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Introduction

This tutorial is intended for students of technical universities who studied English in secondary school, and is compiled in accordance with the requirements of the foreign language program for non-language universities. The tutorial is designed for 150 hours of classroom instruction and self-study work. It can be used for the independent improvement of knowledge by those who want to learn how to read scientific and technical literature. The purpose of the manual is to prepare students to read special scientific and technical literature to extract information, as well as to teach them the skills of listening and speaking on special and non-special topics.

When organizing the teaching material, the authors aimed to repeat and generalize the main grammar topics and vocabulary of a secondary school, as well as in-depth study of those grammar and vocabulary phenomena that students need for professional communication in English. The themes of the texts are determined by the minimum of general technical knowledge possessed by students in their first year of study at technical universities. The texts of the textbook are selected from original English and American sources, taking into account their informative character and correspondence to scientific and technical achievements.

The tutorial includes 6 lesson topics, additional texts, lexical and grammatical tasks, and audio-video materials. Each lesson-theme contains four texts united by a common theme. All these texts are designed to teach different kinds of reading. The first text in the lesson is the main one, to be thoroughly researched and analyzed to study those grammatical and lexical phenomena to which the lesson is devoted. Subsequent texts serve to develop reading skills, as well as speaking skills on relevant topics, which helps to reinforce the lexical and grammatical material.

Each lesson-theme begins with pre-textual exercises for working through the grammatical and lexical material. These topical exercises are designed to overcome lexical and grammatical difficulties of the main text and require detailed study in class.

The word-formation exercises contain mainly active vocabulary. These exercises, as well as work with international vocabulary, are recommended to be performed in class.

Additional texts on the subject matter and vocabulary are linked to the basic texts of the lessons. They are intended for independent and individual work and can be used as additional material for discussions and conversations.

Audio-video materials presented on the topics of the lessons contribute to the development of listening skills.

LESSON 1

Verbs *to be, to have,*
Modal verbs *can, must, may*
Tenses *Indefinite (Simple) Active, Passive*
Construction *there be*
Word order
Suffixes *-tion, -ic, -al, -ly*

Text 1A. *Higher education in Kazakhstan*
Text 1B. *Higher education in Great Britain*
Text 1C. *Higher education in the USA*
Text 1D. *Letter to a friend*

EXERSICES

Exercise 1. Fill in the gaps with the right form of the verbs *to be* and *to have*. Give the negative and interrogative forms of the sentences.

1. Anar _____very busy today. 2. I _____ in the reading room now. 3. They _____ the students of one of the Almaty Universities. 4. You _____ late for the lecture. 5. Almas _____ a good student. 6. Students _____five exams in a winter session. 7. Today they _____ time to go to the central library. 8. We _____some English books. 9. The textbook _____lots of diagrams. 10. I _____ good news. 12. She _____ a map of Kazakhstan. 13. This subject _____ very difficult.

Exercise 2. Make questions with these words. Use *is* or *are*

1. (interesting /subject/it/an) _____?
2. (in the classroom / our teacher) _____?
3. (the first year student/ you) _____?
4. (near the university / the student hostel) _____?
5. (many universities / there / in Almaty _____?
6. (why /you/ late) _____?
7. (he / a good student) _____?
8. (where / you / at the moment) _____?
9. (what / your name) _____?
10. what / your favourite subject) _____?

Exercise 3. Put the following sentences into Past and Future simple tenses, using the words *yesterday*, *tomorrow* etc.

1.There is a large computer class in our university. 2. There are twenty-five students in our group. 3. There are lots of students at the lecture. 4 There are many universities in Almaty. 5. I have plenty of time. 6. International students can also

enroll to this course. 7. What can I do for you? 8. We are late for the lecture. 9. She is a very hard-working student. 10. Every faculty has its own specialized laboratories.

Exercise 4. Fill in the gaps with *can, must, may* **in positive, negative and interrogative forms.**

1. I am sorry but I …….. come to the party. I have classes. 2. ……you give me a lift to my university? 3. …….._I come in? 4. You …… use this computer after asking for permission. 5. You ……..be in time for your classes. 6. You …….. study hard to pass the exam. 7. You ……. hurry up. You …… be late. 8. You …….. enroll in a winter session online course only after the payment. 9. You ……..register for summer session course.

Exercise 5. Put the following sentences into Past and Future simple tenses, using the words *last /next year, yesterday, tomorrow, last / next week, last next month,* etc.

The students of our university study five days a week. 2. I go to the university every day. 3. Students from other regions live in a hostel. 4. He usually gets up at 7 am. 5. My classes begin at half past eight. 6. We have three lectures every day. 7. After the lecture they go to the canteen. 8. On Saturday she visits her friends. 9. The first- and second-year students study general engineering subjects. 10. Students work in well-equipped laboratories.

Exercise 6. Give the negative forms of the sentences.

