

МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

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«БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков

COMPUTER TECHNOLOGIES

**Пособие по английскому языку
для студентов первого курса специальностей:
*53 01 02 (Автоматизированные системы
обработки информации)
40 02 01 (Вычислительные машины,
комплексы и системы)***

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Методические указания предназначены для студентов первого курса специальностей: АСОИ (53 01 02); ВМСиС (40 02 01)

Цель данного пособия – подготовить студентов электронно-механического факультета к чтению и пониманию научно-технической литературы по компьютеризации, а также привить им навыки реферирования и устной речи в пределах проработанной тематики.

Пособие составлено из текстов оригинальной английской и американской технической литературы по компьютеризации и комплексной подборкой грамматического и лексического материала.

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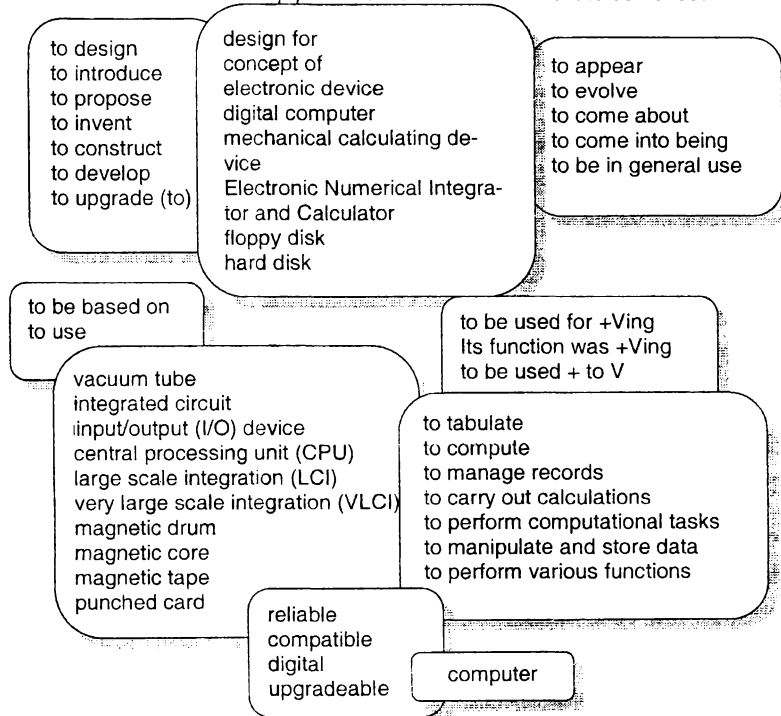
By learning more about the history of the computer, we can better understand the computing technologies we will be using in the future. In this chapter we will discuss what led up to the computer age and the main stages of computer development.

When you have completed this unit you will be able:

- to list the key early devices that were used for computational purposes
- to name the inventors that contributed to the history of computers
- to name the dates that marked the beginning of each generation of computers
- to compare the main characteristics of the 1st, 2nd, 3rd, and 4th generations of computer systems
- to name the basis for the new computer designs that appeared during each period

I. Vocabulary Chart

Use the words to make up possible word combinations and sentences



II. Focus on Vocabulary

2.1 International words – our helping hand in the strange world of a foreign language. Study the following words. Do you need to translate them? What part of speech are they?

mechanical, calculate, period, multiplication, result, design, manufacture, machine, idea, technology, transistor, microprocessor, bureau, manipulate, vacuum, series, decade, basis, innovation, accurate, modern, scheme, complex, operating system, function, intelligence

2.2 Split in two teams. Form new words from the given ones with the help of the affixes. The winner is the team that will make as many words as possible. By the way, what part of speech are the words you've formed?

-er	-able	-(t)ion	-al	-or	-ent	-ment	-ing	-ful	up-	-ity	-ic
complete	calculate	evolve	add								
invent	operate	introduce	use								
program	base	differ	digit								
develop	rely	grade	solve								

2.3 Match the words and their definitions:

The vacuum tube	is	a device made of semiconductor materials such as germanium and silicon that controls current between two terminals.
The transistor		a complex electronic component comprised of many transistors, diodes and other electronic circuit devices; also called a chip.
The integrated circuit		a computing system including a central processing unit integrated on a single chip.
The microprocessor		a device for controlling the flow of electrical current composed of metal plates and wires sealed in a glass enclosure.

III. Grammar Focus

3.1 Many scientists contributed to the field of electronics. Try to guess who invented what and when. Begin like this 'I think,...', 'I guess,...', 'I suppose,...'.

Pascal, Jacquard, Babbage, Hollerith, Atanasoff, Chebyshev, Kilby, Aiken, Neuman, Fleming,	1904, 1882, 1944, 1823, 1945, 1801, 1890, 1614, 958, 1642, 939	invent, create, develop, propose, construct, complete, introduce, design
		the adding machine, the slide-rule, the weaving loom, the Analytical Engine, the arithmometer, the concept of a stored program, the census machine, the vacuum tube, the ABC, the integrated circuit, the Mark I

e.g. I guess, Leibnitz invented the first machine which performed addition and multiplication in 1671.

Do you agree with your groupmates' opinion? If not, correct them. Express your disagreement using 'Not really.' 'I don't think, that's right.' 'I'm afraid you are mistaken.'

e.g. I'm afraid you are mistaken. It was who

3.2 Ask your partner questions in order to make your copy of the text complete.

Student A

In _____ the magazine Popular Electronics put a new kit for hobbyists, called the Altair, on its cover. For the first time anybody with \$400 could buy it and assemble his own computer. The Altair inspired Steve Wosniak and Steve Jobs to build the first Apple computer, and a young collage dropout named Bill Gates to _____. To this day, researchers consider the Alair to be too primitive. In a sense they are right. The Al-tair incorporated _____. The chip was called the Intel 8080. It contained _____. Although the 8080 was advanced for the time, it was far too slow to support the mouse, windows, and developed software. Its memory was 256 bytes. But this device crystal-ized _____.

Student B

Turn to the Key section

IV. Work on the Text

A

Jigsaw reading. The text is jumbled. Restore it

Another device the Jacquard loom may not seem related to the really computational devices. The French inventor, Joseph Marie Jacquard, developed a device to automate rug weaving on a loom in 1804. The Frenchman used punched wood cards, allowing needles to pass through some holes but not the others. Thus, the loom could be "programmed" to weave a rug in a complicated pattern. This system of encoding information provided the basis for the data-handling methods that would eventually be used in the early computers.

Although computational machines continued to evolve, the invention of modern computers could not come about until the supporting technologies of electrical switching devices were in place. But "Who invented the computer?" is not a question with a simple answer. A computer is a complex piece of machinery made up of many parts, and many inventors contributed to the history of computers. Besides, the international situation (the Second World War) made much of the research secret.

In 1942 John Vincent Atanasoff and Clifford Berry completed the first computing device (the «ABC» computer) to use electricity, vacuum tubes, and binary numbers. In 1944 Howard Aiken of Harvard University developed a machine that was named the Mark 1. This machine was the first full-sized digital computer. The Mark 1 filled an entire room and weighed 5 tons, included 500 miles of wiring, and was controlled by punched cards. It was used only for numeric calculations. It is worth noting that the Mark I is often excluded from the mainstream history of computers on two technicalities. The first is that the machine was rather electro-mechanical than electronic; the second one is that its program was fixed and could not be altered.

By 1946 John Mauchly and J. Presper Eckert constructed the Electronic Numerical Integrator and Calculator (ENIAC) at the University of Pennsylvania. They were the first to patent their device as a digital computer. The machine used 18, 000 vacuum tubes for storage and basic functions in arithmetic and logic. It consumed so much power that it often caused the lights in nearby Philadelphia to dim. Weighing 30 tons it was not as large as the Mark 1 (measured 20 by 40 feet). But it was far more capable than Aiken's computer. Whereas the Mark 1 could add 2 numbers in one-third of a second ENIAC could add 5 000 numbers in one second. It was used for a variety of purposes including scientific research and weather prediction.

In 1823 Charles Babbage, a cranky English mathematician, proposed the design for the Analytical Engine, a mechanical calculating machine. He saw his device as a general problem solver, going beyond the manipulation of numbers. It was to have three parts: a store, a mill, and a sequence mechanism. The store was to hold 1000 numbers. The mill called up numbers from the store and performed arithmetic calculations with them. The sequence mechanisms decided which numbers to call up from the store and how to operate with them. A system of punched cards controlled the sequence of operations. Unfortunately, Ch. Babbage could not translate his ideas into reality because there was no accurate electrical equipment. Though the device was destined never to work, its basic concepts formed the basis for the first computers.

Although electronic computers have been used only for the past four decades, people have always had a need to manage information and to solve problems. One of the earliest known mechanical calculating devices was the abacus. It was used in Egypt 500 BC. However the abacus we know today dates back to China, 200 BC. There were a great many of other computational devices, such as the Pascaline invented in 1642 by 19 year old Blaise Pascal. His adding machine used a mechanical system to add and subtract numbers. The user could line up two sets of numbers on two different dials and then turn a crank to operate a system of gears that would bring another set of numbers into view with the correct answer.

Aware of Jacquard's work, Dr. Hermann Hollerith, an employee of the U.S. Census Bureau, proposed to tabulate the 1890 census on punched cards. By 1884, he had developed an electro-mechanical tabulating machine that used dollar bill-sized cards. To read the cards, electrical contact was made by a pin passing through holes in the card, touching a bath of mercury below. The machine could read 50 to 80 cards a minute and was able to finish the 1890 census in only two and a half years. It took human labour seven years to count the 1880 census. Based on his Census Bureau success, Hollerith formed the Tabulating Machine Company in 1896 and began designing census tabulation machines. Eventually Hollerith's company would grow and evolve into the International Business Machines (IBM) Company.

B

Study the specifications. Then read text B. Complete the specs and say what generations the computers belong to?

IBM1401 specs
 _____ operations per second
 32 KB of RAM
 3 MB hard discdrive
 video display monitor
 keyboard
 magnetic tape

ENIAC specs
 18, 000 vacuum tubes
 100,000 circuits
 5, 000 operations per second
 4 KB of computer memory
 I/O devices: _____.

IBM 360 specs
 hybrid integrated technology
 1 million instructions per sec
 3MB hard disk
 1401 compatible
 upgradeable

Apple II specs
 8088 Intel microprocessor
 16 KB of RAM
 BASIC built-in 16KB ROM
 colour graphics display
 input devices: _____, _____.

The computer generations are stages in the evolution of electronic circuitry, hardware, programming languages and other technological developments. Though an artificial scheme, they help us measure the progress of computer technology. Computers have gone through four generations. Each of these generations is based on the type of technology used during this period.

The first generation mainframe computers (from 1940s till 1958) were very large in size and used thousands of vacuum tubes. CPU speed was measured thousand instructions per second. I/O was primarily punched cards and paper tapes. Magnetic drum and magnetic core were used for memory and storage. Their design was functional for the time but not very reliable. They were used for tabulating and computational purposes mainly by governmental agencies. Their role in business was limited by three factors – their size, the heat they generated, and their reliability problems.

The second generation minicomputers began in 1959. The use of transistors instead of vacuum tubes made these computers smaller, more powerful, more reliable and use less electricity. Their speed was about 200,000 instructions per second. I/O devices were keyboards and video displays. Memory and storage devices were magnetic tape and large disk drive. The second generation also saw the development of programming languages, such as FORTRAN and COBOL. As a result, a new occupation, computer programmer, came into being. Thus, computers were more useful to a variety of business and government organizations. Their main function was not only carrying calculations but also managing records.

The third generation of computers started in 1964. They used integrated circuits instead of transistors. Because of compactness offered by this new technology, signals had less distance to travel. Computers became faster (speed increased to 1 million instructions per second) and even more reliable. They continued to shrink: now they were the size of a refrigerator. In 1964 IBM changed the way computers were sold by introducing a 'family' of computers known as the **System 360**. The 360 was so named because there are 360 degrees in a perfect circle, and IBM wanted its customers to think of it as the perfect computer for all their needs. The family consisted of six different versions of the same computer, but programs written for one of them could also be used on the others. A company could buy one of the less costly computers in the family and later upgrade it to a more powerful computer and still continue to use the same programs.

Fourth generation computers (1971 to today) are based on large-scale integration (LSI) and very large scale integration (VLSI). A product of this micro-miniaturization of electronic circuitry was the microprocessor developed in 1971. A microprocessor made it possible to introduce a new concept of computer as a 'personal' device for one user. Surprisingly, this new type of computer was long seen as underpowered 'toys' for 'electronics nuts'. It was being developed by electronics hobbyists and a few fledgling electronics companies (such as Apple Computer which was started by young computer enthusiasts in a garage). IBM introduced their own microcomputer, nicknamed Personal Computer or PC, only in 1981. Soon other companies such as Epson, Tandy, Compaq, and Zenith introduced computers that had operating systems similar to the PC. They are called PC-compatibles. Speed of PCs increased to 20 million instructions per second. The mouse was introduced as a new I/O device. Alan Shugart, an IBM engineer, invented the floppy disk and the Winchester hard disk for PCs. Programming languages were more human-like and the 1990s saw the development of multimedia applications using sound and video devices.

The computer revolution is very dynamic. We are on threshold of the fifth generation of computers. Today researchers in the USA, Western Europe, Japan work at the problem of artificial intelligence, the application of natural languages, etc. As this history of computing has demonstrated, it is the need of humans that drive the development of new computers and new computing technologies.

V. Reading Comprehension Test

Text A

1. Blaise Pascal invented his adding machine

- A) has always been
 - B) have always been
 - C) had been always
2. The loom to weave a rug in a complicated pattern.
- A) could program
 - B) can programmed
 - C) could be programmed
3. Babbage's Analytical Engine three parts: a store, a mill, and a sequence mechanism.
- A) could have
 - B) had to have
 - C) was to have
4. Many inventors contributed the history of computers.
- A) to
 - B) in
 - C) at
5. The ENIAC was
- A) too more capable
 - B) far more capable
 - C) far capabler

Text B

1. Computers through four generations.
- A) have gone
 - B) went
 - C) go
2. The first generation computers for computational purposes.
- A) used
 - B) were used
 - C) were to use
3. The use of transistors made computers
- A) more smaller, powerful and reliable
 - B) more small, more powerful and reliable
 - C) smaller, more powerful and more reliable
4. The 360 family consisted six different versions of the same computer.
- A) of
 - B) from
 - C) off
5. The personal type of computers was being developed by
- A) electronic hobbyists
 - B) electronics hobbists
 - C) electronics hobbyists
6. Today the researchers work at the problem of
- A) artificial intellect
 - B) artificial intelligence
 - C) artificial intelligent

VII. Text Based Activities

7.1 Decide which translation is correct.

1. Another device, the Jacquard loom, may not seem related to the really computational devices.
- A) Другое устройство, станок Жаккара, может показаться не относящимся к реальным компьютерным устройствам.
 - B) Может показаться, что следующее устройство, станок Жаккара, не связано с действительными вычислительными приборами.
 - C) Может показаться, что другое устройство, станок Жаккара, не имеет отношения действительно к вычислительным приборам.

2. The second generation also saw the development of programming languages, such as FORTRAN and COBOL.

- A) Второе поколение также видело развитие программных языков, таких как FORTRAN и COBOL.
- B) Второе поколение было также представлено развитием языков программирования, таких как FORTRAN и COBOL.
- C) Ко второму поколению также относится развитие языков программирования, таких как FORTRAN и COBOL.

3. Surprisingly, this new type of computer was long seen as underpowered 'toys' for 'electronics nuts'.

- A) Удивительно, этот новый тип компьютеров долго виделся как немощные игрушки для электронных повернутых.
- B) Удивительно. этот новый тип компьютеров долго считали игрушками для людей «повернутых» на электронике.
- C) Удивительно. этот новый тип компьютеров долгое время воспринимался как предмет развлечения (своего рода забавой) для людей, увлеченных электроникой.

4. He saw his Analytical Engine as a general problem solver, going beyond the manipulation of numbers.

- A) Он видел свой аналитический двигатель как решатель общих проблем, идущий вне манипулирования цифрами.
- B) Он видел свою аналитическую машину как устройство для решения общих проблем, идущих за рамки манипулирования цифрами.
- C) Он видел свою аналитическую машину как устройство общего назначения, выходящее за рамки оперирования цифрами.

7.2 Translate the following sentences:

- 1) This system of encoding information provided the basis for the data-handling methods that would be used in the early computers.
- 2) The first full-sized digital computer was developed by Howard Aiken.
- 3) Programming languages were more human like.
- 4) The 1990s saw the development of multimedia applications using sound and video devices.

7.3 Ask your groupmates:

Text A

- 1) about the oldest form of mechanical calculating device;
- 2) about the main components of Babbage's machine;
- 3) when Jacquard invented his loom;
- 4) how the 1890 census was counted;
- 5) what devices were controlled by punched cards;
- 6) what he/she knows about the early electrical computational devices;

Text B

- 1) about the stages of computer development;
- 2) about the first electronic computer and the principles it introduced;
- 3) what electronic components the first, second, third, and fourth generations of computers were based on;
- 4) about the major problems with using vacuum tubes in computers;
- 5) what problems of the fifth generation computers researchers work at.

7.4 Join the sentences:

e.g. *Though* it was not as large as the Mark 1, it weighed 30 tons and measured 20 by 40 feet.

Whereas the Mark 1 could add 2 numbers in one-third of a second ENIAC could add 5 000 numbers in one second.

1. The first generation computers were used by government agencies. The second generation computers were useful to a variety of business.
2. The third generation computers were small in size. They could perform 1 million instructions per second.
3. The Altair was primitive. It crystallized new approaches to computational devices.
4. The third generation computers were based on integrated circuits. The second generation computers used transistors.
5. The second generation computers used low-level symbolic programming languages. The fourth generation computers were programmed in more human-like ones.
6. Modern computers are so small that they can be carried in a briefcase. They are 40 times the power of the 30-ton ENIAC.

7.5 Make the sentences complete:

1. The use of transistors	(to make)	computers	available
2. Evolving of the integrated circuits			compatible
3. The introduction of similar operating systems			powerful
4. The invention of the microprocessor			reliable
5. The development of programming languages			easy to operate

VIII. Discussion

8.1 Think and answer:

1. What is the relation between the abacus, the Jacquard loom, and the modern computer?
2. Before the invention of the computer a number of devices were used to manage information. Describe any two early computational devices known to you that predate the computer.
3. What 19th century device was the forerunner of today's computers? Prove your point of view.
4. Why do you think the punched card was used for almost 100 years?
5. The design of the first generation computers was functional for the time. But still there were some disadvantages in their operation. What were they?
6. What basic materials were used in transistors?
7. What electronic components did integrated circuits consist of?
8. Compare the second and the third generation of computers describing hardware developments.
9. Microcomputers were much smaller than the computers that preceded them. But the major change was the way they were used. Contrast how microcomputers are used with the way the second and third generation computers were used.
10. What generation of computers has produced the most significant advances for users? Prove.
11. Throughout the late fourth generation it is almost impossible to keep up with microprocessor and memory chip advances. Chip manufacturers announce improved performance every few weeks. Can we expect to see this continue nowadays and in the near future? What do you think drives the development of the computer technologies?

8.2 Render text A in the form of a lecture.

Greeting	Good morning / afternoon / evening
introduce yourself	My name isand I am
Introduce your talk	I'd like to say a few words to you about
Outline talk	I have divided my talk into main parts. First I'll...Then I'm going to And last I'm
Present main body divided into parts	To start / To begin with Now let's turn to..... The next point I'd like to make is Finally
Summarise main points	So now I'd like to summarise the main points. In brief, we have looked at In conclusion / To sum it all up
Conclude talk	That's all I have to say for now. That's concludes my talk. Thank you for your attention.
Invite questions	And now if you have any questions, I'd be glad to answer them. Any questions?

8.3 Give a detailed description of all the computer generations.

8.4 Make up dialogues on the following situations:

I. You have read the article about the Altair recently. You believe that the computer came about just in time and played important role in the history of computers. Your friend doesn't share your opinion.

Make use of the following word combinations:

YOU - i can't agree with you here. This may be true, but.... for the first time, to assemble his own computer, to inspire, to incorporate, be advanced for the time, to crystallize new approaches to capture peoples' imagination.

YOUR FRIEND - In my opinion, too primitive to support, far too slow, memory size.

II. At the classes you were asked to decide who is entitled to be called the "inventor" of the computer. You believe it was Howard Aiken who developed the Mark I in 1944. Your friend has a different point of view. He thinks it were John Mauchly and J. Presper Eckert who patented their ENIAC in 1946 .And there was also the ABC.

Make use of the following word-combinations:

YOU - to complete, computing device, vacuum tubes, binary numbers, full-sized digital computer, to be used for, numeric calculations.

YOUR FRIEND – electro-mechanical, fixed program, to construct, to be the first to, to patent, far more capable, to be used for, variety of purposes.

8.5 Here is the beginning of an old saying in the computer industry. Do you know its ending?

***If automobile technology had advanced at the rate
of computer technology you could ...***

8.6 The saying (ex. 8.5) illustrates Grosch's Law, put forth by Herbert R. J. Grosch in late 1940s, that computing power increases by the square of its cost. According to Grosch, every time you buy a new system, you obtain four times the computing power for just twice the cost. Grosch' Law has never produced less, but it has produced more.

Was Grosch's Law broken in the fourth generation? Does doubling speed still cost twice as much?

Study the following table, complete it, and comment on advances in microprocessor and memory chips.

<i>Year</i>	<i>Memory size</i>	<i>Speed</i>	<i>Price</i>
1990	1 megabit	25-50 MHz	5000 \$
1995	16 megabit	150 MHz	?
2000	64 megabit	250 MHz	?
2005	?	?	?

IX. Writing

9.1 Make the sentences passive.

1. Jacquard developed a device to automate rug weaving.
2. A user could program the loom to weave a rug in a complicated pattern.
3. Pascal invented his adding machine at the age of 19.
4. Babbage proposed the design for a new calculator in 1823.
5. Hollerith tabulated the 1890 census on punched cards fed into the hand-cranked machine.
6. Aiken completed the basic development of the Mark I in 1944.
7. They used the Mark I only for numeric calculations.
8. Mauchly and Eckert constructed ENIAC in 1946.

9.2 Write the events in chronological order (Ex. 3.1)

9.3 Give the gist of text A in 10 sentences.

9.4 Give the gist of text B in 10 sentences.

X. Project

MAKE a presentation using full-page illustrations about the history of computer.

CARRY out a survey on the history of computer development in your country.

RESEARCH into the development of input /output devices and storage facilities. Deliver the results in the form of a lecture.

Very Important People of Computing

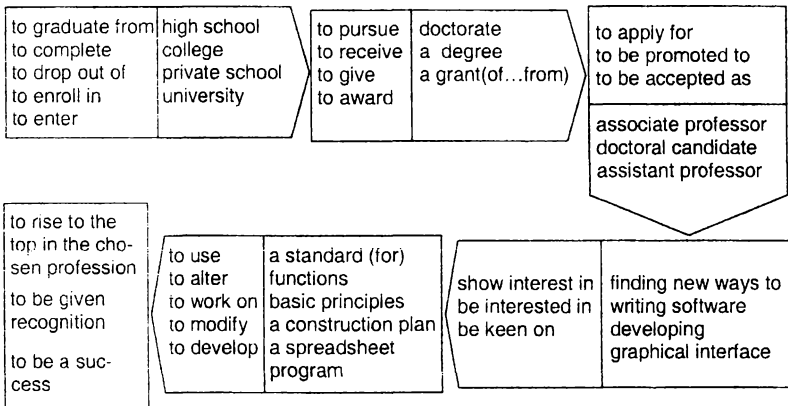
When men of sense invented the computer, they probably did not know how much of an impact it would have on people's lives. Their invention became part and parcel of our every day life. These gurus of computing were able to change the world. What kind of people were they? What helped them on their way to success: luck, their innate qualities and powers, the help of their parents and friends?

