, etc. Select *From File* and you'll get a dialog box.

A: OK. I've done that now. What last?

B: OK. Now I navigate your hard drive's contents and find the picture that you want to insert.

A: Right. I'd like to include this one.

B: OK, good. Now click *Insert* and the photograph will be inserted into your document.

A: Here it is. Is that write?

B: Yes. First, right-click with the mouse and select *Format Picture* to adjust the size and other properties.

A: Brilliant, thanks!

HELP BOX

Giving instructions

- To give instructions, we use the imperative form of the verb and sequence words such as **first, next, then, after that, finally**, etc.

First, use the mouse to select the text.

Then choose the Cut command from the Edit menu.

Next, choose Paste from the Edit menu.

Finally, check that the text has appeared in the right place.

We can also use the present simple with **you**.

Now you find where you want the text to appear and you click to position the insertion point.

Following instructions

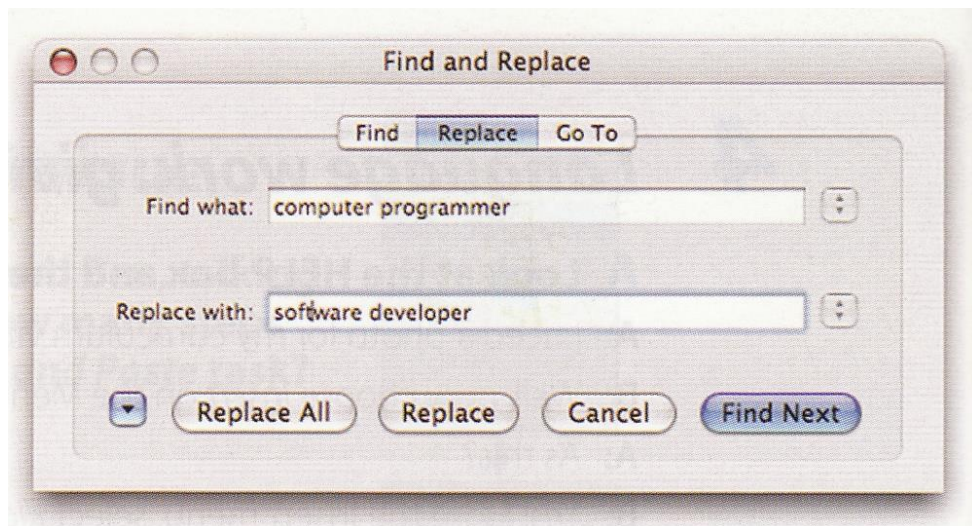
- If you want to check that you have understood instructions, you can use expressions like:
Like this?
Is that right?
- If you want to signal that you are ready to move on to the next step, you can use expressions like:
OK, I've done that now.
What next?
- If you want to ask if the process is completed, you can use expressions like:
Is that everything?
Anything else?

B Complete these instructions for how to *Copy and Paste* in Word with verbs from the box.

click (x2) select position right-click drag

1. First, _____ the text you wish to copy. To select text, _____ the mouse over the portion of the text that you want to copy. This part should then be highlighted.
2. Then _____ on the *Copy* icon on the Standard Toolbar. This copies the selected text to an invisible clipboard.
3. Next, _____ the cursor where you want the text to appear.
4. Finally, _____ the *Paste* icon. This inserts the content of the clipboard at the insertion point. As well as the icons on the toolbar, you can use the keys *Ctrl+C* for *Copy*, and *Ctrl+V* for *Paste*. These options also come up if you _____ the selected text.

C Write instructions for using *Find and Replace* based on this dialog box.



D Work in pairs. Student A: Give your partner instructions on *Creating a document and saving it on disk*. Student B: Give your partner instructions on *How to insert a picture from the Web into a Word document*. Use words and expressions from the HELP BOX.



Unit 11

Spreadsheets and databases

1. Spreadsheet programs

A Answer these questions.

1. What is a spreadsheet?
2. What are spreadsheets used for?

B Look at the worksheet and label a, b and c with *column*, *row* and *cell*. Then answer these questions.

1. What types of data can be keyed into a cell?
2. What happens if you change the value of a cell?

*This worksheet shows the income and expenses of a company. Amounts are given in \$millions. The terms **worksheet** and **spreadsheet** are often used interchangeably. However, technically, a **worksheet** is a collection of cells grouped on a single layer of the file. **spreadsheet** refers to both the computer program that displays data in rows and columns, and to the table which displays numbers in rows and columns.*

	A	B	C	D	E	F
1		2007	2008			
2	Sales	890	982			
3	Stocks/Shares	487	760			
4	Interest	182	324			
5	Total Revenue	1559	2066			
6						
7	Payroll	894	904			
8	Publicity	399	451			
9	Services	438	372			
10	Total Expenses	1731	1727			
11						
12	TOTAL	-172	339			

C Listen to Lucy Boyd giving a training course on basic Excel and check your answers to A and B.

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

1. A spreadsheet displays information in the form of a table with a lot of columns and rows.
2. In a spreadsheet you can only enter numbers and formulae.
3. You cannot change the width of columns.
4. Spreadsheet programs can generate a variety of charts and graphs.
5. Spreadsheets cannot be used as databases.

2. An invoice, a business letter and a fax.

A Spreadsheets are also used to generate invoices. Complete the invoice below with words from the box. If you have a spreadsheet program, try to produce a similar invoice.

Quantity	Description	Price	VAT (value added tax)	Product	Grand total	Company
----------	-------------	-------	-----------------------	---------	-------------	---------

Name:	Ruth Atkinson				(1) _____	
Address:	38 High Street, Galway					Media Market
Telephone:	5 743 8573					Fax: 1 665 5723
Date:	16 May 2014					
(2) _____	(3) _____	(4) _____	(5) _____			
Ulysses Classic	2GB of RAM 1TB HD	4			850€	3,400€
Flat LCD screen	Colour 19"	4			170€	680€
Portable Ulysses	2GB of RAM, 250GB HD	2			975€	1,950€
D5 database	DBMS, relational database	1			245€	245€
Antidote JP	Anti-virus, anti-spyware	6			60€	360€
Laser printer CQ	2,400 dpi, PostScript	1			230€	230€
					Sub-total	6,865€
					(6) _____(21%)	1,441€
					(7) _____	8,306€

B Look at this letter which accompanies the invoice. Complete the letter with phrases from the box.

Yours sincerely I am writing to Dear Ms Atkinson
We would be grateful if you could I am enclosing Please contact us

16 May 2014

Ruth Atkinson
38 High Street
Galway

(1) _____,

(2) _____ confirm that we have sent you four desktop PCs plus screens, two laptops and a laser printer, along with a D5 database, and an anti-virus program for each of the computers. Please allow two weeks for delivery.

(3) _____ two copies of your invoice.

(4) _____ make your payment by cheque or directly to our bank account through the Internet.

We are also delighted to inform you that we are offering our clients an online course called *A paperless office*, free of charge. (5) _____ if you require any further information.

(6) _____,

Ian Pegg

C Imagine you are Ruth Atkinson. When you try to use the laser printer, it gives continuous error messages. You are also having problems installing the database. Write a fax to Media Market to complain. Ask for a new printer and an upgraded version of the database. Look at the *Useful language* box to help you.

FAX MESSAGE

To: Media Market
Fax: 1 662 2367
From: Ruth Atkinson
Subject: Faulty products

Dear Mr Pegg,

Number of pages: 1

Please call if you experience any transmission problems.

Useful language

I am writing to complain about...

...doesn't work

I am unable to...

3. Databases

A Make a list of as many possible applications for databases as you can think of.

B Read the text.

Databases

A **database** is a collection of related data, and the software used in databases to store, organize and retrieve the data is called the **database management system**, or **DBMS**. However, we often use the word *database* to cover both meanings. A database can manage any type of data, including text, numbers, images, sound, video and hyperlinks (*links to websites*).

Information is entered into the database via **fields**. Each field holds a separate piece of information, and the fields are grouped together in **records**. Therefore, a record about

an employee might consist of several fields which give their name, address, phone number, date of birth, salary and length of employment with the company.

Records are grouped together into **files** which hold large amounts of information. Files can easily be **updated** — you can always change fields, add new records or delete old ones. An electronic database is much faster to consult and update than a card index system and occupies a lot less space. With the right software, you can keep track of stock, sales, market trends, orders and other information that can help your company stay successful.

A database program lets you create an **index** — a list of records ordered according to the content of certain fields. This helps you to **search** the database and **sort** records into numerical or alphabetical order very quickly. Modern databases are **relational** — that is, they are made up of related files: customers and orders, vendors and purchases, students and tutors, etc. Two database files can be related as long as they have a common field. A file of students, for example, could include a field called *Tutor ID* and another file with details of the tutors could include the same field. This key field can be used to relate the two files. Databases like Oracle, DB2 and MySQL can manage these relationships.

A database **query** function allows you to extract information according to certain conditions or criteria. For example, if a managing director wanted to know all the customers that spend more than €8,000 per month, the program would search on the name field and the money field simultaneously.

The best database packages also include **network** facilities, which can make businesses more productive.

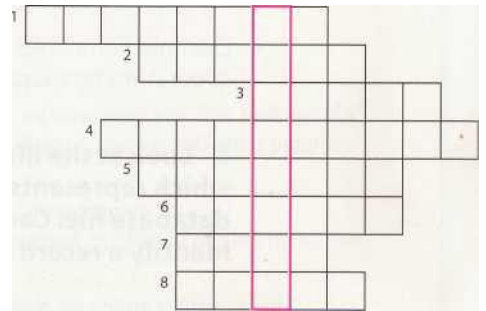
For example, managers of different departments can have direct access to a common database. Most aspects of the program can be protected by user-defined passwords and other **security devices**. For example, if you wanted to share an employee's personal details but not their commission, you could protect the commission field.

C Complete these statements about databases using information from the text.

1. A database management system is used to _____.
2. Information is entered into a database via _____.
3. Each field holds _____.
4. *Updating* a file means _____.
5. Some advantages of a database program over a manual filing system are:
_____.
6. Access to a common database over a network can be protected by using
_____.

D Solve the clues and complete the puzzle.

1. A collection of data stored in a PC in a systematic way.
2. A unit of a database file made up of related fields.
3. A single piece of information in a record.
4. A _____ database maintains separate, related files, but combines data elements from the files for queries and reports.
5. Some companies have several computers sharing a database over a _____.
6. To look for specific information, for example the name of an employee.
7. To classify records into numerical or alphabetical order.
8. A tool that allows you to extract information that meets certain criteria.



E In pairs, discuss what fields you would include in a database for your music collection.

4. Language work: plurals.

A Look at the HELP BOX and then write the plural of these words.

- | | |
|----------------------|-----------------|
| 1. client _____ | 5. fax _____ |
| 2. key _____ | 6. salary _____ |
| 3. query _____ | 7. mouse _____ |
| 4. businessman _____ | 8. virus _____ |

HELP BOX

Plurals

- In most cases, we form the plural in English by adding **-s**.

record —▶ *records*

- If a word ends in **-s**, **-sh**, **-x** or **-ch**, we add **-es**.

address —▶ *addresses*

index —▶ *indexes*

- If a word ends in a consonant + **y**, the **y** becomes **i** and we add **-es**.

company —▶ *companies*

facility —▶ *facilities*

- However, if the **y** follows a vowel, we add only **-s**.

birthday —▶ *birthdays*

- There are several irregular plural forms:

man/woman —▶ *men/women*

child —▶ *children*

analysis —▶ *analyses*

formula —▶ *formulae* (or *formulas*)

criterion —▶ *criteria*

mouse —▶ *mice*

- The **-s** is pronounced as:

[s] after one of these sounds: **[p]**, **[t]**, **[k]**, **[f]** or **[θ]** (e.g. *amounts*, *hyperlinks*)

[ɪz] after one of these sounds: **[s]**, **[z]**, **[ʃ]**, **[tʃ]** or **[dʒ]** (e.g. *businesses*, *devices*, *images*)

[z] in most other cases (e.g. *files*, *fields*, *customers*, *columns*)

B Put the plurals into the correct pronunciation column.

databases	passwords	[s]	[ɪz]	[z]
laptops	graphs			
orders	switches			
taxes	networks			
tables	packages			
spreadsheets	systems			

5. Software at home and at work.

Find out as much as you can about the software your partner uses at home or at work. Ask about spreadsheet programs, databases, word processors, videoconferencing, business accounting, email, and web browsers. Look at the *Useful language* box to help you.

Useful language

What kind of spreadsheet program do you use?

What do you use it for?

Do you use it at home or at work?

What's your favourite ...?

What features do you like most about it?

How do you ...?






Unit 12

The Internet and email

1. Internet basics

A Discuss how you would define *the Internet*.

B Make a list of all the things you can use the Internet for.

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

D Listen again and complete the customer's notes. 

To connect to the Internet from home, I need:

(1) a _____ and (2) a _____.

Also need an account with an (3) _____ (a company that offers connection for a monthly fee).

If you want to connect lots of computers without using cables, you can use a

(4) _____ router.

Wi-Fi uses (5) _____ waves to send data over medium-range distances.

Things you can do on the Internet:

(6) _____

"Web" or "Internet"? The Web: huge collection of (7) _____

Stored on computers all over the world. The Internet: the network which connects all the computers.

2. Internet FAQs

A Read Part 1 of the Internet FAQs and choose the correct answers.

1. The Internet was

a invented in the mid-90s. **b** popular in the 1960s. **c** probably created in the USA.

2. Which term describes any fast, high-bandwidth connection?

a broadband **b** dial-up connection **c** Wi-Fi connection

3. The power-line Internet provides broadband access through
a telephone lines. b satellites. c electrical power lines.
4. Which device converts computer data into a form that can be transmitted over phone lines?
a ADSL b a mobile phone c a modem
5. The standard protocol that allows computers to communicate over the Internet is called
a an IP address. b TCP/IP c HTTP
6. The geographical region covered by one or several access points is called a
a wireless access point. b hotspot. c wireless network device.

Internet FAQs: Part 1

How old is the Internet (the Net)? When was it created?

It's hard to say exactly. The research that led to what we now know as the Internet was begun in the 1960s.

Who created the Internet?

Again, it's hard to say exactly who created it. The initial research was carried out by the Advanced Research Projects Agency in America, funded by the US government.

Did the Internet become popular quickly?

It took many years for the Internet to become popular around the world. It's only really since the mid-90s that the Internet has been a part of our daily lives.

How do you get online?

To get connected, you need a computer, the right connection software and a modem connected to the phone line. You also need an account with an Internet Service Provider (ISP), which acts as a gateway between your PC and the rest of the Net.

How fast are today's internet connections?

Today, ISPs offer a broadband, high-speed connection. The most common types are cable - offered by local cable TV companies — and ADSL (Asymmetric Digital Subscriber Line), which works through phone lines. They are both faster than the traditional dial-up telephone connection. Broadband access is also offered by some electricity networks. This competing technology, known as power-line Internet, provides low-cost access via the power plug, but is still in development.

How long has broadband existed?

Since the late 1990s.

How much does broadband access cost?

It depends on which company you choose. Nowadays, some companies even offer free broadband.

Why do you need a modem?

A modem (**m**odulator/**d**emodulator) converts digital signals into analogue signals so that data can be transmitted across the phone or cable network.

What does TCP/IP mean?

The language used for data transfer on the Internet is known as TCP/IP (transmission control protocol/ Internet protocol). This is like the internet operating system. Every computer connected to the Net is identified by a unique IP address.

Are there other ways of accessing the Internet?

Other methods of internet access include Wi-Fi, satellite, mobile phones and TV sets equipped with a modem. Wi-Fi-enabled laptops or PDAs allow you to connect to the Net if you are near a wireless access point, in locations called hotspots (for example, a Wi-Fi café, park or campus). Satellite services are used in places where terrestrial access is not available (for example, on ships at sea). High-end mobile phones provide access through the phone network.

B Discuss which of the internet systems (1-6) you would use to do the tasks (a-f). Then read Part 2 of the FAQs and check your answers.

- | | |
|---------------|--|
| 1 Email | a transfer files from the Internet to your hard drive |
| 2 The Web | b send a message to another person via the Internet |
| 3 Newsgroups | c have a live conversation (usually typed) online |
| 4 Chat and IM | d connect to a remote computer by entering instructions, and run a program on it |
| 5 FTP | e take part in public discussion areas devoted to specific topics |
| 6 Telnet | f download and view documents published on the Internet |

Internet FAQs: Part 2

Email

Email lets you exchange messages with people all over the world. Optional attached files can include text, pictures and even audio and animation. A mailing list uses email to communicate messages to all its subscribers — that is, everyone that belongs to the list.

Which email program is the best?

Outlook Express is a popular program, but many users use web-based email accounts such as Hotmail.

The Web

The Web consists of billions of documents living on web servers that use the HTTP protocol. You navigate through the Web using a program called a web browser, which lets you search, view and print web pages.