1. Our lectures begin at 9 am. 2. The academic year starts on the first of September. 3. We had four entrance exams in Summer. 4. Tomorrow the first-year students will see the university laboratories. 5. The students took all the necessary books from the library. 6. I got the highest scores in my entrance exams. 7. The librarian gave me all the necessary books. 8. The students of our group will meet in the laboratory. 9. The third-year students study specialized subjects.

Exercise 7. A. Open the brackets and ask general questions.

1. (You learn) …. anything interesting during the last term? 2. (He studies) … at Almaty University of Power engineering and telecommunication? 3. (There will be) … a new laboratory in the new building? 4. (There were) … many students at the lecture? 5. (Arman gets up) … early in the morning? 6. (We had) … five exams in winter session? 7. (You have) … classes today? 8. (There are) … many libraries at our university. 9. (We will travel) … by bus. 10. (He knows) … the meaning of this word? 11. (You can read) books in English? 12 (You speak) any foreign language?

B. Put in appropriate question words.

1. … is your name? 2. …. old are you? 3. … were you born? 4. ….. are you from? 5. ….. university do you study at? 6. … foreign language do you know? 7. ….. long does it take you to get to the university. 8. … is the answer to this question? 9.

… lecture you on physics? 10. … books are yours? 11. … does this course cost? 12. … lectures do you have today?

Exercise 8. Put the words into the correct order. Then put questions to each part of speech.

1. University / Almaty / He / entered /of /Power /Telecommunication /Engineering /and / last year.
2. industrial / next summer / training /The third-year students / will have.
3. studies / Aviation / My brother / at the institute.
4. at the end / each /take / Students /exams /of /semester.
5. four / At high school /lasts /the course of studies / years

Exercise 9. Fill in the gaps with the words given bellow.

higher education, knowledge, future, to teach, important, learning, success, countries,

Education

Education is one of the most _____ things in our lives. Don't you agree? It can make the difference between _____ and failure. An education can bring us _____and make us rich. In rich countries, people are lucky to have good schools. Children start _____from a very young age. They can further their education and go to _____or university. In Japan, there are even private schools for babies to learn English. It's a shame that in many rich _____many children don't want to learn. Perhaps schools need to find better ways _____so children want to learn. It's sad that in many parts of the world, children want to learn but can't. Make sure you never stop learning. Education is the key to a better_____.

Exercise 10. Listening 1.1 Education. Listen and check.

Exercise 11. Read and translate the text.

My University

There are many Universities in Almaty. The head of a university is Rector. There are several faculties in a university. Each faculty has specialized departments and as a rule, they are headed by a dean. The course of study lasts 4 years.

Almaty University of Power Engineering and Telecommunications was founded in 1975. It trains specialties in radio engineering, automated control systems, computer systems, electrical and heat power engineering, and others. The University has all necessary facilities for teaching including well-equipped laboratories and computer classes. A large library with reading halls is at the disposal of the students. The students get profound knowledge in theoretical disciplines such as Mathematics,

Physics, Electronics, Computer science, etc. Students get practical skills in different laboratories equipped with modern devices. The course of study at the University lasts four years. At the end of the course the students get a bachelor's degree. Then they can proceed to the master's degree and after two more years of study and research to the Doctor's degree. Our students take an active part in the social life of the University.

They can become members of different clubs according to their interests. The most popular sports are football, volleyball, table tennis and others. Out-of-town students live in three hostels with all modern conveniences. Besides students' rooms there are reading rooms and special recreating halls where they gather in the evening to listen to music, watch TV, dance and enjoy themselves.

Our University provides a good engineering education in engineering, electronics, cybernetics, computer science, information technologies. Our graduates are almost certain of getting a good job. I am proud to be a student of this University

Exercise 12. Compare and translate the sentences.

1. The Students take the books from the library. The books are taken from the library. 2. She asked him to help one of their students. He was asked to help one of their students. 3. We discussed a very interesting theme at our seminar. A very interesting theme was discussed at our seminar. 4. The monitor of the class will bring the diagrams. The diagrams will be brought by the monitor of the class. 5. We will take the exams in January. The exams will be taken in January. 6. Their teacher told them to do their work quickly. They were told to do their work quickly. 7. Rector heads every university. Every university is headed by the Rector. 8. Your university will send you to a big plant for your industrial training in the summer. In summer you will be sent to a big plant for your industrial training. 9. Mr. John teaches us English. English is taught by Mr. John. 10. You must do this work quickly. This work must be done quickly. 11. We can solve many complex problems with the help of computers. Many complex problems can be solved with the help of computers. 12. You can find the books on this subject in every library. Books on this subject can be found in every library. 13. The first and second- year students must study many basic subjects. Many basic subjects must be studied by the first and second-year students.

WORD FORMATION

Exercise 13. Translate the following derived words.