When you have completed this unit you will be able:

- to name the people who managed to transform the society we live in;
- to describe their inventions and explain how we use them in our everyday life;
- to speak about their work experience;
- to understand what innate qualities let them get the highest position in life.

I. Vocabulary Chart

Use words to make possible word combinations and sentences



II. Focus on Vocabulary

2.1 *The pronunciation of these words is easily confused with their Russian counterparts. What Russian words do they associate with? Does it help you to memorize them?*

candidate, assist, medium, personnel, intrigue, intelligent,
contact, recruit, standard, positive, personal,
ambition, innovation, instructor,
inaccurate, examine
politics

2.2 *Powers of mind. Divide the following adjectives into two groups: the ones with positive and negative meaning.*



gifted, inert, narrow-minded, ignorant, bright, blunt, educated,
uneducated, talented, innovative, mediocre, intelligent, sharp,
dull, deep, shallow, open-minded, ordinary, ambitious



2.3 Match the words and their definitions.

Bachelor's degree	Bachelor of Arts B.A. ['bi: `ei] Bachelor of Science B.Sc. ['bi: es `si:]	The second stage of higher education; may be taught or research; is awarded in academic or professional fields; requires a comprehensive examination covering both coursework and a thesis; takes 2 years of full time study
Master's degree	Master of Arts M.A. [em `ei] Master of Science M.Sc. [em es `si:] Master of Philosophy M. Phil. [`em `fil]	The most common degree awarded in academic disciplines; involves advanced coursework, seminars leading to a comprehensive examination; requires writing a dissertation describing the student's original research and defending it before a panel of faculty members; takes 5 to 8 years of study
Doctor's degree	Doctor of Philosophy Ph.D. [`pi eit] di:]	First academic degree; requires preparation of undergraduate thesis, advanced coursework and special examination; takes 4 or 5 years of study

2.4 Arrange the following sentences logically. Start like this: 'First of all you...', 'Then you...', 'After that you...'

Studies cycle

You are accepted as a doctoral candidate.

You become a freshman. You enroll in a private school.

You read for classes and exams. You receive your master's degree.

You graduate from collage. You work towards your Ph.D.

You attend lectures. You enter a university.

You work as an assistant professor.

You become a postgraduate. You receive your Ph.D.

You pursue for your master's degree.

Are there any variations to this order? Do you know anybody whose studies didn't conform to the usual way?

III. Grammar Focus

3.1 Talking about the past. Analyse the meaning of **would**. Translate the sentences into Russian.

Note: **Would** is a modal. And it is used in a number of different ways.

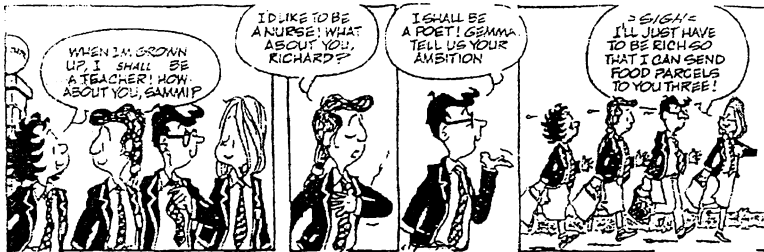
- You can use **would** to talk about past habits and repeated actions in the past.
 - You can use **would** in stories to talk about future action viewed from a past moment or someone's thoughts about the future.
1. He would use electricity and electronics as the medium for the computer, the binary system, and condensers for memory.
 2. Gates and his best friend Paul Allen would spend hours reading the BASIC manuals and teaching themselves the language.
 3. Gates and Allen would then go to the Computer Center Corporation, C-cubed, at night and look for computer bugs in exchange for computer time.
 4. This decision by Dr. Atanasoff would be a mistake since Dr. Mauchly later used many of Dr. Atanasoff's ideas in the design of the ENIAC.
 5. While walking through Harvard Square one day, Allen and Gates noticed something that would change their lives forever.
 6. Bill thought that recruiting programmers would be easier from this site.

3.2 Say it differently. Use **would** to show repeated actions in the past.

e.g. She loved writing letters. She wrote twenty or thirty a week.
She would write twenty or thirty letters a week.

1. He was so eager to boot the program. He could master the operation of his machine for hours.
2. I remember him sitting there teaching himself machine languages.
3. One mistake caused the software not to run. And he spent his days trying to debug it.
4. Alan Turing was the first to approach the topic of artificial intelligence. He usually said there was nothing the brain could do that a well designed computer could not.
5. In the mid-1980s Alan Kay spent most of his time teaching children to use computers at his Open School in West Hollywood, California.
6. Gates constantly read far ahead in his classes giving himself free time to explore his interests in computers and business.

3.3 Read the speech bubbles and report them. What is the difference in attitude between the speakers? As a child what profession did you think you would take? What did you want to become?



IV. Work on the Text

Read the headings of the texts. Are these names familiar to you? Do you have any idea about what these people invented and how their inventions have changed the world? Do you know any details about their personal life?

These are the headlines of the articles that were devoted to J.V. Atanasoff and Bill Gates. Read the headlines and guess whom of the two these articles were devoted to. What periods of their lives the articles were written about? The texts will help you answer the questions.

DERIVED RIGHT GOT BACK

LONG TRAIL COMING TO ITS END

Digital Brain:
As Simple As The ABC

Richest Man of
USA Envious Kids

New Software Company
Sprung In Seattle

A. John Vincent Atanasoff

John Vincent Atanasoff was born in 1903 in New York State. His father was a Bulgarian immigrant named Ivan (John) Atanasov and his mother was Iva Lucena Purdy, a mathematics schoolteacher. The couple had nine children and resided in Brewster, Florida, during John Vincent's childhood. As a young child, Atanasoff was very in-

terested in mathematical principles and studied calculus at the age of 9. He completed high school in two years and in 1921, he entered the University of Florida in Gainesville. He graduated from the University of Florida with a B.S. (1925) in electrical engineering and went to Iowa State College to pursue his master's degree.

At Iowa State, John Vincent met his future wife, Lora Meeks. After receiving his master's degree, John Vincent went to the University of Wisconsin for his doctorate in theoretic physics. In the same year that John Vincent was accepted as a doctoral candidate, his wife gave birth to their eldest daughter, Elsie. In 1930 he received his Ph.D. as a theoretic physicist from the University of Wisconsin. Dr. Atanasoff returned to Iowa State College as an assistant professor in mathematics and physics. In 1936 he was promoted to associate professor of both mathematics and physics.

Dr Atanasoff had always been interested in finding new ways to perform mathematical computations faster. Having examined many of the computational devices existed at that time he concluded that they were too slow and inaccurate. In 1937 he developed basic principles for his computing machine: he would use electricity and electronics as the medium for the computer, he would also use the binary system and condensers for memory; and he would compute by direct logical action. After receiving a grant of \$650 from Iowa State College in March 1939, Atanasoff hired an electrical engineering student, Clifford E. Berry, to assist him. From 1939 until 1941 they worked at developing and improving the ABC, Atanasoff-Berry Computer, as it was later named. When World War II started on 7 December 1941, the work on the computer came to a halt. Although Iowa State College had hired a Chicago patent lawyer the patenting of the ABC was never completed.

In 1940 Dr. Atanasoff attended a lecture given by Dr. John W. Mauchly. They talked for some time and Dr. Mauchly was very intrigued with Dr. Atanasoff's electronic digital computer. In June 1941 he made a visit to Iowa State College. He was Atanasoff's houseguest for five days. During that period he saw the ABC operate, and had its functions explained by both Atanasoff and Berry. Dr. Mauchly was also given access to the 35-page handbook that explained the electronic theories and construction plans of the ABC. His host even permitted him to take the handbook to his room at night.

This let Dr. Mauchly later use many of Dr. Atanasoff's ideas in the design of the ENIAC which is falsely considered by most people as the world's first digital computer. Charges of piracy were later brought against Dr. Mauchly. A long trial followed and it was not until 1972 that Dr. Atanasoff was given the recognition as the inventor of the electronic digital computer.

Dr. John Vincent Atanasoff died on 15 June 1995 of a stroke at his home in Monrovia, Md. He was 91 years old. Although he was not able to get a patent for the ABC, he held 32 patents for his other inventions.

B.

William Henry Gates III

William Henry Gates III was born on October 28, 1955 into an affluent Seattle family with a rich history in business, politics, and community service. His great-grandfather had been a state legislator and mayor, his grandfather was the vice president of a national bank, and his father was a prominent lawyer. Early on in life, it was apparent that Bill Gates inherited the ambition, intelligence, and competitive spirit that had helped his progenitors rise to the top in their chosen professions. His parents recognized his intelligence and decided to enroll him in Lakeside, a private school known for its intense academic environment. This decision had far reaching effects on Bill Gates's life. For at Lakeside, Bill Gates was first introduced to computers.

Lakeside Prep School and the Computer Center Corporation opened for business in Seattle in the fall of 1968 stroke a deal that allowed the school to provide its students with computer time. Bill Gates, Paul Allen, and a few other Lakeside students immediately became inseparable from the computer. They would stay in the computer room all

day and night, writing programs, reading computer literature and anything else they could learn about computing. It was not long before the young hackers started causing problems. They caused the system to crash several times and broke the computers security system. They even altered the files that recorded the amount of computer time they were using. They were caught to be banned from the system for several weeks.

But later on the Computer Center Corporation would have to hire the students to find bugs and expose weaknesses in the computer system. In return for their help, the Computer Center Corporation would give them unlimited computer time.

Gates and Allen would then spend hours at the Center reading the BASIC manuals and teaching themselves the FORTRAN, LISP, PDP-10 machine languages. The young hackers would even pick employees for new information.

In late 1968 the Lakeside computer addicts formed The Lakeside Programming Group which became a profitable experience. Several job opportunities came to the group. The boys wrote a COBOL payroll program for a company in Poland in exchange for free computer time. By coding this program, the group learnt much about payroll, taxes and other business information that interested them. They also did a scheduling system for Lakeside school and were paid \$4,200, and coded a program for the Washington State Road Department. This program tabulated readings from pressure hoses on roadways which determined the location of traffic lights.

Gates graduated from Lakeside in 1973 and enrolled in Harvard University. Gates took the standard freshman courses with the exception of signing up for one of Harvard's toughest math courses. He did well but just as in high school, his heart was not in his studies. After locating the school's computer center, he lost himself in the world of computers once again. Paul Allen and Gates remained in close contact even with Bill away at school. They would often discuss ideas for future projects and the possibility of one day starting a business.

While walking through Harvard Square one day, Allen and Gates noticed something that would change their lives forever. The two saw a copy of *Popular Electronics* magazine. On the cover of the magazine was a picture of the Altair 8080, a computer kit which you could assemble yourself. After seeing this magazine Gates contacted the MITS company (Micro Instrumentation and Telemetry Systems), the makers of the Altair and proposed to write some BASIC software for the computer. The two started to work on their new project immediately and eight weeks later the program was ready to be shown off. It booted and worked perfectly the first time. MITS arranged a deal with Gates and Allen to buy the rights to their BASIC. Gates was convinced that the software market had been born. Within a year, Bill Gates had dropped out of Harvard and Microsoft was formed.

Microsoft would sell its BASIC system to MITS, NCR, and Intel. It was much cheaper for these companies to buy Microsoft's software than to write their own.

On January 1, 1979 Bill Gates moved Microsoft and its twelve employees from Albuquerque, New Mexico, where it was originally founded, to Seattle, Washington. Bill thought that recruiting programmers would be easier from this site. Microsoft developed a standard for hiring new employees. Only the most gifted and intelligent new collage graduates would be hired. Little job experience was considered positive from Microsoft's point of view.

The expansions of personnel led to the development of a Microsoft spreadsheet program and Microsoft Word. Interests in graphical interfaces were realized. In 1981, Gates purchased the SCP-DOS operating system from Seattle Computer Products. He later modified the operating system to MS-DOS and in 1981 shipped it on all new IBM PCs. Microsoft made additional technological breakthroughs in the 1980's. In April, 1983, Microsoft introduced the 'mouse' and in November 1983, a graphical user interface known as 'Windows' was introduced. Microsoft operating system now drives 85 per cent of the world's computers.

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This is in keeping with Gates's masterplan: "A computer in every home, on every desktop, running Microsoft software". Recently, he has decided to extend his ambition. Interactive TV, a concept that promises instant access to video movies, home shopping, music and entertainment, is on the way. But Gates is not worried that he is creating a future where everyone is wired into system. He says he envies kids growing up today because they have so much at their fingertips. Gates is investing in the Internet program. He thinks there is an opportunity to come in with some innovations to help it grow.

V. Reading Comprehension Test

Text A

1. In 1930 Dr. Atanasoff received his Ph.D. as
A) a mathematician
B) a theoretic physicist
C) an electrical engineer
2. Dr. Atanasoff was interested in
A) developing a faster computational system
B) developing efficient electronic systems
C) being promoted to associate professor
3. In 1941 the work on the computer came to a halt because
A) World War II started
B) Atanasoff didn't manage to get a patent for the ABC
C) Atanasoff didn't receive a grant from Iowa State College
4. Charges of piracy were brought against Dr. Mauchly because
A) he had stolen Dr. Atanasoff's invention
B) he had used many of Dr. Atanasoff's ideas in the ENIAC
C) he had read Atanasoff's handbook that explained the construction plans of the ABC
5. Dr. Atanasoff got
A) no patents for his invention
B) patents for the first electronic digital computer
C) 32 patents for his inventions

Text B

1. Bill Gates became addicted to learning everything about computers
A) when studying at Lakeside
B) when studying at Harvard
C) when working at C-Cubed
2. The Computer Center Corporation would have to hire the students because
A) they caused problems
B) they wanted to find bugs
C) the students could expose weaknesses in the computer system
3. While walking through Harvard Square one day, Allen and Gates noticed
A) the makers of the Altair 8080
B) the Altair 8080
C) a copy of Popular Electronics magazine with a picture of the Altair 8080 on its cover
4. The Lakeside Programming Group was formed by
A) young hackers
B) Bill Gates and his friends
C) computer addicts
5. The Microsoft Corporation was a success due to

- A) the company's gifted and intelligent stuff
 - B) the company's wise personnel policy
 - C) additional technological breakthroughs
6. One of the projects Microsoft is working on is
- A) interactive television
 - B) children's entertaining software
 - C) new graphical user interface

VI. Grammar Test

Text A

1. John Atanasoff entered the University of Florida in 1921.
- A) to
 - B) in
 - C) –
2. John Vincent Atanasoff went to for his doctorate in theoretic physics.
- A) the University of Wisconsin
 - B) University of Wisconsin
 - C) the Wisconsin University
3. Dr. Atanasoff had always been interested new ways to perform mathematical computations faster.
- A) in finding
 - B) to find
 - C) of finding
4. Many of the computational devices existed at that time were
- A) unaccurate
 - B) inaccurate
 - C) disaccurate
5. Dr. Atanasoff Clifford Berry to assist him with his project.
- A) recommended
 - B) was recommended
 - C) was to recommend
6. The ENIAC was falsely considered by most people as
- A) the first world digital computer
 - B) the first digital world's computer
 - C) the world's first digital computer

Text B

1. William Henry Gates was born October 28, 1951 an affluent Seattle family.
- A) on in
 - B) in in
 - C) on into
2. It was for these companies to buy Microsoft's software than to write their own.
- A) much more cheap
 - B) much more cheaper
 - C) much cheaper
3. In April 1979, Gates and Allen the Microsoft Corporation in Albuquerque, New Mexico.
- A) found
 - B) founded
 - C) was found
4. While walking through Harvard Square one day, Allen and Gates noticed something that their lives forever.
- A) would change
 - B) changed
 - C) had changed
5. The Lakeside Programming Group wrote computer programs for several organizations free computer time.
- A) in exchange of
 - B) in exchange for
 - C) exchanging

VII. Text Based Activities

7.1 Choose the correct translation.

1. Dr Atanasoff had always been interested in finding new ways to perform mathematical computations faster.

- A) Доктор Атанасов всегда проявлял интерес к поиску новых способов быстрого выполнения математических вычислений.
- B) Доктор Атанасов всегда имел интерес в поиске новых способов быстрого выполнения математических вычислений.
- C) Доктор Атанасов всегда был заинтересован в том, чтобы найти новые пути быстро выполнить математические вычисления.

2. During that period he saw the ABC operate, and had its functions explained by both Atanasoff and Berry.

- A) В этот период он видел ABC в работе и получил необходимые разъяснения как от Атанасова так и от Бери.
- B) В этот период он видел как ABC работает и имел его функции разъясненными как Атанасовым так и Бери.
- C) В этот период Атанасов и Бери не только продемонстрировали ему компьютер в работе, но и разъяснили основные принципы его функционирования.

3. Gates took the standard freshman courses with the exception of signing up for one of Harvard's toughest math courses.

- A) Гейтс выбрал обычный для первокурсника состав предметов, за исключением одного из самых жестких гарвардских курсов по математике.
- B) Гейтс взял стандартный курс первокурсника за исключением подписания на один из самых сложных гарвардских курсов по математике.
- C) Гейтс выбрал стандартную программу первого курса за исключением одного из самых насыщенных гарвардских курсов по математике.

4. He says he envies kids growing up today because they have so much at their fingertips.

- A) Он говорит, он завидует детям, растущим сегодня, потому что они имеют так много у кончиков пальцев.
- B) Он говорит, что завидует детям, растущим сегодня, потому что они имеют так много в своем распоряжении.
- C) Он говорит, что завидует детям, растущим сегодня, потому что они знают так много.

7.2 Translate the following:

- 1) By coding this program, the group learnt much about payroll, taxes and other business information that interested them.
- 2) After locating the school's computer centre, he lost himself in the world of computers again.
- 3) They would often discuss ideas for future projects and the possibility of one day starting a business.
- 4) After seeing this magazine Gates contacted the MITS company and proposed to write some basic software for the Altair.

7.3 Ask your groupmates:

Text A

- 1) what made Atanasoff come up with the idea of an electronic digital computer;
- 2) what principals his computer was based on;
- 3) who assisted Atanasoff with his project;
- 4) if Atanasoff got patent for his ABC;
- 5) why charges of piracy were brought against Dr Mauchly;
- 6) if Dr Atanasoff was given the recognition as the inventor of the electrical digital computer.

Text B

- 1) when Bill Gates got interested in computers for the first time;

- 2) about employment opportunities of the Lakeside Programming Group;
- 3) when and where Bill Gates founded his company
- 4) why Gates moved his company to Seattle;
- 5) about Microsoft's achievements in the early eighties;
- 6) about Bill Gates' present ambition.

7.4 Make the following sentences complete:

1. Atanasoff went to Iowa State Collage	получить	degree
2. Atanasoff went to the University of Wisconsin	быть принятым	candidate
3. Atanasoff thought of a computational device	выполнять	faster
4. He received a grant from the university	начать	research
5. Lakeside school and the C-cubed corporation	предоставить	time
stroke a deal		
6. The C-cubed corporation hired the students	найти	weaknesses
7. MITS arranged a deal with Gates	купить	the rights
8. Gates made a deal with IBM	написать	system

VIII. Discussion

8.1 Think and answer:

1. What role did the family play in Bill Gates's life?
2. G. Hopper said, "It's always easier to ask forgiveness than it is to get permission." Do you share her opinion? Explain your point of view.
3. Why little job experience was considered positive from Microsoft's point of view?
4. If you were an owner of a computer company what would your criteria to hire the employees be?
5. What do you know of the Microsoft development in 1990s and their plans for the future?
6. U.S. District Judge Earl R. Larson invalidated the ENIAC patents and brought charges against Mauchly. Do you back this decision? Explain your point of view.
7. Have you ever broken the copyright law?
8. What brought you into the computing world? What sold you on entering the Brest State Technical University?

8.2 Make a list of qualities that can help people succeed to the top of their professions. Place them in the order of importance. Explain your choice.

8.3 Try to guess the idea of each saying and complete them. Do you think the sayings have something in connection with the above stories?

Success is the ladder that

Nothing succeeds like

One today is worth

Let every man praise

Success means different things to different people. For some people, success is measured by the amount of money they have. An important factor in the lives of many young people is success with the opposite sex. For others, it is satisfaction they get from their jobs. What is your image of success? What your innate qualities help you be successful? What do you lack to become one? Do you set your own targets and a deadline to reach them?

8.4 Speak about Bill Gates. Comment on the events that had far reaching effects and changed his life. What do you think helped him on his way to success? Do you believe he has managed to transform the world we live in?

8.5 Study the Curriculum Vitae of Grace Hopper. Ask you groupmates questions to restore the CV. Speak about her educational and work experience.

Student A

Name	Grace Murray Hopper
Born	9.12.1906 New York City
Education	
1928	Vassar Collage Mathematics and Physics, B.A.
_____	Mathematics, M.A.
_____	Yale University Mathematics, Ph.D.
Professional Experience	
1986–1988	_____
Position	Senior Consultant
Responsibilities	providing consultations; developing lectures
1952–1964	<i>Sperry Corporation</i>
Position	_____
Responsibilities	participating in demonstration of COBOL; developing COBOL manuals
1949–1967	<i>Eckert Mauchly Computer Corporation</i>
Position	Senior Mathematician
Responsibilities	_____
1944–1946	<i>US Navy Bureau of Ordinance</i>
Position	Math Officer
Responsibilities	programming the Mark I computer
1931–1943	_____
Position	Associate Professor

Student B

Turn to the Key section.

8.6 Study the job advertisement. Apply for the position. Mention your biography facts, education and work experience. Try to persuade your employer that you are going to be a good bet.

Software Development Organization has several open positions for Development Managers to be filled immediately.

It is an excellent opportunity for the person with at least several qualifications below:

- being able to lead a team from 3 to 20 developers
- working experience in developing solutions for the WEB using Java, HTML
- understanding business applications such as ERP, CRM, e-commerce
- being self-motivated, able to work under pressure, and make decisions.

We will provide extremely stable working environment with opportunity to develop further your technical expertise. International travel is required. English is a big plus.

Please send your resume at 4leaders@epam.com

The following expressions may help you:

to have a part-time job as; to be responsible for + Ving; to provide information and advice to customers; to spend a great deal of time at customers office during instillation; to have experience in system analysis and programming; to receive additional training in business administration.

IX. Writing

9.1 If possible complete the sentences with either *would + infinitive* or the *past simple* of the verbs in brackets.

1. As soon as he woke up he _____ things ready for breakfast. (get)
2. He _____ work in 1973 as an assistant to the managing director. (begin)
3. After I read about the place in a magazine, I _____ visit Madagascar myself. (want)
4. When I was younger I _____ hours just kicking a ball around the garden. (spent)
5. When I was at school all the children _____ in silence when the teacher came into the room. (stand up)
6. Jack _____ three days ago from a holiday in France. (return)
7. She _____ all her closest friends and relatives to her 50th birthday party last summer. (invite)

9.2 Supply prepositions to the cover letter.

Dear Sir,

I would like to apply _____ the position of system analyst advertised _____ you in the "Daily News" _____ 4th June. _____ one month I will be graduating _____ the University _____ Alberta _____ a Computer Science degree.