How often are web pages updated?

It depends entirely on the page. Some are updated thousands of times a day.

Chat and Instant Messaging (IM)

Chat and Instant Messaging technologies allow you to have real-time conversations online, by typing messages at the keyboard.

FTP

FTP, or file transfer protocol, is used to transfer files over a TCP/IP network. Nowadays, this feature is built into Web browsers. You can download programs, games and music files from a remote computer to your hard drive.

Telnet

Telnet is a protocol and a program used to log onto remote computer systems. It enables you to enter commands that will be executed as if you were entering them directly on the remote server.

Newsgroups

Newsgroups are the public discussion areas which make up a system called *Usenet*. The contents are contributed by people who post articles or respond to articles, creating chains of related postings called message threads. You need a newsreader to subscribe to newsgroups and to read and post messages. The newsreader may be a stand-alone program or part of a web browser.

How many newsgroups are there?

There are approximately 30,000 active newsgroups.

Where can you find newsgroups?

Your newsreader may allow you to download the newsgroup addresses that your ISP has included on its news server. An alternative to using a newsreader is to visit web forums instead, which perform the same function but without the additional software.

C Find words and phrases in Part 2 with the following meanings.

1. a system used to distribute email to many different subscribers at once (in *Email* paragraph)
2. a program used for displaying web pages (in *The Web* paragraph)
3. to connect to a computer by typing your username and password (in *Telnet* paragraph)
4. a series of interrelated messages on a given topic (in *Newsgroups* paragraph)
5. a program for reading Usenet newsgroups (in *Newsgroups* paragraph)

3. Language work: questions

A Look at the **HELP BOX** and then make a question about Sue Clarke for each of her answers.

1. _____
I'm 23 years old.
2. _____
I'm an online researcher.



Sue Clarke

3. _____

I use the Internet to find information requested by clients.

4. _____

I've been doing this job for six months.

5. _____

I graduated from university in 2014.

HELP BOX

Questions

- In questions, we normally place the auxiliary verb before the subject.

Are there other ways of accessing the Internet?

- If there is no other auxiliary, we use **do/does** (present simple) or **did** (past simple).

Did the Internet become popular quickly?

- There are many question words in English which we use to find out more information than just *yes* or *no*.

People

Who created the Internet?

Things

What does TCP/IP mean?

Which email program is the best?

Place

Where can you find newsgroups?

Time

When was it created?

How often are web pages updated?

How long has broadband existed?

Reason

Why do you need a modem?

Quantity

How much does broadband access cost?

How many newsgroups are there?

Manner

How do you get online?

Others

How fast are today's internet connections?

How old is the internet?

B In pairs, make questions using these prompts. Then practise asking and answering the questions.

Example: When / first / use the Internet *When did you first use the Internet?*

- 1 What type of internet connection / have at home?
- 2 How fast / your internet connection?
- 3 How much / pay for broadband access?
- 4 How often / access the Internet?
- 5 Which email program / use?
- 6 Who / send email to?
- 7 Do / use your mobile phone to access the Internet?

- 8 Do / use the Internet in public spaces using Wi-Fi?
- 9 Do / play games online?
- 10 How many newsgroups / subscribe to?

4. *Email features*

A Read the text and find the following.

1. the place where your ISP stores your emails
2. the type of program used to read and send email from a computer
3. the part of an email address that identifies the user of the service
4. the line that describes the content of an email
5. the computer file which is sent along with an email message
6. facial symbols used to indicate an emotion or attitude
7. the name given to junk mail

B Write a reply to Celia's email below.

Email features

When you set up an account with an Internet Service Provider, you are given an **email address** and a **password**.

The mail you receive is stored on the **mail server** of your ISP — in a simulated mailbox — until you next connect and download it to your hard drive.

There are two ways to get email over the Internet. One is by using a **mail program** (known as an **email client**) installed on your computer, for example, Eudora or Outlook Express. The other way is to use **web-based email**, accessible from any web browser. Hotmail and Gmail are good examples.

You can make the message more expressive by including **emoticons**, also called **smileys**. For example, ;-) for wink, :-) for happy, :-o for surprised, :-D for laughing, etc. You may also like to add a **signature file**, a pre-written text file appended to the end of the message. The name given to unsolicited email messages is **spam**.

The anatomy of an email

The **header**

To: name and address of the recipient

From: name and address of the sender

Cc: carbon copy sent to another person

Bcc: blind carbon copy

Subject: topic of the message

Attachment: files added to the message

The **username** (a person's name or nickname)

The **@ sign**, which means at

The **domain name** or **network address** – that is, the mail server where the account is located. The final part adds information about it, for example **com** = company, **uk** = United Kingdom, **fr** = France, etc.

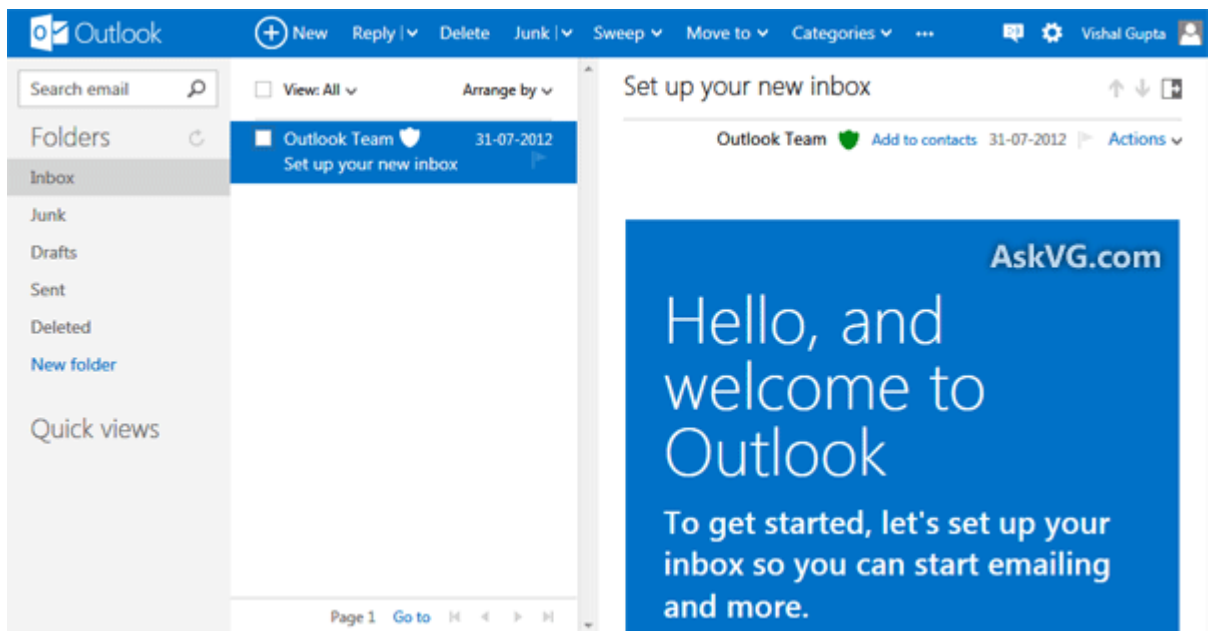
Hi John,

I have to prepare a project for my English class about **the history of the Internet and how it's used in our day-to-day lives**. Do you have any thoughts about what I should include? I've included my first thoughts here as an attachment. Could you send me some more ideas?

All the best,

Celia

The **body** contains the message itself





Unit 13

Chat and conferencing

1. Online chatting

A Answer these questions.

1. What is your favourite way to chat on the Internet?
2. How much time do you spend chatting?
3. Do you give out personal details in chat rooms?
Why should you be careful about this?



Windows Live Messenger is one of the world's most popular chat programs

2. Virtual meetings

A Read the text and match (1-5) with the gaps at the start of each paragraph (a-e).

1. Cheap calls over the Internet
2. Virtual worlds and online communities
3. Chat rooms on the Web: join the crowd!
4. Real-time videoconferencing
5. Private chats with IM services



A videoconferencing system combines data, voice and video

Virtual meetings

a _____

Imagine you want to assemble a group of people from around the world for a brainstorming session. **Conferencing** programs such as NetMeeting or CU-SeeMe allow virtual workgroups to communicate via the Internet. To **videoconference**, you'll need a webcam. Participants see each other's faces in small windows on their monitors and hear each other's voices on the computer speakers. You can use just audio, video and audio simultaneously, or the screen sharing capability to collaborate on documents without audio or video.

b _____

Internet telephony, also known as **VoIP** (**V**oice **o**ver **I**nternet **P**rotocol), almost eliminates long-distance phone charges, allowing you to call nearly anywhere in the world for the price of a local call. If you have flat-rate internet access, you can't beat the price — it's practically free. With internet telephony, you can make a voice call from your computer to another person's computer, landline, or mobile phone. You can download telephony software such as Skype or Net2Phone from the Net, and it's even free!

c _____

People also use more traditional **chat conferencing** or **bulletin board systems (BBSs)** to communicate online. Note that during chat sessions, participants type messages to each other rather than communicate by voice. Chat software can be used on the Web with your browser to conduct online chat sessions with other users and can accommodate between 50 and 1,000 users simultaneously. Some companies even use chat conferencing on their websites to facilitate communication with customers.

d _____

Chat rooms can be good venues to meet people and discuss topics of mutual interest. But what if you want to chat privately with a friend, family member or business colleague? Then **Instant Messaging**, or **IM**, is the way to go. Many IM services now offer audio and video capabilities, so if you have a microphone and a webcam, you can chat and see who you're talking to. The four most popular IM services are ICQ and AIM (*from AOL*), Windows Live Messenger, and Yahoo! Messenger. They all work similarly. First, you enrol in the service by creating a username — which is also your screen name — and a password. Next, you build what is known as a buddy list — a list of people that you want to communicate with. When any of the contacts on your list is online, you can start a private chat with that person.

How do you know who's online? When you launch your IM software, it connects with the service's IM server and logs you on. The server checks your buddy list to see if any of your contacts are also logged on. Your list updates to show who is currently online.

By clicking on a name you can send text-based messages to that person. After you type your note and click on the *Send* button, the message travels to the IM server, then immediately forwards to your buddy's computer. This all happens in realtime — instantly.

e _____

You can also chat in incredible **3-D worlds** that are built by other users, for example *Second Life*. In these **virtual reality environments** you can play 3-D games and interact with other users via avatar identities. Avatars are 3-D graphical representations of the participants.

B Read the text again and answer these questions.

1. Why is videoconferencing so useful for virtual workgroups?
2. What special hardware and software do you need to videoconference?
3. Which technology enables people to make phone calls over the Internet?
4. What is the difference between web chat rooms and Instant Messaging?
5. How do you log on to an IM server?

3. Netiquette

Do this netiquette quiz. Read about netiquette rules on the Web if necessary.

1. Netiquette, or net etiquette, is a general code of behaviour for communicating online.
 - True
 - False
2. TYPING IN CAPITALS LETTERS looks like:
 - the message is very important.
 - you're shouting.
3. What should you avoid doing in chat rooms?
 - Being respectful
 - Giving out personal or financial information
4. Spamming means
 - posting stupid comments in chat rooms.
 - posting unsolicited advertising messages.
5. Before asking questions in a chat room or posting messages to forums, you should always
 - read the FAQs (Frequently Asked Questions).
 - introduce yourself and post a test message.
6. Avoid flame wars. Flames are
 - angry responses or offensive comments.
 - people who break the rules of netiquette.
7. Keep messages short and to the point, and check spelling and grammar.
 - True
 - False

4. R u free 4 a chat?

A Rewrite this IM chat, using full forms instead of abbreviations. Then look at the HELP BOX to check your answer.

Abby: BTW, where r u going for ur holiday?
By the way, where are you going for your holiday?

Sue: Girona. Have u been?

Abby: Yes. I went 2 Girona last summer.

Sue: Did u have a good time?

Abby: It's great, IMO. How r u going 2 travel?

Sue: We're flying.

Abby: Where r u staying?

Sue: In a youth hostel.

Abby: IC. IOW, the cheapest place possible!

Sue: LOL! Yes. BTW, any recommendations?

Abby: Let me think. I'll send u a msg ASAP.

Sue: TIA!

Abby: Got 2 go. BFN.

B Rewrite this IM chat abbreviations.

Paulo: By the way, are you free on Saturday?

Emma: Sure — it would be good to meet face to face. Shall we go for a coffee?

Paulo: Good plan. Café Moka makes the best coffee, in my opinion.

Emma: It's the closest to your house in other words.

Paulo: Laughing out loud! Yes, you're right! But the coffee really is good.

Emma: See you at 4?

Paulo: Great. Bye for now.

HELP BOX

Chat abbreviations

We often use abbreviations in online chats and Instant Messaging. Some common examples are:

ASAP	As soon as possible
BBS	Be back soon
BFN	Bye for now
BTW	By the way
F2F	Face to face
GL	Good luck
H&K	Hug and kiss
IC	I see
ILU	I love you
IMO	In my opinion
IOW	In other words
LOL	Laughing out loud
TIA	Thanks in advance
msg	Message
ur	your/you're
2	to
4	for
b	be
c	see
r	are
u	you

It's OK to use chat abbreviations, but try not to rely on them too much - they can make a conversation difficult to follow. They are also very

C Discuss these questions. Give reasons for your answers.

1. Which program do you use to chat with friends?
2. Do you use abbreviations when you chat online or when you send text messages?
3. Do you use voice or video while chatting? How?
4. Have you ever used the Internet to make cheap calls?
5. Does Instant Messaging distract you from work?
6. Do you use your real name or a nickname in chat rooms?
7. Do you talk to strangers during web chats? Why shouldn't you?
8. Would you ever go on a date with somebody you'd met on the Net?

5. At a cybercafé

A Discuss these questions. Give reasons for your answers.

1. Do you ever go to cybercafés?
2. What services would you expect a cybercafé to offer?

B Listen to an interview with Daniel Sturdy, the manager of a cybercafé in London. Does Daniel like where he works?



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



1. A cybercafé is a café where you can have access to the Internet and related services.
2. You can talk to people over the Internet using internet telephony at Daniel's café.
3. They don't help people who have problems while using the Internet.
4. Using a computer with internet access costs £2 per hour or £80 for a week.
5. At the moment they've got a lot of international customers.
6. You have to pay long-distance phone rates on the Internet.
7. In the café area you can sit, drink coffee and chat to people.



A cybercafé



Unit 14

Internet security

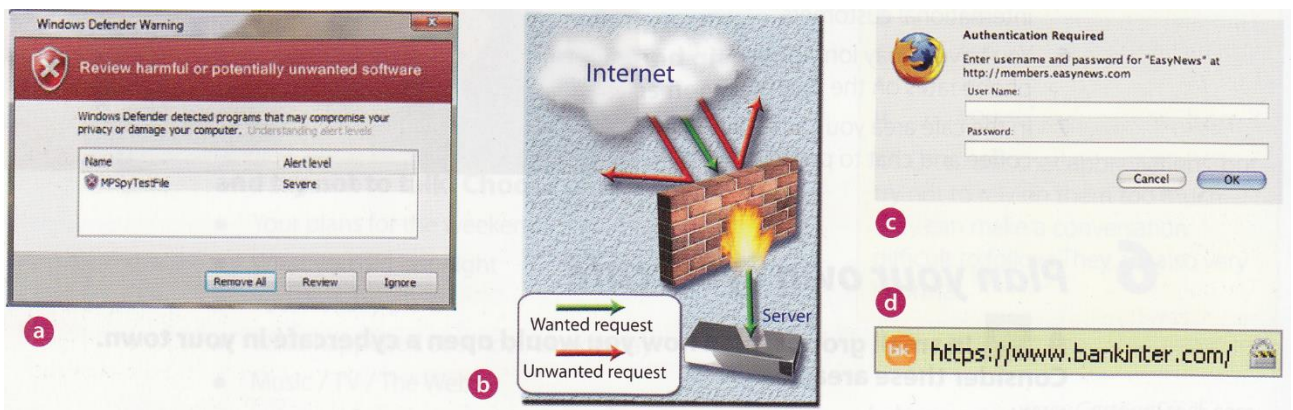
1. On alert

A Answer these questions.

1. What is hacker?
2. How easy do you think it is to infiltrate the Internet and steal sensitive information?
3. How can you protect your computer form viruses and spyware?

B Match the captions (1-4) with the pictures (a-d).

1. A secure website can be recognized in two ways: the address bar shows the letters *https* and a closed padlock or key is displayed at the bottom of the screen.
2. You have to type your username and password to access a locked computer system.
3. This program displays a message when it detects spyware and other unwanted software that may compromise your privacy or damage your computer.
4. Private networks use a software and/or hardware mechanism called a firewall to block unauthorized traffic from the Internet.



2. Security and privacy on the Internet

A Read the text quickly and see how many of your ideas from 1A Question 3 are mentioned.