Verb + tion = noun

to examine – тексеру, проверять, емтихан алу, экзаменовать, → examination – емтихан, экзамен,

to apply – қолдану, применять, использовать → application – қолданыс применение, использование

to educate – education; to adopt – adoption; to graduate – graduation; to specialize – specialization; to organize – organization;

noun + al = adjective

education – білім, образование, → educational – білім беретін, образовательный

industry – industrial; profession – professional; person – personal;

noun + ic = adjective

science – ғылым, наука → scientific – ғылыми, научный; basis – негіз, основа → basic – негізгі, основной

adjective + ly = adverb

high – жоғары, высокий → highly – жоғары, высоко

quick – quickly; usual – usually.

Exercise 14. Read and translate international words.

Qualification [ˌkwɒlɪfɪˈkeɪʃ(ə)n], qualified ['kwɔlɪfaɪd], speciality [ˌspeʃɪ 'ælɪtɪ], specialist, special, specialize [ˈspeʃ(ə)laɪz], engineer [ˌenʤɪ 'nɪə], adoption, style [staɪl], method ['meθəd], course [kɔ:s], instruction [ɪnˈstrʌkʃn], mathematics [mæθəˈmætɪks]**,** physics [ˈfɪzɪks], chemistry ['kemɪstrɪ], history [ˈhɪst(ə)rɪ], economics [iːkəˈnɒmɪks], to concentrate [ˈkɒns(ə)ntreɪt], bachelor [ˈbætʃələ], sport center [ˈsentər].

Exercise 15. Read and memorize the pronunciation of the following words.

high [haɪ]**,** higher education, highly-qualified, important [im'pɔ:tənt], provide [prə'vaɪd], measuring [ˈmeʒərɪŋ], structure [ˈstrʌktʃə], acquire [əˈkwaɪə], development [dɪˈveləpm(ə)nt], process [ˈprəʊses], progress [ˈprəʊgres], steadily ['stedɪlɪ], enough [ɪˈnʌf], through [θruː], quality [ˈkwɒlɪtɪ], natural [ˈnætʃ(ə)r(ə)l], science [ˈsaɪəns], scientist [ˈsaɪəntɪst], require [rɪˈkwaɪə], curricula [kəˈrɪkjʊlə], foreign [ˈfɒrɪn], major [ˈmeɪdʒə], future [ˈfjuːtʃə], further [ˈfɜːðə], research

[rɪˈsɜːtʃ], enterprise [ˈentəpraɪz], know [nəʊ], knowledge [ˈnɒlɪdʒ], graduate [ˈgrædʒʊeɪt].

WORDS AND WORD COMBINATIONS TO REMEMBER

important *adj* – маңызды, важный
prosper *v* – өркендеу, процветать
possess *v* – ие болу, обладать, владеть
develop *v* – дамыту, развивать, разрабатывать; преображать
development *n* – даму, развитие, разработка
different *adj* – әртүрлі, разный
receive *v* – алу, получать
quality *n* – сапа, качество
provide *v* – қамтамасыз ету, обеспечивать
depend on *v* – байланысты болу, зависеть от
divide into *v* – бөліну, делится
source *n* – көзі, источник
further *a* – одан арғы, дальнейший
improve *v* – жақсарту, улучшать, совершенствовать
require *v* – талап ету, требовать
subject [səbˈdʒekt] *v* – бағындыру, жатқызу подвергать, подлежать
subject [ˈsʌbdʒekt] *n* – пән, тақырып, предмет, тема
introduce *v* – енгізу, таныстыру, вводить, знакомить
rapidly *adv* – жылдам, быстро
achievements *n* – жетістіктер, достижения
research *n* – зерттеу, исследования
enterprise *n* – кәсіпорын, предприятие
offer *v* – ұсыну, предлагать
facilities *n* – қолайлылық, удобства
obtain *v* – алу, получать
success *n* – сәттілік, успех

to play a part – рөл атқару, играть роль
to take into consideration – назарға алу, ескеру, принимать во внимание, в расчет
according to – сәйкес, сәйкестікте, в соответствии с

Text 1 A

Read and translate the text.

Higher Education in Kazakhstan

Higher education plays an important part in the life of any country. There is no doubt in the fact that education is the basis of the country's economy. The country will always prosper if it possesses highly-qualified specialists. Higher education is given in universities.

There are different types of universities in Kazakhstan. Depending on their form of ownership, they can be national, corporatized or international institutions, or they have the status of an autonomous organization of education. They are also

divided into public or private bodies according to their source of funding. The establishment and operation of both public and private high schools are regulated and monitored by the Ministry of Education. Private universities are on an equal footing with public ones and holding a license is required. All universities are subject to regular certification and accreditation.

According to the national program of education Kazakhstan has a three-level system of training for professionals: bachelor, master and PhD doctor degree. This educational program was introduced on the basis of a credit system measuring the acquired knowledge. Full transition to a new structure took place in 2010 and its major changes were incorporated into the State Programme of Education development during the years 2011-2020. We know that our life is steadily changing. It means that education, which was quite good many years ago, is not good today, so the universities should adopt to our rapidly changing world. The curricula of universities must take into consideration the latest achievements of science and technology. They should improve styles of teaching, quality of learning materials and organization of the university itself.