_____ addition to my university courses I have had experience _____ programming and maintaining computer systems. Last summer I implemented changes _____ the computer system at Nortec Industries.

With my knowledge in these areas I am sure I will contribute _____ you company. Thank you _____ you time and consideration and I look forward to speaking with you next week.

Yours faithfully,

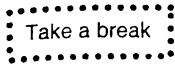
9.3 You are a university graduate and would like to apply for *Development Manager* (ex. 8.5). Write your CV and a cover letter. A good cover letter answers the following questions:

- 1) Why are you writing to me and why should I consider your candidacy?
- 2) What qualifications and qualities do you have that I could benefit from?
- 3) What are you prepared to do to further sell yourself?

X. Project

CARRY out a research into the biography facts of scientists prominent in the computer field. Represent the information about one of them in poster format.

MAKE an oral presentation about some successful / unsuccessful people you know. Try to identify what has made him/her successful / unsuccessful. Represent the information in poster format.



Take a break

Computing History Quiz

1. Which pioneer of machine computing is known as the grandfather of computer pioneers?
2. The January 1975 issue of Popular Mechanics included an article about the Altair microcomputer. What programming language was developed specifically for this machine by Bill Gates and Paul Allen?
3. Who developed the World Wide Web and when was it first released?
4. In 1993 a front page New York Times article reported that a Long Island computer programmer, named Michael Lafaro, used a novel technique to persuade one of his clients to pay a past due consulting bill. What did he do?
5. What, or who, are Archie and Veronica?
6. Describe the first computer mouse.
7. What was ARPANET?
8. Where is Silicon Valley situated? What is it famous for?
9. Who developed the transistor?
10. What English words is the word 'transistor' comprised of?
11. There are at least three programming languages that were named after real people. Can you name them?
12. What was the first high-level programming language? Who developed it?
13. Who designed the first business-oriented computer language?
14. When was the first family of computers introduced? Why was it called the System 360?
15. Who invented the vacuum tube and when?
16. When was the first microprocessor the Intel 4004 created?
17. What microprocessor was the Altair based on/
18. What computer became something of a standard for PC design? When and by what company was it first introduced?
19. *To see the world in a grain of sand
And heaven in a wild flower
Hold infinity in the palm of your hand
And eternity in an hour.*
The words were written by poet William Blake some 200 hundred years ago. What part of computer they can be referred to?
20. Who developed the 4004 microprocessor and when?
21. What did Alan Shugart invent?
22. When did multimedia applications using video and sound devices appear?
23. When was Intel founded?
24. Who or what did "Time" select as its Man of the Year in 1982?

25. What was the first computer game?

26. When did Microsoft launch its Microsoft Windows?

27. Who may the words belong to?

"Every aspect of the Internet should function as a web, rather than a tree structure. Exceptions are the domain name system and the domain naming rules"

"Machines can be created that will mimic the process of the human brain. But people will have difficulty accepting a machine that would rival their own intelligence"

28. Complete:

"The best way to predict the future is" (Alan Kay, the father of the idea of Object Oriented Programming)

"If people don't believe that mathematics is simple, it is only because....."
(von Neumann. the designer of von Neumann architecture)

The information age of the previous century resulted in the extensive use of computers and computerized devices. Computers' role has been steadily growing and now they find their application in every aspect of our lives. This chapter gives an outline of basic computer applications and shows new possibilities of using them to facilitate our lives.

When you have completed this unit you will be able:

- to say how computers are used at workplaces (in business, science, medicine, education, etc.)
- to speak about using computers at home and for entertainment
- to describe new ways of communication provided by computers

I. Vocabulary Chart

Study the expressions and say:

- how computers are used in science, in business and at home;
- what computers help people to do;
- what computers can do.

<p>to communicate with someone else over the distance</p> <p>to enhance one's ability to communicate with each other</p> <p>to provide a new form of interactive entertainment</p> <p>to distract oneself from the real-life problems</p> <p>to offer a choice of pastimes</p> <p>to be a good way to relax</p> <p>to realize one's dreams</p> <p>to make one a virtual reality zombie</p>	<p>to execute</p> <p>to accomplish many tasks</p> <p>to contain daily</p> <p>to request</p> <p>to maintain information (on)</p> <p>to retrieve</p> <p>to control</p> <p>to keep track of (appointments)</p> <p>to streamline the process (of)</p> <p>to facilitate</p> <p>to be indispensable</p> <p>to be common</p> <p>to be of great benefit</p>
<p>to take advantage (of)</p> <p>to take smth for granted</p> <p>to use extensively</p> <p>to utilize computerized methods</p> <p>to gain control over smth</p> <p>to be addicted to</p>	
<p>to make predictions</p> <p>to simulate effects of conditions</p> <p>to analyse different types (large amounts) of data</p> <p>to construct simulations of real objects and environments</p> <p>to create computer-enhanced analysis of images</p> <p>to send personal and business messages</p> <p>to offer general banking services</p> <p>to transfer money</p> <p>to prepare standard forms and reports</p> <p>to design accurate images of products under development</p>	

II. Focus on Vocabulary

2.1 Read the following international words. Try to find their Russian counterparts. Are they the same part of speech in both languages? Do the Russian and the English words coincide in their meanings?

elementary, instrument, figure, course, expert, institution, discipline, object, analyse, register, diagnose, balance, check, effect, artist, address, list, signal, auto-mate, state

Make this list as long as you can using the words of the text. Make sure that you know their proper pronunciation and translation.

2.2 Complete in teams. Study the following negative prefixes that give words the opposite meaning. Choose the right prefix and make the given words reverse in their meaning. Find a good translation for the words. The winner is the team that will derive more words.

un-	personal	legal	approve
dis-	dispensable	dependent	normal
im-	compatible	direct	connection
in-	common	effective	Identity
il-	accurate	possible	ability
ab-	accessible	employment	limited

2.3 Match the words and their definitions:

The automated teller machine	is	a computerized electronic device used to make hard copies of text, graphic or visual images.
The facsimile machine		a computerized electronic device attached to a microcomputer to project the computer's screen image into a large picture.
The printer		a computerized electronic device used in banking and financial services to transfer money or effect payments automatically.
The large-screen display terminal		a computerized electronic device that uses a telephone line to copy or type a document and send it to any place in the world.

2.4 Make pairs of synonymous words and translate them into Russian.

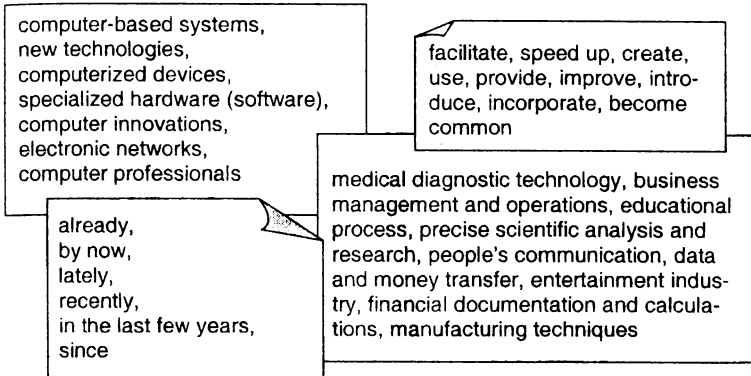
To diagnose, way, widely, advance, advantage, to monitor, to repeat, entertainment, to update, to permit, to increase, to recognize, to converse, disease, to predict, simulation, to track, to eliminate, extensively, pace, to include, to streamline, pastime, to enhance, benefit, to review, to aid, to allow, innovation, to forecast, illness, to facilitate, to send, prototype, to communicate, to rid, to transmit, to contain.

III. Grammar Focus

3.1 Our life has changed greatly since we started using computers. Try to say what innovations have taken place in our lives due to the use of computers. Begin like "I've learnt that...", "I've heard that...", "I have no doubt that..."

e.g.

- a) I have no doubt that computers *have already made* us more productive in most working places.
- b) I have no doubt that people *have been given* new ways to fulfill their daily tasks *since* the invention of the first computer.



Correct your group mates if you have another view of the facts. Use the following: 'Sorry, but as for me I...'; 'I'd rather say ...'; 'It can hardly be true...'

e.g. Sorry, but as for me, I think that new technologies haven't improved people's communication. They have made us more passive and self-concentrated.

3.2 Work in pairs. Ask each other questions to the missing words and word-combinations in order to make your copy of the text complete.

Student A

Over the last few decades, almost every business, whether large or small, has "computerized". Today we are all familiar with the special computers that are used in point-of-sale stations. In the past few years these computer-based systems have been installed in _____. These systems utilize the universal product code printed on the packaging of the product. We have by now experienced how the _____ in stores have speeded up the check-out process and made it more accurate by eliminating the need for checkers to _____. These systems haven't only made it more convenient for _____, but they have also provided an accurate inventory of product availability for _____. When the input from the point-of-sale scanning system has been added to the store's computer database, analysts can use it to find out which products are selling and which ones are sitting on the shelves. This type of integrated system also has proved to be a great benefit to _____.

Student B

Turn to the Key section

IV. Work on the Text

Read text A. Chose the sentences that refer to the text and put them in the correct order to make the plan of the text.

1. Computer programs for industrial application.
2. Computers' new capabilities.
3. Computers enhance scientists' abilities.
4. Our health care system is computerized.
5. Business communication via the computer.
6. Computer-aided educational programs and methods.
7. Computers and business efficiency.

A

Computers have already become so natural both at work places and at leisure that everyone considers himself to be a computer user. Today's computers give us new capabilities to do our jobs. They have changed the way we work, the way we learn, and the way we communicate. That's why users need to know what computers are capable of and how to take advantage of those capabilities.

Researchers in science and medicine have used computers to accomplish daily tasks since they were invented, but today new, more powerful computers and more sophisticated computer programs have made them indispensable to scientists. Scientific instrumentation for research and analysis, often inaccurate, has now become thoroughly computerized. Because science is involved in the analysis of large amounts of data, scientists use computers in all disciplines. They are used to construct simulations of real objects and environments in order to analyze and make predictions such as in weather forecasting and storm tracking. They are also used for analysis of many different types of statistical data. And now new graphics capabilities are providing scientists with the ability to create computer-enhanced analyses of different images, including those transmitted from spacecraft that are visiting other planets.

Now computers are changing the very structure of our society's health care system. They are used extensively for basic tasks such as keeping track of patient appointments, keeping a patient register file (name, address, and telephone number, insurance number, date of birth, medical history and prescriptions). Computers are also of great benefit in both diagnosis and treatment procedures. Diagnosis of illness can be aided through the use of databases that contain information on diseases and symptoms. Laboratory tests on blood and tissue chemistry have become dependent on complex computer analysis. In addition, such technologies as computer tomography scans and magnetic resonance imaging, which allow the physician to see the organs of the body in three dimensions, can provide direct evidence of disease. Computers are also an important component of much of the monitoring and life-support systems used in hospitals, for example, computers lists of transplant donors. One of the latest medical innovations is a microchip drug and insulin infuser.

In education personal computers have given teachers new ways to individualize the process and its impersonal instruction, to consider pupils' difference in intelligence and interests. Today kindergartens, elementary and secondary schools as well as colleges and universities provide a variety of computer courses that have been so uncommon before. Many high schools are now requiring all students to take at least one course on using computers and some states now require all teachers to be knowledgeable about computer programs before they can acquire teaching credentials. A variety of computer-aided instruction (CAI) programs are being used to facilitate the learning of nearly every educational topic. Recently, new technologies have been developed that can deliver information to students in the form of sound and video in addition to texts and pictures. Using these new methods, students can gain control over their own learning as the computer delivers the instruction at the student's desired pace, monitors their progress, and provides instantaneous feedback. Computer educational programs are more flexible, by evaluating a student's progress, it will review or repeat lessons, will permit and encourage the learner to progress faster or will slow down until the student grasps the material. The machine will diagnose errors and provide remedial exercises before moving forward. In many aspects computer programs are beyond human abilities. Their speed and memory make the process of recognizing errors easier, more effective and taking only instances. When a student finds a specific teacher's method difficult software allows the machine to use the ideas of different teachers and whichever style is effective depending on needs of students. Computers also help to improve other

forms of teaching, for example, lectures, seminars, group discussions. Often special devices such as large-screen display (LSD) panels are used to project the computer's screen image onto a large screen and make it possible for all students to see some text or graphics presentation of information.

Business was one of the first areas to incorporate the computer. Computers are now a vital part of almost of every type of business; they are used to track a company's products from their design to their delivery. Large businesses have a special department to manage the computers and the flow of computerized business information. Specialized hardware and software tools have made the computer valuable for business and in most cases they result in increased productivity. Banks have used computers for nearly 30 years. The first Clearing House Automated Payment System was initiated in 1969. ATM machines are now taken for granted as they are just one part of a huge electronic network that has been put in place in the banking and financial services industries. ATMs are activated by plastic access cards and provide around-the-clock interface with the bank's computer. Most ATMs offer general banking services (to pay gas, electric, telephone and other bills, to check your bank balance, to draw out money, to make deposits), but at some ATMs the customer can request information or send messages to the bank, the latest models of the machine can even talk to the customer. Using ATMs eliminates the need for cash and checks and results in greater convenience and security for the customer. There are also electronic funds transfer (EFT) systems that can electronically transfer money from one account to another without the need for paperwork. They can be accessed by employees using terminals in financial institutions as well as by customers using credit and debit cards at remote locations. Using new-tech credit cards provide up-to-the-minute information of the users' accounts and special programs provide better protection against the illegal use of stolen cards. In marketing, it is impossible to maintain information about customers and accounts without the computer. In accounting, computer programs streamline the process of preparing checks for payroll, billing, the inventory control, the preparation of standard forms and reports, tracking a company's income and its expenditures. Electronic spreadsheets are useful in general accounting and bookkeeping procedures, in preparing budget, profit and loss figures and statements. Computers are extensively used in the world of stocks and investments. Through a worldwide network of computers market information can be quickly updated as financial events occur or easily retrieved. With the proliferation of computers they can improve business efficiency in at least the following four ways: when business tasks are computerized, it will often require less time to perform them; the computerization of business tasks can reduce errors; computers can work around the clock; computers can help to manage the exploding need for business information. But some analysts predict that banking business is likely to face unemployment as the workforce will be reduced as much as 25% in 10 years.

Computers have also found their application in industry. For instance, computer-aided design (CAD) programs are used by engineers to design accurate images of products under development. Specialists are trained to design two-dimensional or three-dimensional prototypes of products. Computer-aided engineering (CAE) programs simulate effects of conditions such as wind, temperature, weight and stress on product designs and materials (to test stresses on bridges or on airplane wings before the products are built). Computer-aided manufacturing (CAM) involves the use of computers to control production equipment such as drilling, lathe and milling machines as well as robots.

B

Read text B. Chose the sentences that refer to the text and put them in the correct order to make the plan of the text.

1. The Internet communication resources.
2. Virtual reality and children.
3. Computers throughout the entertainment industry.
4. Computer users at leisure.
5. Computerized systems are to help at home.
6. Computer games and their fans.

We all have come to terms with the computer and consequently we can't get rid of its presence even in our personal, non-professional activities. Computers have become our family necessity, our favorite means of entertaining ourselves and communicating with other people.

Our private homes have been significantly changed by the computer. There are already computerized security systems in many homes. Some builders have installed systems in houses that use a computer to control the lights, the heat and even the electric appliances. In some homes these computerized systems can be controlled by calling the house from any phone and typing in number sequences using the phone's dialing buttons. People are still finding new computer applications for their homes. Very soon we will be ordering our groceries, our auto service, our cable TV programs or our Sunday papers, connecting the national news services, doing library searches and even reading professional journals or literary classics simply by choosing an option from a menu of choices on the computer's screen.

Now many computer experts believe that if the technologies of television, computers and electronic games come together, they will provide a new form of interactive entertainment. Computers are common throughout the entertainment industry. Computer methods are utilized to create special effects used in television advertisements, colorful displays on the score boards at sport arenas, etc. Computer games are becoming more and more life-like as the computer's capability to portray graphics is constantly improved. In the motion picture industry, the time required for an artist to create animation has been greatly reduced through the use of computers and special graphics software. The movie industry also uses computers routinely for a variety of special effects and specialized programs have even made it possible to "colorize" old black-and-white films. Musicians are also taking advantage of advances in technology by using computerized electronic synthesizers to store, modify and access a wide variety of sounds. Special word processing software has been created for scoring music and other applications give musicians a way to actually cut and stored sounds to make compositions. As to users, they have been given a new possibility: to create and store video and audio files, to make them available at their leisure and to exchange them with other users.

Computers have unlimited and unidentified capabilities and offer us an endless choice of pastimes, computer games are among them. Computer games have been round for ages. In fact, the UNIX operating system was invented to play a game called "Space Travel". However, the past few years have spawned a number of person-to-person games played via the computer. These ranges from traditional games, like chess, puzzles or quizzes, to real-time simulation games, where you can drive a car or a tank, pilot a helicopter or a spacecraft and take part in a simulated battle. There are also role playing games, when you act and behave as if you were some other person (you can live and think as a sportsman, a knight or a police agent). If you are an intelligent person and like to analyze, you'd better choose a strategy game. More and more people are addicted to computer games. They are mostly teenagers but there are still 30-40-year-old gamers. Why do they do it? A few reasons can be spoken about. Computer games somehow help us to realize our dreams. Everyone wants to become someone better but in real life we often fail to do it and many things are inaccessible to us. Playing a game, you can try a new image and succeed in something feeling self-satisfied, great and independent. Every time you don't like what is going on, you can reload the game

and start again, finding another way out of the situation. Thus many people consider computer games a good way to relax and distract themselves from the real-life problems. But parents very often disapprove of their children's hobby when their interest seems abnormal. It is easily understood as computers should help us in true life but not to make us virtual reality zombies.

The Internet is the world's largest computer network. Computer networking revolutionized our life in the 20th century. PCs are great, but computers become something special when they are connected to each other. The Internet gives you many ways to spend your time as well as to communicate with someone else over the distance. Computer-based communications systems have significantly enhanced our ability to communicate with each other. Electronic mail is widely used to send both personal and business messages. Everyone using this service has an "address" to which computer messages can be sent. Once sent by the computer, the e-mail message will arrive almost instantaneously at its destination, where it will be stored until the addressee uses a computer to access and read it, to save as a file or print them out on paper.

The UNIX talk program is probably the most common application used for direct communication with others. To use talk, two people must agree to communicate with each other. The process starts when one person calls the other, using talk to set up the communications link. Talk displays everything you type in. You can't edit anything before you send it off, as you can with e-mail. Talk doesn't even wait until you finish typing the line. Some talk programs are incompatible and ineffective. If there is any disconnection look for a program called ntalk, which works exactly like talk, or ytalk. Ytalk gets around all the incompatibility problems and allows you to have multiple conversations going at one time. Chats also let multiple people converse at once. Groups can gather on the net to chat about various subjects and you can wander from group to group and take part as you like.

Many other computerized communications facilities are indispensable now. Facsimile machines can be found in every office. It can receive a copy of any type of document at any time of the day or night. Using standard phone lines, it can send a copy to another fax machine anywhere in the world. Sophisticated phone systems can connect several callers to one line, thus expanding the capabilities of teleconferencing. Video cameras broadcast a business meeting to those who can't be present and they call in on the telephone with comments.

Computers have taken a major position in the world because they can execute many tasks more effectively than humans and can even compensate people's inability to do different things. The above has shown the list of beneficiaries of using this modern technology in our lives.

V. Reading Comprehension Test

Text A

1. One of the latest computer-aided medical innovations is
 - A) complex diagnostic equipment
 - B) a new drug infuser
 - C) tomography scans
2. Extensive use of computers in business usually results in
 - A) unemployment
 - B) the reduced number of clients
 - C) the increased productivity
3. When scientists want to forecast the result or the consequences of some process they apply to
 - A) simulation computer programs
 - B) scientific instrumentation

- C) statistic data
4. Computers are used in education to
- A) repeat lessons B) get teaching credentials C) individualize the process
5. If you want to send a message to the bank, use
- A) a plastic card B) an ATM machine C) an EFT system
6. The first sphere to use computerized devices was
- A) business B) science C) education

Text B

1. make up a new form of interactive entertainment.
- A) Animation and computer games
B) Television and computer games
C) Movies and television
2. By traditional computer games we mean
- A) role-playing games B) simulation games C) chess, quizzes, puzzles
3. Strategy games are for people who
- A) like to act as virtual heroes
B) like to analyze the situation and work out intelligent decisions
C) like to relax and forget about real problems
4. The basic drawback of the UNIX talk program is
- A) incompatibility
B) inability to type your message
C) setting up a bad communication link
5. To be able to converse with multiple people at a time you may visit a network
- A) program B) chat C) line
6. will let you participate in a business discussion if you are not in the office.
- A) Correspondence
B) E-mail
C) Teleconferencing

VI. Grammar Test

Text A

1. Users need to know
- A) what are computers capable of
B) of what are computers capable
C) what computers are capable of
2. Scientists construct simulations of real objects to make weather predictions.
- A) in order B) with purpose C) so that
3. A variety of computer-aided programs to facilitate the process of learning.
- A) is used B) is being used C) are being used
4. Considering students' need, software allows the machine ... the ideas of different teachers.
- A) using B) to use C) use

- B) Компьютерные системы связи предоставили нам совершенно новые возможности в общении друг с другом.
- C) Компьютерные системы коммуникации существенно улучшили наши возможности в общении друг с другом.

4. Once sent by the computer, the e-mail message will arrive almost instantaneously at its destination.

- A) Однажды отправленное по компьютеру, электронное сообщение почти сразу же прибудет к месту назначения.
- B) Электронное сообщение, отправленное компьютером, почти мгновенно будет получено адресатом.
- C) Отправленное по компьютеру электронное сообщение, тут же прибудет к адресату.

7.2 Translate the following sentences:

1. Computers can help us to manage the exploding need for business information.
2. Special word processing software has been created for scoring music and give musicians a way to actually cut and stored sounds.
3. The computer delivers the instruction at the students' desired pace, monitors their progress and provides instantaneous feedback.
4. Using new-tech credit cards provide up-to-the-minute information of the users' accounts.

7.3 Ask your group mates:

Text A

- 1) why computers are indispensable to scientists;
- 2) what medical procedures computers facilitate;
- 3) what the advantages of using computer technologies in education are;
- 4) in what ways computers improve business efficiency;
- 5) what computerized devices are described in the text;

Text B

- 1) what applications have computers found in our homes;
- 2) why we say that computers provide us with a new form of entertainment;
- 3) what kinds of games there are and which of them he (she) prefers;
- 4) if he (she) finds computer games evil or good;
- 5) what the procedure of sending an e-mail message is;
- 6) what computerized facilities the most widely used in communication are.

7.4 Study the following comparative constructions:

as good (well) as -- так(ой) же хороший (хорошо) как...

not so good (well) as -- не так(ой) хороший (хорошо) как...

the sooner ... the better -- чем скорее ... тем лучше

Paraphrase the pairs of the sentences using one of these constructions. Translate your sentences into Russian.

e.g.