B Read the text more carefully and answer these questions.

1. Why is security so important on the Internet?

2. What security features are offered by Mozilla Firefox?
3. What security protocol is used by banks to make online transactions secure?
4. How can we protect our email and keep it private?
5. What methods are used by companies to make internal networks secure?
6. In what ways can a virus enter a computer system?
7. How does a worm spread itself?

Security and privacy on the Internet

There are many benefits from an open system like the Internet, but one of the risks is that we are often exposed to **hackers**, who break into computer systems just for fun, to steal information, or to spread viruses (*see note below*).

So how do we go about making our online transactions secure?

Security on the Web

Security is crucial when you send confidential information online. Consider, for example, the process of buying a book on the Web. You have to type your credit card number into an order form which passes from computer to computer on its way to the online bookstore. If one of the intermediary computers is infiltrated by hackers, your data can be copied.

To avoid risks, you should set all security alerts to high on your web browser. Mozilla Firefox displays a lock when the website is secure and allows you to disable or delete **cookies** — small files placed on your hard drive by web servers so that they can recognize your PC when you return to their site.

If you use online banking services, make sure they use **digital certificates** — files that are like digital identification cards and that identify users and web servers. Also be sure to use a browser that is compliant with **SSL** (**S**ecure **S**ockets **L**ayer), a protocol which provides secure transactions.

Email privacy

Similarly, as your email travels across the Net, it is copied temporarily onto many computers in between. This means that it can be read by people who illegally enter computer systems.

The only way to protect a message is to put it in a sort of virtual envelope — that is, to encode it with some form of **encryption**. A system designed to send email privately is Pretty Good Privacy, a **freeware** program written by Phil Zimmerman.

Network security

Private networks can be attacked by intruders who attempt to obtain information such as Social Security numbers, bank accounts or research and business reports. To protect crucial data, companies hire security consultants who analyse the risks and provide solutions. The most common methods of protection are **passwords** for access control, **firewalls**, and **encryption** and **decryption** systems. Encryption changes data into a secret code so that only someone with a key can read it. Decryption converts encrypted data back into its original form.

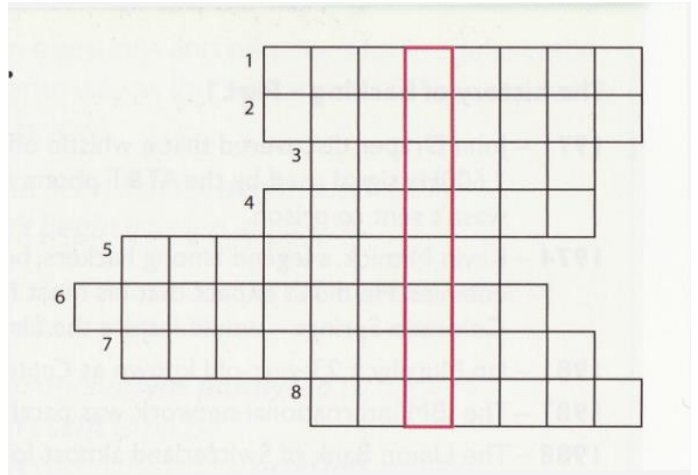
Malware protection

Malware (*malicious software*) are programs designed to infiltrate or damage your computer, for example **viruses**, **worms**, **Trojans** and **spyware**. A virus can enter a PC via a disc drive — if you insert an infected disc — or via the Internet. A worm is a self-copying program that spreads through email attachments; it replicates itself and sends a copy to everyone in an address book. A Trojan horse is disguised as a useful program; it may affect data security. Spyware collects information from your PC without your consent. Most spyware and adware (software that allows pop-ups — that is, advertisements that suddenly appear on your screen) is included with 'free' downloads. If you want to protect your PC, don't open email attachments from strangers and take care when downloading files from the Web. Remember to update your **anti-virus software** as often as possible, since new viruses are being created all the time.

Note: Originally, all computer enthusiasts and skilled programmers were known as **hackers**, but during the 1990s, the term hacker became synonymous with **cracker** — a person who uses technology for criminal aims. Nowadays, people often use the word hacker to mean both things. In the computer industry, hackers are known as *white hats* and crackers are called *black hats* or *darkside hackers*.

C Solve the clues and complete the puzzle.

1. Users have to enter a _____ to gain access to a network.
2. A _____ protects a company intranet from outside attacks.
3. A _____ is a person who uses their computer skills to enter computers and networks illegally.
4. _____ can infect your files and corrupt your hard drive.
5. You can download _____ from the Net; this type of software is available free of charge but protected by copyright.
6. Encoding data so that unauthorized users can't read it is known as _____.
7. This company uses _____ techniques to decode (or decipher) secret data.
8. Most _____ is designed to obtain personal information without the user's permission.



3. Safety online for children

A Listen to an interview with Diana Wilson, a member of the Internet Safety Foundation. Which answers (a or b) best describe what she says?



1. Parents should make children aware of
a the benefits and risks of the Internet. **b** the risks of the Internet.
2. A web filter program can be used to
a prevent access to sites with inappropriate content.
b rate web content with labels (similar to the way movies are rated).
3. If kids spend too much time online or suffer from internet addiction, parents should
a stop them using the Internet. **b** look for help from specialists.

**KEEP YOUR KIDS
SAFE Online**



B Listen again and complete the interviewer's notes.



<u>Risks</u>	<u>Solutions</u>
Manipulation of children	There are websites (4) _____
Invasions of (1) _____	at children.
Distribution of indecent or (2) _____ material	Internet (5) _____ programs let parents block objectionable websites.
Violence and racist (3) _____	Websites should (6) _____ their Content with a label, from child-friendly to over 18 only.

4. The history of hacking

A Read Part 1 of the text and answer these questions.

1. Which hacking case inspired the film *War Games*?
2. When did *Captain Zap* hack into the Pentagon?
3. Why was Nicholas Whitely arrested in 1988?
4. How old was the hacker that broke into the US defence computer in 1989?

The history of hacking – Part 1

1971 – John Draper discovered that a whistle offered in boxes of Cap'n Crunch breakfast cereal perfectly generated the 2,600Hz signal used by the AT&T phone company. He started to make free calls. He was arrested in 1972 but wasn't sent to prison.

1974 – Kevin Mitnick, a legend among hackers, began hacking into banking networks and altering the credit reports of his enemies. He didn't expect that his most famous exploit – hacking into the North American Defense Command in Colorado Springs – would inspire the film *War Games* in 1983.

1981 – Ian Murphy, a 23-year-old known as *Captain Zap* on the networks, hacked into the White House and the Pentagon.

1987 – The IBM international network was paralysed by a hacker's Christmas message.

1988 – The Union Bank of Switzerland almost lost £32 million to hackers. Nicholas Whitely was arrested in connection with virus spreading.

1989 – A fifteen-year-old hacker cracked the US defence computer.

1991 – Kevin Poulsen, known as *Dark Dante* on the networks, was accused of stealing military files.

B Discuss which of the cases in Part 1 you had heard of. Which do you think is the most important?

5. Language work: the past simple

A Look at the HELP BOX and then complete Part 2 of the text with the past simple form of the verbs in the box.

show spread steal launch attempt overwrite be infect affect

The history of hacking – Part 2

1992 – David L Smith (1) prosecuted for writing the Melissa virus, which was passed in Word files sent via email.

1997 – The German Chaos Computer Club (2) on TV how to obtain money from bank accounts.

2000 – A Russian hacker (3) to extort \$100,000 from online music retailer CD Universe.

A Canadian hacker (4) a massive *denial of service* attack against websites like Yahoo! and Amazon.

The *ILoveYou* virus, cleverly disguised as a love letter, (5) so quickly that email had to be shut down in many companies. The worm (6) image and sound files with a copy of itself.

2001 – The *Code Red* worm (7) tens of thousands of machines.

2006 – Hackers (8) the credit card details of almost 20,000 AT&T online customers. However, subscribers to its service (9) (not)

HELP BOX

Past simple

- We use the past simple to talk about a complete action or event which happened at a specific time in the past.

*He **began** hacking in 1974.*

- We form the past simple of regular verbs by adding **-(e)d** to the infinitive.

*John Draper **discovered** that a whistle ...*

We form questions and negatives using **did / didn't**.

*When **did** Captain Zap **hack** into the Pentagon?
He **didn't** expect that his most famous exploit ...*

- There are many verbs which are irregular in the past simple.

*Kevin Mitnick **began** hacking into ...*

We form questions and negatives for irregular verbs in the same way as for regular verbs. The exception is **be**.

*When **did** Kevin Mitnick **begin** hacking to ...?*

*He **didn't** begin hacking until 1974.*

We form the past passive with the past simple of **be** + the past participle.

*IBM international **was** **paralysed** by hackers.*

*He **wasn't** sent to prison.*

*Why **was** Nicholas Whitely **arrested** in 1998?*

B Read these landmarks in the history of the Internet and prepare at least five questions in the past simple.

Example: What happened in 1969? What did Ray Tomlinson do in 1971?

- 1969** – The US Defense Department establishes ARPANET, a network connecting research centres.
- 1971** – Ray Tomlinson of BBN invents an email program to send messages across a network. The @ sign is chosen for its *at* meaning.
- 1981** – IBM sells the first IBM PC. BITNET provides email and file transfers to universities.
- 1982** – TCP/IP is adopted as the standard language of the Internet.
- 1988** – Jarkko Oikarinen develops the system known as Internet Relay Chat (IRC).
- 1991** – CERN (*Conseil Européen pour la Recherche Nucléaire*) creates the World Wide Web.
- 1998** – The Internet 2 network is born. It can handle data and video at high speed but is not a public network.
- 1999** – Online banking, e-commerce and MP3 music become popular.
- 2001** – Napster, whose software allows users to share downloaded music, maintains that it does not perpetrate or encourage music piracy. However, a judge rules that Napster's technology is an infringement of music copyright.
- 2004** – Network Solutions begins offering 100-year domain registration.
- 2006** – Americans spend over \$100 billion shopping online.

C In pairs, ask and answer your questions.

6. Internet issues

Look at the list of cybercrimes and discuss these questions.

1. Which crimes are the most dangerous?
2. Is it fair or unfair to pay for the songs, videos, books or articles that you download? Should copyright infringement be allowed online?
3. What measures can be taken by governments to stop cybercrime?
4. Do you think governments have the right to censor material on the Internet?
5. Personal information such as our address, salary, and civil and criminal records is held in databases by marketing companies. Is our privacy in danger?

Cybercrimes

- **Piracy** — the illegal copy and distribution of copyrighted software, games or music files
- **Plagiarism and theft of intellectual property** — pretending that someone else's work is your own
- **Spreading of malicious software**
- **Phishing (password harvesting fishing)** — getting passwords for online bank accounts or credit card numbers by using emails that look like they are from real organizations, but are in fact fake; people believe the message is from their bank and send their security details
- **IP spoofing** — making one computer look like another in order to gain unauthorized access
- **Cyberstalking** — online harassment or abuse, mainly in chat rooms or newsgroups
- **Distribution of indecent or offensive material**



Unit 15

Desktop publishing

1. What is desktop publishing?

A Answer these questions.

1. What kind of documents can be produced with a desktop publishing system?
2. Page layout software is the key component of a desktop publishing system. Which file types can be imported a page layout program?

B Read the text and check your answers to A.

What is desktop publishing?

Desktop publishing (DTP) refers to the use of computers to design and publish books, brochures, newsletters, magazines and other printed pieces. DTP is really a combination of several different processes including word processing, graphic design, information design, output and pre-press technologies, and sometimes image manipulation.

DTP centres around a **page layout program**. Typically, a layout program is used to import texts created in word processing programs; charts and graphs from spreadsheet programs; drawings and illustrations created in CAD, drawing or paint programs; and photographs.

The program is then used to combine and arrange them all on a page. It is this ability to manipulate so many different items and control how they are used that makes layout software so popular and useful. However, modern word processors also have publishing capabilities, meaning the line separating such programs from DTP software is becoming less clear. In general, though, powerful new publishing systems use high-quality scalable **fonts** and give you control over typographic features such as **kerning** (*adjusting the spaces between letters to achieve even, consistent spacing*). Another key feature of DTP software is **text flow** — the ability to put text around graphic objects in a variety of ways.

Once composed, DTP documents are printed on a laser printer or on a high-resolution imagesetter. For transfer to a commercial printer, the documents are generally saved in their native page layout format (*such as Adobe InDesign or QuarkXPress*) or as **PDF** files. PDF stands for **P**ortable **D**ocument **F**ormat and allows people to view, search and print documents exactly as the publisher intended — you don't need to have the software and fonts used to create it. PDF files can be published and distributed anywhere: in print, attached to email, posted on websites, or on DVD. To open a PDF file, only the Adobe Acrobat Reader (*a free download*) is required.

In modern commercial printing, DTP files are output directly to the **printing plates** without using film as an intermediate step. This new technology is known as **Computer-To-Plate (CTP)** or **direct to plate**, and the machine that generates plates for a printing press is called a **platesetter**. CTP machines are expensive, so most people take their files to a **service bureau**, a company that specializes in printing other people's files. Service bureaux offer a full range of scanning and printing solutions.

C Read the text again and answer these questions.

1. What type of software is used for the creation of DTP documents?
2. What are three differences between DTP software and word processors?
3. What is a PDF and what can it do?
4. Which program do you need to view a PDF document?
5. Why do people send their DTP files to service bureaux?

D Find words in the text with the following meanings.

1. shape, style and size of a typeface, for example **Courier at 10pt**
2. the process of adjusting the space between characters
3. feature that enables you to wrap text around images on the page
4. metal surfaces that carry the image to be printed
5. a machine that creates the printing plates

E Discuss the question *What is desktop publishing?* in as much detail as you can. Then look back at the text to see how much you remembered.

2. Language work: order of adjectives

A Look at the **HELP BOX** and then make phrases using the words in the correct order.

Example: computer programmer / young / clever

a clever, young computer programmer

1. software / desktop publishing / user-friendly
2. hardware company / reliable / young
3. German /industry / graphic design
4. word processing / applications / modern
5. Sony / new / music player / portable

HELP BOX

Order of adjectives

- Adjectives usually come *before* the noun (also known as the headword).
*They give you control over **typographic features**.*
*For transfer to a **commercial printer**, the document is...*
- However, adjectives come *after* certain verbs (e.g. **be, look, become, seem, sound**), complementing the subject of the sentence.
*CTP machines **are expensive**.*
- Adjectives can also complement the object of the sentence.
*This makes layout software **popular and useful**.*
- This is the usual order of adjectives before a noun:

Opinion	Description	Origin/Place	Material	Purpose	Headword
powerful	new			publishing	systems
high-quality	scalable	American	aluminium	printing	fonts
	thin				plates

Adjectives are ordered from the most subjective (e.g. **nice**) to the most objective (e.g. **silicon**).

Brand names (**Microsoft, Sony**, etc.) are considered adjectives of origin/place.

If there is more than one adjective in a sentence, they are usually separated by commas, unless the adjective forms an integral part of the headword (*A **fantastic, thin, Sony** MP3 player.*)

B Translate these sentences into your own language. How does the use of adjectives differ from English? Think about word order and whether the form of the adjective changes or not.

1. DTP refers to the use of personal computers to produce high-quality printed documents.
2. A page layout application is used to import text from word processing programs and pictures from painting and drawing programs.
3. In modern commercial printing, DTP files are output directly to the printing plates.

C Choose an object in your classroom or office and think of three words to describe it. Put the words into the correct order and make a sentence.

Example: PC: black, old, DELL

On my desk I've got an old, black, DELL PC.

3. Steps in a DTP publication

A Look at this extract from an online tutorial for DTP publishing. Put the steps the creation of a DTP document (a-f) into the correct order.

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

a First, the DTP designer decides the basic form of the document (the type of document, general design, colour, fonts, images required, etc.).

b The last step is to take the files to a service bureau, which will print the publication.

c To create the DTP document, the designer begins by selecting a template or by specifying the settings of a new document (the page size, margins, columns, paragraph styles, master pages, etc.).

d When the text has been edited, the designer imports the pictures and uses precise tools to position, scale, crop and rotate all the items.

e The next step is to type the text directly or to import it from a word processing program like Word or WordPerfect.