The course of study lasts 4 years. The academic year is divided into two terms (semesters). Training and instruction is provided in three languages: Kazakh, Russian and English. The first- and second- year students study general engineering subjects. They get knowledge in mathematics, physics, chemistry, computer engineering and drawing, foreign languages and in other social disciplines. In the third-year students begin to concentrate on their "major" subjects.

After four years, students get a bachelor's degree. Then in a year or two of further study and research the students get a master's degree. After three more years of study and research, they get a still higher degree - Doctor of Philosophy (Ph.D.)

Advanced students in our country receive state grants and some students are sponsored by enterprises. But some students pay for their education.

Universities have students' hostels and out-of-town students can live in them. There are also excellent sport centers in the universities. Sport clubs offer facilities for different kinds of sports.

Education is the process through which knowledge and skills are formed and developed and the qualification of specialists is obtained. Education is the way to success.

Notes to the text

1. learning materials – оқу құралдары, учебный материал
2. training and instruction – дайындау, оқыту, подготовка и обучение
3. curricula of universities – университеттің жұмыс бағдарламасы, рабочая программа университета
4. out-of-town students – басқа қаладан келген студенттер, иногородние студенты
5. acquired knowledge – алған білім, приобретенные знания
6. general engineering subjects – жалпы техникалық пәндер, общетехнические предметы

EXERCISES

Exercise 16. Look through the exercise 11 and the text 1 A and answer the questions.

Who is the head of the university? 2. How long does the training course last at the universities of Kazakhstan? 3. When was the Almaty University of Power Engineering and Telecommunications founded? 4. What specialties are taught at Almaty University of Power Engineering and Telecommunication? 5 What system of training are there in Kazakhstan? 6. When was the educational system based on credit system introduced? 7. What languages are used for training at the universities of Kazakhstan? 8. What subjects do the first-year students study? 9. When do the students begin to concentrate on their "major" subjects. 10. What degree do students get after four years of study? 11. What degree can a student get after two years of further study and research? 12. Why is higher education important in the life of every country?

Exercise 17.Compare the sentences in active and passive voice and translate them.

1. Our teacher will give us a difficult task tomorrow. A difficult task will be given tomorrow by our teacher. We will be given a difficult task tomorrow. 2. Practical training accompanies theory. Theory is accompanied by practical training. 3. Azamat asked me to bring a dictionary. Azamat was asked to bring a dictionary. 4. The lecturer told the students to hand in their lecture notes. The students were told to hand in their lecture notes. 5. The director of the institute will send the students to a big plant for industrial training in summer. The students will be sent to a big plant for industrial training in summer. 10. Professor taught us to use the laboratory equipment. We were taught to use the laboratory equipment.

Exercise 18. A. Change active voice into passive.

1. She closed the door. 2. The teacher asked many questions. 3. The students will finish their project next week. 4. We can do these exercises. 5. They invited a famous professor to the conference. 6. I met lots of new friends at the university. 7. High schools develop new means of students' training. 8. After graduating from the

University the students may get a still higher degree. 9. The study of foreign languages, history and economics must improve the curricula of universities.

B. Change passive voice into active.

1. Out of town students are provided with hostels. 2. Any country must be provided with good specialists in all branches of science and technology. 3. Lots of money is spent by the state to train highly qualified engineers. 4. Much attention must be paid to improve the standards of higher education. 5. Students of technological institutes are trained to analyze various facts and theories. 6. The scientific and technological progress of a country is determined by the qualification of specialists. 7. A new equipment was shown at the laboratory. 8. This group of students are taught in English. 9. I was helped with my home task.

Exercise 19. **Listening 1.2 Listen to a man talking about educational reforms in Finland and**

a) match the phrases below.

the world's best	in real-life work places
to prepare students	b. would be judged
3. digital and workplace	c. education system
to use	for the digital age
training	skills
students' performance	3D printers

b) fill in the gaps

One teacher _____ why change was necessary. She said school is divided into subjects to learn, but our brain is not_____into subjects. She said students needed to think _____ They needed to think about the problems in the world. She questioned whether today's children get the skills to _____in such an inter-cultural world. She warned it would be a _____to let children think that the world is simple, and that all they need is facts.

c) listen again and answer the questions.

1. What does Finland put more emphasis on in the system of education?
2. What is the main purpose of using 3D models?
3. Who would judge students' performance in the new system of education?

SELF STUDY EXERCISES

Exercise 20. **Define the part of speech according to the suffixes.**

Education, qualification, intensively, practical, integral, specific, general, classification, naturally, organization, originally, hardly, technical, acceleration, national, consideration, industrial, professional.