- a) Human teachers can diagnose errors *not so fast* as their computer competitors.
 - b) *The more* computerized the banking industry is, *the more* convenient it is for customers.
1. Computers are very helpful at work. Many people also use them at home.
 2. Every year we have more and more information to manage. Many new computer programs are created for this purpose.
 3. Various computer courses are very popular at schools and colleges now. In the past they were not quite often.

5. EFT systems can be easily activated by an employee at the bank. Any customers using credit cards at remote locations won't have any difficulties either.
6. The UNIX talk system is often ineffective. Other talk programs are more compatible and work better.
7. New computerized facilities are designed very quickly. Each of them gives us a good means of communication.

VIII. Discussion

8.1 Think and answer:

1. Why is it necessary for users to know computers' capabilities?
2. Why do so many people want to become computer literate?
3. Why do some schools and colleges require their applicants to have certain computer knowledge?
4. Why science and medicine were the first to incorporate the computer?
5. What makes computer games so popular with teenagers and even adults?
6. Do you agree that computers offer us an endless choice of pastimes? Give examples.
7. What communication services of the Internet are used more often? What are their advantages and disadvantages?
8. Do you know what newest computer services and devices are being developed now?

8.2 Enumerate all computer applications you have learnt about and give their detail description.

8.3 Use the information of the texts to disprove the following statements not less than in 3 sentences.

1. Doctors can't trust computers when a man's life is at stake.
2. Computers prevent people from direct communication.
3. Domestic use of computers is for the sake of entertainment.

8.4 Make dialogues on the following topics:

Education: Computers Versus People.

You believe that only human teachers can educate children. But your friend thinks that teaching machines would be more helpful. You are discussing the benefits of these two forms of education.

YOU: to be unemotional; to have a threatening appearance; to lack social skills; to get used to smth. (doing smth.); nothing of the kind; to be unpredictable; a two-way process; to limit smb.'s freedom.

YOUR PARTNER: to gain smth.; at smb.'s own pace; to give a visual aid; to route through the material; to drill smb. in smth.; to go beyond human abilities; to be creative; my own view of the matter.

For and Against Computer Courses.

Your friend wants to subscribe to computer courses to find a better job in a few months. You are trying to persuade him that it's a waste of time and advise him to enter a university.

YOU: to be groundless; shortage of deep, professional knowledge; what is more; the essentials of smth.; to stand competition; to excel smb. in smth.

YOUR PARTNER: to keep step with the times; to guarantee better employment; to save from professional extinction; otherwise; to be sure about the future; after all; to be time consuming.

8.5 Read the extract:

"... The city authorities have decided to save children from the harmful influence of computers. We need to distract underage **netizens** from consuming unnecessary information and monitor their web surfing on home computers... ." (Moscow News)

1. How would you explain the meaning of the italicized word? Is there such a word in dictionaries? Why? How could you translate it into Russian?
2. Do you agree that computers have a bad effect on young users? What can be done to prevent it?

8.6 Many people try to predict the consequences the mankind is likely to face in future due to the overuse of computers. Read the following few made by Jon Nauton in his "Think First Certificate":

- ✓ Further developments in computer technology will make thousands of previous inventions redundant (a postal system, for example).
- ✓ Many people such as postmen, clerks, secretaries and others will vanish and their tasks will be carried on a tiny silicon chip.
- ✓ In education teachers will be entirely replaced by machines and learning will take place in the home via video conferencing.
- ✓ There will be long queues of the unemployed, only a few jobs will be left for those few individuals who are capable of writing the software of the future.

What do you think of these perspectives? Speak about any others you have heard of or can think about.

IX. Writing

9.1 a) Respond to the following sentences, using the Present Perfect Tense. Use the adverbs in brackets.

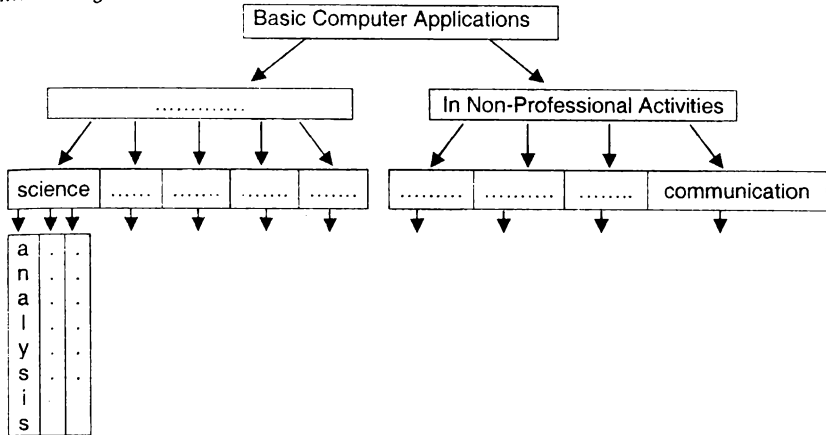
e.g. My computer is switched off.(already) – I have already spent three hours typing my report.

1. There is a new e-mail message on my screen. (just)
2. I am waiting for a computer repairer. (today)
3. It will take you only a minute to check your bank balance. (by now)
4. Our company's productivity is twice as much as it was last month. (lately)

9.1 b) Write questions to the given sentences. Use the prompts in the brackets.

1. Specialized hardware and software tools have made computers valuable for business. (Who-question)
2. Today's computers have already changed the way we work, learn and communicate. (General)
3. I have never worked with any teaching programs. (Alternative)
4. Computer games have been round for ages. (Special)

9.2 Complete the diagram illustrating basic computer applications. Use this diagram while doing task 8.2.



9.3 Cover the essence of text A in 10 sentences.

9.4 Cover the essence of text B in 10 sentences.

X. Project

RESEARCH into computerized resources (software and hardware) that are being used at the university's information center or at your department.

CARRY out a survey of any educational programs available to you. Test them in your group, analyze the results and estimate their efficiency.

MAKE an outline of any other computer applications in any other spheres of our life and say what they are based on.

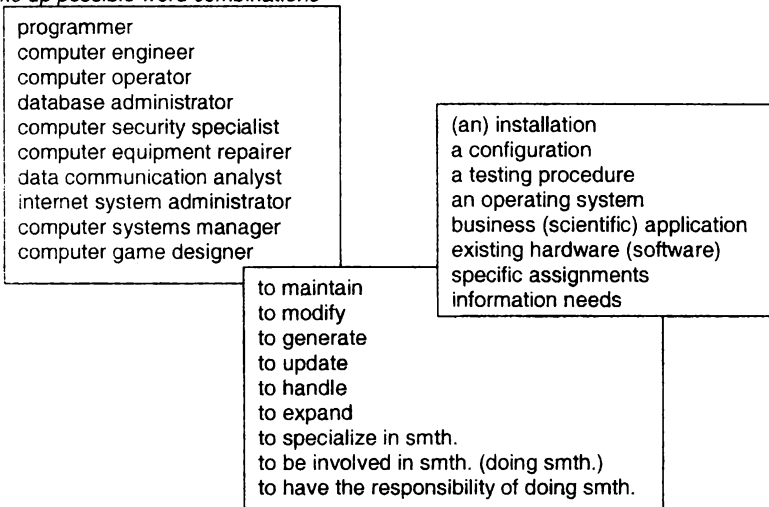
Very soon you will face the problem of determining your future occupation in one of computer-related fields. This unit presents a wide range of computer-oriented jobs and professions, covers their essence and distinctions.

When you have completed this unit you will be able:

- to name basic and ancillary specialities which deal with computers
- to list the specialists' occupational tasks and work activities

I. Vocabulary Chart

Make up possible word combinations



II. Focus on Vocabulary

2.1 Read and translate the following international words. What parts of speech do they belong to?

speciality, specific, engineer, instruction, process, record, code, service, major, operator, communication, procedure, manual, examine, monitor, data, camera, potential, routine

Scan the text and fish out as many words as possible to continue the list. Make sure that you know their correct pronunciation and appropriate Russian equivalents. Name the words which have different meanings in Russian and English.

2.2 Split into two teams. Use the words of the texts and illustrate the following word-building patterns: **verb – noun; noun – adjective; adjective – adverb**. All the derived words should have a suffix or prefix. The winner is the team that will be the first to find five examples of each pattern.

e.g. to describe – description; program – programmable; previous – previously.

2.3 Match the words and their definitions:

Hardware	is	different types of programs which allow you to store, look at and change a large quantity of information quickly and easily.
The operating system		different types of instructions which direct the operation of a computer.
The database		different types of mechanical, magnetic, electronic and electrical devices composing a computer.
Software		different types of system programs arranged in a complex set to tell a computer how to carry out different tasks.

2.4 Make pairs of synonymous words and translate them into Russian.

Faulty, to direct, to define, available, to verify, proper, complex, to run, to configure, to set up, to debug, defective, to monitor, to determine, accessible, to obtain, to check, sophisticated, to install, to correct, appropriate, to modify, to operate, to draw out.

III. Grammar Focus

3.1 Various specialists are involved in computer-related work. Try to guess who does what. Begin like 'In my opinion...'; 'To my mind...'; 'As far as I know...'; 'I am sure that...':

e.g. As far as I know, Internet system administrators *should* establish and maintain networks connected to the Internet, they *must* provide data transfer between machines.

computer equipment repairer
computer security specialist
computer game designer
database administrator
computer engineer
computer operator
software tester
programmer

must, may, should, can,
to have to, to be to,
to be able to

design, convert, develop,
use, prepare, assist, coordi-
nate, analyse, ensure, re-
pair, provide, change, install,
identify

a software (hardware) sys-
tem, computer peripheral
equipment, programming
languages, data models,
instructions, programs, an
operating system, security
methods, technical prob-
lems, faulty parts, file pro-
tection, storyboard, soft-
ware bugs and errors, ad-
justments

Object to your group mates if you find their opinions to be wrong. Use the formulas: "I don't agree with you...", "I see what you mean, but...", "Not exactly...". e.g. Not exactly. It's not his duty. This work is the concern of...

3.2 Work in pairs. Ask your partner questions so that he could choose the appropriate word from the list below to fill in the gaps.

Student A

Comments, to increase, other users, more reliable, tools, existing programs, automate.

Programmers often have to make changes in _____. When making changes to a section of code, called a "routine", programmers should make _____ aware of the task the "routine" is to perform. They can do this by inserting _____ in the coded instructions, so others can understand the program. Many programmers use computer-assisted software engineering (CASE) tools to automate much of the coding process. Using these _____ a programmer is able to concentrate on writing the unique parts of the program, because the tools _____ various pieces of the program being built. CASE tools may generate whole sections of code automatically, that is to yield _____ and consistent programs and _____ programmer's productivity by eliminating some "routine" steps.

Student B

Computers, to solve problems, describe, items, reinstalling, developments, repairs, asking.

Computer support specialists are to help co-workers or people who bought their companies' products _____ with their computer hardware and software. They have to start by having computer users _____ what is wrong. By _____ questions they should learn enough about the problem so that they can create a list of _____ might be causing it. They may carry out the _____ tell customers what to change. When solving the problem computer support specialists are able to use the _____ that are not working properly. This may mean _____ software or replacing hardware that is not working. As computer hardware and software are constantly changing, computer support specialists must be aware of _____ in the field. They may attend conferences and trainings or read magazines to learn about changes.

IV. Work on the text

Read text A. Mark the sentences that don't correspond to the contents of the text.

1. Various computer experts may work together in one team and performing their special tasks, contribute to the final completion of the task.
2. Computer managers' job is just to direct the work of computer-related workers.
3. The preparation of special-purpose software is one of the most rapidly growing segments of computer industry.
4. Internet technicians work mainly with network servers and server software packages.
5. Whatever a computer specialist designs, installs or modifies, he should write a manual for subsequent users.
6. Some computer specialists solve only theoretical problems and can't apply their knowledge in practical assignments.

A

Today computers are becoming an integral part of our lives thus bringing to life a great number of working places and a wide range of specific jobs and professions that to different extent contribute to the process of global computerization.

Computer programmers write, test, modify and maintain the detailed programs that computers must follow to perform their functions. Programmers also conceive, design and test logical structures for solving problems by computer. Such technical innovations as advanced computing technologies and sophisticated new languages and program-

ming tools have redefined the role of a programmer, therefore computer programmer refers to individuals whose main job function is programming. Programs vary widely depending on the type of information to be accessed or generated. Though simple programs can be written in a few hours, programs that use complex mathematical formulas, whose solutions can only be approximated or that draw data from many existing systems may require more than a year of work. In most cases several programmers work together as a team under a senior programmer's supervision. Programmers write programs according to the specifications determined by computer software engineers and system analysts. After the design process is complete, it is the job of the programmer to convert that design into a logical series of instructions that the computer can follow. Then they code these instructions in a conventional programming language (COBOL, FORTRAN, Java, C++, Smalltalk, etc.) and test a program by running it to ensure the instructions are correct and it produces the desired information. If errors do occur the programmer must make the appropriate changes and recheck the program until it produces the correct results. This process is called debugging. Programmers may continue to fix these problems throughout the life of a program. Programmers in software companies may work with experts from various fields to create software- either programs designed for specific clients or packaged software for general use including educational software, programs for financial planning and spreadsheets. Much of this type of programming is in the preparation of packaged software, which comprises one of the most rapidly growing segments of the computer services industry. Some organizations employ a single worker called a programmer-analyst who is responsible for both systems analysis and programming.

Computer engineers design and test computer hardware and software, thus they are part of a team of workers who develop computer equipment and programs. Computer engineers are the team members who solve theoretical technical problems and pass that information on to team members who do the programming or create the equipment. Engineers apply their knowledge of mathematics and science to computer design. Before starting a project, engineers talk to clients to find out more about their needs. They also learn about the time line, security needs and cost limitations. Once they complete projects and test them, engineers may train clients how to use software or maintain hardware. They also monitor systems to mark out timely those that are not working properly. Due to their special occupational tasks we should distinguish between software and hardware engineers. The former develop computer software systems, research, design, and test all parts of the software, match the current operating system and the software, direct software system testing procedures. The latter are involved in the development of hardware such as computer chips. They also upgrade and replace the client's current hardware, supervise the installation of the system and monitor its performance. Hardware and software engineers may work together on some tasks. For example, they make sure that the hardware is able to handle the demands of the software.

Database administrators create and maintain computer database systems, make changes to existing databases, write the code for databases and develop data models. Databases are software systems that contain complex records of information. For example, companies that sell items on the Internet or through catalogs often keep databases with information about their customers. One table may contain the address of each customer, another table – a list of the items each customer bought, a third table – information about whether customers have paid their bills. The tables are related to one another so users can run a "search" to find the information they want. Database administrators use database management systems software. It allows them to organize, store and retrieve data. Because database technology changes quickly, administrators must

keep their skills and knowledge up-to-date and be familiar with many types of computers, operating systems and databases.

Data communications analysts design, test and evaluate network systems that allow computers within or outside an office to connect with each other. Organizations use computer networks so that information or software can be shared. Networks also allow employees to share a fax or a printer. Analysts work with certain types of networks such as Local Area Networks (LAN) and Wide Area Networks (WAN), they also work with Internet, Intranet and other data communications systems. Having learnt the clients' needs, analysts develop the required network upgrading the existing network system or establishing a new one. They may also change the current software and design their own software, though this is more likely if they work for software writing firms. In any of these cases, analysts monitor networks to be sure they operate properly. Their main goal is to ensure that information is available to users.

Internet system administrators are responsible for establishing and maintaining networks that are connected to the Internet. They may also be known as Internet technicians. They work mainly with network servers, powerful computers dedicated to the task of facilitating data transfer between machines. An end user's PC communicates with a server to access the Internet. System administrators need to be familiar with a diverse range of systems, to be able to operate network servers and server software packages. Sometimes they have to install new serial port cards, components that enable communication between telephones and computers. In addition, system administrators also configure and monitor routers. They are very robust, special purpose computers that ferry packets of information between one computer network and another. Routers are connected to at least two networks and decide which way to send each information packet based on their understanding of the state of the network. System administrators would generally connect routers using phone lines or internet cables.

B

More and more kids as well as adults are using their computers to play computer games. With this kind of popularity in computer games, there is a lot of competition to be on the top of the computer game world. This is the task of computer game designers. They are responsible for developing the best and coolest ideas for computer games. Computer game designers provide the overall concept of the game, the story line of the game, how users play the game and what the rules of the game are. They design all these aspects in a blueprint or storyboard type of format. Computer game designers then work with the marketing and art departments, the development team and the computer programmers to turn their ideas into reality. The marketing department will conduct surveys and opinion polls to see how well the public reacts to the game. Once it is determined that the public likes the concept the computer game designer's blueprint will be used by the artists, writers and programmers to create the actual program. The designer will closely work with these other workers to make sure the ideas are what is incorporated into the final product.

Computer operators run and monitor computer hardware systems. First, they read instructions prepared by programmers, operations managers and others. Next, operators load computers with tapes or disks. They may also load and run peripheral equipment such as printers, disk drives, tape readers and scanners. Operators enter commands and use controls to start computers and operate the equipment. While the equipment is running, operators watch for error messages on a computer screen. If an error occurs they diagnose it and correct the problem. At the end of the run operators separate and send the data to users. Then they clear the equipment to get it ready for the next as-

signment. Computer operators keep records of computer operating times. They also help to classify, catalog and maintain tapes. They may assist users on the telephone and help programmers test and debug new programs. In the past computer operators worked mostly on mainframe computers. Now more operators are working on networked personal computers.

Computer and information systems managers direct the work of computer-related workers. They figure out their company's computer and information needs and determine the workers and equipment that will meet those needs. Managers talk to computer dealers about finding the right equipment for their needs. Once they have determined what the system will be managers plan activities such as installing and upgrading hardware and software. They develop computer networks and set up Internet and Intranet sites. They also work with other departments on projects that require technical support. Computer and information systems managers oversee workers within their departments. They evaluate projects, assign workers to those projects and direct the progress of the projects. Managers also estimate the costs and budget for projects. They document and record information on work progress and employee performance.

When a new computer application or system is being developed or implemented a software tester needs to be on hand to ensure that these are free of any software bugs or anomalies and that all of the data is processed properly. Furthermore, after enhancements have been made to a system an independent software tester is needed to verify that everything is still working as intended. Software testers or quality analysts work alongside software developers from the outset. This makes sense when you consider how time consuming and costly it would be for developers to finalize a product without regular testing. Software testers first read the product specifications from a technical document to get an understanding of what the product is designed to do.

Discussions with the project managers may also be required to increase the software tester's understanding of the product and to keep the project managers fully informed during the testing stage.

Computer security specialists set up plans to protect companies' information and technology from outsiders. These specialists work with companies to build secure computer systems. They question managers about their current security methods. They find out what information the company wants to protect. Specialists also learn what information should be accessible to employees. Computer security specialists use their findings to plan the security system. They may install software that protects the information or to make changes to existing software. If the data are available to people over the Internet specialists may build firewalls. These electronic "walls" keep people outside of an organization from accessing information. Once the security system is in place specialists write rules and procedures for employees to follow as each part of the security plan must be followed for it to succeed. Security specialists may also be responsible for physically locking down the hardware. They may buy equipment to secure servers, monitors and hard drives so they cannot be removed from buildings. Larger companies may purchase metal detectors or video cameras as part of their plan.

Computer equipment repairers maintain and fix computers, monitors, printers, network hubs and related equipment. When computers need attention repairers first talk to users to find out what is wrong. Then they try to operate the computers. Depending on what they find, repairers may focus first on problems with the hardware or software. To test the electrical or mechanical systems repairers use special equipment such as voltmeters, ammeters, oscilloscopes and signal generators. Having analyzed the results of the tests and having determined the source of the problem, repairers make adjustments or

replace worn parts of a computer. Some computer problems require changing the software, thus repairers reinstall software programs, install additional memory, new controller cards, etc. Data processing equipment repairers do the important work of repairing complex equipment (remote terminals, high speed printers, graphics devices and modems) and keeping the system in good operating condition. They do preventive maintenance, check, clean and adjust the mechanical and electromechanical elements, sometimes taking the whole computer system out of operation. Repairers also check the electronic equipment for defective components and faulty circuits. They use their knowledge of electronics theory and computer circuitry to analyze the problem, troubleshoot the system and find the problems. Technicians usually have a number of sophisticated test instruments to run special diagnostic programs and help pinpoint breakdowns. Sometimes they also need to hook up electrical connections between machines, test new equipment and lay power cables.

These are basic computer-related specialities which are available at present but as time moves forward and global computerization continues new and new professional possibilities are being found in the field of electronics.

V. Reading Comprehension Test

Text A

1. If you intend to alter or improve a computer program you will apply to
A) a computer engineer B) a programmer C) a computer operator
2. Before starting their work computer engineers talk to the clients to
A) to give them instructions
B) to find out how efficient they are
C) to learn more about their problems and needs
3. To keep complex records of information you will need
A) a database system B) the Internet C) special hardware
4. Programmers code the designed program using
A) a coding mode B) a programming language C) a letter code
5. When a program has been created it is then
A) put into operation B) installed and debugged C) tested and run
6. A number of computers that work separately but are connected to share certain information and software are known as
A) a mainframe B) a software system C) a network

Text B

1. Peripheral computer equipment include
A) tape readers, monitors punched cards
B) printers, scanners, disk drives
C) modems, diskettes, system units
2. One of the security methods used by specialists is
A) reading special literature
B) creating electronic "walls"
C) involving police guardians
3. The term "routers" mean
A) special computers that let us move information between one computer network and another
B) data units transferred from one computer to another

- C) specialists who provide access to the Internet
4. To test electrical devices of a computer system technical specialists use
- A) testing computer programs
 B) the manuals of the devices they are using
 C) voltmeters, ammeters and other special equipment
5. Before an actual program of a computer game is created it is necessary
- A) to get public approval of its concept
 B) to make sure that it is informative
 C) to coordinate its cost with the money available
6. It is very difficult to finalize the installation of software systems without
- A) certain electrical conditions
 B) a set of connecting cables and wires
 C) regular testing

VI. Grammar Test

Text A

1. After the design process of a program ... the programmer converts that design into a series of instructions for the computer to follow.
- A) will complete B) is complete C) will be complete
2. Computer manuals must ... in terms that users understand.
- A) write B) to be write C) be written
3. Computer engineers work together with a team of workers that ... programming and create computer equipment.
- A) does B) make C) do
4. Programmed instructions are usually presented ... one of conventional programming languages.
- A) in B) on C) at
5. Having installed a computer system, engineers make sure that the hardware ... to handle the demands of the software.
- A) ought B) is able C) has
6. Data communications ... often work with Local Area Networks and Wide Area Networks systems.
- A) analytics B) analysts C) analysts

Text B

1. In the past, computer operators worked ... on mainframe computers.
- A) most B) the most C) mostly
2. Computer repairers usually check electronic equipment ... defective components and faulty circuits.
- A) for B) on C) in
3. While the equipment ..., operators monitor it ready to correct an error.
- A) runs B) is running C) is run
4. To prevent possible breakdowns in a system computer repairers give technical ... to customers.
- A) advices B) advises C) advice

7.3 Ask your groupmates:

Text A

- 1) about the specialists who are involved in creating a program and putting it into operation;
- 2) what programming languages are used by programmers in their work;
- 3) why it is necessary for computer specialists to keep their professional knowledge up-to-date;
- 4) what he/she knows about the process of creating a software system;
- 5) about the methods computer security specialists may use to protect a computer system;
- 6) about the main occupational tasks of computer engineers and operators;
- 7) which of computer specialists works with peripheral devices.