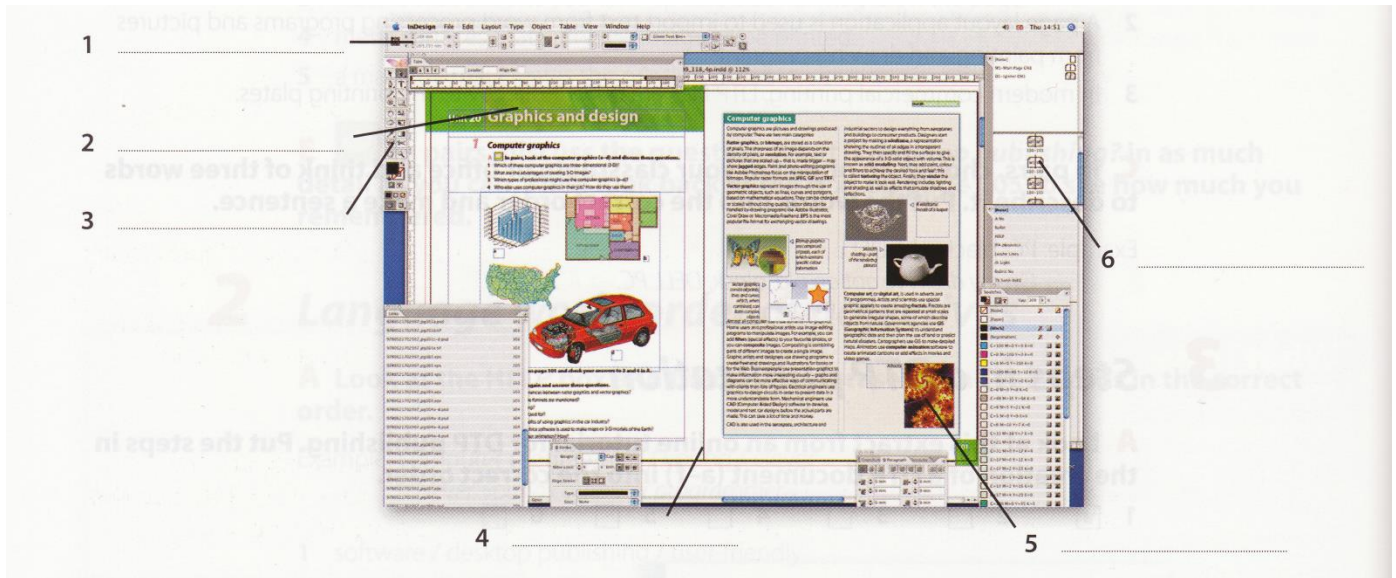
f Once the file is composed and saved, the designer has to prepare it for printing, which involves verifying the colour specification, creating a Postscript or PDF file, exporting the file in HTML format for the Web, checking proofs, etc.

B Listen to the audio from the online tutorial and check your answers to A.



C Label the features of this page designed with Adobe InDesign (1 -6) with words from the box.

toolbox layout of master pages dimensions guide horizontal ruler scanned photo



4. Writing a letter

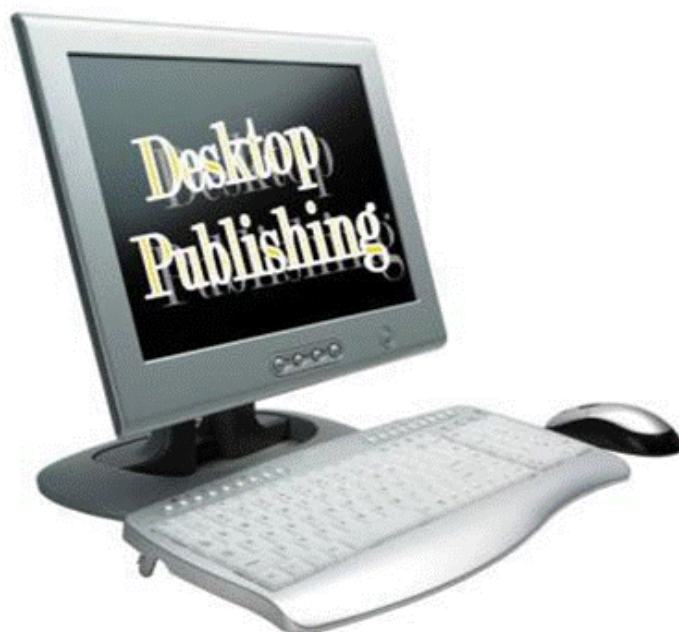
A Although most written communication these days is carried out by email, letters are still appropriate for more formal correspondence. Look at this letter. What is the writer asking for?



B Match the parts of the letter (a-h) with the descriptions (1-8).

1. *b* For example, *28th March 2008*, or *28 March 2008*, or *28/03/2008*.
2. This is usually in the top right corner of the letter, but can be in the centre if it's a printed letterhead.
3. State the reason for writing: *I am / We are writing to ... / We are currently...*
4. This should be included on the left hand side of the page, before the greeting.
5. Start with *Dear Sir/Madam* or *Dear Mr/Mrs/Ms...* Use *Ms* if you are not sure if the recipient is married or not. It is often best to use *Ms*, as *Mrs* can cause offence.
6. Make any requests or ask any questions you need to: *We would be grateful if you could..., Could you also ...*
7. Request further contact, if necessary: *We / I look forward to hearing from you. / Please contact us by...*
8. If you have started the letter with the person's name (for example, *Dear Mr Robinson*), then end with *Yours sincerely*. If you do not know the name of the recipient, end with *Yours faithfully*.

C Write a letter to a local newspaper, asking for information about the hardware they use in their production, the page layout software they use, and the data communications systems they use. Use A and B above to help you.





Unit 16

Web design

1. A typical home page

In pairs, discuss these questions.

1. Why do companies have websites?
2. What is the difference between a *website* and a *web page*?
3. What is a home page?
4. Do you have a blog or personal website? Describe the home page to your partner.

Switch to old page | Make Y! your home page Yahoo! Travel - Flights, Hotels, Cars, Cruises, Vacations, Summer Travel Guide

Web | Images | Video | Audio | Directory | Local | News | Shopping

Search: Web Search

Yahoo! Answers: Ask a question | Answer questions

- Autos
- Finance
- Games
- GeoCities
- Groups
- Horoscopes
- HotJobs
- Kids
- Maps
- Movies
- Music
- Personals
- Photos
- Real Estate
- Shopping
- Sports
- TV
- Travel
- Yellow Pages

All Yahoo! Services

Small Business

- Web Hosting
- Domain Names
- Sell Online
- Search Marketing

Featured Services

- 360°
- Downloads
- Health
- Mobile
- Entertainment
- Personal Website
- Y! International

My Yahoo! My Mail Page Options ▾

Featured | Entertainment | Sports | Money

Hi MOM!

Yahoo's founders, David Filo and Jerry Yang, invite you to kick off your shoes and enjoy the all-new Yahoo! home page.

» Watch video

• What's new? • Tell a friend

Welcome to the all-new Yahoo!

First 'Survivor' winner jailed over taxes

Prom saved by fairy godmothers

Juggling roles may be good for women's health

» More Featured

Hi, jmspool Sign Out

Mail

Messenger

Radio

Weather
50° - 57°

Local

Movies

BLUE SKY
FROM AMERICAN EXPRESS

TRAVEL REWARDS WITHOUT RESTRICTIONS
NO ANNUAL FEE
0% INTRO APR

APPLY NOW

Apply Now - Ad Feedback

Inside Yahoo! Search

Angelina Jolie

Popular Entertainment Searches

Angelina Jolie	Lost
Jessica Alba	The Da Vinci Code
Shakira	Chris Brown

Yahoo! Pulse

Top Rated Movies of All Time

The Return of the King What's Your Rating?
The Shawshank Redemption What's Your Rating?
The Godfather What's Your Rating?
Star Wars What's Your Rating?

» More Top Movies

Marketplace

Get Your Degree in 1 Year
Earn an Associate, Bachelor's or Master's degree online from top schools. Start today.

What's your child's learning style? - Take Sylvan's quick quiz to find out.

\$175,000 Mortgage for under \$857 per month - Free loan quote - Refinance today.

Blockbuster Online - DVDs to your door and 1 free in-store rental every week.

Markets: Dow: -0.1% Nasdaq: -0.4%

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Send feedback on Yahoo's new home page. | Copyright © 2006 Yahoo! Inc. All rights reserved. Copyright/TP Policy.

2. Web page design

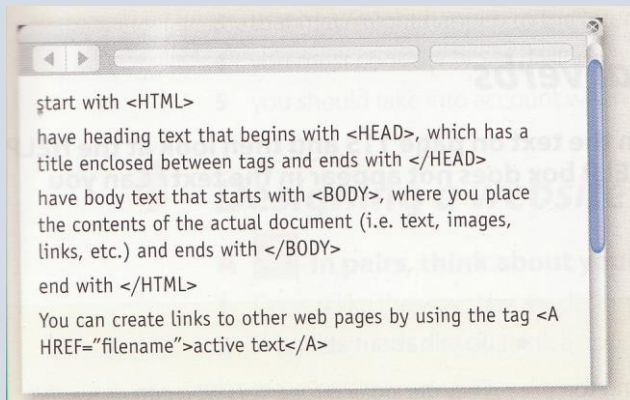
A Read the text and find the following.

Web page design

HTML and web editors

The code behind most web pages is **HTML** (hypertext markup language), which consists of commands called **tags**. Tags are placed around pieces of text to tell the web browser how to display text or pictures. You can view the source HTML code of a web page by choosing the *Page Source* option in your web browser. But you needn't learn HTML in order to build your own website. Instead, you can use a word processor with web design capabilities or a dedicated **web editor** like Macromedia Dreamweaver or Microsoft FrontPage. Web editors are user-friendly and WYSIWYG (*What You See Is What You Get*). Different buttons and menu items let you design a page without writing HTML.

HTML files have this basic structure:



Some basic HTML source code



HTML file displayed as a web page

Web page elements

There are a number of different elements that you can use on a web page:

- **Text** — displayed in a variety of fonts and sizes. Most text files are available in two formats: HTML or **PDF** (the **p**ortable **d**ocument format that can be viewed with Acrobat Reader).
- **Background** — the underlying colours and patterns of a web page.
- **Tables** — with columns and rows, used to position images and text on a page.
- **Frames** — rectangular areas that allow the display of different pages in the same browser window.
- **Cascading Style Sheets (CSS)** — a mechanism for adding styles to web documents. You could use HTML code to specify the font, text styles and background colour. Nowadays, however, it is more common to use CSS. This makes it easy to apply presentation changes across a website.
- **Graphics, clip art, icons, background templates, wallpaper, and transparent images** — common formats are **.jpg** (joint photographic experts group), ideal for pictures with many colours, **.gif** (graphics interchange format), ideal for pictures with fewer colours, and **.png** (portable network graphics), which supports 16 million colours.
- **Hyperlinks** — highlighted text or pictures (buttons, image maps, etc.) that act as links to other pages. If you want to share information with people, you can use **RSS feeds** and provide readers with a link to the feed. RSS allows subscribers to receive updates of blogs, news, podcasts, etc. Before **going live**, you should check that all the links work.

Audio, video and animation

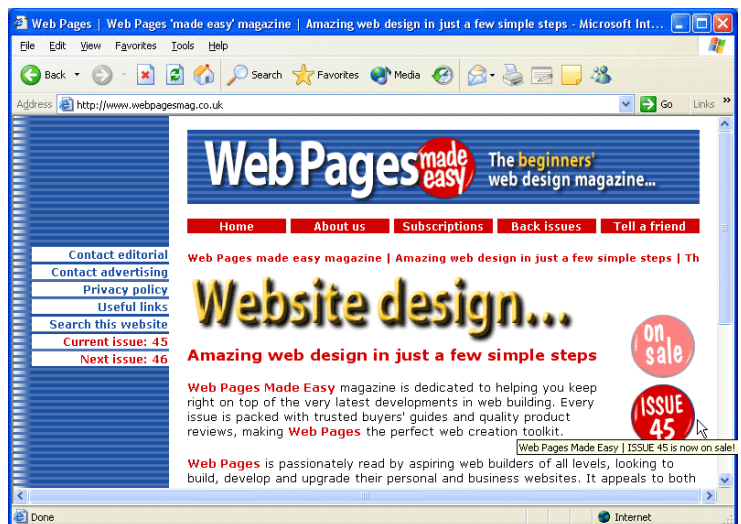
Many websites now incorporate audio files, and if you're designing a site, you may like to insert songs, podcasts, etc. The most common audio formats are: **.wav** (Windows wave audio format), **.ra** (RealAudio file) and **.mp3** (MPEG-1 Audio Layer-3).

Full-motion video is stored in these formats: **.avi** (audio video interleave), **.mov** (QuickTime movie) and **.mpg** (moving picture experts group).

If you want to inject something special into your web pages, you can use Adobe Flash to include **interactive animations** and **streaming audio**. Additionally, you can insert Java applets — small programs that enable the creation of interactive files. Animations are made up of a series of independent pictures put together in sequence to look like moving pictures. To see or hear all these files, you must have the right **plug-in**, an auxiliary program that expands the capabilities of your web browser.

B Read the text again and then match the sentence beginnings (1-6) with the correct endings (a-f).

1. Instructions in HTML
 2. Cascading Style Sheets are the way
 3. A hyperlink is any clickable text,
 4. A plug-in is a small program
 5. Java applets are used to provide
 6. RSS feeds are summaries of web content
- a. image or button that takes you to another place on the Web.
 - b. used for handling audio, video and animation files.
 - c. are called *tags*.
 - d. interactive features to web applications.
 - e. to define the presentation of web pages, from fonts and colours to page layout.
 - f. published in the Really Simple Syndication format for download.



3. Language work: modal verbs

A Underline all the modal verbs in the text and then look at the HELP BOX. Which modal verb from the HELP BOX does not appear in the text?

HELP BOX

Modal verbs

We use modal verbs to add extra meaning to the main verb. They are followed by infinitive without *to*. Modal verbs are used in the following ways:

- To express a possibility

*You **can/could** use Adobe Flash to include interactive animations.*

*You **may** like to insert songs, podcasts, etc.*

*The price of Dreamweaver **might** go down next month.*

Can and **could** are often interchangeable when talking about possibility. **May** and **might** are used to express weaker possibilities and often come before the verb **like** to mean *It is possible you will like*.

- To ask for permission

***Can/Could/May** I use your mobile phone?*

May is more formal than **can** or **could**.

- To talk about ability

*They are looking for artists who **can** draw and design web pages.*

Could is the past tense of **can** and is used to talk about ability in the past.

- To talk about obligation or necessity

*To see or hear all these files, you **must** have the right plug-in.*

*... you **needn't** learn HTML in order to build your own website.*

Needn't means *don't need to* or *don't have to* and is used to express a lack of obligation.

- To give advice

*Before going live, you **should** check that all the links work.*

B Complete these sentences with suitable modal verbs from the HELP BOX. There may be more than one possible answer.

- 1 With Java, I _____ include some attractive banners on my website.
- 2 With a web editor, you _____ create a web document easily.
- 3 These days, you _____ learn how to use complicated HTML codes. Modern web design software is user-friendly and converts a visual layout into HTML code.
- 4 Once live, you _____ update your website regularly.

- 5 To view a PDF file, you _____ have Adobe Acrobat Reader.
- 6 Websites with graphics are more inviting than those written in plain text, so you _____ like to insert some graphics into your documents.
- 7 _____ I use your laptop? I need to print out this report.

C In pairs, discuss at least two things.

- 1 you can now do more easily because of the Internet.
- 2 you could do better if you had a faster internet connection.
- 3 that may/might happen to the Internet in the next ten years.
- 4 you must consider when designing a website.
- 5 you should take into account when choosing which PC to buy.

4. *Designing a website*

A Think about your favourite websites and discuss these questions.

- 1 Do you like the way they are designed? Give reasons for your answer.
- 2 What elements do you think a good website should have? Make a list.

B Listen to an interview with a web designer describing how to design a website and put these steps into the correct order. 

- Write and format the text
- Decide the content and structure for the website
- Publish the website
- Insert computer graphics and sounds
- Keep the website update
- Link related pages to each other using hyperlinks

C Listen again and decide whether these design guidelines are right or wrong. Tick the correct box. 