Exercise 21. Find:

a) antonyms (words with opposite meaning)

to fail, to graduate from, to begin, many, to enter, young, large, to open, to take, quick, much, to pass, long, slow, little, to finish, old, small, to close, to give, few, short;

b) synonyms (words with the same meaning)

major, large, big, modern, new, explore, many, to begin, to take, to enter, to build, to speak, to do, to get, to start, to learn, much, to make, main, to talk, to construct, to come into, to research, to study.

Exercise 22. Put the words into correct order to make sentences.

1. in/three/:Bachelor's/There/degrees/are/higher education/Master's/PhD. 2. scientists/important/solve/Our/problems. 3. study/at/AUPET/I. 4. study/ specialized/Third-year students/subjects/. 5. The professor/next/a lecture/ deliver/ week/will. 6. Many/this university/students/last/entered/ year. 7. in/We/now/are. 8 . speaks/sister/three/My/languages. 9. important/ is/ very/our/in/Higher/life/ education.

Exercise 23. Fill in the blanks with *to be* and *to have* .

1. Astana ... the capital of Kazakhstan. 2. There ... many universities in Almaty. 3. AUPET ... technical University. 4. Our University ... one of the best technological institutes in this country. 5. AUPET... founded in 1975. 6. Our university... old and new buildings. 7. There ... laboratories, workshops, computer centers and libraries in our university. 8. Every institute of AUPET ... its own specialized laboratories. 9. Our library ... a great number of books and journals in all spheres of science and technology. 10. Last year we ... at school, this year we ... the first-year students, next year we …the second-year students. 11. The students of our department ... industrial training in the third year.

Exercise 24. Change into passive form.

1. The department will hold Entrance exams in summer. 2. They founded more than 10 new technological universities in the last decade. 3. Students study general engineering subjects in the first and second years. 4. They train highly-qualified specialists at high schools. 5. The universities of this country enrolled more than a million students last summer. 6. Mr. Kopzhanov will show us the new equipment of the laboratory tomorrow.

Exercise 25. Write the answers to the questions according to the given sample:

Are there many cinemas in this district? No, there are not. There are not many cinemas in this district. There is only one cinema in this district.

1. Are there twenty five hours in a day? 2. Are there six days in a week? 3. Are there eleven month in a hour? 4. Are there twenty desks in the classroom? 5. Are there thirty two days in a month? 6. Are there thirty one days in February? 7. Are there fifty computers in the room? 8. Are there three seasons in a year?

Exercise 26. Choose the right pronoun to complete sentences.

A. 1. (they, them) all went with (their, theirs) students to the dean's office. 2. She visited (we, us) last night. 3. Asan gave Almas and (I, me) a note book and we went to the computer class with (his, him). 4. Marat told Assel and (me, I) to go with (he, him) and his brother. 5. We know everything about (you, your) friend and (you yours). 6. I came to the University with Yermek and (her, she, hers). 7. An old woman asked (we, us) to help (her, she). 8. I live in a hostel with (my, me).

B. My parents invited me to (them, their) party. 2. Askar could not answer (his, her) teacher. 3. They were (our, we) former students. 4. You are (us, our) groupmates. 5. This is (my, me) sister-in-law. 6. Alma went to (her, she) room and put on (his, her) new dress because she was going to a party thrown by (his, her) company. 7. Where is the encyclopedia? (He, it) is in (his, its) place on the table.

C.1. My dictionary is new, but (your, yours) is not. 2. She says that this desk is (her, hers). 3. We can do it without your help, but not without (theirs, their). 4. Will you help me to sort out the things? I cannot tell which are (your, yours) and which are (our, ours). 5. She is an old friend of (her, hers). 7. This is your laptop and this is his, but where is (my, mine)?

Exercise 27. Open the brackets and put the verbs into the correct form.

1. you (to study) at university? 2. (to be) you a first-year student? 3. She (to study) many subjects at the university. 4. you (to pass) your entrance exams successfully yesterday? 5. He (to leave) for Almaty yesterday. 6. I (not to live) far from the institute. 7. English (to be) my favourite subject? 8. you (to go) to the concert tomorrow? 9. We (to meet) near the university tomorrow. 10 I (to take) the books from the library last week? 11. I (to live) in the hostel last year?

Exercise 28. Fill in the blanks with the propositions *in, at, on, to, into, under, near.*

1. We live ... Nursultan. 2.1 get up ... six o'clock and leave ... seven. 3.1 usually go ... the university by bus. 4. There are 20 rooms ... this building. 5. There is a poster ... the wall and a small desk ... the poster. 6. He comes ... the room and sits down ... the chair ... the table. 7. ... the evening we play computer games or read books. 8. We do not study... Sunday. 9. There are a few books ... the table. 10. The accident happened ... the bridge.

Exercise 29. Read the text and translate it without a dictionary.

High schools train highly-qualified specialists for further development and progress of the country. The students get state grants if they pass their entrance exams successfully. The course of study at the universities lasts four years. After four years of study students get bachelor’s degree. The first- and second year students study general engineering subjects, then they get two years of specialized training in some fields of science and technology. Nowadays there are many modern laboratories at universities. Universities have their own computer centers. Higher education is the way to success. The state must spend a lot of money to improve higher education.