Text B

- 1) what information can be stored in a database system;
- 2) what the testing stage of a computer installation includes;
- 3) who computer equipment manuals are written by;
- 4) what the abbreviations LAN and WAN mean.

7.4 Contrast the following items of information:

- e.g. a) *On the one hand*, computer engineers solve theoretical problems but *on the other hand*, they apply their knowledge of maths and science to computer design.
- b) Software engineers develop computer systems, hardware engineers, *on the contrary*, are involved in the development of computer chips.
1. In some companies programmers work together with system analysts and write programs using their specifications. A number of computer organizations employ programmers-analysts who are responsible both for the system analysis and the actual programming work.
 2. Computer operators load, run and monitor computer systems. They may also load and run peripheral equipment.
 3. Computer security specialists install software that protects the information. They may also lock down the hardware or buy special equipment not to let anyone remove the hardware from the building.
 4. Sometimes computer equipment needs to be maintained and fixed by computer repairers. Some computer problems require changing the software.
 5. COBOL is used for business application. FORTRAN is common in science and engineering.
 6. Simple computer programs can be written in an hour. It takes programmers a year of work to create a complex program.

VIII. Discussion

8.1 Think and answer.

1. Why is allocation of responsibilities among computer-related specialists so unclear? Prove.
2. Which is more important for a computer expert: deep theoretical knowledge or sufficient practical experience? Why?
3. What can be done to make computer-user interrelations easier?
4. What does the term "to upgrade software (hardware)" mean? Give examples.
5. What are the possible ways for a computer specialist to up-date his knowledge? Why is it necessary?
6. How do computer professionals train users to operate computer software (hardware)?
7. Why do some companies prefer to employ a single worker called a programmer-analyst instead of hiring two specialists?

8. What do you know about packaged software and its purposes? Give examples.
9. Why have computer games become so popular both with children and adults? Give your reasons.
10. Why do you think Bill Gates, President of Microsoft Company, is one of the richest people in the world?

8.2 Give a detailed description of all computer-related jobs and professions.

8.3 Imagine you are the manager of a newly-established computer company. Among those mentioned in the unit choose the specialists you would recruit for your company. Explain your choice.

8.4 Make dialogues on the following topics:

The Company Requires a Computer Expert

The company manager is holding an interview among the applicants. You are one of them and want to get this job.

YOU: as a matter of fact; to do one's best; work experience; to succeed in doing smth.; to have good references; to cope with difficulties.

YOUR PARTNER: to be deeply concerned; to meet strict requirements; to have a broad scope of mind; to fail to do smth.; to promote to higher posts; to examine in practice.

Installing a Computer System

Two specialists are discussing the basic steps they are to follow and the possible problems that may arise in the process of installing a computer system.

YOU: to foresee the problem; reliable equipment; to be on the safe side; to make a decision; to observe safety regulations; to analyze thoroughly.

YOUR PARTNER: to eliminate the reason; serious consequences; to provide regular testing; to ask for assistance; to prevent from smth. (doing smth.)

My Future Occupation Is a Computer Specialist

You are talking to your friend who is not certain about his future occupation. Tell him how you have made your choice and give him some advice.

YOU: to a certain extent; to have one way of looking at it; to make up one's mind; to follow smb.'s advice; to be popular with smb.; to require special skills.

YOUR PARTNER: to have no strong feeling about smth.; to have good work possibilities; to be over fond of smth.; to hesitate; to think in prospect .

8.5 Agree or disagree with the following saying. Explain your point of view.

“When an employee has a problem, the company has a problem.”

(a computer company clerk, “MATRIX”)

8.6 Here are 10 of the qualities Bill Gates finds in the “best and brightest” employees that companies should attract and retain. Read the text and add some other qualities to the given list (exclude some qualities if you find them unimportant). Give reasons.

Ten Attributes of a Good Employee

- ✓ It is important to have a fundamental curiosity about the product of your company or group. You have to use the product yourself.
- ✓ You need a genuine interest in discussion with customers about how they use your product, what they like or don't like in order to know where your company's product could be better.
- ✓ Once you understand your customer's needs, you have to enjoy thinking through how this product can make work more interesting.
- ✓ You as an individual employee should develop your own skills and those of the people you work with (you shouldn't be motivated only by your next bonus or salary increase).

- ✓ You need to have specialized knowledge or skills while maintaining a broad perspective. Big companies need employees who can learn specialties quickly.
- ✓ You have to be flexible enough to take advantage of opportunities that can give you perspective (at Microsoft Co. a person is offered lots of different jobs in the course of a career).
- ✓ A good employee will want to learn the economics of the business he is involved in. (Why does the company do what it does? What are its business models? How does it make money?)
- ✓ You must focus on competitors, i.e., you must think about what is going on in the marketplace.
- ✓ You've got to use your head in practical ways. Analyze problems and prioritize your time effectively.
- ✓ Don't fail to have the obvious essentials, such as being honest, ethical and hard-working.

IX. Writing

9.1 a) Refer the sentences to the future. Add an adverbial modifier and make the necessary changes.

1. Programmers and users can communicate with a computer using the newest artificial intelligence language.
2. Each newly- installed computer system must be supplied with a manual for the users to apply to.
3. Computer repairers may examine the customers' computers at their shops or travel to the customers' site to make repairs.
4. Every computer expert needs to keep records of the work he has done.

b) Refer the sentences to the past. Add an adverbial modifier and make the necessary changes.

1. They say that computer security specialists must develop new, more sophisticated and reliable means of protection.
2. Computer engineers may help to train the staff and to solve operating problems.
3. Game designers can create true-to-life computer games or those based on some virtual ideas and notions.
5. They say we'll soon need new powerful computers using human-like languages to handle our data.

9.2 Make a list of computer-related specialists and show interconnections among them using some graphic symbols.

9.3 Give the gist of text A in 10 sentences.

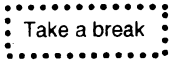
9.4 Give the gist of text B in 10 sentences.

X. Project

CARRY out a survey on the personnel of a local computer company (of a foreign computer-producing giant like Microsoft).

RESEARCH into possible educational resources which can provide training for computer professionals and nonprofessionals in your native country or abroad.

MAKE an outline of any other computer-related professions and name the skills they require.



Take a break

Haiku

Haiku is one of the most important forms of traditional Japanese poetry. Haiku-poems describe daily situations, but in a way that gives the reader a brand new experience of a well-known situation.

Haiku poetry has strict construction rules. Each poem has only three lines, 17 syllables; 5 syllables in the first line, seven in the second, five in the third. Each Haiku must contain a *kigo*, a season word, which indicate in which season the Haiku is set. For example, cherry blossoms indicate spring, snow indicates winter, and mosquitoes indicate summer, but the season word isn't always that obvious.

This is an example of a haiku:

Spring back up in CS lab:
time to fall in love with
certain hardware.

Try your hand at writing haiku.

1. Watch the haiku: read the ideas they express

Your file was so big.
It might be very useful.
But now it is gone.

Chaos reigns within.
Reflect, repent, and reboot.
Order shall return.

Serious error.
All shortcuts have disappeared.
Screen. Mind. Both are blank.

The system doesn't work and you'll have to reboot it.

Definitely, you've made an error. And may be a serious one. But which???.....

Unfortunately, your big and useful file is gone.

2. Rewrite the following haikus in one sentence

Having been erased,
The document you're seeking
Must now be retyped.

Program aborting:
Close all that you have worked on.
You ask far too much.

With searching comes loss
And the presence of absence:
"My Novel" not found.

3. Try to catch the ideas and complete the poems

The Web site you seek
Cannot be located, but

Out of memory.
We wish to hold the whole sky,

Yesterday it worked.
Today it is not working.

A crash reduces
Your expensive computer

IV. The words in each line are mixed. Restore the haiku.

silence snow then first,
dies screen this thousand-dollar
beautifully so.

is the that Tao seen
true Tao is not the -until
fresh you toner bring.

III. The words and the lines:
All have been mixed up on purpose
What an awful mess.....

death three taxes things and are certain lost guess data has which occurred,.

Windows am NT I crashed the hears Screen no one Death screams Blue of your...

III. Express the same in your native language. Hope you are smart enough...

Stay the patient course
Of little worth is your ire
The network is down.

You step in the stream,
But the water has moved on
This page is not here.

The computer industry is about 50 years old, but let's see how dramatically it has changed in half a century. We'll share with you some visions of the future of computing. We'll turn to the subject of computer systems themselves to see how they will evolve in the next millennium.

When you have completed this unit you will be able:

- to recount how will people use computers in the future
- to recount what will software be like
- to recount what AI is from the standpoint of Raj Reddy and to support or reject his ideas

I. Vocabulary Chart

Make up all possible word combinations and translate them into Russian.

to design	a database
to create	an information retrieval system
to browse through	a management program
to mimic	a spreadsheet
to operate	a word processor
to utilize	artificial intelligence
to spawn	
to exhibit	super human capabilities
to retrieve	knowledge
to disseminate	data
to process	information
to recognize	natural language
efficient	logic
passé	meaning
conventional	computers
essential	
fuzzy	
to be dependent upon	knowledge
to search for	progress
to harness	
to contain	

II. Vocabulary Focus

2.1 Read the following international words and give their Russian equivalents.

dramatically	[drə'mætikəli]	periodicals	[,piən'ɔdɪk(ə)lɪz]
information	[,ɪnfə'meɪʃ(ə)n]	decade	['dekeɪd]
television	['telɪ,vɪʒən]	national	['næʃ(ə)nəl]
fact	[fækt]	priority	[praɪ'ɔ:ntɪ]
interest	['ɪntrɪst]	business	['bɪznɪs]
context	['kɒntekst]	idea	[aɪ'diə]
service	['sɜ:vɪs]	integration	[,ɪntɪ'greɪʃ(ə)n]
phone	[fəʊn]	calendar	['kælɪndə]
implant	['ɪmplɑ:nt]	calculator	['kælkjuleɪtə]
implant	['ɪm'plɑ:nt]	microprocessor	[,maɪkrəʊ'prəʊsesə]
intuitively	[,ɪn'tju(:)tɪvli]	optical	['ɔptɪk(ə)l]
laser	['leɪzə]	prism	[prɪzəm]
lens	[lenz]	signal	['sɪgnl]

2.2 Find a synonym to the first word in each row.

- | | | | | |
|-----------------|--------------|------------------|---------------|------------------|
| 1. passé | a) new | b) old-fashioned | c) modern | d) suitable |
| 2. conventional | a) poor | b) hot | c) entire | d) traditional |
| 3. necessary | a) hard | b) complicated | c) essential | d) computational |
| 4. fuzzy | a) clear | b) combined | c) rude | d) blurred |
| 5. capable | a) able | b) deceitful | c) complex | d) required |
| 6. random | a) casual | b) orderly | c) functional | d) particular |
| 7. similar | a) diverse | b) alike | c) pretty | d) personal |
| 8. sufficient | a) invisible | b) adequate | c) long | d) simultaneous |
| 9. smart | a) small | b) knowledgeable | c) inactive | d) secure |
| 10. fundamental | a) lower | b) stock | c) basic | d) distinguished |

2.3 Split into two teams. Form new words from the given ones with the help of the affixes: -er(-or), re-, -(t)ion, -ing, -ment, -ive, -al, -(i)ty, -al, -ful, -ed, -able. The winner is the team that will make as many words as possible. Define what part of speech the words you have formed are.

- | | | |
|----------------|--------------|-----------|
| to adapt | to preordain | possible |
| to disseminate | to capture | function |
| to operate | to utilize | structure |
| to exchange | to spawn | power |
| to process | capable | person |

2.4 Match the words and their definitions:

A word processor	is	the science of how to make computers do things that people can do, such as make decisions and understand language.
Artificial Intelligence		an application that uses mathematical formulas to perform calculations on data organized in a matrix or grid.
An output device		a small computer or a computer programme that you use for writing letters.
A spreadsheet		a device that translates the electrical impulses sent from the CPU into permanent results such as printed reports or magnetic writing to the HDD.

III. Grammar Focus

3.1 Ask your partner questions to complete your copy of the text.

Student A

Raymond Kurzweil:

(Raymond Kurzweil was _____ of the Kurzweil Reading Machine. It is the first print-to-speech reading machine for the blind.)

Through _____, I am confident that the handicaps associated with the major sensory and physical disabilities will largely have been overcome during the next decade or two. In the world of the early 21st century, I believe _____ will be far different than they are today. For the blind, _____ will be credit-card-sized devices. They can instantly scan, not only the pages of text, but also _____ in the real world. Blind persons will carry computerized _____. They will perform the functions of Seeing Eye dogs, only with greater intelligence than today's canine navigators. _____ will have hearing machines. They can display what people

are saying. Those without use of their hands will control their environment, create written text, and interact with computers using _____ will restore manual functionality, controlled by voice, by head movement, and, eventually perhaps, by direct mental connection.

Student B

Turn to the Key section

3.2 Decide which form of the verb is most suitable.

1. People, whether individuals with a family computer or knowledge workers in business and government, ... to demand easier access to the information computers can provide.

- a) will be continuing b) will have continued c) will continue

2. The home computer ... to the wall telephone outlet.

- a) will be connecting b) will be connected c) will connect

3. Computers ... essential for education on all levels.

- a) will be b) will have been c) will be being

3. By this time, the idea of information as an asset will have become passé.

- a) will become b) will becoming c) will have become

4. Thus the future capabilities of an individual ... upon what he or she knows.

- a) will not be dependent b) will be not dependent c) shall not be dependent

5. Some of us ...superhuman capabilities.

- a) will have b) will have had c) shall have

6. They ... a virtual nation of the techno-elite.

- a) will have become b) will become c) shall become

IV. Work on the Text

A

Look through the titles below, read the text and put them in the chronological order.

- Prospects of a neural network.
- Computers in education and the effects of national educational policy on computing development.
- Software – the same and different at once.
- Introduction.
- Home computer – a universal assistant.

1. The world of the 1990s is a world where information has a high value. That will be even truer as we enter the next century. People, whether individuals with a family computer or knowledge workers in business and government, will continue to demand easier access to the information computers can provide.

2. The home computer will be connected to the wall telephone outlet, where it will capture news, information, and entertainment and disseminate it to the appropriate output device — the television or stereo, for example, or to the computer's mass storage device disk for later use. Each member of the family will program the computer, using menu selections, to search for and store items of interest in much the same way we program VCRs.

Tomorrow, it will no longer be necessary to be in front of the television at 7 o'clock for the news; the computer will make it available when you want it. You will be able to punch a key and the computer will obtain the relevant material for you.

No less dramatic, the computer will become the family librarian. Students will program it to collect research for a term paper. Working parents will use it to gather articles of interest, instead of subscribing to a dozen magazines and randomly browsing through them. Today,

we can search on-line databases for key topics. We get descriptive listings in return. Tomorrow, we will be able to search for facts but they will be in context with other information.

Computers will also be far more efficient than they have been. In the past, it was often a lot of work to use the computer; by the year 2000, computers will be intuitively easy for people to use, as simple to operate as a household appliance. In business, computers will be helpmates that provide better customer service, speed the product development process, and show people how to avoid making mistakes.

3. Computers will be essential for education on all levels. In the late 1980s, students at various campuses of the University of California used an electronic library card catalogue set up by the university to find books, periodicals, and research. They also discovered a type of electronic mail that allowed them to form groups within which they sent each other messages. In the future, we shall find chat groups by the thousands on all kinds of computer systems. People will join chat groups or electronic grapevines formed around topics of interest such as parenting, gardening, philosophy, old cars, and so forth. So there will be formal information retrieval systems and informal ones as well.

Knowledge workers will see the effects of the previous decade's national priority on education. Recent graduates will know enough about computers to more quickly learn how to use them in business. By this time, the idea of information as an asset will have become passé. Information will be viewed as a shared resource, a tool with which workers do their work.

4. Software naturally follows the procedures people create to do their work, which means that we shall still use many of the same kinds of applications in the 21st century that we use today. Many, however, will have artificial intelligence components. We'll use "smart" word processors, spreadsheets, and database management programs that learn our working styles and adapt to us.

Today's programs make us adapt to the way they work; what's more, each program performs a preordained task. You can't balance your checkbook using a word processor. These limitations led to integrated software and windowing or multitasking environments. Tomorrow's individual applications will change more dramatically. There will be many new types of applications that we teach our work habits and that perform any number of personal tasks for us.

5. It is in the first decade of the 21st century that we shall see the promise of neural networks. Neural network software recreates processing as the brain does it. The brain uses millions of neurons; a neural network uses multiple processing elements that act just like neurons. A neural network, or neurocomputer, is a computer system that solves problems and makes decisions in a manner that mimics the human brain. It uses the same mental traits as a human mind: trial and error, fuzzy logic.

B

Finish up the ideas and on reading the text compare your version and Dr. Reddy's.

- An intelligent agent is ...
- The term "Artificial intelligences with superhuman capabilities" means ...
- A super-human race will be able to ...
- The future capabilities of an individual will be ...

Emergence of "Artificial Intelligences with Super-Human Capabilities"

(by Raj Reddy)

Lastly, I would like to discuss the possible emergence of a super human race. First, what do I mean by "Artificial Intelligences with super human capabilities"? I basically mean people who are able to think and act a 1000 time faster than other mere mor-

tals, but without requiring any special carbon or silicon-based enhancements to their genetic makeup. They would achieve this super human capability through the use of thousands of personal intelligent agents both on their body and in the cyberspace. These agents will exhibit and realize intelligent behaviour mostly through recognition rather than by recall, enabled by availability of infinite memory and bandwidth.

Intelligent behaviour based on recognition rather than "recall and reasoning" is also the hallmark of human intelligence. An example of the power of recognition come to mind. Responding to a casual comment by Professor Hardy, who said that the taxi he came in had an uninteresting number 1729, the mathematical prodigy Srinvasa Ramanujan is said to have responded by saying: "On the contrary Professor Hardy, it is a very interesting number: It is the smallest number which can be expressed as the sum of two cubes in two different ways"! 1729 happens to be 10^3 plus 9^3 and also 12^3 plus 1^3 ! It is also the smallest such number. No wonder that it was said, that every number was a friend of Ramanujan! He had obviously discovered this relationship at some earlier time and filed it away in his memory. This anecdote provides us with an interesting example how superhuman capabilities can be demonstrated by utilizing recognition memory instead of complex reasoning processes.

At present, human intelligence is limited by the knowledge that can be acquired and mastered in one's lifetime. We have no mechanisms for instantaneously tapping into the collective wisdom of the human race! Infinite bandwidth coupled with infinite memory promises to create such a capability. Individual human capability will be augmented in two ways. First, given a problem, thousands of intelligent agents can search and harness the personal knowledge contained in the terabytes of memory on the body and petabytes of memory on the desktop. Second, agents can query and retrieve relevant knowledge accumulated by other members of the human race (and their agents), who may choose to share their knowledge for free or for a fee. Robust and scalable mechanisms for peer-to-peer information sharing are beginning to emerge in systems such as Napster and Gnutella. Thus the future capabilities of an individual will not merely be dependant upon what he or she knows, but what is known to the agents and what is knowable by the agents by a rapid scan of the collective knowledge of the connected-humans. This is somewhat similar to a scene in the movie Matrix where one of the characters "learns" to fly a helicopter in a few seconds. Biological limitations of the human would make it impossible to learn to fly in few seconds. But the human and the personal agents together would have no such limitation!

Some of us will have superhuman capabilities, like getting a month's worth of work done in a day, by harnessing and utilizing the power of thousands of intelligent agents. This super human race will not have horns or look like a robot race, but rather just like any of us.

Should we be afraid of the possible emergence of super human race? On planet Earth, we see millions of species coexisting with each other! I expect the same will happen with this new more powerful version of us! They will become a virtual nation of the techno-elite who will mainly interact with each other and to a large extent coexist peacefully with the other species on the planet. On the rare occasions when there is a conflict, as it happened when the Native Americans confronted the Settlers, it will be an uneven contest! We can see glimpses of this future in the sub-culture of Silicon Valley!

The emergence of a segment of the population who can exhibit super human capabilities through the effective use of infinite memory and bandwidth is likely to create a new form of digital divide. Ultimately, it will lead to greater concentration of power and wealth in this techno-elite super human race perhaps making the nation states irrelevant, and possibly creating a new world order.

V. Reading Comprehension Test

Text A

1. People, whether individuals with a family computer or knowledge workers in business and government,
 - A) will continue to demand easier access to the information computers can provide.
 - B) will continue to demand more difficult access to the information computers can provide.
 - C) will not continue to demand easier access to the information computers can provide.
2. You will be able and the computer will obtain the relevant material for you.
 - A) to have an intent look
 - B) to punch a key
 - C) to take a walk
3. Computers will be essential for education on
 - A) all levels
 - B) some levels
 - C) the initial level
4. Recent graduates will know enough about computers to more quickly learn how
 - A) to use them in practice
 - B) to crash them
 - C) to use them in business
5. In the past, it was often a lot of work to use the computer; by the year computers will be intuitively easy for people to use.
 - A) 2010
 - B) 2000
 - C) 2100
6. It is in of the 21st century that we shall see the promise of neural networks.
 - A) the last decade
 - B) the middle
 - C) the first decade

Text B

1. Raj Reddy by the term "Artificial Intelligences with super human capabilities" means:
 - A) people who are able to think and act a 1000 time faster than other mere mortals
 - B) robots that can carry out simple logical operations
 - C) the ability of machines to think like humans
2. The hallmark of human intelligence is:
 - A) Intelligent behavior based on "recall and reasoning" rather than recognition.
 - B) Intelligent behavior based on recognition rather than "recall and reasoning".
 - C) Intelligent behavior based on thousands of personal intelligent agents both on a person's body and in the cyberspace.
3. At present, human intelligence is limited by the knowledge:
 - A) that can be acquired and mastered in one's lifetime.
 - B) that can be acquired and mastered by human race.
 - C) computers provide people.
4. Robust and scalable mechanisms for peer-to-peer information sharing:
 - A) will never appear in systems such as Napster and Gnutella.
 - B) have already appeared in systems such as Napster and Gnutella.
 - C) are beginning to emerge in systems such as Napster and Gnutella.
5. When there is a conflict between super human and ordinary people:
 - A) it will be an uneven contest!
 - B) it will be an even contest!
 - C) there won't be a contest at all.