- | | Right | Wrong |
|---|--------------------------|--------------------------|
| 1. Plan your website carefully. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Use a web editor. It will make it easier to create your pages. | <input type="checkbox"/> | <input type="checkbox"/> |

3. Insert photos or animations just to make the pages look attractive.

4. Place a large number of graphics on your pages.

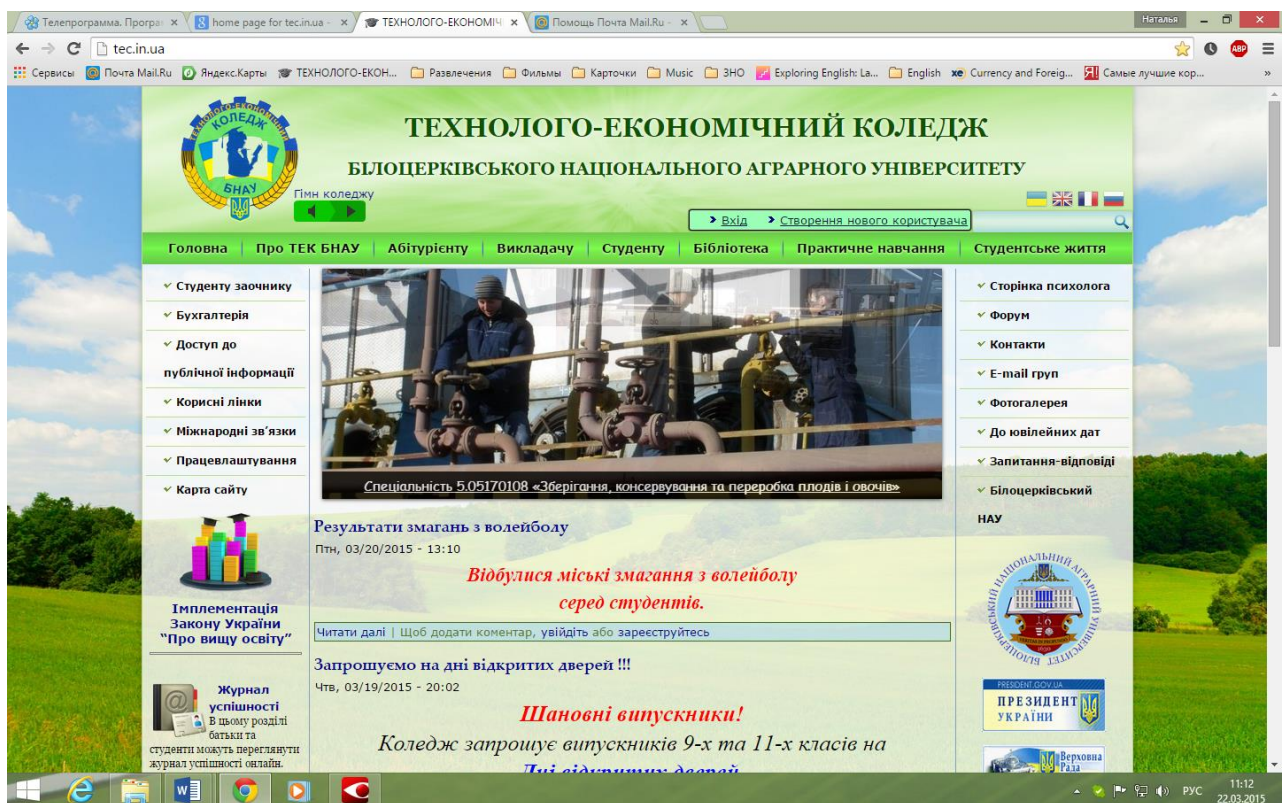
5. Use very bright colours.

6. Put a lot of links on one page.

7. Check that all the links on your web pages are correct.

8. Once they are published, update your pages regularly.

D In small groups, collect information about your college and design a home page for it. Follow the instructions from the interview with the web designer.





Unit 17

Program design and computer languages

1. Programming

A Discuss what you think *programming* is.


B Look at the definition of *programming* in the Glossary.
Is it similar to yours?

2. Steps in programming

A Match the words (1-5) with the definitions (a-e).

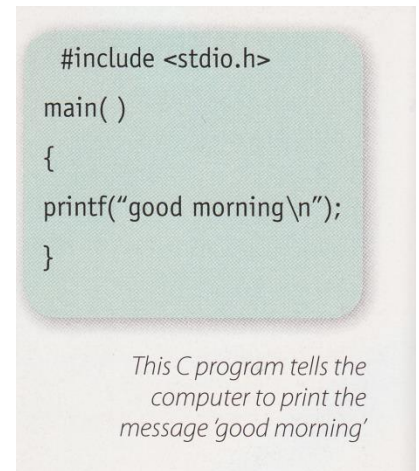
1. flowchart
2. source code
3. compiler
4. machine code
5. debugging

- a. Program instructions written in a particular computer language
- b. The techniques of detecting and correcting errors (or bugs) which may occur in programs
- c. A diagram representing the successive logical steps of the program
- d. A special program which converts the source program into machine code — the only language understood by the processor
- e. The basic instructions understood by computers; it consists of 1s and 0s (binary code)

B Listen to Andrea Finch, a software developer, talking to a group of students on a training course about how a program is written and check your answers to A. 

C Listen again and put these steps into the correct order. 

- ___ Write instructions in a programming language
- ___ Prepare documentation
- 1 Understand the problem and plan a solution
- ___ Make a flowchart of the program
- ___ Compile the program (to turn it into machine code)
- ___ Test and debug the program



3. Computer languages

A Read the text. How many high-level computer languages are mentioned?

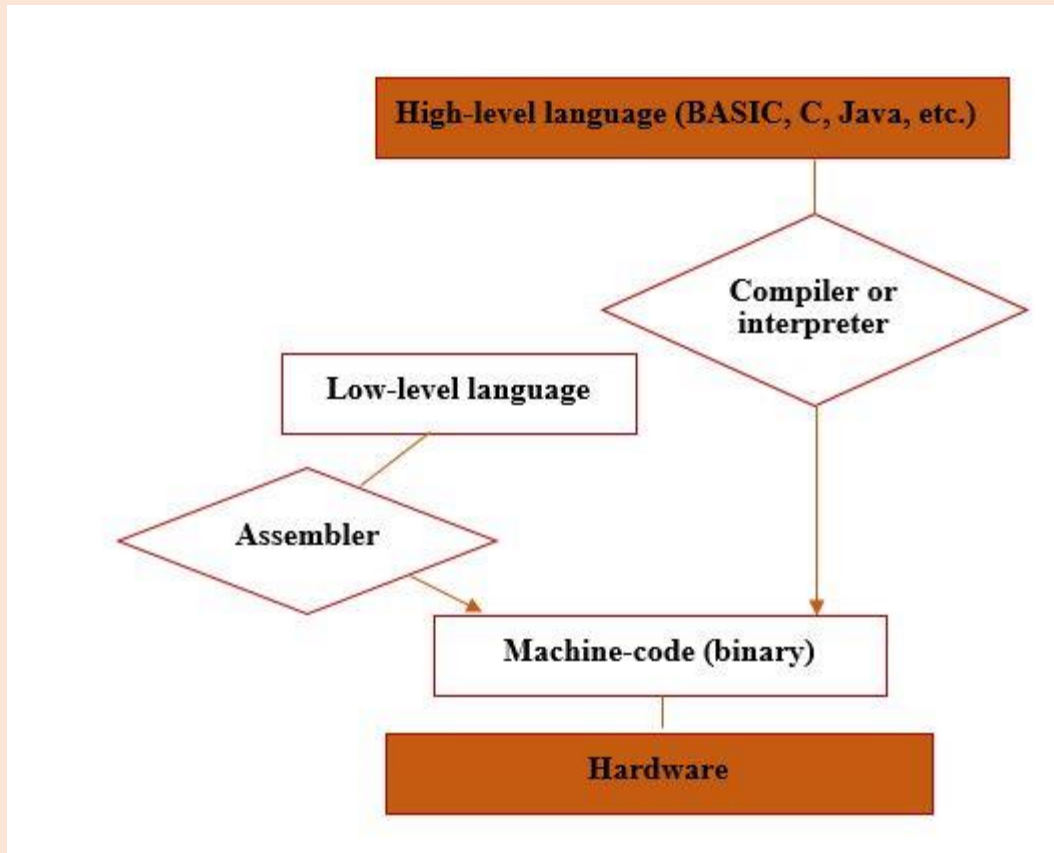
Computer languages

Unfortunately for us, computers can't understand spoken English or any other natural language. The only language they can understand directly is **machine code**, which consists of 1s and 0s (binary code).

Machine code is too difficult to write. For this reason, we use symbolic languages to communicate instructions to the computer. For example, **assembly languages** use abbreviations such as ADD, SUB, MPY to represent instructions. The program is then translated into machine code by a piece of software called an **assembler**. Machine code and assembly languages are called **low-level languages** because they are closer to the hardware. They are quite complex and restricted to particular machines. To make the programs easier to write, and to overcome the problem of intercommunication between different types of computer, software developers designed **high-level languages**, which are closer to the English language. Here are some examples:

- **FORTRAN** was developed by IBM in 1954 and is still used for scientific and engineering applications.
- **COBOL** (**C**ommon **B**usiness **O**riented **L**anguage) was developed in 1959 and is mainly used for business applications.
- **BASIC** was developed in the 1960s and was widely used in microcomputer programming because it was easy to learn. **Visual BASIC** is a modern version of the old BASIC language, used to build graphical elements such as buttons and windows in Windows programs.
- **PASCAL** was created in 1971. It is used in universities to teach the fundamentals of programming.
- **C** was developed in the 1980s at AT&T. It is used to write system software, graphics and commercial applications. **C++** is a version of C which incorporates object-oriented programming: the programmer concentrates on particular things (a piece of text, a graphic or a table, etc.) and gives each object functions which can be altered without changing the entire program. For example, to add a new graphics format, the programmer needs to rework just the graphics object. This makes programs easier to modify.

- **Java** was designed by Sun in 1995 to run on the Web. Java applets provide animation and interactive features on web pages. Programs written in high-level languages must be translated into machine code by a **compiler** or an **interpreter**. A compiler translates the source code into **object code** — that is, it converts the entire program into machine code in one go. On the other hand, an interpreter translates the source code line by line as the program is running.



It is important not to confuse **programming languages** with **markup languages**, used to create web documents. Markup languages use instructions, known as **markup tags**, to format and link text files. Some examples include:

- **HTML**, which allows us to describe how information will be displayed on web pages.
- **XML**, which stands for **Extensible Markup Language**. While HTML uses pre-defined tags, XML enables us to define our own tags; it is not limited by a fixed set of tags.
- **VoiceXML**, which makes Web content accessible via voice and phone. VoiceXML is used to create voice applications that run on the phone, whereas HTML is used to create visual applications (*for example, web pages*).

B Read the text again and answer these questions.

1. Do computers understand human languages? Why? / Why not?
2. What is the function of an *assembler*?
3. Why did software developers design high-level languages?
4. Which language is used to teach programming techniques?
5. What is the difference between a *compiler* and an *interpreter*?
6. Why are HTML and VoiceXML called *markup* languages?

C Complete these sentences with a computer language from the text.

1. _____ allows us to create our own *tags* to describe our data better. We aren't constrained by a pre-defined set of tags the way we are with HTML.
2. IBM developed _____ in the 1950s. It was the first high-level language in data processing.
3. _____ applets are small programs that run automatically on web pages and let you watch animated characters, play games, etc.
4. _____ is the HTML of the voice web. Instead of using a web browser and a keyboard, you interact with a voice browser by listening to pre-recorded audio output and sending audio input through a telephone.
5. This language is widely used in the business community. For example, the statement ADD VAT to NET-PRICE could be used in a _____ program.

4. Word building

Look at the words in the boxes. Are they nouns, verbs or adjectives? Write *n*, *v* or *adj* next to each word. There may be more than one possible answer. Complete the sentences with words from the boxes.

program _____ programmers _____ programming _____ programmable _____

1. _____ is the process of writing a program using a computer language.
2. A computer _____ is a set of instructions that tells the computer how to do a specific task.
3. Most computer _____ make a plan of the program before they write it.
4. A _____ keyboard allows the user to configure the layout and meaning of the keys.

compile _____

compiler _____

compilation _____

5. Programs written in a high-level language require _____ — that is, translation into machine code, the language understood by the processor.
6. A source program is converted into machine code by software called a _____.
7. Programmers usually _____ their programs to generate an object program and diagnose possible errors.

bug _____

debug _____

debugger _____

debugging _____

8. Any error or malfunction of a computer program is known as a _____.
9. A _____ is a program used to test and _____ other programs.
10. The process of going through the code to identify the cause of errors and fixing them is called _____.

5. Language work: the infinitive

HELP BOX

The infinitive

The infinitive with **to** is used in the following ways:

- To express purpose

*We use symbolic languages **to communicate** instructions to the computer.*

(= *in order to communicate...*)

Not: ... ~~for~~ to communicate

- After adjectives

*BASIC was widely used in the past because it was **easy to learn**.*

*Machine code is too **difficult to write**.*

(= *not easy enough to write*)

- After certain verbs (e.g. **advise, encourage, allow, expect, tell, ask, invite, want, enable, order, warn**)

*HTML **allows us to describe** how information will be displayed on web pages.*

The bare infinitive (without to) is used in the following ways:

- After modal verbs (e.g. **can, could, may, might, will, would, must, should**)

*Unfortunately, computers **can't understand** spoken English.*

*High-level languages **must be** translated into machine code.*

- After the object with the verbs **make** and **let**

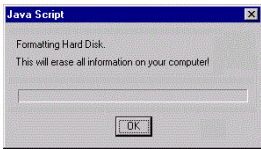
*Programs **make computers perform** specific tasks.*

A Look at the HELP BOX and then make sentences using these prompts.

1. not easy / write instructions in COBOL
It's not easy to write instructions in COBOL.
2. expensive / set up a data-processing area
3. advisable / test the programs under different conditions
4. unusual / write a program that works correctly the first time it's tested
5. important / use a good debugger to fix errors
6. easy / learn Visual BASIC

B Choose the correct words (a-c) to complete these sentences.

1. We use high-level languages because machine code is too difficult _____ ,
understand and debug.
a read **b** reading **c** to read
2. I went on the course _____ how to be a better programmer.
a learn **b** to learn **c** for to learn
3. I'm not interested in _____ that computer language.
a learn **b** learning **c** to learn
4. He refuses _____ the project with me.
a do **b** doing **c** to do
5. The engineers warned the employees not _____ the cables.
a touch **b** touching **c** to touch
6. They may not _____ to the conference.
a come **b** coming **c** to come
7. Spyware can make your PC _____ more slowly.
a perform **b** performing **c** to perform



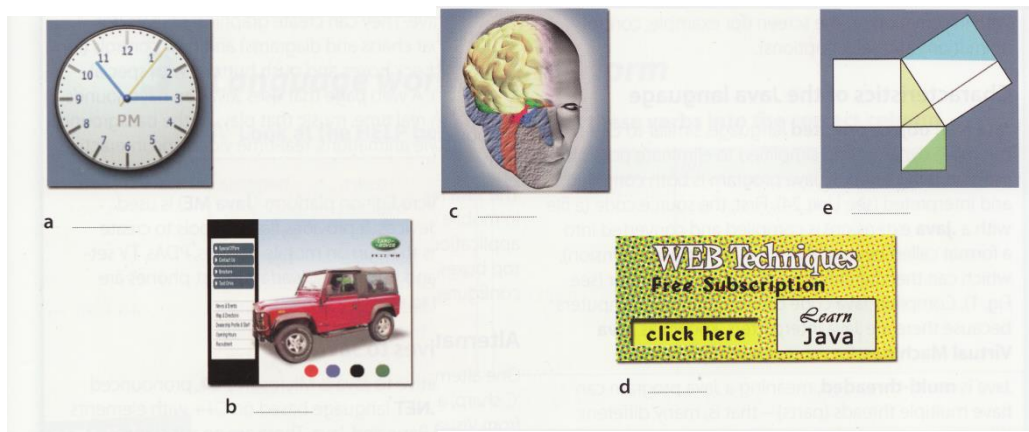
Unit 18

Java

1. Java applets

A Match the examples of Java programs, known as *applets*, (a-e) with the descriptions (1-5).

1. This Land Rover applet allows you to change the look of the vehicle.
2. The Pythagoras theorem applet gives the proof of the Pythagorean theorem without words. It allows you to manipulate triangles and go through the steps of the geometrical proof.
3. The Jman for Java applet permits medical researchers to view sequential MRI (Magnetic Resonance Images) of the brain.
4. An analogue clock applet displays the time according to the web user's computer and lets you set the colours and style of the hands and numbers.
5. A banner applet displays graphic images on websites in order to advertise products or services.



B Match the terms (1-5) with the definitions (a-e).

1. Java
2. applet
3. plug-in
4. platform-independent
5. object-oriented programming



- a. an auxiliary program that enables web browsers to support new content, for example animation
- b. software that can run on any operating system

- c. an island in Indonesia, coffee (in American slang), and a programming language for internet applications
- d. a computer programming technique that allows the creation of objects that interact with each other and can be used as the foundation of others; used to create graphical user interfaces
- e. a small Java application, usually designed to run automatically within a web page

2. The Java language

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

1. Java was invented by Microsoft.
2. With the interpreter, a program is first converted into Java bytecodes.
3. Java is not compatible with most computing platforms.
4. The Java language is single-threaded, one part executing at a time.
5. Java has no competitors.
6. Flash files are called *animations*.

The Java language

Java is a programming language developed by Sun Microsystems, specially designed to run on the Web.

Java programs (called **applets**) let you watch animated characters and moving text, play music, and interact with information on the screen (*for example, control animations and select options*).