CONVERSATION

Exercise 1. Answer the questions.

1. What is your name? 2. How old are you? 3. When were you born? 4. Where were you born? 5. What city did you come from? 6. What school did you go? 7. What foreign language did you study at school? 8 Why did you enter this university. 9. What are your favourite subjects at the university. 10. Where do you live? 11 Do you live with your parents? 12. How do you spend your weekends? 13. What did you do last Sunday? 14. What is your hobby? 15. What time do you usually get up? 16. How do you get to your university. 17. How long does it take you to get to your university.

Exercise 3. Listening 1.4 Listen to a radio show about the value of a university education and do the tasks 1, 2, 3.

1. Listen to the Radio presenter and tick true T or false F

1) University fees have fallen again T F
2) Some people assume that the number of students is increasing. T F
3) Huge proportion of young people will start their professional lives in debts T F

2. Choose the statement that best represents the opinions of the callers

Caller 1

a. University education should remain free so that everyone can benefit from it.
b. The cost of university education nowadays is greater than its value
c. She attributes her success in her career to her university education
d. In her experience, going to university was a mistake which she regrets.

Caller 2

a. University gives intelligent people the opportunity to prove their worth above others
b. University is only suitable for intelligent people, as only they can engage fully in debates.
c. University provides opportunities to delve deeply into a subject with peers and experts
d. University gives you excellent study skills which will help you in your career.

3. Listen once again and discuss the opinions of callers.

Text 1 B

Read the text. Speak about the peculiarities of higher education in Great Britain.

Higher Education in Great Britain

After finishing secondary school or college youngsters of Great Britain can apply to a university. The academic year in Britain's universities is divided into 3 terms. Usually, the first term runs from the beginning of October to the middle of December, the second one from the middle of January to the end of March, and the third one from the middle of April to the end of June.

There are forty-seven universities in Britain. The oldest and best-known universities are located in Oxford, Cambridge, London, Leeds, Manchester, Liverpool, Edinburgh, Southampton, Cardiff, Bristol and Birmingham. Oxford and Cambridge Universities date from the 12 and 13 centuries. They are known for all over the world and most prestigious universities in Britain.

Universities accept students mainly on the basis of their «A» level results in two or three subjects. However, having excellent results is not enough. Universities choose their students after interviews.

English universities greatly differ from each other. They differ in date of foundation, size, history, tradition, general organization, methods of instruction and way of student life.

Undergraduate courses normally take three years of full-time study. After three years of study a university graduate will leave with the Degree of Bachelor of Arts. Although a number of subjects take longer, including medicine, architecture and foreign languages (where courses include a year abroad).

The degrees are awarded at public degree ceremonies.

There are various postgraduate degrees, including Master and Doctor of Philosophy. The last two are awarded for research in arts or sciences. Degrees are awarded either by the institution itself, or by the Council for National Academic

Awards. Students of law, architecture and some other professions can take qualifications awarded by their own professional bodies instead of degrees.

Students who have been accepted by universities receive a grant from their local authority, which covers the cost of the course, and may cover living expenses. Parents with higher incomes are expected to make a contribution. Until 1990 the grant did not have to be paid back, but now a system of loans has been introduced.

The UK higher education is valued all over the world for its renowned standards and quality. Its higher education's prestige it also emanates from its graduates' work afterward. Many eminent people in many different areas whose work reached global recognition came out of British universities.

Exercise 4. Listening 1.4. Listen about Oxford and Cambridge Universities and discuss the merits of each one by answering the questions below.

Oxford	Cambridge
1. When was Oxford founded? 2. How many libraries does Oxford have? 3. How many Nobel Prize Winners studied at Oxford? 4. What celebrities studied at Oxford?	1. What role does Cambridge play in printing and publishing? 2. How many Nobel Prize Winners studied at Cambridge? 3. How many British Prime Ministers studied at Cambridge? 4. What scientific discoveries were made at Cambridge?

Text 1 C

Read the text. Speak about the peculiarities of higher education in the USA.

Higher Education in the USA

The system of higher education in the United States greatly differs from the European in certain ways. According to the US system, students who have completed secondary school should have at least two years of university education. Thus a great number of "junior colleges" provide two years of undergraduate study there in contrast to the traditional universities, in which students complete four years of study for degree. The "junior college" is also called the community college. It gives courses in the regular academic subjects or subjects like dental technology, sewing and other non-academic subjects. There is also a technical or a vocational school. It has only job training, it doesn't have academic program. Programs may take from six months to two years and more. The technical or vocational school gives training for work in areas such as electronics, carpentry and others.

The students of the community college do not receive a high school diploma. If college students want to continue for a graduate or professional degree, they must go to University.