VI. Grammar Test

Text A

1. The world of the 1990s is a world where ... information has a high value.
 - a) a
 - b) an
 - c) -
2. The home computer will be connected ... the wall telephone outlet.
 - a) with
 - b) by
 - c) to
3. Today, we ... search on-line databases for key topics.
 - a) can
 - b) could
 - c) shall be able to

4. Computers will also be far more efficient ...
 - a) than they have been
 - b) than they had been
 - c) than they'll have been
5. The brain uses ... neurons.
 - a) million of
 - b) millions of
 - c) millions

Text B

1. I basically mean people who are able to think and act a 1000 time ... than other mere mortals.
 - a) fast
 - b) more fast
 - c) faster
2. Two examples of the power of recognition come ... mind.
 - a) to
 - b) on
 - c) in
3. It is ... number which can be expressed as the sum of two cubes in two different ways.
 - a) a smallest
 - b) smaller
 - c) the smallest
4. He had obviously discovered this relationship at some ... time and filed it away in his memory.
 - a) more early
 - b) earlier
 - c) the earliest
5. Thus the future capabilities of an individual will not merely be dependent ... what he or she knows.
 - a) from
 - b) out of
 - c) upon

VII. Text Based Activities

7.1 Decide which translation is correct.

1. That will be even truer as we enter the next century.
 - a) Это будет даже более актуально, когда мы переступим порог следующего века.
 - b) Это будет более честно, когда мы переступим порог следующего века.
 - c) Это будет еще актуальнее, когда мы переступим порог следующего века.
2. Computers will also be far more efficient than they have been.
 - a) Компьютеры будут далеко более эффективны, чем они были.
 - b) Компьютеры также станут много эффективнее, чем они были.
 - c) Вдобавок компьютеры будут эффективнее, чем они были.
3. Today's programs make us adapt to the way they work; what's more, each program performs a preordained task.
 - a) Сегодняшние программы заставляют нас приспосабливаться к тому, как они работают, и более того, каждая программа выполняет predetermined задачу.
 - b) Сегодняшние программы заставляют нас приспосабливаться к тому методу, с помощью которого они работают, и более того, каждая программа выполняет predetermined задачу.
 - c) Сегодняшние программы формируют нас, приспосабливая к тому, как они работают, и более того, каждая программа представляет predetermined задачу.

7.2 Translate the following sentences:

1. Lastly, I would like to discuss the possible emergence of a super human race.
2. We have no mechanisms for instantaneously tapping into the collective wisdom of the human race!
3. agents can query and retrieve relevant knowledge accumulated by other members of the human race (and their agents), who may choose to share their knowledge for free or for a fee.

4. They will become a virtual nation of the techno-elite who will mainly interact with each other and to a large extent coexist peacefully with the other species on the planet.

7.3 Ask your group mates:

Text A

- 1) whether people will continue to demand easier access to the information computers can provide;
- 2) why it will no longer be necessary to be in front of the television;
- 3) how working parents and students will use computers;
- 4) about the case happened to the students of the University of California;
- 5) about the effects on the previous decade's national priority on education upon recent graduates;
- 6) about the use of computers after the year 2000;
- 7) about the advances of software;
- 8) about neural network software.

Text B

- 1) how people would achieve super human capabilities;
- 2) whether they can reproduce the example of the power of recognition;
- 3) whether they can tell about the ways of augmenting individual human capabilities;
- 4) what the future capabilities of an individual will be dependant upon;
- 5) whether we should be afraid of the possible emergence of super human race.

7.4 Find in the text the missing parts to complete the sentences:

Text A

1. The home computer will be connected to the wall telephone outlet, where it will
2. Working parents will use it to gather articles of interest, instead of and randomly them.
3. Recent graduates will know enough about computers to how to use them in business.
4. . We'll use , spreadsheets, that learn our working styles and adapt to us.

Text B

1. They would achieve this super human capability through the use of both on their body and in the cyberspace.
2. At present, human intelligence is limited by the that can be acquired and in one's lifetime.
3. Some of us will have superhuman capabilities, like getting a month's worth of work done in a day, by and the power of thousands of intelligent
4. , It will lead to greater concentration of and in this techno-elite super human race perhaps making the nation states irrelevant, and possibly creating a new

VIII. Discussion

8.1 Think and answer:

1. Explain the procedure of utilizing the computer by family members in the future.
2. Why will the computers be essential for education on all levels?
3. What will information be viewed as by the end of carrying out national policy on education?
4. What led to the integrated software and windowing environments?
5. How will tomorrow's individual applications change?
6. What is a neural network?
7. How does network software recreates processing?
8. Compare the views of Raj Reddy on "Artificial Intelligences with super human capabilities" with your own ones.
9. Illustrate the example of the power of recognition. Think of your own examples.

10. Despite half a century of setbacks, the world seems more obsessed than ever by the dream - or nightmare - of a truly intelligent machine that can think independently and feel emotions like a human being. Steven Spielberg's latest film "Artificial Intelligence" touches on these issues through the story of a robotic boy programmed to love his mother.
Do you believe it is possible for a machine to develop humanlike feelings and emotions?
11. What do you think – will there appear problems in the interrelation between super human and ordinary people?

8.2 Render text A in the form of a lecture. Use the structure from Unit 1, ex. 8.2.

8.3 Give a detailed description of future home and work utilization of a PC.

8.4 Make up dialogues on the following situations using the words from Vocabulary chart.

- 1) You have just watched a TV-programme about the future use of the home computer. Your vision of the matter is just the same and you liked the programme but your friend does not share your opinion.
- 2) You attended a lecture about view on the AI by Raj Reddy and recounted the contents to your friend but he sees the future of the AI somewhat different than Raj Reddy or you do. (Use the contents of text B)

Make use of the following word combinations:

They say/ It is said that ...	I don't quite agree with you.
It seems fantastic.	That's not right.
I think/ I believe/ I guess, ...	How could it possibly be true.
I support the idea (of) ...	In my opinion, ...
I find it (interesting, ingenious, ...)	I see the matter differently.
I assure you. ...	It's far good to be true.
Well you see, ...	It's beyond me.
The reason is ...	Well, actually ...
I bet ...	Nonsense.
There are ... points I'd like to make:	Definitely not.
- Although ...	Sorry to interrupt you, but ...
- And another thing ...	I'm not convinced . Not at all.

IX. Writing

9.1 Put adjectives and adverbs into the necessary degree of comparison.

1. That will be even (true) as we enter the next century.
2. He had obviously discovered this relationship at some (early) time.
3. It is (small) number of all.
4. I expect the same will happen with this new (powerful) version of us!
5. People will continue to demand (easy) access to the information computers can provide.
6. Recent graduates will know enough about computers to (quickly) learn how to use them in business.
7. Tomorrow's individual applications will change (dramatically).
8. Computers will also be far (efficient) than they have been.

9.2 Make out a summary of text A in 10 sentences.

9.3 Make out a summary of text B in 10 sentences.

X. Project

Research into the development of AI. Deliver the results in the form of a lecture.

UNIT
SIX

Internet: Invention, Development, Impact

We are truly in a multi-media society and the internet has already revolutionized the way we live and work. In this chapter we will discuss how the internet affects our lives and what computer hacking is.

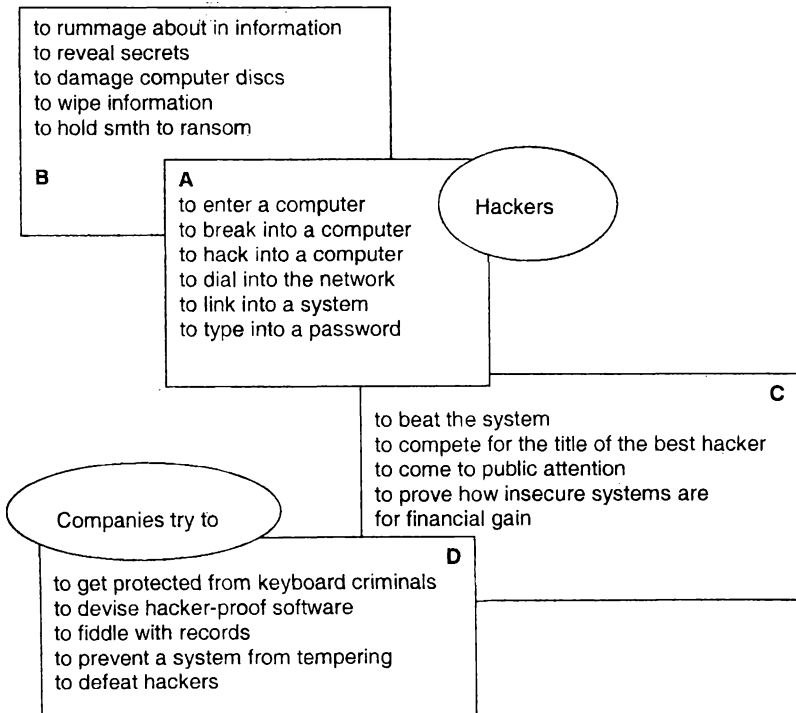
When you have completed this unit you will be able:

- to describe positive and negative features of the internet
- to say what computer hacking is
- to say why hackers do what they do
- to describe how seriously companies are taking the problem

I. Vocabulary Chart

Study the expressions and say:

- A.** what computer hacking is;
- B.** what hackers do;
- C.** why they do what they do;
- D.** how companies try to prevent hacking.



II. Focus on Vocabulary

2.1 Sort out positive and negative features of the internet.

to increase knowledge of the outside world	to provide with a pleasant way to relax
to keep informed about current events	to do shopping online
to have rapid connections with business partners	to download games
to exchange graphic and textual information	to get addicted to
to receive wide access to sites with violence and promoting hate	to get depressed in real life more easily
to be used for is research	to become a victim of identity theft
to provide music online breaking copyright laws	to find friends throughout the world

Make up sentences using the above expressions.

e.g. The internet helps exchange graphic and textual information.

2.2 Match the words with their definitions:

Hacking	is	a secret word, phrase, etc., that ensures admission by providing identity, membership, etc.
Network		the practice of gaining illegal access to a computer system.
Log		a system of interconnected components or circuits.
Password		a detailed written record of information.

III. Grammar Focus

3.1 Report the following statements:

Note! We don't always have to use **say**, **tell** and **ask** to introduce indirect statements and questions. We should use the reporting verb which is appropriate for what we want to report:

e. g. They warned the company that the gang of hackers had tried to break into their computer system.

Is more precise than:

They told the company that the gang of hackers had tried to break into their computer system.

Use one of the following verbs only once in place of **said**: *announced, claimed, promised, suggested, replied, and complained*.

1. "It has never been my intention to steal anything," he said.
2. "He spends up to 14 hours on his computer during the weekend," she said.
3. "We shouldn't tell each other our passwords or use passwords like 'password'," he said.
4. "I will prove that the system can defeat hackers," he said.
5. "I don't agree with you," she said.
6. "We are devising hacker-proof programs," he said.

3.2 Practise reporting your neighbour's words.

Student A: Say the sentences in the book to student B.

Student B: Don't look at your book. Report student A's words.

e.g. Student A: There are plenty of software companies.

Student B: (Kate) told me there were plenty of software companies.

Student A:

1. The internet is an up-to-date wonder.
2. Many people get depressed when they can't solve problems in real life as quickly as in internet.

3. Five of British banks were held to ransom by a gang of hackers.
4. No one knows how much money is stolen by keyboard criminals.
5. Most of computer crimes are 'inside jobs'.

Now take turns. Student B: Say the sentences in the book to student A. Student A: report student B's words.

Student B:

1. One of the disadvantages of internet is the absence of information control
2. Last month two teenagers were charged with breaking into a computer system.
3. Internet provides us with a pleasant way to relax and spend our free time.
4. Some people spend more than six hours a day on the network.
5. The internet has already revolutionized the world we live and work.

IV. Work on the Text

A

What is the internet? What are its advantages and disadvantages? Write them down. Then study the text and find more.

ADVANTAGES	DISADVANTAGES

We live in a multi-media society. What is the internet and how does it affect our lives? The internet can increase our knowledge of the outside world. It lets us send messages and use computers all around the world. We are able to access vast databases and enormous networks and to copy useful files from other computers. The internet exists because in the early seventies the US military realized that an enemy attack could make communications impossible. They needed a system that would work without vulnerable control centers and so set up a decentralized network system, linking seven mainframe computers. Despite its lack of a central authority, and because of the acceptable protocols, this particular 'global information highway' has grown enormously in recent years. But nobody really knows how big Internet is because Internet, as such, does not exist. It is a federation of independent networks and there is no single place where all the information about the 'net' is stored.

The internet has already revolutionized the way we live and work. But these are still early days for the internet. We don't know how much it is still changing the world. The internet era is yet to come. The internet is up-to-date wonder. As the proverb says: "nothing is wonderful, when you get used to it ", that is why the internet fails to astonish us any more.

One of the most valuable functions of the internet is its information function. The internet keeps people informed about current events, as well as latest achievements in science and culture. You can even find out how to pass from the underground station to the house of your girlfriend, who recently moved to London.

Recently a system of distance learning became popular. You can study foreign languages and even study in universities. Individual educational programs can be developed especially for you.

The internet is also widely used in business. Thanks to the internet, we have rapid connections with partners from all corners of the world. You can even conduct negotiations, hear and see your contacts, and exchange graphic and textual information.

On the other hand, there are several serious disadvantages to the internet. Of course, it provides us with a pleasant way to relax and spend our free time, but some people

spend an average of six hours or more a day on the network. Many children look at a screen for more each day than they do anything else, including studying and sleeping. It's clear that the network has a powerful influence on their lives, and that its influence is often negative.

Another disadvantage is that for many people the internet becomes more "real" than reality, and their own lives seem boring. Also, many people get upset or depressed when they can't solve problems in real life as quickly as they can do in internet games. In real life can not simply press "escape".

The most negative effect of the internet might be people's addiction to it. People often feel a strange and powerful need to spend time on the network. Addiction to a computer screen is similar to drug or alcohol addiction: people almost never believe they are addicted.

One more disadvantage of the internet is the absence of information control. Children receive wide access to porno sites and with violence and promoting hate.

From that, how much we know about the internet depends on the choices we make and how effectively we use the opportunities of the internet in our time.

B

Do you know what computer hacking is; why hackers break into other people's computer systems; how seriously companies are taking the problem?

Read the text and check whether you were right.

You can rob a bank without leaving the house these days. Who needs stocking masks, guns and getaway cars? If you're a computer whizz-kid, you could grab first million armed with nothing more dangerous than a personal computer (PC), a telephone and a modem to connect them.

All you have to do is dial into the networks that link the computers in large organizations together; type in a couple of password and you can rummage about in the information that's stored there to your heart's content.

Fortunately it isn't always quite easy it sounds. But as more information is processed and stored on computer, whether it's details of your bank account or the number of tins of baked beans in the stockroom at the supermarket, computer crime seems set to grow.

A couple of months ago newspapers reported that five British banks were being held to ransom by a gang of hackers who had managed to break into their computer. The hackers were demanding money in return for revealing exactly how they did it. In cases like this, banks may consider paying just so they can protect themselves better in the future.

No one knows exactly how much money is stolen by keyboard criminals – banks and companies tend to be very secretive if it happens to them. It doesn't exactly fill customer with confidence if they think their bank account can be accessed by anyone with a PC! Some experts believe that only around a tenth of all computer crimes are actually reported. Insurance company Hogg Robinson estimate that computer frauds cost British companies an incredible!!!!!!!!!!!! 400 million a year.

Most computer crimes are 'inside jobs', where staff with access to the company's computers fiddle with the records. A comparatively small amount are committed by the more glamorous – and headline-grabbing – hackers.

The true hacker, it seems, doesn't do it for financial gain. The thrill appears to be, not in getting rich, but in beating the system. Two of Britain's most notorious hackers are Nickolas 'Mad Hacker' Whiteley and Edward Singh. The renegade pair have been the

scourge of organisations with insecure computers for years, seemingly competing for the title of Britain's best hacker.

Whiteley hacking days came to an abrupt halt in June, when the 21-year-old was sent to prison for four months for damaging computer discs. Edward Singh first came to public attention after claiming that he had hacked into American and British government and military computers.

'It has never been my intention to steal anything', said Singh. 'I really see myself as a highly skilled software engineer'. His mission seems to be to prove just how insecure their systems are.

As with everything else, hackers start young in the States. A 12-year-old boy in Detroit was accused of entering a company's credit rating computer and distributing the numbers he found there. His mother told reporters that he spent up to 14 hours on his computer during the weekend. 'He didn't bother me, 'she said'. 'I figured, computers, that's the thing of the day'.

Last month, two New York teenagers, one aged 14 and one aged 17, were charged with breaking into a computer system owned by a company that published computer magazines. They are alleged to have changed polite recorded greetings to rude messages, added bomb threats and wiped advertiser's orders.

Customers linked into the system only to be told that 'Daffy Duck is not available!' The company estimates that the tampering has cost \$2.4 million.

Prevention is probably easier than detection, and many companies now spend lots of time and money devising programmes using passwords and codes. Of course, all this is no use at all computer users tell each other their password, stick it on their screen so they don't forget it or use password like 'password'. It all happens.

There are plenty of software companies who specialize in writing software that make computers hacker-proof. One company in the States set out to prove that its system can defeat hackers by asking over 2,000 of them to try to hack in. The hackers were given two weeks to discover the secret message stored on two PCs in offices in New York and San Francisco. The message reads: 'The persistent hunter who wins his prize sooner or later becomes the hunted'. You'll be relieved – or perhaps disappointed – to learn that not one hacker managed it.

V. Reading Comprehension Test

Text A

1. The internet appeared

- A) in 1960s
- B) in 1980s
- C) in 1970s

2. The US military needed a network system that would

- A) make communication impossible.
- B) work without control centers.
- C) attack enemies.

3. Nobody really knows how big Internet is because

- A) there is no single place where the information about it is stored
- B) it's strategic information
- C) it has grown enormously in recent years.

4. We see internet as
 A) a wonder
 B) a great evil
 C) a usual thing
5. If the internet becomes 'reality' for some people they... .. .
 A) can solve problems in their own lives much quicker
 B) forget how to talk
 C) get bored in their own lives
6. One of the most valuable functions of the internet is that
 A) you get addicted to it
 B) you receive wide access to sites with violence
 C) it keeps you informed about current events

Text B

1. Banks may pay computer criminals
 A) to give back information they have stolen.
 B) to explain what their technique is
 C) not to commit the same crime again
2. Companies don't always report computer crime because they
 A) think it would create bad publicity
 B) don't expect the criminals to be caught
 C) think the criminals are members of their staff
3. The computer hackers' motive seems to be
 A) to win a competition
 B) to make a lot of money
 C) to overcome a challenge
4. The mother of the 12-year-old hacker in Detroit
 A) had been worried about the time her son spent at his computer
 B) thought her son's interest in his computer was normal
 C) had been involved in her son's criminal activity
5. Two New York teenagers were charged with
 A) breaking into a magazine
 B) breaking into a computer shop
 C) breaking into a computer system
6. What was the result of one software company's attempt to prove that its security systems were effective?
 A) It was a complete success
 B) It was partial success
 C) It was a failure

VI. Grammar Test

Text A

1. The internet the way we live and work.
 A) has already being revolutionized

- B) has already been revolutionized
- C) has already revolutionized

2. We don't know how much the world.

- A) is it still changing
- B) it is still changing
- C) it is still changed

3. the internet we have rapid connections with people all over the world

- A) Thanks to
- B) Because of
- C) Through

4. Many people when they can't solve problems in real life as quickly as they can do in internet games

- A) get depressing
- B) depressed
- C) get depressed

5. The internet us send messages and use computers all around the world.

- A) let's
- B) lets
- C) let

Text B

1. You can rob a bank without the house these days.

- A) leaving
- B) left
- C) having left

2. Two teenagers breaking into a computer system owned by a company that publishes computer magazines.

- A) were charged of
- B) charged with
- C) were charged with

3. 'It has never been my intention to steal,' said a keyboard criminal.

- A) anything
- B) something
- C) nothing

4. Insurance company estimate that computer frauds British companies 400 million pounds a year.

- A) costed
- B) costs
- C) cost

5. A newspaper reported that five British banks to ransom by a gang who had managed to break into their computer.

- A) were being held
- B) were been held
- C) were being hold

VII. Text-Based Activities

7.1 Decide which translation is correct.

1. They needed a system that would work without vulnerable control centers and so set up a decentralized network system, linking seven mainframe computers.

A) Им была нужна система, которая работала бы без уязвимых центров управления, и таким образом создали децентрализованную сетевую систему, связав семь универсальных вычислительных машин.

B) Им была нужна система, которая работала бы без уязвимых центров управления, и таким образом они создали децентрализованную сетевую систему, связавшую семь универсальных вычислительных машин.

C) Им была нужна система, которая работала бы без уязвимых центров управления, и таким образом децентрализовали сетевую систему, связав семь универсальных вычислительных машин.

2. A couple of months ago newspapers reported that five British banks were being held to ransom by a gang of hackers who had managed to break into their computer.

A) Пару месяцев назад газеты сообщили, что пять британских банков были ограблены бандой хакеров, которым удалось войти в их компьютер.

B) Пару месяцев назад газеты сообщили, что у пяти британских банков требовала выкуп банда хакеров, которой удалось взломать их компьютер.

C) Пару месяцев назад газеты сообщили, что банда хакеров, которым удалось взломать компьютер пяти британских банков, требовала у них выкуп.

D) Пару месяцев назад газеты сообщили, что пять британских банков требовали выкуп у банды хакеров, которым удалось войти в их компьютер.

3. It is a federation of independent networks and there is no single place where all the information about the 'net' is stored.

A) Это объединение независимых сетей, и там не единственное место, где хранится вся информация о 'сети'.

B) Это объединение независимых сетей, и существует не одно место, где хранится вся информация о 'сети'.

C) Это объединение независимых сетей, и не существует единого места, где хранится вся информация о 'сети'.

4. The two New York teenagers, one aged 14 and one aged 17, were charged with breaking into a computer system owned by a company that published computer magazines.

A) Двое нью-йоркских подростков, возрастом 14 и 17, обвиняли во взломе компьютерной системы, принадлежащей компании, которая издаёт компьютерные журналы.

B) Двое нью-йоркских подростков, возрастом 14 и 17, были обвинены во взломе компьютерной системы, владевшей компанией, которая издавала компьютерные журналы.

C) Двое нью-йоркских подростков, возрастом 14 и 17, были обвинены во взломе компьютерной системы, принадлежащей компании, которая издаёт компьютерные журналы.

7.2 Translate the following sentences:

1. A 12-year-old boy in Detroit was accused of entering a company's credit rating computer and distributing the numbers he found there.

2. If you're a computer whizz-kid, you could grab first million armed with nothing more dangerous than a personal computer (PC), a telephone and a modem to connect them.
3. In cases like this, banks may consider paying just so they can protect themselves better in the future
4. His hacking days came to an abrupt halt in June, when the 21-year-old was sent to prison for four months for damaging computer discs.
5. All this is no use at if computer users tell each other their password, stick it on their screen so they don't forget it or use password like 'password'.

7.3 Replace the italicized parts of the sentences by words or word combinations from the texts:

1. The internet gives us an access to vast *databanks*.
2. The US military set up a decentralized network system, linking seven *high-speed general-purpose computers*.
3. If you are a computer *expert* you can rob a bank without leaving the house.
4. If a hacker breaks into a computer system he can *search through* all the information that is stored there *as much as he wants*.
5. Computer *cheatings* cost British companies enormous money.
6. Most computer crimes are *crimes committed with the help of someone we know*.
7. Sometimes staff with access to the company's computers can *interfere (without permission) with* the records.
8. Two of Britain's most *rebellious/lawless* hackers have been the scourge of organizations with insecure computers for years.
9. They are alleged to have changed polite recorded greetings to rude messages, added threats and *removed completely* advertisers' orders.
10. Hackers' *aim in life* seems to be to prove just how insecure systems are.

7.4. Ask your group mates:

Text A

- 1) when the internet appeared;
- 2) how the internet appeared;
- 3) what the internet is;
- 4) how the internet affects our lives;
- 5) why the internet is a good thing;
- 6) what we should be aware of on the internet.

Text B

- 1) what computer hacking is;
- 2) why banks may pay the computer criminals;
- 3) what hackers' motive is;
- 4) why not all computer crimes are reported by companies;
- 5) what can be done to prevent computer frauds;
- 6) how a nonprofessional can make himself secure against being hacked.