Characteristics of the Java language

Java is an **object-oriented** language, similar to C++, but more dynamic and simplified to eliminate possible programming errors. A Java program is both compiled and interpreted. First, the source code (a file with a **.java** extension) is compiled and converted into a format called bytecode (a file with a **.class** extension), which can then be executed by a Java interpreter. Compiled Java code can run on most computers because there are Java interpreters, known as **Java Virtual Machines**, for most operating systems.

Java is **multi-threaded**, meaning a Java program can have multiple threads (parts) — that is, many different things processing independently and continuously. This enables the program to make the best use of available CPU power.

Why is Java popular?

Most programmers like Java because it allows them to write applets which make web pages more interactive and attractive. They can create graphical objects (*for example, bar charts and diagrams*) and new controls (*for example, check boxes and push buttons with special properties*). A web page that uses Java can have sounds that play in real time, music that plays in the background, cartoon-style animations, real-time video and interactive games.

The Java Micro Edition platform (**Java ME**) is used in mobile devices. It provides flexible tools to create applications that run on mobile phones, PDAs, TV settop boxes and printers. Nowadays, most phones are configured to use Java games.

Alternatives to Java

One alternative to Java is Microsoft's **C#**, pronounced 'C sharp) a **.NET** language based on C++ with elements from Visual Basic and Java. There are no substantial differences between C# and Java. When software developers do measurements on pieces of code, sometimes Java is faster, sometimes C# is.

Another competitor is Adobe **Flash** technology, which supports graphics, a scripting language called ActionScript, and the streaming of audio and video.

Flash is used to create animation and advertisements, to integrate video into web pages, and to develop rich internet applications such as portals. **Flash files**, traditionally called **flash movies**, have a **.swf** file extension. They may be an object on a web page or be played in the stand-alone Flash Player.

B Match the words (1-6) with the words (a-f) to make technical terms from the text.

- | | | | |
|---------------|-------------|----------|------------|
| 1 Java | 4 web | a applet | d system |
| 2 operating | 5 source | b page | e object |
| 3 programming | 6 graphical | c code | f language |

C Complete the sentences with words from the box.

interpreted animated configured used pronounced object-oriented compiled

1. Java lets you watch _____ characters on web pages.
2. Java is an _____ language, similar to C++ but more dynamic.
3. First, the source code of a Java program is _____ into an intermediate format called *bytecode*. This is then _____ by any system possessing a Java interpreter.
4. The Java ME platform is widely _____ in mobile devices.
5. Nowadays, most mobile phones are _____ to use Java games.
6. Microsoft's C# is a simplified version of C and C++ for the Web. It's _____ 'C sharp'.

3. Language work: the -ed form.

A Look at the HELP BOX and then put these verbs into the correct column.

HELP BOX

The -ed form

We use the **-ed** form in the following ways:

- To make the past simple (affirmative) of regular verbs
*Sun Microsystems **developed** Java in 1995.*

Remember that not all verbs in the past simple end in **-ed**.

- To make the past participle of regular verbs
*Flash is **used** to create animatiojn.*
- To make the adjectival form of some verbs
*Java applets let you watch **animated** characters..*

The **-ed** is pronounced as:

[t] after voiceless sounds: [p], [k], [θ], [s], [f], [ʃ] or [tʃ]. (e.g. *developed, talked, pronounced*)

[d] after voiced sounds: [b], [g], [ð], [z], [v], [dʒ], [l], [r]; nasal consonants: [m], [n], [ŋ]; and vowels (e.g. *compiled, designed, simplified*)

[ɪd] after [t] or [d] (e.g. *interpreted, multi-threaded*)

stopped	asked
described	decided
produced	called
watched	executed
published	object-oriented
programmed	persuaded
configured	converted
arranged	designed

[t]	[d]	[ɪd]

B Complete this extract from a lecture handout about Java with the correct form of the verbs in the box.

call be begin can decide rename have support develop base

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

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

At that time, web pages (7) _____ only display text, pictures and hyperlinks. With the arrival of Java, web designers (8) _____ able to include animation and interactive programs on web pages. The first major application created with Java was the HotJava browser. The Java language (9) _____ to attract serious attention from the internet community and was soon (10) _____ by Netscape Navigator and MS Internet Explorer. Today, Java is a hot technology that runs on multiple platforms, including smart cards, embedded devices, mobile phones and computers.

C Listen to an extract from the lecture and check your answers to C. Listen carefully to the pronunciation of the verbs that end in *-ed*.





Unit 19 Jobs in ICT

1. IT professionals

A Complete these definitions with jobs from the box.

software engineer computer security specialist blog administrator help desk technician
DTP operator hardware engineer network administrator webmaster

1. A _____ designs and develops IT devices.
2. A _____ writes computer programs.
3. A _____ edits and deletes posts made by contributors to a blog.
4. A _____ uses page layout software to prepare electronic files for publication.
5. A _____ manages the hardware that comprise a network.
6. A _____ designs and maintains websites.
7. A _____ works with companies to build secure computer systems.
8. A _____ helps end-users with their computers in person, by email or over the phone.

B Listen to four people on a training course introducing themselves and talking about their jobs. Which job in A does each person do?



Speaker 1 _____

Speaker 3 _____

Speaker 2 _____

Speaker 4 _____

2. Job advertisements

A Read the two job advertisements and tick (✓) the most important qualities and abilities (1-10) for each job. Add more to the list if you can. Which three things do you think are most important for each job?

	<i>Senior programmer</i>	<i>DTP operator</i>
1. logical reasoning	<input type="checkbox"/>	<input type="checkbox"/>
2. patience and tenacity	<input type="checkbox"/>	<input type="checkbox"/>
3. being good with figures	<input type="checkbox"/>	<input type="checkbox"/>
4. imagination	<input type="checkbox"/>	<input type="checkbox"/>
5. self-discipline	<input type="checkbox"/>	<input type="checkbox"/>
6. accuracy	<input type="checkbox"/>	<input type="checkbox"/>
7. leadership skills	<input type="checkbox"/>	<input type="checkbox"/>
8. efficiency	<input type="checkbox"/>	<input type="checkbox"/>
9. creativity	<input type="checkbox"/>	<input type="checkbox"/>
10. drawing skills	<input type="checkbox"/>	<input type="checkbox"/>

B Discuss if you would like to apply for one of the jobs. Give reasons for your answers.

DIGITUM-UK

SENIOR-PROGRAMMER required by DIGITUM-UK, a leading supplier of business systems to the insurance industry.

You will be able to work on the full range of software development activities — analysis, design, coding, testing, debugging and implementation. At least two years' experience of COBOL or C++ is necessary.

As we are active in Europe, fluency in French, Italian or another European language is desirable.

Don't miss this opportunity to learn new skills and develop your career.

Send your CV to CHRIS SCOTT, PERSONNEL MANAGER,
DIGITUM-UK, 75 PARKSHILL STREET, LONDON SW14 3DE

You can visit our website at www.digitum-uk.com

**DTP operator
required for a leading
financial magazine.**

We are looking for a bright, competent QuarkXPress operator with at least three years' experience in design and layout. Skills in Photoshop, Freehand or Illustrator an advantage.

Ability to work in a team and to tight deadlines is vital.

Please apply in writing, with CV and Samples of your work, to Tom Parker, Production Manager, Financial Monthly, Stockton Street, London EC1A 4WW
Or apply online:

C Look at the online profile for Charles Graham. Which of the jobs above is most appropriate for him?

Charles Graham 22 years old

Professional summary

I graduated in 2007 with a levels in English, Art and Maths, and went on to do a course in graphic design and page layout at Highland Art School.

Since 2009 I've been a graphic designer for PromoPrint, a company specializing in publishing catalogues and promotional material, and have used Adobe InDesign and other DTP software.



3. A letter of application

A Read the letter of application and answer these questions.

1. Which job is Sarah Brown applying for?
2. Where did she see the advertisement?
3. How long has she been working as a software engineer?
4. What type of programs has she written?
5. When did she spend three months in Spain?

Dear Mr Scott,

I am writing to apply for the position of Senior programmer, which was advertised on 28th March in *The Times*.

I graduated in May 2002 and did a work placement with British Gas as part of my degree. Before taking my present job I worked for a year with NCR. I stayed in this job (1) _____ March 2004.

(2) _____ the last three years I have been working as a software engineer for Intelligent Software. I have designed four programs in COBOL for commercial use, and (3) _____ January I have been writing programs in C for use in large retail chains. These have been very successful and we have won several new contracts in the UK and Europe on the strength of my team's success.

Two years (4) _____ I spent three months in Spain testing our programs and also made several visits to Italy, so I have a basic knowledge of Spanish and Italian. I now feel ready for more responsibility and more challenging work, and would welcome the opportunity to learn about a new industry.

I enclose my curriculum vitae. I will be available for an interview at any time.

I look forward to hearing from you.

Yours sincerely,
Sarah Brown
Sarah Brown

B Look at the HELP BOX and then complete the letter with *for, since, ago* or *until*.

HELP BOX

for, since, ago, until

- We use **for** to refer to a period of time.
*I've lived in London **for** five years.*
- We use **since** to refer to a point in time.
*I've been unemployed **since** May 2010.*
- We use **ago** with the past simple to say when something happened. We put **ago** after the time period.
*I got married five years **ago**.*
- We use **until** to mean up to a certain time.
*I stayed at high school **until** I was 18.*

4. A job interview

Chris Scott, the Personnel Manager at Digitum-UK, is interviewing Sarah Brown. Listen to part of the interview and complete his notes. 

Name: Sarah Brown

Qualifications:

Degree in (1) _____

(Aston University)

Languages: Basic Spanish and Italian

Work experience:

NCR: (2) _____ (one year)

Software for:

(3) _____

Programs for:

(4) _____

Database knowledge:

(5) _____

Present job: Works for Intelligent
Software writing programs in COBOL
and C.

Reasons for applying:

(6) _____



5. Applying for a job

A Look at the job advertisement for a webmaster at eJupiter.

Maria Quintana is interested in applying. Use her curriculum vitae to write a letter of application. Follow these steps:

Paragraph one: reason for writing

I am writing to apply for the position of...

Paragraph two: education and training

I graduated in (date) ...

I completed a course in ...

Paragraph three: work experience

For the past X years I have been ...

Since X I have been ...

Paragraph four: personal skills

I spent X months in (country) ... , so I have knowledge of (foreign languages).

I can ...

Paragraph five: reasons why you are applying for this job

I now feel ready to ... and would welcome the opportunity to ...

Paragraph six: closing / availability for interview

I enclose ... I look forward to ... I will be available for an interview ...

B Think of your ideal job and write a letter of application for it. If you prefer, look on the Internet for real jobs and practise applying for those.

Vacancies at eJupiter.co.uk Webmaster

We are seeking a Webmaster for eJupiter.co.uk, a Company dedicated to e-commerce.

The successful candidate will manage our website. You will be responsible for making sure the web server runs properly, monitoring the traffic through the site, and designing and updating our web pages.

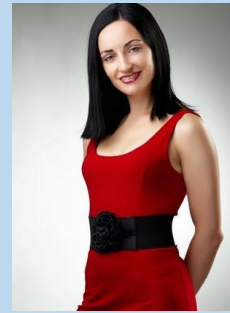
Experience of using HTML and Java is essential. Experience of Adobe PDF and Photoshop is an advantage. The successful candidate will also have knowledge of web editors — MS FrontPage or equivalent.

Send your CV and a covering letter to James Taylor, eJupiter Computers, 37 Oak Street, London SW10 6XY

Curriculum vitae

Personal information

Name: Maria Quintana
Address: Avda Seneca, 5, Madrid 28040
Telephone: 00 34 91 5435201
Email: mquintana0782@telefonica.net
Date of birth: 28/07/82



Education and Training

2015 Online diploma in web-based technology for business,
www.elearnbusiness.com

2013 Course in web design at the Cybernetics College, London:
HTML, Java and Macromedia Dreamweaver

2011 Course in Computer hardware and networking at the
Cybernetics College, London

2009-2014 Degree in Computer Science and Engineering, University of
Madrid

Work experience

January 2013 - Part-time Webmaster at www.keo.es; responsible for
present updating the site and using Adobe Flash to create animations

May 2012 - IT consultant at Media Market, specializing in e-commerce
IT strategies

IT skills

Knowledge of multiple computer platforms (Windows, Mac and Linux); strong database skills (including the popular open source MySQL database); complete understanding of graphics formats and Cascading Style Sheets

Personal skills

Social and organizational skills
Good communication skills

Languages

Spanish mother tongue; English (Cambridge CAE); Arabic (fluent)

Hobbies and Interests

Web surfing, listening to music and travelling

References

Miguel Santana, Manager, keo.es
Sam Jakes, Lecturer, Cybernetics College



Unit 20

New technologies

1. Future trends

A In pairs, discuss these questions.

1. What do you think *a trend* is?
2. What trends in ICT do you think will affect our lives in the future?

B Read the texts.

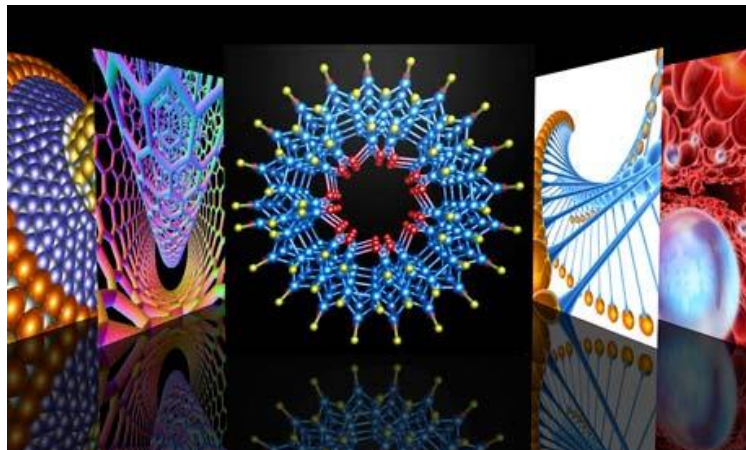
1

By all accounts, **nanotechnology** — the science of making devices from single atoms and molecules — is going to have a huge impact on both business and our daily lives. Nano devices are measured in **nanometres** (*one billionth of a metre*) and are expected to be used in the following areas.

Nanocomputers: Chip makers will make tiny microprocessors with **nanotransistors**, ranging from 60 to 5 nanometres in size.

Nanomedicine: By 2020, scientists believe that nano-sized robots, or **nanobots**, will be injected into the body's bloodstream to treat diseases at the cellular level.

Nanomaterials: New materials will be made from carbon atoms in the form of **nanotubes**, which are more flexible, resistant and durable than steel or aluminium. They will be incorporated into all kinds of products, for example stain-resistant coatings for clothes and scratch-resistant paints for cars.



2

Artificial Intelligence (AI) is the science of making intelligent machines and programs. The term originated in the 1940s, when Alan Turing said: “A machine has artificial intelligence when there is no discernible difference between the conversation generated by the machine and that of an intelligent person.” A typical AI application is **robotics**. One example is ASIMO, Honda's intelligent humanoid robot. Soon, engineers will have built different types of **android**, with the form and capabilities of humans. Another AI application is **expert systems** — programs containing everything that an “expert” knows about a subject. In a few years, doctors will be using expert systems to diagnose illnesses.

3

Imagine you are about to take a holiday in Europe. You walk out to the garage and talk to your car. Recognizing your voice, the car's doors unlock. On the way to the airport, you stop at an ATM. A camera mounted on the bank machine looks you in the eye, recognizes the pattern of your iris and allows you to withdraw cash from your account. When you enter the airport, a hidden camera compares the digitized image of your face to that of suspected criminals. At the immigration checkpoint, you swipe a card and place your hand on a small metal surface. The geometry of your hand matches the code on the card, and the gate opens. You're on your way.

Does it sound futuristic? Well, the future is here. **Biometrics** uses computer technology to identify people based on physical characteristics such as fingerprints, facial features, voice, iris and retina patterns.

4

Ubiquitous computing, also known as **pervasive computing**, is a new approach in which computer functions are integrated into everyday life, often in an invisible way.

Ubiquitous devices can be anything from smartphones to tiny sensors in homes, offices and cars, connected to networks, which allow information to be accessed anytime and anywhere — in other words, ubiquitously. In the future people will interact naturally with hundreds of these **smart devices** (*objects containing a microchip and memory*) every day, each invisibly **embedded** in our environment and communicating with each other without cables.

5

In the ideal **smart home**, **appliances** and electronic devices work in sync to keep the house secure. For example, when a regular alarm system senses that someone is breaking into the house, it usually alerts the alarm company and then the police. A smart home system would go further, turning on the lights in the home and then sending a text message to the owner's phone. Motorola *Homesight* even sends images captured by wireless cameras to phones and PCs.