In the American system, the four-year, or "bachelor's," degree is obtained not by passing final examinations, but by the accumulation of course "credits", or hours of classroom study. The quality of work is assessed by means of a

continuous record of marks in a course transcript. The first two years of a student's studies are generally taken up with prescribed courses in a broad range of subject areas, along with some "elective" courses selected by the student. In the third and fourth years of study, the student specializes in one or perhaps two subject fields. Postgraduate students work toward either a "master's" degree (which involves one to two years of postgraduate study)or a doctoral degree (which involves two to four years of study and other requirements). A marked feature of American education that derives from the German model is the de-emphasis on lecture and examination. In both of these countries, students are evaluated according to their performance in individual courses where discussion and written essays figure importantly.

Text 1 D

Read the letter and write a reply.

Letter to a friend

Hi Alina,

How are things! I have great news. I am very sorry for not writing you for a long time. I was very busy. It was a hard year for me as I was getting ready for my entrance exams. My major subjects were physic and mathematics. You know they are my favourite and I am quite good at them. Nevertheless, I took many additional courses in these subject before my exams. I passed my exams successfully and was enrolled into the University. I entered Almaty University of Power Engineering and Telecommunication. My classes start at 8.00 in the morning, and I have to be at university before 7. 55. The morning break is from 10.05 to 10.40. It's a good chance to have breakfast in the canteen of the university. It's very good by the way. Luckily, I got a room at the students' hostel. I live with two friends of mine. You know the rent of flats in Almaty is too high, I can't afford it, so the hostel is the perfect place

for me to live. I have four classes a day. After classes I go to the library. I must work hard as studying is not easy here.

I know you graduated from the secondary school. Did you enter the university? Please, write to me, I am especially interested in your life in students' hostel.

Good-bye for now,
your friend Askar

ADDITIONAL TASKS

Exercise 1. A. Read the text and try to guess the meaning of the words in bold.

Using Technology in Education

Nowadays it is important to use technology, especially when it comes right down to education. Students all over the world need **to be acquainted with** the technological advancements that are present in our modern life. Technology has become an **integral** part of each student's life.

Students can get significant assistance from technology when they use it in their **day-to-day academic routines**. With the appearance of computers and the internet, the experience of studying and **doing assignments** has changed a lot. Students of the modern-day world cannot **imagine** their studies without them. Modern technology speeds up the work and provides help in university courses, for example, in completing an assignment, writing a report, reading something, correcting something, designing something etc. It allows a lot of **conveniences** to students in making decisions based on their academia.

Technology has **penetrated** every area of our lives, from healthcare to education and beyond. The latest advances in technology govern even our homes.

B. Match the words and word combinations in A with their meaning in B

A	B
1. to be acquainted with	a. form a mental image or concept of
2. integral	b. perform a task or piece of work given by someone
3. day-to-day academic routines	c. a thing that contributes to an easy and effortless way of life
4. doing assignments	d. to get to know
5. imagine	e. go into or through
6. convenience	f. things or activities in studying that happen every day
7. penetrate	g. most important, essential or fundamental

Exercise 2. Make possible word combinations using the verbs from A and nouns from B

A	B
1. receive/ get	a. university
2. study	b. good at physics
3. enter/be enrolled into/graduate from	c. experiment
4. conduct/carry out	d. grant, degree
5. pass/take	e. progress
6. take par/participate in	f. a subject, a course,
7. be	g. discussion, competition
8. make	h. exams

Exercise 3. Put the words into correct order

1. receive/ Did/ a grant /you? 2. did / entered /pass/ How many/ you /exams/ before /you/ university? 3. notes/ Do/ take /you/ in lectures? 4. in history/Who/the lecture/ gives? 5. My/ studies/ friend /physics. 6. What research / conduct /you /did /last semester?

Exercise 4. Complete the table on word building

Verb	Noun
Inform	…..
……	Consideration
Prepare	……
…..	Instruction
Determine	….
…….	Motivation
Introduce	…..

Verb	Noun	Adjective
Domesticate		
Educate		
Occupy		
Base		

Exercise 4. A. Write down 10-20 words and word combinations on the theme "higher education"

B. Speak about: the role of computers in education

LESSON 2

Present Continuous Active/Passive
Degrees of comparison
Suffixes *-ment, -ty, -ous*
Prefix re-

Text 2A. *Environment protection*
Text 2B. *The problem of global warming*
Text 2C. *Ecological situation in Kazakhstan*
Text 2D. *Ecological problems in big cities*

EXERSICES

Exercise 1. Fill in the gaps with one of the following verbs in continuous form.

solve pollute wait change explore warm up cause become develop reach work

1. Our environment _____ all the time. 2. Our planet _____ because of the greenhouse effect. 3. Industrial enterprises _____ the air. 4. Emission of greenhouse gases _____ catastrophic events all over the world. 5. The more civilization _____, the bigger the environmental problems are becoming. 6. Water pollution _____ enormous proportions. 7. The seas and oceans _____ seriously polluted. 8. Scientists all over the world _____ on the

problem of air pollution. 9. They _____ the problem of environment protection. 10. Scientists _____the planet. 11. I _____for the professor.