VIII. Discussion

8.1 Think and answer.

1. Are the Internet and the Web the same thing?
2. Does the tendency to "click and guess" rather than to "think first" prevail?
3. What kind of addiction do you know? Give examples.
4. How often and what for do you surf the internet? Do you often use it for your study?
5. What services do you usually use? Give examples.

6. What software do you prefer?
7. Are you a law-abiding user? Do you observe copyright laws?
8. Is the Internet a curse or a blessing? Why?
9. Will you restrict your children to use the internet? Why?
10. Do you agree with the words: "The internet era is yet to come"? Explain.

8.2. *Imagine you are the system administrator of a newly-established computer company. What would you do to protect your company's computers? What kind of passwords would you choose for the staff? Explain your choice.*

8.3. *Make up a dialogue on the following situations using the given word combinations:*

Student A: You are a network administrator at the university. You don't want to give students access to the internet. You are convinced that they will not use it for educational purposes.

Use: *to keep the Internet environment safer; to download music only, to play games; to go into chat rooms ; to sniff the password; to be responsible for viruses from the Internet*

Student B: You are a student. You want to get a free access to the Web. Try to persuade the local network administrator that you are going to use the Web for research only.

Use: *to select learning materials; to have assignments requiring research from the Internet; in share the work online with the world; to understand complex subjects using visual representations is easier, learners can become researchers because of easier access to data to use antisniffing and hacking proof software*

You may also use the following:

Intrusion Detection System (Firewall), Pretty Good Privacy (PGP), antihacking software, to use strong encryption antisniffing softwar)

8.4. *Study the following e-mail message and say what its subject is:*

Dear friend,

Electronic mail is a relatively new form of communication.

With e-mail documents, the other person can ask questions immediately. E-mail thus, like conversational speech, is not as formal and neat as communication on paper.

As a consequence, few people are aware of "network etiquette" or "netiquette". Often we dispatch e-mail messages very quickly and don't think much how the message will be received.

We hope the following advice will prove useful to you.

Best regards,

The authors

8.5. *Here is the "network etiquette". Study it and say if you usually follow these rules in your e-mail correspondence.*

E-mail Etiquette

- ✓ Check your mail regularly. Ignoring a mail message is discourteous and confusing to the sender.
- ✓ Always reply, even if a brief acknowledgment is all you can manage. Reply promptly.
- ✓ Try to keep email messages fairly brief. Use the KISS formula: Keep it Short and Simple
- ✓ Make sure that the "subject" field of your email message is meaningful
- ✓ Be very careful how you express yourself. Your correspondent might have difficulty telling if you are serious or just joking, happy or sad. If you mean something different, use a "smiley" to convey that.
- ✓ Remember that people other than the person to whom it's addressed may see your message.
- ✓ Be sure to write most of your message in lower case. At times, upper case will be appropriate, but the majority of your message should be in lower case which is more relaxing to read
- ✓ When sending formal personal electronic mail, avoid contractions, such as "ur" for "your", or "cya" for "see you later" and slang that is common to 'chat' rooms or emails to your friends
- ✓ Break your message up into paragraphs. This will help make your message clear as large blocks of writing are often skipped by people when reading emails. A blank line should be put between each paragraph.
- ✓ Avoid using abbreviations. While some of these (such as BTW, which means "by the way") are well known, you can't be sure that your recipient will know what you mean.

8.6. a) *There are Do's (things you should do) and Don'ts (things you shouldn't do) for formal e-mail messages in the chart below. But they are all mixed up. Try to sort them out and add some of your own.*

Use any verb that can replace a phrasal verb
Use long paragraphs.
Proofread your mail before you send it.
Use full forms rather than contractions
Write concisely.

Use emoticons :) when writing a formal email.
Write descriptive subject lines.
TYPE IN ALL CAPS
Limit the line length to 65 characters across.
Be too casual

b) *Compare your lists and discuss them agreeing, adding details or criticizing. Is it true for informal e-mail? Use:*

I completely agree that we should...
I also have the idea that...
It seems to me that...
As I see it...

I'm not sure that we should ...
I really doubt that...
I don't think that...
I'm not convinced that...

IX. Writing

9.1. Refer the article to the past. Start with the words: "The British officials claimed...."

People are sent an e-mail claiming to be from their bank. The e-mail asks the person to respond with their account details and password.

Fraudsters then use that information to steal money from the account.

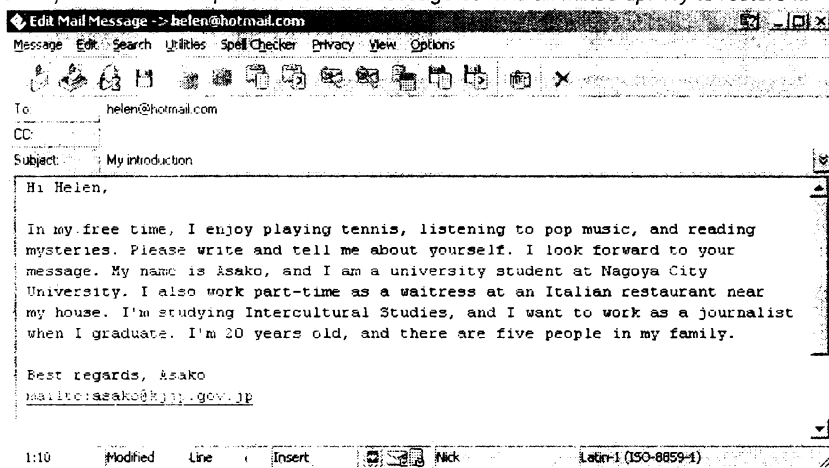
This type of fraud is known as "phishing".

The fraudsters are believed to be criminal gangs working in Eastern Europe. "Phishing" began around 18 months ago. The e-mails were often crude and written in poor English with spelling mistakes.

However, now they are sending far more impressive e-mails, and copying the graphics and typeface from the banks' own websites.

This method is fooling an increasing number of customers.

9.2. a) Here's an example of an e-mail message but it is all mixed up. Try to restore it.



b) Rewrite the above message in the indirect speech. Start it with the words "Asako wrote..."

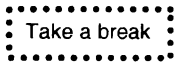
9.3 Write your teacher an e-mail message about the role of the internet in our society.

9.4 Write your teacher an e-mail message about computer frauds.

X. Project

CARRY out a survey on the how often students of your faculty surf the internet and what for. Make a list of the services (HTTP, FTP, E-MAIL, ICQ, telnet, etc.) they use and the preferred internet software. (Ask at least 10 people)

WRITE your group's personal introduction including country, hobbies and future goals, and create the group's personal home page.



Short Message Service

Text messaging is the smart way to communicate in the 21st century. Everyone uses it – men and women, young and old. Why? Because it is fun, it is simple... and it is so addictive.

The biggest text maniacs are the young – teenagers and twenty-somethings. They sent text messages to finalize their plans, to make a date, to share a joke and to flirt.

They have created a whole new language of their own. Here are the rules:

1. Make words as short as you can, e.g. *wd = would, TNX = thanks, pls = please, psbl = possible, wan2 = want to, xlt = excellent.*
2. Use a letter instead of a whole word where possible, e.g. *u = you, r = are.*
3. Use numbers instead of letters where possible: *gr8 = great, w8 = wait, 2 = to, too, 4 = for, four.*
4. Use symbols. The percentage sign can be used for "oo" sound – *sk%i = school, c%i = cool.* A dollar sign (\$) can be used instead of double s or instead the word 'money', @ = at, *xoxox = hugs and kisses*
5. Use abbreviations for longer phrases, e.g. *ROFLMYHO = Rolling on the floor laughing my head off; ASPA = as soon as possible, MAY = mad about you.*

Can you decipher these words?

Un4gtbl, 2day, 2moro, b4, w8, w8ing, gr8, l8,l8r,

And these sentences?	And this dialogue?
D u wnt 2 go out 2night?	NOW R U?
RUFE@Wknd?	OK N U?
NED\$ASAP.	OK CU2DAY?
CUL8TR	NO 2MORO WER?
Wer r u	@ J'S. CUL8TER
CU	LUV

Emoticons

Another way of expressing yourself is to send an Emoticons (emotion+icon) with your message – a little face which shows how you are feeling. Made from punctuation marks, they take up very little space. The basic smiling face is just a colon, a dash and a close bracket :-)) and yet when you rotate it, it becomes a smile.

Now match the emoticons and emotions the show.

:-	:-	:-))	:-(-	:-0	{you}
:-(:-*-	%-)	:-D	:/)-	:-*

angry, sad, happy, very happy, confused, crying, laughing, kiss, not talking, not funny, surprised, hug, Oops!

Supplementary Reading

Unit 1

Luddites

Keeping pace with modern times and technology seems like a good idea, but it is optional. Let's take a brief look back at some who chose not to take that option.

A Luddite is someone who irrationally hates technology. The name came from Edward Ludd, who rampaged from about 1800 to 1815 in England, destroying weaving looms in factories. Computers and their predecessors have had their share of Luddites as well, ranging from quiet protesters to wild-eyed bombers.

For example, a Spaniard named Magnus, who lived around the year A.D. 1000, made a counting machine of brass that resembled a human head with figures instead of teeth. We'll never know how it worked—priests thought it so diabolical they destroyed it. Six hundred years later, French workers rioted in the streets of Paris to protest the use of the Pascaline, fearing it would create unemployment.

In the 1960s, a group of San Francisco anticomputer protesters picketed a computer trade show. They wore cardboard computer terminals on their heads and carried signs reading "IBM: Intensely Boring Machines," and "Office Automation is for Office Automations."

We concede that people sometimes have a right to be mad about their experiences with computers. George Wittmeier of Kirkland, Washington, mistakenly underpaid his federal income tax by one penny. The Internal Revenue Service computer counted up interest and fines totaling \$159.58 and demanded payment. An IRS spokesman explained the incident by saying, "Obviously, the computer has gone berserk."

Despite such occurrences, it is incorrect to characterize the computer as a bad machine. There is nothing either good or bad about the computer, any more than there is anything good or bad about an automobile. Cars don't cause accidents; people do. Similarly, computers don't make errors in bills or invade your privacy; it's the people using them who do these things.

Unit 2

Grace Murray Hopper

"Amazing Grace " Hopper was born on December 9, 1906 to Walter and Mary Murray in New York City. Hopper was the eldest of three children, followed by sister Mary, three years younger and brother Roger, five years younger. She showed very early interest in gadgets and disassembled seven alarm clocks to see what made them tick.

Hopper's parents believed that their daughters should have the same educational opportunities as their son. Her father encouraged her not to follow the traditional roles of women. Hopper followed her father's instructions in almost everything she did. In high school she played basketball, field hockey and water polo. When working towards her Ph.D., she was one of four women in a doctoral program of ten students. She is one of few women admirals in the history of the United States Navy.

In 1930 at the age of 23 she married Vincent Foster Hopper, an English instructor at New York University's School of Commerce. Ten years later they separated and were divorced in 1945, the same year he died (killed in WW II). They had no children.

At 34 years old wanting to assist in the war effort and from a family with a history of military service, she decided to join the Navy. In 1943, she was assigned to the Bureau of Ordnance Computation Project at Harvard University, where she worked at Harvard's Craft Laboratories on the Mark I.

In 1946, when Hopper was released from active duty, she joined the Harvard Faculty at the Computation Laboratory where she continued her work on the Mark series of computers. She traced an error in the Mark II to a moth trapped in a relay, coining the term *bug*. Today we call errors or glitches in a program a bug.

A true visionary, Admiral Hopper conceptualized how a much wider audience could use the computer if there were tools that were both programmer-friendly and application-friendly. In pursuit of her vision she risked her career in 1949 to join the Eckert-Mauchly Computer Corporation and provide businesses with computers.

She developed for the UNIVAC the B-O compiler, later known as FLOW-MATIC. Using FLOW-MATIC, Admiral Hopper and her staff were able to make the UNIVAC I and II "understand" twenty statements in English. When she recommended that an entire programming language be developed using English words, however, she "was told very quickly that [she] couldn't do this because computers didn't understand English." It was three years before her idea was finally accepted; and five years more before another business oriented language known as COBOL appeared.

COBOL or common-business-oriented-language was the first language that allowed a programmer to speak to the computer with words rather than numbers. Admiral Hopper was one of its active developers and sponsors. She led an effort to standardize COBOL. With her technical skills, she led her team to develop useful COBOL manuals and tools and convinced managers that they should learn to use them.

In 1986, at eighty, Grace Hopper retired from the Navy with the rank of Rear Admiral. Retirement didn't slow her down. She became a Senior Consultant to Digital Equipment Corporation where she remained until about 18 months before her death. She travelled on lecture tours around the country, speaking at engineering forums, colleges, universities. She would often lecture to be innovative, open minded and people the freedom to try new things. Grace Hopper hung a clock in her Naval Office that ran counterclockwise as a reminder of the key principle of her success: Most problems have more than one solution.

Hopper dreamed of living though the entire century and be here December 31, 1999. But she died in her sleep on New Year's Day in 1992 eight years short of the new century.

Few people have done as much to transform the world as Grace Murray Hopper. In her work with the first computers she put us on the track to making computers accessible to everyone. Without her belief that computers could be programmed in plain English and her invention of the first computer compiler it is unlikely that you would be on the Web today.

John von Neumann

To many of his peers, John von Neumann was a greater genius than Albert Einstein. Some saw him as a workaholic, his head crammed full of ideas. Indeed, he slept only five hours each night. To his friends, he was Johnny, a fun-loving man.

Von Neumann was born in Hungary, earned a Ph.D. in physics when he was 22 years old, and was soon teaching at the Institute for Advanced Study at Princeton University. By the time he was 31, during World War II, he was a major contributor to the Manhattan Project, which developed the first atomic bomb.

Von Neumann was a technical adviser on virtually every major computer project in the early days of the digital computer. His work resulted in a paper in which he laid out a new design for the computer. Now called the von Neumann architecture, his design divided the

CPU into three parts: the control unit, the arithmetic/logic unit, and main memory.

He also developed the stored program concept, which said that instructions should be stored along with data in the computer's main memory, so that the instructions can be more quickly accessed and more easily modified. Some computer experts feel this concept is the most important characteristic of the digital computer.

Von Neumann's brilliant synthesis of computer concepts has had a lasting effect. It set the course for decades of further computer development. Forty years later, most computer designs are still based on the von Neumann architecture and the stored program concept.

Unit 3

Ones I decided to take a nostalgic walk through my old neighborhood. And I realized something was oddly amiss: There were no children to be seen – anywhere. My old neighborhood had become a ghost-town, devoid of the voices of children. With a bit of detective work I soon discovered that the kids were all interacting with some electronic gadget. If they weren't sitting blankly at a computer screen; if they weren't playing a video game, they were sending an e-mail to a friend, who probably lived right down the street. In short they were all plugged-in one way or another. And the playgrounds stood silent.

Nor is Moscow immune to the score of the techno-bug. Here, the mobile phone is Public Nuisance Number One. On a recent trip to a restaurant with a friend, it suddenly became obvious that an unviewed third party had joined us. The ultra-hip Nokia phone literally had a seat at the table and enjoyed far more conversation than me.

How about the walkman stereo system that includes a convenient head-jack that plugs directly into the skull? The idea behind this invention was to provide the listener with an opportunity to listen without disturbing the peace. However, over time, most walkman users have lost most of their hearing and must turn the volume up to the highest possible decibel. Thus, everyone within 10 meters is susceptible to the musical tastes of the soon-to-be-deaf adolescent. These gadgets should come with the government health warning: "Can cause permanent hearing loss."

And how about the latest sensation in technological breakthroughs which threatens to revolutionize the entire wired world? You know the SMS message option thingamajig on mobile phones. Not only will the youth of the world be deaf at 40, they will be blind as well from trying to hammer out those teeny-tiny little buttons in order to communicate asinine messages like 'I miss you', 'You are revolting', and 'Let's not see each other anymore. Jolly fun, isn't it?'

The greatest paradox from this technological onslaught is that we are not saying anything more than we did before. Actually, we may be saying a good deal less, since when we finally meet in the flesh and blood we haven't got the strength to talk.

I might continue on this rant – but I must check my email now.

Unit 4

According to a recent survey, nearly two thirds of American high-school students believe that the Internet or computer related professions are the most promising careers for them. They can't wait to turn their dreams into reality, especially in the Silicon Valley region of California.

I'd like to be a Web designer. I think it's a great job. I'd also like to create computer games.

Sam, 14, US

I love my computer, so any job with computers is definitely my ideal job.

Harry, 16, US

I absolutely adore science! But most of all I'm interested in biotechnology.

Lilly, 17, UK

I'm really good with computers, so a job related to this would be grate.

Charlie, 16, US

I want to be a reporter who travels around the world and finds out what's going on in the world.

John, 18, UK

My family think I'm smart so I wanna be a lawyer. It means helping innocent people plus great pay.

Jemma, 15, UK

I want to follow my father's footsteps and become a doctor, probably a heart surgeon.

Charlie, 16, UK

I'd love to work in a nursery school because I love little kids. It's not a very well paid job, but it's what I want to do. I also love writing stories so I might be an author in my spare time.

Claire, 17, US

I'd want to be a celeb interviewer, but not when I grow up. Oh no I wanna be one now, so that I can chat to Tom Felton before he quits acting.

Jenny, 15, UK

Unit 5

Survival of the Fittest

Between now and the 21st century citizens of the world's richest and most technologically advanced nations will find it increasingly difficult to keep up with the demand for change. For them, the future will arrive too soon." So begins Alvin Toffler's book Future Shock, written back in 1970.

Now people are beginning to pay attention to Toffler's prediction, because the speed of change is accelerating rapidly.

You don't need to be a genius to predict the job areas which will be most affected by technological change. Agriculture, textiles, coal mining and heavy industry are all doing badly. On the other hand, business and professional services, the media, information technology, and the bioscience are doing really well.

Without doubt, the number of jobs in information technology will rise dramatically. There are currently over 100 million computers in the world and by 2020 the number will be around one billion. Because of this, computer programmers and systems analysts will be in much greater demand.

There are also many other important changes taking place in the workplace. First, the job market is getting more and more competitive and the idea of a 'job for life' has already become old-fashioned. Because of this, workers will have to be more flexible.

According to Mark Hastings of the Institute of Management, in the future people will organise their working life around a variety of contracts, instead of working just for one company.

In the same way, companies will change; they will be organised more democratically. People will move sideways to do different jobs, rather than moving up the 'company ladder' as before. Many more people will work for small, dynamic companies which can react quickly to changes in the market. Other people will give up working for a boss and become self-employed. All this means that companies will require people who are flexible and responsible. They will also need people who can work co-operatively and get on well in a team.

We are undoubtedly moving towards a global economy. English will probably remain the international business language, so learning Russian or Chinese is not a priority. However, understanding other people, their minds, culture and history will be vital. Above all, a manager will need to feel comfortable working with people from other cultures and coping with cultural differences.

Undoubtedly, all this new technology is changing the way we work and offering many alternative ways of working. Rather than go into an office, a lot of people are connected to the Internet and now work from home. Working like this may give you the flexibility you want — to live where you want, to continue your studies and to have a lot more free time. That must be good news.

From Opportunities

by M. Harris, D. Mower, A. Sikorzynska © Pearson Education Limited

Unit 6

Danger Stranger on the Net

Georgie

Georgie was 13 years old when she fell in love with someone she "met" on the Internet. He said that he was 15 and his name was Johnny.

"We talked about everything — pop groups, TV programmes, boy-girl stuff. That's how it started," Georgie remembers.

They exchanged photographs: he sent her a photograph that showed the top part of his head, and a little bit of his eyes. He told her it was like that because he had a problem with his computer.

They ended up talking on the phone and very soon he asked her out on a date. Luckily, Georgie's mother insisted on going with her. She hid behind a big poster and watched what happened. Young Johnny turned out to be a 47-year-old man.

"When I saw him, I didn't know what to think, because I was shocked," Georgie says. "I thought it was maybe his dad or something. I was scared as well. Then my mum came over and spoke to him. She told him to go."

It took Georgie a few weeks to get over the shock. It was her first love, and no first love should be like this.

Linda

14-year-old Linda T. from California wasn't so lucky. Her online friend, who claimed to be 16, turned out to be a bald 49-year-old man with a criminal record. He lured her to his flat and kept her there for a week. "It was hell," Linda says.

The man was arrested and jailed, but Linda's saga didn't end there. In the following years, she learned who her friends really were and fought her way back from severe depression and bouts of shame and guilt.

"Now, looking back, I can see that there were some warning signs that there might be some sort of problem. But I ignored them," she admits.

She hardly goes to chat rooms at all now: "There's one friend I talk to on-line, but mostly I just use e-mails. And I wouldn't arrange to meet anybody, ever. You don't have to go on the Internet to meet people."

How Not To Have This Happen To You

- Most chat users are normal, friendly people, but they are still strangers. People can pretend and they do pretend. Sometimes a grown-up might pretend to be a kid. So always remember Stranger Danger and be careful.
- Take everything said in chat rooms lightly. After all you never know if what is being said is the truth or not.
- Many people mistakenly think that they are completely anonymous while they are surfing the Net. They don't realise just how easy it is to link someone's address or online identity with a real person in the real world. So don't give out your surname, phone number, home address or school (college, university) and any other personal information that can be used to track you down.
- If you are asked for a screen name or need to use a name to play a game, use a nickname, never use your real name.

- Passwords are secret and should stay that way. Never tell anyone what it is. Try not to use names of family or pets as they are easy to guess. A mix of numbers and letters is best.
- Beware of people who change their details many times. If they can't make up their minds who they are, how can they be trusted?
- Meeting people you have chatted to over the Internet is extremely risky. Even when the date is arranged in a public place or with friends accompanying, it can still be dangerous.

Why Do Teens Do It?

I chat all the time. My friends and I do it because we're bored a lot.

Natasha M., 15, Russia

Chat rooms are great! You can talk to lots of people at the same time. You can exchange views and ideas. And you can make up so much about yourself.

Jeremy T., 17, UK

I manage to multi-task: I'm typing a history essay while I'm listening to music while I'm checking my e-mail while I'm following the banter in a chat room.

John B., 18, USA

Bad things about chat-rooms are people who lie all the time. Like, "Honest, I'm 14." Except I'm a 55-year-old bald man named Malcolm.

Jane S., 14, UK

I've got a lot of Internet boyfriends. They sometimes ask me out, but I just say no because I think they are fake.

Kate A., 15, Russia

I find the Internet really useful with my school work and catching up with my friends... plus chat rooms are a really fab way of making friends in different countries. But I don't give out where I live, except maybe the city. And I don't give out my name, my telephone number, my address, anything personal that would let people contact me anywhere except online.

NN., USA

I think "internet dating" is a load of rubbish! How can you say you love someone when you don't even know them? I could say that I'm 14 when I'm really 40 or something. People lie all the time! It's so stupid how some people can be so gullible!

Mark, 16, USA

Key section

Unit 1

Ex. 2.3

The vacuum tube is a device for controlling the flow of electrical current composed of metal plates and wires sealed in a glass enclosure.

The transistor is a device made of semiconductor materials such as germanium and silicon that controls current between two terminals.

The integrated circuit is a complex electronic component comprised of many transistors, diodes and other electronic circuit devices; also called a chip.