Smart homes can remember your living patterns, so if you like to listen to some classical music when you come home from work, your house can do that for you automatically. They will also know when the house is empty and make sure all appliances are turned off. All home devices will be interconnected over a home area network where phones, cable services, home cinemas, touch screens, smart mirrors and even the refrigerator will cooperate to make our lives more comfortable.

C Answer these questions.

1. Which unit of measurement is used in nanotechnology?
2. What are the advantages of nanotubes over regular materials?
3. What will doctors use expert systems for?
4. What features are analysed by biometrics?
5. Which trend refers to computers embedded in everyday devices, communicating with each other over wireless networks?

6. What will the alarm system do if someone breaks into a smart home?
7. How will devices be interconnected inside the smart home?


D Find words in the texts with the following meanings.

1. a microscopic robot, built with nanotechnology (*text 1*) _____
2. a robot that resembles a human (*text 2*) _____
3. biological identification of a person (*text 3*) _____
4. integrated; inserted into (*text 4*) _____
5. electrical devices, or machines, used in the home (*text 5*) _____

2. RFID tags

A Listen to Sarah Wood, an ICT teacher, giving a class about RFID tags. Which definition (a-c) best describes RFID? 

- a. a smart technology worn on the user's body so that they can email and access the Web
- b. a technology that uses radio waves and chip-equipped tags to automatically identify people or things
- c. a technology that uses microchips and bar codes to track people or things at a distance

B Listen again and decide which answers (a or b) are correct. 

1. RFID stands for
a Radio Frequency Identification.
b Radio Frequency Identification Download.
2. Radio tags
a can only be attached to or embedded into products.
b can be attached to or embedded into products, animals and humans.
3. Active RFID tags
a have a communication range of several hundred metres.
b have a communication range of five metres.
4. RFID chips
a will help us track ordinary objects like car keys or books.
b won't be able to locate objects when they are lost or stolen.
5. Radio tags may be implanted under the skin
a to confirm a patient's identity and cure illnesses.
b to give doctors instant access to a patient's medical history.
6. According to consumer organizations, RFID tags
a could be used to track consumers or to steal a person's identity.
b are secure and private; there is no need for concern.



3. Language work: future forms

A Look at the HELP BOX and then choose the correct words in brackets to complete these sentences.

1. In the future, I hope we ('ll have / 're going to have) robots in the home to help us with the housework.
2. Hey, Nick, be careful, you ('re going to spill / 'll spill) that coffee on the computer!
3. It's John's birthday next week. We ('ll give / 're going to give) him a mobile phone.
4. - My laptop has crashed!
-Don't worry. I ('ll lend / 'm going to lend) you mine.
5. The Internet (will probably change / is probably going to change) the publishing industry in the way that TV changed the movie industry.
6. Futurists predict that smart technology (will be / is going to be) incorporated into fabrics, so you'll be able to email from your coat!

HELP BOX

Future forms

We use the future simple (**will/won't** + verb) in the following ways:

- To make predictions when you don't have present evidence that something will happen
*Nanobots **will be injected** into the body's bloodstream to treat diseases.*

- To talk about hopes and promises, especially with the words **expect, think, hope** and **probably**
*They hope that people **will interact** naturally with hundreds of smart devices at a time.*

- To describe an instant decision, often when we make an offer
*Sure, **I'll help** you with your homework.*

- To talk about facts that will inevitably happen
She'll be 21 in May.

We use **be going to** + verb in the following ways:

- To describe future intentions
*She's **going to write** a book about ubiquitous computing.*

- To make predictions when you have present evidence that something is going to happen
*By all accounts, nanotechnology **is going to have** a huge impact on business and our daily lives.*

We use the future continuous (**will be + -ing** form of the verb) to talk about actions in progress at a specific time in the future.

*In a few years, doctors **will be using** expert systems to diagnose illnesses.*

We use the future perfect (**will have** + past participle) to talk about actions finished at a specific time in the future.

*Soon, engineers **will have built** different types of android.*

B Complete these sentences with the correct future form of the verb in brackets. Use the future continuous or future perfect.

1. Thanks to ICT, by the year 2030 we (find) _____ cures for the major diseases of our time.
2. In twenty years' time, some people (live) _____ in space, perhaps inside a computerized colony.
3. By this time next week, I (work) _____ for IBM.
4. By this time next month, I (buy) _____ that BlackBerry that I've been wanting to buy for months.
5. Scientists predict that in twenty years' time nearly everyone (live) _____ in smart houses.

C In pairs, discuss these predictions. Do you agree or disagree? Give reasons for your answers. Look at the Useful language box to help you.

1. Some day, we'll be talking to computers naturally, like friends.
2. Microchips implanted in our arms will serve as ID cards and contain our medical records.
3. Robots will learn to build themselves, without human help.
4. Smart homes will be voice-activated.
5. Computers will be ubiquitous and almost invisible, embedded into our homes and integrated into our lives.

Useful language

I think that ...

What do you think about number ... ?

I'm not sure that ... will ...

I completely agree / disagree with ...

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 carbon (or courtesy) copy
BIOS Basic Input/Output System
bit binary digit
bps bits per second

CAD Computer-Aided Design
Cc: Carbon (or courtesy) copy
CCD Charge-Coupled Devices
CD Compact Disc
cd/m² Candela per square metre
CD-R Compact Disc-Recordable
CD-ROM Compact Disc-Read Only Memory
CD-RW Compact Disc-Rewritable
CERN Conseil Européen pour la Recherche Nucléaire
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
FORTAN FORmulaTRANslation
FTP FileTransfer 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
WP Word 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)

Audio scripts

Unit 1 Living in a digital age

Speaker 1

I write music mainly for videos and plays. I work on a keyboard connected to a computer. I use the computer in *two* ways, really: first of all, to record, or store, what I play on the keyboard. Secondly, the computer controls the sounds I can make with the different synthesizers I have here. I can use it to get different kinds of sound from the synthesizers. The computer is the link between the keyboard, which I play, and the synthesizers, which produce the sounds.

Speaker 2

I use my computer to do the usual office things, like writing memos, letters, faxes and so on, but the thing I find most useful is email. We're an international company, and we have offices all over the world. We're linked up to all of them by email. With email I can communicate with the offices around the world very efficiently. It's really changed my life.

Speaker 3

Well, I use computers for almost every aspect of my job.

I use them to design electrical installations and lighting systems. For example, a program will tell you how much lighting you need for a particular room, or how much cable you need, and it'll show where the cable should go. I also use the computer to make drawings and to keep records. We have to test our installations every five years, and that information is stored on computer, too.

Speaker 4

I use computers to catalogue and classify all the materials received in the library, and record all the books, newspapers, DVDs, etc. that users borrow. I also assist customers and visitors in the use of IT hardware and software, including online databases and CD-ROMs. I help people with their enquiries, for example if children or elderly people need to find some specific information, either in our online library catalogue or on the Internet. I'm also in charge of other library services, such as printing and fax machines.

Unit 2 Computer essentials

... as I'll explain to you now, computers can be divided into five main types, depending on their size and power. These are: mainframes, desktop PCs, laptops, tablet PCs and personal digital assistants, or PDAs.

Mainframes are the largest and most powerful computers. The basic configuration of a mainframe consists of a central system which processes immense amounts of data very quickly. This central system provides information and computing facilities for hundreds of terminals connected together in a network. Mainframes are used for large-scale computing purposes in banks, universities and big companies.

PCs, or personal computers, carry out their processing on a single microchip. They are usually classified by size and portability. A desktop PC is designed to be placed on your desk. It is used as a home computer or as a workstation for group work. Typical examples are the IBM PC and the Apple Macintosh.

A laptop is a portable computer that has a flat LCD screen and uses batteries for mobile use. Small laptops are also called notebooks. The latest models can run as fast as similar desktop computers and have similar configurations. They are ideal for business executives who travel a lot.

A tablet PC is a type of notebook computer that has an LCD screen on which you can write with a stylus or digital pen. Your handwriting is recognized and converted into editable text. You can also input text by using speech recognition or a small keyboard. You can fold and rotate the screen easily.

Finally, a PDA is a lightweight, handheld computer.

The letters stand for *personal digital assistant*. The term refers to a wide variety of handheld devices, including palmtops and pocket PCs. For input, you type using a small keyboard or you use a stylus - a special pen to select items on the screen. PDAs can be used as mobile phones, personal organizers or media players. They also let you access the Internet via Wi-Fi networks, and some include a GPS navigation system.

Unit 3 Inside the system

... as you can see on the diagram, a PC system consists of two parts: software and hardware. Software is the programs that enable a computer to perform a specific task; this includes the operating system, and application software such as a graphics package and a web browser.

Hardware is any electronic or mechanical part. The basic structure of a computer system is made up of three main hardware sections: one, the central processing unit - or CPU - two, the main memory, and three, the peripherals.

The CPU is a processor chip which executes program instructions and coordinates the activities of all the other components. In order to improve the computer's performance, the user can add expansion cards for video, sound and networking.

The main memory holds the instructions and the data which are currently being processed by the CPU. This internal memory is made up of ROM and RAM chips. RAM, or random access memory, is volatile, so it loses the stored data when the electricity - or power - is turned off. ROM, or read-only memory, is non-volatile.

The peripherals are the physical units attached to the computer. They include input, output and storage devices. Input devices, for example the keyboard and the mouse, enable us to present information to the computer. Output devices allow us to extract the results from the computer. For instance, we can see the output on the monitor or in printed form. Storage devices are used to store information permanently. For example, we use hard disks, DVDs or flash drives to store large amounts of information.

Unit 4 Type,click and talk!

1

This device is used to enter information into the computer. As well as having normal typewriter keys for characters and a numeric keypad, it may also have function keys and editing keys for special purposes.

2

This is a device for controlling the cursor and selecting items on the screen. The ball underneath is rolled in any direction across the surface of a desk to move the cursor on the screen. It may have an optical sensor instead of a ball. It usually features two buttons and a wheel. By clicking a button, the user can activate icons or select items and text. A wireless version works without cables.

3

In shape, this input device is similar to an ordinary pen.

It works by detecting light from the computer screen and is used by pointing it directly at the screen display. It allows the user to answer multiple-choice questions and to draw diagrams or graphics.

Unit 5 Display screens and ergonomics

Task 3

1

I'm looking to create a home theatre system in my living room. I'd like a good set up for watching movies and sports in high-definition, listening to music, and playing games on my Xbox ...

2

I need to do graphic design, including photo retouching, for a publishing company. I need a large monitor that can display two full-size pages side by side. I also like to watch DVDs on my computer so ...

3

I prepare multimedia presentations with PowerPoint on my laptop, and I need to be able to display the images on a wall or screen ...

4

I'd like to buy an entry-level monitor for everyday use. And I need one that doesn't take up a lot of space on my desk because it's only a very ...

5

I teach Science, and I've been encouraged to use this new presentation tool. They say it can help me create really dynamic lessons...

Task 4

Tony: There are a number of health and safety problems that may result from the continuous use of computers. Anyone spending more than four hours a day working on a PC may start to suffer from aching hands, neck or shoulders, occasional headaches, and eyestrain.

Worker one: Is there anything we can do to avoid it?

Tony: Yes, there's a lot you can do. For example, if you take the trouble to position your computer properly, you can avoid backache. Get a good chair, one that supports your lower back and is adjustable so you can change its height and angle. Make sure your feet rest firmly on the floor or on a footrest. Position the keyboard at the same height as your elbows, with your arms parallel to the work surface, and position the monitor at or just below eye level. You should look down at it slightly, not up. Don't put your monitor in front of a window, and make sure there isn't a lamp shining directly into your eyes or reflecting off the screen. You should sit at arm's length from the front of the monitor - about 50 to 70 centimetres away. It's a good idea to have a monitor with a tilt-and-swivel stand.

Does anyone know what that is?

Worker two: Yes. I think it's a kind of stand that lets you move the monitor up or around, so you can use it at the correct angle and height.

Tony: That's right. Now, do you know of any health problems caused by using a computer?

Worker three: I've heard of something called RSI. But I'm not exactly sure what it is.

Tony: RSI stands for *repetitive strain injury*, and it causes pain in the upper arms and back. People who type constantly at high speed often suffer from it.

Worker four: My eyes often feel really sore and tired after I've been using the computer for a few hours. How do I stop that from happening?

Tony: Well, as a general rule, you shouldn't use a monitor that's fuzzy or that distorts the image. Give your eyes a rest. Look away from the monitor from time to time, out of the window or across the room.

Unit 6. Magnetic storage

Sue: I'm looking for a portable hard drive. Have you got any?

Assistant: Sure. If you come with me, I'll show you some drives over here.

Sue: What different systems are there?

Assistant: At the moment we've got two products that might interest you: the lomega eGO portable hard drive, which can store 160 gigabytes, and the Edge DiskGO mini portable hard drive, which store 12 gigabytes.

Sue: So the lomega model can hold a lot more information. Would you recommend it?

Assistant: Well, not necessarily. It all depends on your needs. The lomega is more for mobile professionals, as it's big enough to back up your entire PC. The Edge Drive, on the hand, is ultra lightweight, so it's ideal for transporting personal files like photos, music and data files.

Sue: I see. And how much do they cost?

Assistant: The lomega eGO costs £68 and the Edge DickGO is £55.

Sue: Right. Thanks very much. I think I need to think about it.

Unit 7. Optical Storage

Paul: Hi. I need to buy some blank discs, but I'm not sure whether to buy CDs or DVDs. What's the difference?

Assistant: OK, I'll explain. CD stands for compact disc, as you probably know, and DVD is short for digital versatile disc. A DVD is a type of optical disc technology used for storing movies, music

and data. It's made from polycarbonate plastic coated with an aluminium layer, but that's probably more information than you need!

Paul: So, what's the difference between them?

Assistant: Well, they look the same and both are 1.2 mm thick and 12cm in diameter. Both technologies use a laser beam to read the digital data encoded on the disc. But they differ in internal structure and capacity. The major difference is that a DVD has a greater data capacity. A CD usually has a capacity of 650 megabytes, while the smallest capacity you'll find on a DVD is 4.7 gigabytes.

Paul: And do you need a special drive to read and write data onto DVD, or can I use my CD drive?

Assistant: No, you need a DVD player or a DVD computer drive.

Paul: And what sort of information can a DVD hold?

Assistant: It depends on the type of DVD. DVD-Video discs contain films, including the video content, soundtracks in different languages, and subtitles. DVD-Audio discs contain high-definition sound, and DVD-Data discs contain computer data. Of course, a DVD can contain any combination of video, audio and data content.

Paul: And what about my old CDs? Can I use a DVD drive to play different types of CDs?

Assistant: Yeah – one of the best features of new DVD Writers is that they are backward-compatible, which means they can play old CDs and CD-ROMs as well as DVDs.

Unit 8. Flash memory

Visitor: Hello there. I'm thinking of buying a USB flash drive and I've heard you're presenting a new device at this show. Could I see it?

Salesperson: Of course. This is the new Dragon flash drive, a compact flash memory drive that acts like a portable hard drive.

Visitor: And what's storage capacity?

Salesperson: Well, this model here can hold 16 gigabytes of data. We also have drives of 64 gigs, but they're more expensive. The drive consists of a USB connector covered by a removable cap, a mass storage controller, and a flash memory chip. It also includes a write-protect switch and password protection.

Visitor: You're getting a bit too technical for me! Does it connect like a normal drive?

Salesperson: Yes, you just plug it into a USB port on your computer. You can copy files to and from it, just as you would do with any other drive.

Visitor: So what's the advantage of using a flash drive instead of a DVD or an external hard drive then?

Salesperson: Good question. Firstly, a flash drive is more durable because it doesn't contain any internal moving parts. Secondly, it's small enough to fit on your key ring or in your pocket. That

makes it ideal for moving documents between home and the office, carrying music files, or backing up important documents.

Visitor: And what about music and video? Have you got any devices that can play that kind of thing?

Salesperson: Yes, we're also introducing the new Dragon MP4 player at the convention. It comes with 64 gigabytes of capacity, ideal for video fans.

Visitor: Er, sorry, what exactly is an MP4 player? Is it the same as an MP3 player?

Salesperson: Almost. It's a portable media player that plays files compressed in the MPEG-4 format, which is more efficient than MP3. This model also features a 2.7 inch colour screen, 28 hours of rechargeable battery life, and it supports multiple formats.

Visitor: OK. And what can you do with it?

Salesperson: Apart from the typical functions of a flash drive, you can also play movies, watch TV, listen to FM radio stations, record yourself and even play games.

Visitor: That sounds great. It might be just what I'm after! How much is it?

Unit 9. The operating system (OS)

Interviewer: There is no doubt that Windows has revolutionized the way we use computers today. Bill, can you explain just why it's so popular?

Bill: Well, very simply, people find Windows very easy to use because everything is presented in graphic images. It's also compatible with thousands of programs.

Interviewer: The big news at the moment is, of course, the launch of Windows Vista – the successor to Windows XP. I understand that there are several versions of Vista available. Could you give us some advice on which one to get?