The microprocessor is a computing system including a central processing unit integrated on a single chip.

Ex. 3.1

1614	Oughtred	Slide-rule
1642	Pascal	Pascaline
1801	Jaquard	Weaving loom
1823	Babbage	Analytical Engine
1882	Chebyshev	Arithmometer
1890	Hollerith	Census machine
1904	Fleming	Vacuum tube
1939	Atanasoff	ABC
1944	Aiken	Automatic digital computer
1945	Neuman	Concept of a stored program
1958	Kilby	Integrated circuit

Ex. 3.2

Student B

In January 1975 the magazine _____ put a new kit for hobbyists, called the Altair, on its cover. For the first time anybody with \$400 could buy it and assemble his own computer. The Altair inspired _____ to build the first Apple computer, and a young collage dropout named Bill Gates to write a BASIC compiler for the machine. To this day, researchers consider the Altair to be _____. In a sense they are right. The Altair incorporated one of the first single-chip microprocessors – a semiconductor chip. The chip was called _____. It contained all the basic circuits needed to do calculations. Although the 8080 was advanced for the time, it was far too slow to support the mouse, windows, and developed software. Its memory was _____. But this device crystallized new approaches in a way that captured people's imagination.

Text A

Another device the Jacquard loom may not seem related to the really computational devices. The French inventor, Joseph Marie Jacquard, developed a device to automate rug weaving on a loom in 1804. The Frenchman used punched wood cards, allowing needles to pass through some holes but not the others. Thus, the loom could be "programmed" to weave a rug in a complicated pattern. This system of encoding information provided the basis for the data-handling methods that would eventually be used in the early computers.

In 1823 Charles Babbage, a cranky English mathematician, proposed the design for the Analytical Engine, a mechanical calculating machine. He saw his device as a general problem solver, going beyond the manipulation of numbers. It was to have three parts: a store, a mill and a sequence mechanism. The store was to hold 1000 numbers. The mill called up numbers from the store and performed arithmetic calculations with

them. The sequence mechanisms decided which numbers to call up from the store and how to operate with them. A system of punched cards controlled the sequence of operations. Unfortunately, Ch. Babbage could not translate his ideas into reality because there was no accurate electrical equipment. Though the device was destined never to work, its basic concepts formed the basis for the first computers.

Aware of Jacquard's work, Dr. Hermann Hollerith, an employee of the U.S. Census Bureau, proposed to tabulate the 1890 census on punched cards. By 1884, he had developed an electro-mechanical tabulating machine that used dollar bill-sized cards. To read the cards, electrical contact was made by a pin passing through holes in the card, touching a bath of mercury below. The machine could read 50 to 80 cards a minute and was able to finish the 1890 census in only two and a half years. It took human labour seven years to count the 1880 census. Based on his Census Bureau success, Hollerith formed the Tabulating Machine Company in 1896 and began designing census tabulation machines. Eventually Hollerith's company would grow and evolve into the International Business Machines (IBM) Company.

Although computational machines continued to evolve, the invention of modern computers could not come about until the supporting technologies of electrical switching devices were in place. But "Who invented the computer?" is not a question with a simple answer. A computer is a complex piece of machinery made up of many parts, and many inventors contributed to the history of computers. Besides, the international situation (World War II) made much of the research secret. In 1942 John Vincent Atanasoff and Clifford Berry completed the first computing device (the "ABC" computer) to use electricity, vacuum tubes, and binary numbers. In 1944 Howard Aiken of Harvard University developed a machine that was named the Mark 1. This machine was the first full-sized digital computer. The Mark 1 filled an entire room and weighed 5 tons, included 500 miles of wiring, and was controlled by punched cards. It was used only for numeric calculations. It is worth noting that the Mark I is often excluded from the mainstream history of computers on two technicalities. The first is that the machine was rather electro-mechanical than electronic; the second one is that its program was fixed and could not be altered.

By 1946 John Mauchly and J. Presper Eckert constructed the Electronic Numerical Integrator and Calculator (ENIAC) at the University of Pennsylvania. They were the first to patent their device as a digital computer. The machine used 18, 000 vacuum tubes for storage and basic functions in arithmetic and logic. It consumed so much power that it often caused the lights in nearby Philadelphia to dim. Weighing 30 tons it was not as large as the Mark 1 (measured 20 by 40 feet). But it was far more capable than Aiken's computer. Whereas the Mark 1 could add 2 numbers in one-third of a second ENIAC could add 5 000 numbers in one second. It was used for a variety of purposes including scientific research and weather prediction.

Reading comprehension test						
	1.	2.	3.	4.	5.	6.
Text A	A	A	C	B	C	B
Text B	B	C	B	A	C	B
Grammar test						
Text A	A	C	C	A	B	X
Text B	A	B	C	A	C	B

Ex. 8.5

If automobile technology had advanced at the rate of computer technology you could buy a Rolls-Royce for \$25.00, and it would get 2 million miles per gallon (4,5 litre).

Unit 2
Ex. 2.3

Bachelor's degree	First academic degree; requires preparation of undergraduate thesis, advanced coursework and special examination; takes 4 or 5 years of study.
Master's degree	The second stage of higher education; may be taught or research; is awarded in academic or professional fields; requires a comprehensive examination covering both coursework and a thesis; takes 2 years of full time study.
Doctor's degree	The most common degree awarded in academic disciplines; involves advanced coursework, seminars leading to a comprehensive examination; requires writing a dissertation describing the student's original research and defending it before a panel of faculty members; takes 5 to 8 years of study.

Reading comprehension test

	1.	2.	3.	4.	5.	6.
Text A	B	A	A	B	C	X
Text B	A	C	C	B	B	A

Grammar test

Text A	-	A	A	B	B	C
Text B	C	C	B	A	B	X

Ex. 8.3

Success is the ladder that cannot be climbed with your hands in your pockets.
 Nothing succeeds like success.
 One today is worth tow tomorrows.
 Let every man praise the bridge he goes over.

Ex. 8.5

Student B

Name Grace Murray Hopper
Born 9.12.1906 New York City
Education
 1928 _____
 Mathematics and Physics, B.A.
 1930 Yale University
 Mathematics, M.A.
 1934 _____
 Mathematics, Ph.D.

Professional Experience

1986 – 1988 *Digital Equipment Corporation*
Position Senior Consultant
Responsibilities providing consultations; developing lectures

 Sperry Corporation
Position *System Engineer*
Responsibilities _____
 1949 – 1967 *Eckert Mauchly Computer Corporation*
Position Senior Mathematician
Responsibilities programming and designing the UNIVAC
 developing A-O series of compiles and FLOW-MATIC
 1944 – 1946 _____
Position _____
Responsibilities programming the Mark I computer
 1931–1943 *Vassar Collage*
Position Associate Professor

Ex 9.3

for by on in from of with in in to to for

Take a break

Computing History Quiz

1. Charles Babbage (1791-1871)
2. BASIC (Beginner's All-Purpose Symbolic Instruction Code)
3. Tim Berners Lee, 1991
4. Put a virus in his client's computer
5. Network Information Retrieval tools used on the Internet
6. The first input device known as a mouse was built by Douglas Englebart in 1963. It was made of wood and used two wheels and three buttons.
7. An early version of the Internet
8. California. Palo Alto
9. John Bardeen, William Shockly, Walter Bratain
10. Transmitter and resistor
11. Ada (Countess of Lovelace Ada Byron King), Pascal (Frenchman Blaise Pascal, a child prodigy in mathematics), alt Euclid
12. FORTRAN (Formula Translator), John Backus
13. Grace Hopper
14. In 1964; there are 360 degrees in a perfect circle, and IBM wanted its customers to think of it as the perfect computer for all their needs
15. John Fleming, in 1904
16. In 1971
17. The Intel 8080
18. IBM PC, the IBM Corporation, in 1981
19. chip
20. 'Ted' Hoff in 1969
21. The floppy disk and the Winchester hard disk for PCs
22. In 1990
23. In 1970
24. The computer
25. Spacewar developed by Steve Russell in 1962
26. In 1985
27. Tim Berners Lee, the inventor of the WWW; Alan Turing, a pioneer in developing computer logic
28. ".....to invent it" ; ".....they do not realize how difficult life is"

Unit 3

Ex. 3.1

- 1) Programmers can design programs and then they have to use one of programming languages to be able to convert them into instructions for the computer to understand.
- 2) Database administrators must develop data models to keep the information in a database.
- 3) Computer security specialists are to provide security methods and ensure file protection.
- 4) Computer game designers should prepare a storyboard of any computer game.
- 5) Software testers must analyze if there are any bugs and errors in the software.

- 6) Computer equipment repairers are able to identify faulty parts and repair them or they may assist in making adjustments.
- 7) Computer engineers must coordinate many technical problems , they can also change software and hardware or operating systems.
- 8) Computer operators are to install peripheral equipment.

Reading comprehension test

	1.	2.	3.	4.	5.	6.
Text A	B	C	C	A	B	B
Text B	C	A	B	C	C	B

Grammar test

Text A						
Text B						

Unit 4

Ex. 3.1

- 1) Computerized devices have already improved medical diagnostic technology.
- 2) Computer-based systems have been introduced in manufacturing techniques by now.
- 3) New technologies have been used in business management and operations since recent years.
- 4) Specialized hardware and software have recently been created for precise scientific analysis and research.
- 5) Computer innovations have facilitated people's communication lately.
- 6) Electronic networks have speeded up data and money transfer as well as financial documentation and calculations.
- 7) Computer professionals have already been incorporated in the entertainment industry.
- 8) New technologies have become common in educational process by now.

Ex. 3.2

Student B

Over the last few decades, _____, has "computerized". Today we are all familiar with the special computers that are used in point-of-sale stations. In _____ these computer-based systems have been installed in any business of selling products and services. These systems utilize the universal product code printed on the packaging of the product. We have by now experienced how the POS product scanning systems in stores have speeded up the _____ and made it more accurate by eliminating the need for checkers to punch in the price for each individual item. These systems haven't only made it more convenient for shoppers, but they have also provided an _____ of product availability for the store's management. When the input from the point-of-sale scanning system has been added to _____, analysts can use it to find out which products are selling and which ones are sitting on the shelves. This type of integrated system has proved to _____ to retailers of all kinds.

Reading comprehension test

	1.	2.	3.	4.	5.	6.
Text A	C	A	C	B	C	A
Text B	C	B	C	B	C	A

Grammar test

Text A						
Text B						

Take a break

Haiku

The Web site you seek
 Cannot be located, but
 Countless more exist.

Out of memory.
 We wish to hold the whole sky,
 But we never will.

First snow, then silence.
 This thousand-dollar screen dies
 So beautifully.

Three things are certain:
 Death, taxes and lost data.
 Guess which has occurred.

Yesterday it worked.
 Today it is not working.
 Windows is like that.

A crash reduces
 Your expensive computer
 To a simple stone

The Tao that is seen
 Is not the true Tao-until
 You bring fresh toner.

Windows NT crashed.
 I am the Blue Screen of Death.
 No one hears your screams.

Unit 5

Ex. 2.2

1-b, 2-d, 3-c, 4-d, 5-a, 6-a, 7-b, 8-b, 9-b, 10-c.

Ex. 3.1

Student B

Raymond Kurzweil:

(Raymond Kurzweil was the principal developer of the Kurzweil Reading Machine. It is _____)

Through the application of personal computing technology, I am confident that the handicaps associated with the major sensory and physical disabilities can largely be overcome during _____. In the world of _____, I believe the lives of disabled persons will be far different than they are today. For the blind, reading machines will be ... devices. They can instantly scan, not only _____, but also signs and symbols in the real world. _____ will carry computerized navigational aids. They will _____, only with greater intelligence than today's canine navigators. The deaf will have _____. They can display what _____. Those without use of their hands will _____ their environment, _____ written text, and _____ with computers using voice recognition. Artificial hand prostheses will restore manual functionality, controlled by voice, by head movement, and, eventually perhaps, by direct mental connection.

Ex. 3.2

1-c, 2-b, 3-a, 4-a, 5-a, 6-b.

IV. Text A

1. Introduction.
2. Home computer – a universal assistant.
3. Computers in education and the effects of national educational policy on computing development.
4. Software – the same and different at once.
5. Prospects of a neural network.

Reading comprehension test

	1.	2.	3.	4.	5.	6.
Text A	A	B	A	C	B	C
Text B	A	B	A	C	A	X

Grammar test

Text A	C	C	A	A	B	X
Text B	C	A	C	B	C	X

Ex. 7.1
1-a, 2-b, 3-a.

Ex. 9.1
1-truer, 2-earlier, 3-the smallest, 4-more powerful, 5-easier, 6-more quickly, 7-more dramatically, 8-more efficient.

Unit 6

Ex. 2.2.

Hacking is the practice of gaining illegal access to a computer system

Network is a system of interconnected components or circuits.

Log is a detailed written record of information

Password is a secret word, phrase, etc., that ensures admission by providing identity, membership, etc

Reading comprehension test

	1.	2.	3.	4.	5.	6.
Text A	C	B	A	C	C	C
Text B	B	A	C	B	C	A

Grammar test

Text A	C	B	A	C	C	X
Text B	A	C	A	C	A	X

Ex. 7.3

1. databases; 2. mainframe; 3. whizz-kid; 4. rummage about in; 5. frauds; 6. inside jobs;
7. fiddle with; 8. notorious; 9. wiped; 10. mission.

Take a break

Short Message Service

Un4gtbl = unforgettable, 2day = today, 2moro = tomorrow, b4 = before, w8 = wait, w8ing = waiting, gr8 = great, l8 = late, l8r = later

D u wnt 2 go out 2night? = Do you want to go out tonight?	NOW R U? = How are you?
RUFE@Wknd? = Are you free at the weekend?	OK N U? = I'm Okay. And you?
NED\$ASAP. = Need money as soon as possible	OK2 CU2DAY? = I'm Okay too. See you today?
CUL8TR = See you later	NO 2MORO WER? = No, tomorrow. Where?
Wer r u? = Where are you?	@ J'S. CUL8TER = At John's. See you later
CU = See you	LUV = Love
	xoxox = Hugs and kisses

:-	:-	:-))	:-(:-O	{you}
angry	not talking	very happy	crying	surprised	hug
:-	:-*-	%-)	:-D	:/-	:-*-
sad	kiss	confused	laughing	not funny	Oops!

Vocabulary

Unit 1

kit	комплект
abacus	абак, счеты
computational device	счетное устройство
adding machine	суммирующая машина
dial	циферблат
weaving loom	ткацкий станок
punched card	перфокарта
allow	позволять
weave a rug	ткать ковер
provide	снабжать, предоставлять
cranky	эксцентричный, с причудами
propose	предлагать
design	проект, план, конструкция
Analytical Engine	аналитическая машина
store	хранилище, зд. запоминающее устройство
mill	мельница, зд. решающее устройство
sequence mechanism	контролирующее устройство
accurate	точный
be destined	суждено
concept	понятие, идея, концепция
be aware of	знать, сознавать
Census Bureau	бюро переписи населения
pin	иглолка, булавка
mercury	ртуть
evolve	эволюционировать, развиваться, развивать
support	поддерживать
invent	изобретать
contribute to	содействовать, способствовать, делать вклад
vacuum tube	электронная лампа
binary numbers	двоичные числа
develop	развивать
digital	цифровой
be worth	стоить
mainstream	основное направление
alter	изменять, вносить изменения
Electronic Numerical Integrator and Calculator	электронный числовой интегратор и калькулятор
patent	патент, патентовать
dim	делаться тусклым, гаснуть
whereas	тогда как
purpose	цель
scientific research	научное исследование
prediction	прогноз, предсказание
generation	поколение
circuitry	схемы, компоновка схем, схемотика

hardware	аппаратное обеспечение
artificial scheme	искусственная схема
measure	измерять
mainframe	универсальная вычислительная машина
CPU (central processing unit)	центральное процессорное устройство
I/O (input/output)	устройство ввода-вывода
magnetic drum	магнитный барабан
magnetic core	магнитный сердечник
storage	память, запоминающее устройство
reliable	надежный
video display	видеомонитор
disk drive	дисковод, накопитель на дисках
carry out	выполнять
integrated circuit	интегральная схема
upgrade	наращивать вычислительные возможности
large-scale integration	большая интегральная схема
fledgeling	начинающий; неопытный юнец
operating system	операционная система
compatible	совместимый
increase to/by	увеличить до/на
floppy disk	гибкий диск
threshold [ˈθeɪhəʊld]	порог, преддверие, начало
artificial intelligence	искусственный интеллект

Unit 2

enter	поступать
graduate from	заканчивать
pursue	преследовать, добиваться, заниматься
accept	принимать
be promoted to	получить продвижение по службе
conclude	сделать вывод, принять решение
medium	среда (физическая среда для организации канала передачи данных)
condenser	конденсатор
compute	вычислять, рассчитывать, делать выкладки
direct logical action	прямое логическое действие (операция)
hire	нанимать
improve	улучшать, совершенствовать
halt	остановка
attend a lecture	посещать лекцию
to give access	предоставлять доступ
bring charges of piracy against smbd	обвинить в нарушении авторских прав
give recognition	признавать
die of a stroke	умереть от удара (инсульта)
affluent	влиятельный
community service	гражданская служба
legislator	член законодательного органа
mayor [mɛə]	мэр
prominent	выдающийся
apparent	несомненный, очевидный, явный

inherit	унаследовать, перенять
ambition	стремление, цель, честолюбивый замысел
competitive spirit	состязательный дух
progenitor	прародитель, основатель рода, предок
enroll in	подступать, записываться, становиться членом
far reaching effect	далеко идущие последствия (воздействие)
strike a deal	заключить сделку
inseparable from	неразлучный, неотделимый
weakness	непрочность, неустойчивость
addict	заядлый любитель чего-либо, приверженец
profitable	выгодный, прибыльный
payroll	платежная ведомость
tax	налог
reading(s)	показания
freshman	первокурсник
remain	оставаться
assemble	созывать, собирать, составлять, монтировать
software	программное обеспечение
boot	загружать, выполнять загрузку системы
recruit	нанимать
gifted	одаренный
graduate	выпускник
expansion	расширение
spreadsheet program	электронная таблица
purchase	покупать, приобретать, покупка
ship	вводить (новую функцию в систему)
breakthrough	крупное научное (техническое) достижение
instant	постоянный
wire	проволока, зд. связывать
curriculum vitae	биография

Unit 3

take advantage over smth	воспользоваться чем-л.
be indispensable	быть необходимым обязательным
enhance smbd's ability	увеличивать повышать чьи-л. возможности
be common	быть распространенным, общепринятым
be valuable	быть полезным ценным
take smth for granted	принимать что-л. как должное
eliminate the need	устранять, исключать необходимость
use extensively	широко использовать
get rid of smth	избавляться от чего-л.
be a vital part of smth	быть жизненно важной частью чего-л.
be of great benefit to smbd	приносить пользу, помогать кому-л.
gain control over smth	получить, приобрести контроль над чем-л.
utilize computerized methods	использовать компьютерные методы
retrieve information	(снова) находить, восстанавливать информацию
come to terms with smbd (smth)	прийти к соглашению, поладить с кем-л.
accomplish daily tasks	выполнять повседневные задачи

be knowledgeable about smth
incorporate
result in smth
aid smbd in doing smth
facilitate
proliferation
streamline

быть хорошо осведомленным о чем-л.
включать, принимать
приводить к чему-л.
помогать в чем-л.
облегчать, содействовать
распространение, быстрое увеличение
модернизировать, наладить

Unit 4

programmer
computer engineer
computer operator
database administrator
computer security specialist
computer equipment repairer
data communication analyst
internet system administrator
computer systems manager
computer game designer
software tester
(an) installation
a configuration
a procedure
an operating system
hardware
software
business (scientific) application
be involved in smth. (doing smth.)
have the responsibility of doing smth
contribute to smth
specialize in smth
maintain
modify
generate
update
handle
expand

программист
инженер-электронщик
механик компьютерной техники
управляющий базой данных
специалист по компьютерной безопасности
мастер по ремонту компьютеров
аналитик систем передачи информации
управляющий системой доступа к сети
управляющий компьютерными системами
разработчик компьютерных игр
специалист по проверке программ
установка, сборка
конфигурация, форма, разновидность
технологический процесс, метод
операционная система
аппаратное обеспечение
программное обеспечение
коммерческое (научное) применение
заниматься чем-либо
нести ответственность за выполнение
способствовать чему-л., вносить
специализироваться в чем-либо
осуществлять техническое обслуживание
видоизменять
производить
модернизировать
управлять, регулировать
расширять, развивать

Unit 5

a database
an asset
a bandwidth
a jack
an information retrieval system
an integrated chip
a knowledge worker
a listing
a management program
a mass storage device disk
an output device

база данных
ценное свойство
полоса (частот); полоса пропускания
гнездо
поисковые системы
встроенный кристалл
высококвалифицированный специалист
листинг, распечатка
программа управления
дисковый накопитель
устройство вывода

a predecessor ['pri:disəsə]	предшественник
a shared resource	общий ресурс
a wall outlet	розетка
a wire	электрический провод
a word processor	текстовый редактор
capable of	способный
conventional	традиционный
essential	существенный, необходимый
fuzzy	неясный, туманный, смазанный
heuristically [hjuə'nstikəli]	эвристически
passé ['pɑ:sei]	устаревший, несовременный
peripherals	периферийное оборудование
relevant	имеющий отношение
sequentially	последовательно
slowly but surely	медленно, но верно
so forth	и т.д.
adapt to	приспосабливаться
boggle	поражать, изумлять
browse through	просматривать
capture	записывать, захватывать
demand	требовать
disseminate	распространять
go on-line	подключаться к сети
jack in	(сленг.) врубаться
mimic	имитировать
operate	работать
preordain	предопределять
process	обрабатывать
punch a key	нажать на клавишу
spawn	порождать, рождать
utilize	использовать
trials and errors	пробы и ошибки
VCR (video cassette recorder)	видеомагнитофон
whether ... or	(соч. союз) будь-то ... или
with ease	без труда
recognition	узнавание, понимание; представление, узнавание, определение характерных черт кого-л. или чего-л., виденного или знакомого ранее, или по заданным характеристикам объекта
recognition memory	опознавательная память
makeup	строение, структура
recall	воспоминание, активизация в памяти
reasoning	рассуждение
harness	использовать (в определенных целях и по возможности полностью - to); приспособлять (под что-л., для чего-л.)

Unit 6

rob	ограбить
whiz-kid	одаренный молодой человек

grab
dial (into a network)
type in (a password)
rummage about in
heart's content
hold to ransom
demand
reveal
protect
secretive
confidence
estimate
fraud
inside job
fiddle with
glamorous
financial
thrill
notorious
renegade
scourge
compete
abrupt halt
claim
prove
accuse
allege
wipe
link
tampering
devise
defeat
set out
store
hunt
manage

схватить
войти в сеть
ввести (пароль)
рыться, искать
волю, власть
требовать выкуп
требовать
выдавать, открывать
защищать
скрытый
уверенность
оценивать
мошенничество
кража, совершенная кем-то из своих
совершать махинации
обаятельный, эффектный
коммерческий, финансовый
трепет, возбуждение
печально известный
изменник, отступник
кара, наказание
соревноваться
внезапная остановка
заявить
доказывать
обвинять
подозревать
стирать
связываться
вмешательство
придумывать
побеждать
намереваться
хранить
охотиться
управлять

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