Bill: Yes, you're right – there are four main editions: Home Basic, Home Premium, Business and Ultimate. Home Basic is designed for users with basic needs, such as email and internet access. Home Premium is for more advanced home computing and entertainment. It includes a DVD maker, a movie maker and a Media Centre, which lets you listen to music, watch video and record TV programmes on your PC. The Business edition is ideal for business organizations of all sizes. It offers new backup technologies and advanced networking capabilities. Finally, the Ultimate edition combines all the features of the other editions, making it the most complete. It has everything you need to enjoy the latest in music games, digital photography and high-definition TV. It's aimed at high-end PC users, gamers and multimedia professionals.

Interviewer: And what other factors make Windows Vista so attractive?

Bill: The user interface has been redesigned with new icons and a new visual style. The system gives you more flexibility when you search and organize your files, and it offers support for the latest technologies from DVD creation to speech recognition.

Interviewer: What about internet connections? Have they been improved?

Bill: Yes, Internet Explorer is more reliable and secure. The security Centre includes an anti-spyware program called Windows Defender and a firewall that protects your computer from internet attacks.

Interviewer: And what sort of application software can you use with Windows?

Bill: The most popular is still Microsoft Office, a suite that includes the word processor, Word, an email program the Excel spreadsheet program, and the presentation graphics program, PowerPoint.

Unit 10. Word processing

Anna: Ben, do you know how I can move this paragraph? I want to put it at the end of this page.

Ben: Er ... I think so. First, use the mouse to select the text you want to move. Then choose the Cut command from the Edit menu.

Anna: Like this?

Ben: Yes. The selected text disappears and goes onto the Clipboard. Now you find where you want the text to appear, and you click to position point there.

Anna: Mm, OK. Is that right?

Ben: Yes, if that's where you want it. Next, choose Paste from the Edit menu, or hold down CTRL and press V. Finally, check that the text has appeared in the right place.

Anna: OK, I've done that now. Is that everything?

Ben: Yes, that's it. If you make a mistake, you can choose Undo from the Edit menu, which will reverse your last editing command.

Anna: Brilliant! Thanks a lot.

Ben: That's OK, it's my pleasure.

Unit 11 Spreadsheets and databases

OK, everyone. Let's begin with the basics. A spreadsheet program is normally used in business for financial planning - to keep a record of accounts, to analyse budgets or to make specific calculations. It's like a large piece of paper divided into columns and rows. Each column is labelled with a letter and each row is labelled with a number. The point where a column and a row intersect is called a cell. For example, you can have cells A1, B6, C5, and so on.

A cell can hold three types of information: text, numbers and formulae. For example, in this sample worksheet, the word Sales has been keyed into cell A2, and the values 390,487 and 182 have been entered into cells B2, B3 and B4 respectively. So, when the formula $B2+B3+B4$ is keyed into cell B5, the program automatically calculates and displays the result.

Formulae are functions or operations that add, subtract, multiply or divide existing values to produce new values. We can use them to calculate totals, percentages or discounts.

When you change the value of one cell, the values in other cells are automatically recalculated. You can also update the information in different worksheets by linking cells. This means that when you make a change in one worksheet, the same change is made in the other worksheet.

The format menu in a spreadsheet usually includes several commands allowing you to choose the font, number alignment, borders, column width, and so on.

Most spreadsheet programs can also generate graphic representations. The value of cells are shown in different ways, such as line graphs, bar or pie charts. There are even three-dimensional options.

Some spreadsheet programs also have a database facility which transforms the values of the cells into a database. In this case, each column is a field and each row is a record.

Unit 12 The Internet and email

Assistant: ...so that's £ 549 including VAT. Is there anything else I can help you with?

Customer: Well, would you mind explaining how I access the Internet with this computer? I don't think I really even understand what the Internet is! Wait a minute, I'm going to write this down.

Assistant: Of course. Well, basically, the Internet is a global network of computer networks, which allows users to share all kinds of information and computer resources. The system is made up of networks interconnected all over the world, from universities and large corporations to commercial online systems and non-profit organizations...

Customer: OK, that sounds complicated enough! And can I access the Internet automatically with this PC?

Assistant: Well, you need a computer and a modem - a device that connects your PC to the telephone line. You'll also need an account with an Internet Service Provider, or ISP - that's a company that offers connection to the Internet for a monthly fee.

Customer: OK, that sounds easy, but what if we have several computers in different rooms. How can I connect them all to the Internet?

Assistant: In that case, the best choice is a wireless router with a built-in modem. It's a device that links various computers over a network and will connect everyone in your family to the Internet without using cables.

New computers include wireless support but if any of the computers are old, you'll need a Wi-Fi wireless adapter.

Customer: I'm sorry, but what does Wi-Fi mean exactly?

Assistant: Wi-Fi is short for Wireless Fidelity and refers to a technology that uses radio waves to communicate data over medium range distances.

Customer: Right. And so that's everything?

Assistant: Not quite. You'll need some software too, specifically internet connection software and a Web browser application, such as Internet Explorer or Mozilla Firefox.

Customer: OK, I think I've got it. And I'll be able to start emailing straight away?

Assistant: You can do more than just email. There's file transfer, newsgroups, real-time chats, instant messaging and looking for information on the Web.

Customer: Wow, this all sounds complicated. I'm not sure I even understand the difference between the Web and the Internet.

Assistant: Well, the Web is a huge collection of "page" stored on computers all over the world. Web pages contain all sorts of information in the form of text, pictures, sounds and video. The Internet is the network which connects all the computers.

Customer: OK, I think I've got it.

Unit 13 Chat and conferencing

Journalist: Daniel, how would you describe Cyberstop?

Daniel: It's essentially a place where you can use computers to access the Internet. Once you're online, it's up to you what you do. There's a range of services that we'll allow people to use, from browsing the Web and multiplayer gaming to internet telephony.

Journalist: And what about people who need some help with using all this?

Daniel: Not a problem. We always try and be available to help people if they've got problems. For beginners, we like to give a tutorial to get them going.

Journalist: And how much do you charge for using the computers?

Daniel: What most people do is come in and use our machines for a fee. We usually charge two pounds an hour. But some customers prefer to have unmetered access, so we give them a pass for a day or a week. One day costs four pounds, one week is eighteen pounds. That can't be bad!

Journalist: And what sort of people tend to come to the Cyberstop?

Daniel: Many customers are travellers or students who want to access webmail and Instant Messaging services to keep in touch with family and friends. We've got huge numbers of Latin American users, we've got Americans, Greeks, Russians. We pretty much cover the globe at the moment. However, we don't tend to get that many English users, probably because they've got access at home. But we are able to provide communication services to people who would otherwise have to make long-distance telephone calls. And we can be considerably cheaper than just picking up the phone and dialling.

Journalist: Is it possible to offer all this technology and still have the friendly atmosphere of a traditional café?

Daniel: I think we try to. It's the kind of place I'd like to spend time, even if I didn't work here! We've had to separate out the computers from the café a little bit. so upstairs is the café area where you can sit and drink coffee and play chess and cards or sit and chat to people ...

Unit 14 Internet security

Journalist: The Internet is a great resource for kids, but some parents are concerned about the presence of 'indecent' material. Can the Internet be dangerous for children?

Diana Wilson: Well, the Net obviously brings a lot of benefits for education and entertainment, but it's not always a friendly place. We've all heard of things like the manipulation of children, invasions of privacy, distribution of indecent or offensive material, violence, and racist propaganda.

Journalist: And what sort of precautions should parents take?

Diana Wilson: It's impossible for parents to be with their children at every moment. But there are plenty of websites aimed at children, and some programs can help parents control information. But this is no substitute for education. It's the 'parents' role to make their children aware of both the benefits and the risks of the Internet.

Journalist: And what else can parents do? I mean, are there any technological solutions?

Diana Wilson: Yes, web software companies have developed filtering programs that let parents block objectionable websites and restrict access to specific aspects of the Net. Some organizations have also proposed that websites should rate their content with a label, from child-friendly to over-18 only. Other people argue that internet ratings aren't good because they limit free expression on the Net.

Journalist: That's obviously a very controversial topic. What about internet addiction? What can parents do if their children spend too much time online?

Diana Wilson: Well, if they're obsessed with games or spend so much time online that their lives are affected negatively, parents should establish a balance between internet use and other activities. When there are strong signs of internet addiction, they should consider seeking professional help.

Unit 15 Desktop publishing

... so let's begin. First, the DTP designer decides the basic form of the document (the type of document, general design, colour, fonts, images required, etc.)

To create the DTP document, the designer begins by selecting a template or by specifying the settings of a new document (the page size, margins, columns, paragraph styles, master pages, etc.).

The next step is to type the text directly or to import it from a word processing program like Word or WordPerfect.

When the text has been edited, the designer imports the pictures and uses precise tools to position, scale, crop and rotate all the items.

Once the file is composed and saved, the designer has to prepare it for printing, which involves verifying the colour specification, creating a Postscript or PDF file, exporting the file in HTML format for the Web, checking proofs, etc.

The last step is to take the files to a service bureau, which will print the publication.

Unit 16 Web design

Interviewer: Sarah, what's the first step in building a website?

Sarah: First of all, you should always plan it carefully. Decide what sort of information you're going to include and how you're going to organize it. I like to start with the home page, because this is the starting point of your site, almost like the table of contents in a book, it's a good idea to design the site on paper first - a few diagrams will help you clarify the relationships between the pages.

Interviewer: That sounds sensible. What editing tool do you recommend?

Sarah: I recommend using a web editor; it'll make it easier to design your site. You can download a web editor from the Internet quite easily.

Interviewer: I suppose a big part of the job is writing the text and formatting the pages.

Sarah: Yes. You need to type the text and decide the formatting effects. You can also apply styles to text and other page elements.

Interviewer: And what about graphics and sounds?

Sarah: Well, that's the next step. You can insert all sorts of pictures and sounds, but they should have a clear purpose, some sort of communicative intention. Don't insert photos or animations just to make the pages look nice, and avoid having a large number of graphics.

Interviewer: Why's that?

Sarah: Because graphics can take a long time to download, and visitors might give up and leave.

Interviewer: I see. Any advice about the use of colour?

Sarah: It's fun to experiment with colour. You may like to choose different colours for the background and the text. But make sure that all the text is easy to read and avoid very bright colours.

Interviewer: OK. What's next?

Sarah: Once you've created and saved a few pages, it's time to join them together with hyperlinks. A good design principle is not to put too many links on one page - people may lose patience or get distracted. And check that all the links work, since web addresses sometimes change.

Interviewer: So, be careful with links. What do I do if I then want to publish my website on the Net?

Sarah: To publish your site, you have to find a web server and then transfer all the files from your PC to the server. This is called going live.

Interviewer: Right, sounds easy! Any final comments, Sarah, before we take some calls?

Sarah: Yes, try to keep the pages updated, improving the content and design if necessary. And the final touch: always include the date to show that your site is up-to-date.

Unit 17 Program design and computer languages

I'd like to begin the course by giving you a very basic overview of the programming process. We'll then move on to the details. So, to write a program, we normally follow these steps:

A program Usually provides a solution to a given problem - for example, how to calculate wages and income tax in a big company. First of all, you have to understand exactly what the problem is and define it clearly. This means you have to decide, in a general way, how to solve the problem. The next step is to design a step-by- step plan of instructions. This usually takes the form of a flowchart, a diagram that uses special symbols to show how the computer works through the program - where it makes decisions, where it starts and ends, where data is input, things like that.

Next, you write the instructions in a programming language, like BASIC, Pascal or C. These computerinstructions are called source code. Then you have to use a compiler, a special program that converts the source code into machine code - the only language understood by the processor, which consists of 1s and 0s.

Once you've written the program, you have to test it with sample data to see if there are any bugs or errors. The process of correcting these errors is called debugging. Computer programmers have to find the origin of each error, write the correct instruction, compile the program again, and test it until it works correctly.

Finally, you have to write program documentation, a detailed description of how to use the program. A great program is not much good unless people know how to use it.

Unit 18 Java

... is now used in millions of web pages. The idea for Java started in 1990, when a team of software engineers at Sun Microsystems decided to create a language for a handheld device that could control and interact with various kinds of electronic appliances, ranging from Nintendo Game Boys to VCRs and TV set-top boxes. They developed an object-oriented programming language that one of the engineers, James Gosling, called *Oak*, after the tree outside his window. The device even had an animated character named *Duke*, who would go on to become Java's mascot.

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

At that time, web pages could only display text, pictures and hyperlinks. With the arrival of Java, web designers were able to include animation and interactive programs on web pages. The first major application created *with*.Java was the HotJava browser. The Java language *began*. to attract serious attention from the internet commynity and was soon supported by Netscape Navigator *and* MS Internet Explorer. Today, Java is a hot technology that runs on multiple platforms, including smart cards, embedded devices, mobile phones and computers.

Unit 19 Jobs in ICT

Task 1

1

I'm 35 years old and I really enjoy working on the Web.

I use Macromedia Dreamweaver to design, develop, market and maintain web pages. For the last two years, I've been working for a successful TV company, where I'm responsible for updating their website regularly.

2

I started working troubleshooting in a computer support centre about three years ago. People phone and ask for help with things like: *my internet connection doesn't work, my hard drive has crashed, I think I've got a virus, I get a lot of error messages*, etc. I talk to the users, identify the problem and try to fix it. It's called

3

I've got a degree in Electronic Engineering and I've now been with International Mercury Computers for two years. In my job, I design, develop and test computer components, microprocessors, sound boards, etc. I **work** closely with a software engineer to ensure that the software is compatible with the hardware.

4

I've been working for Novell, a leading provider of Net services software, since 2006. I plan and carry out measures to make networks more secure. In other words, I try to protect information from viruses and system crashes. I'm also in charge of assigning access passwords to employees

Task 4

Mr Scott: I see you did a Computer Sciences degree at Aston University and did a work placement for a year with British Gas. What was that like?

Ms Brown: It was great. I really enjoyed it. It was really good to get some work experience and apply some of the ideas I was learning at college.

Mr Scott: And then you went to NCR. What did you do there?

Ms Brown: I worked as an analyst programmer for a year. I wrote software for general commercial use. The programs were for use on IBM mainframes.

Mr Scott: Right. That's good to know. And have you ever worked with databases?

Ms Brown: Yes, quite a bit. I usually work with Microsoft Access and dBase 5.

Mr Scott: Good. And what about your present job? What do you do at Intelligent Software?

Ms Brown: Well, I write programs in COBOL and C for commercial use. I write instructions, test the programs and prepare the documentation.

Mr Scott: That sounds the sort of experience we're looking for. What about foreign languages? Do

you have any?

Ms Brown: Yes, I can speak Spanish and basic Italian. I've been studying Italian for the last eight months.

Mr Scott: Good. Just one more thing. Your current job sounds quite interesting. Why do you want to leave it?

Ms Brown: Well, I've been there for three years, and I want something more demanding and with more responsibility. I'd also like to learn about a new industry and have the chance to work with ...

Unit 20 New technologies

Sarah: OK everyone, today we're looking at RFID tags.

Does anyone know what RFID is?

Student 1: Isn't it a radio technology?

Sarah: Yes, that's right. RFID stands for Radio Frequency Identification. It uses microchips, smaller than a grain of sand, to store and transmit data using radio waves. These chips are called radio tags and can be attached to a product, animal, or person for the purpose of identification.

Student 2: And how does it work?

Sarah: There are two types of radio tag. Passive RFID tags are so called because they have no power supply. They have an antenna that receives energy from a reader device and can only be read at short distances - up to five metres. Active RFID tags, on the other hand, come with a battery that provides internal power and have practical ranges of several hundred metres.

Student 3: And what sort of data is stored on the chip?

Sarah: Most tags used to track products like clothes or books only contain a unique identification number, similar to a bar code. But the chips being implanted into passports can store data such as name, address, nationality, sex, as well as biometric data like iris patterns or fingerprints. Radio tags can also be attached to animals and everyday items. That means you'll be able to find your dog, glasses or car keys when they're lost.

Student 1: I've heard they can be used in humans as well.

Sarah: Yes, RFID chips can be inserted under the skin. For example, some nightclubs are using an implantable chip to identify their customers, who then use it to pay for drinks. Some hospitals are implanting chips into patients' arms, so that hospital staff can access their medical records. Another company is working on an implant that will contain a GPS. A device like that would allow us to pinpoint someone's position on the globe.

Student 2: It sounds like this technology might change our lives completely.

Sarah: It probably will. But can anyone think of any potential problems with RFID?

Student 3: Security risks or privacy concerns?

Sarah: Exactly. Consumer organizations say that tags might be used to track people to their homes after they've left the shop. Another risk is from hackers, who might steal another person's identity. But manufacturers say we needn't worry, because they're developing encryption systems to protect radio tags from unauthorized scanning, and the tags embedded into humans will be easily removable.

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