Exercise 2. Are the verbs in bold right or wrong? Correct the verbs that are wrong.

1. Liquid nitrogen **boils** at −196°C. _____.
2. Water **is boiling** at 100 °C. _____.
3. I **am getting** up at 7 o'clock. _____.
4. Who **do you wait** here now? _____.
5. It's **getting** late. Let's go home. _____.
6. The Earth **goes** round the Sun. _____.
7. I **am trying** to open this door. Can you help me. _____.
8. Can you hear the words of the song? What **does she sing** about? _____.
9. It often **rains** in London. _____.
10. **Does** it **rain** now? _____.

Exercise 3. Put the verb in the present continuous or present simple.

1. Take your umbrella. It _____ (rain) outside. 2. How is your English? _____it (improve)? 3. My sister _____(speak) three languages. 4. ____ your parents _____(live) in a big city? 5. My brother _____(look) for a place to live. Can you help him to find? 6. What _____ your mother (do)? She is an accountant. 7. It _____ (get) dark. Can you switch on the light? 8. The River Irtysh _____(flow) into the lake Zaissan. 9. Where have you been? Everybody _____(wait) for you. 10. The train _____(leave) at 8 pm. We should be at the station at 7.45. pm.

Exercise 4. Read and compare the sentences in active and passive voice.

1. We are translating a new text. A new text is being translated. 2. They are discussing the problem of water pollution. The problem of water pollution is being discussed. 3. Industrial plants are polluting the seas and oceans. The seas and oceans are being polluted by industrial plants. 4. We are listening to the lecture on environmental problems. The lecture on environmental problems is being listened. 5. Our engineers are buying a new equipment for a new laboratory. A new equipment is being bought for a new laboratory by our engineers. 6. She is writing a report on that problem, A report is being written. 7. Nowadays humanity is making considerable investments to eliminate ecological problems. Nowadays considerable investments are being made to eliminate ecological problems. 8. Mrs. Jane is selling flowers. Flowers are being sold by Mrs. Jane.

Exercise 5. Change the sentences in active voice into passive.

1. Students are learning a new grammar now. 2. At present the changes in the global climate are bringing about serious problems in the environment. 3. Scientists all over the world are carrying out experiments to solve the problem of air pollution.

4. They are making plans for the future. 5. Our students are studying strength of materials. 6. We are doing our best to purify the contaminated water. 7. This company is using sleeve filters to filter the air in the food industry. 8. I am watching television. 9. She is helping me with this task. 10. Boys are cleaning their room.

Exercise 6. Write down comparative and superlative forms of the adjectives

Old -	_____	_____
Good -	_____	_____
Important -	_____	_____
Modern -	_____	_____
Large -	_____	_____
Crowded -	_____	_____
Cold -	_____	_____
Cheap -	_____	_____
Easy -	_____	_____
Interesting -	_____	_____
Big -	_____	_____
Fast -	_____	_____

Exercise 7. Complete the sentences. Use a comparative and superlative forms.

1. I live in Almaty. It is the _____(beautiful) city. 2. The car of our family isn't very big. We want a _____ (big) one. 3. This sofa isn't very comfortable. That is _____(comfortable). 4. Tokyo is one of the _____(busy) cities in the world. 5. It wasn't warm yesterday. Today it is _____ (warm). 6. This is the_____ (complicated) task I have ever solved. 7. It was the _____ (cold) day of the month. 8. It's getting _____ (bad). We should do something. 9. This is the _____ (good) day of my life. 10. Which is the _____ (difficult) subject for you at the university?

Exercise 8. Complete the sentences. Use **than**

1. Canada is a big country. It is (big) _____. 2. Askar is 19. He is (old) _____. 3. Assel works very hard. She works (hard) _____. 4. This project is very expensive. It is (expensive) _____. 5. It is very hot today. It is (hot) _____. 6. Mercury is (small) _____. 7. In winter days are (short) _____. 8. Physics is (difficult) _____. 9. This job is (important) _____. 10. New York is industrially (develop) city _____.

Exercise 9. Put the verbs in brackets in superlative form

1. Everest is (high) _____ mountain in the world. 2. Pacific is (large) _____ ocean with the total area of more than 165 mln square km. 3. Nile is (long) _____river. 4. Greenland is (big) _____ island which belongs to Denmark. 5. The (large) _____ lake is the Caspian Sea. It is considered as a lake because it is

not connected with any oceans. 6. This is (interesting) _____ place I have ever been. 7. Jupiter is (distant) _____ from the Sun. 8. I think that Kulyash Baisseitova was (great)_____ singer. 9. That is (simple)_____ exercise in the book.

WORD FORMATION

Exercise 10. Translate the following derived words.

Verb + ment = noun

to develop – дамыту, развивать → development – даму, развитие
to achieve – жету, достигать → achievement – жетістік, достижение
to equip – жабдықтау, оборудовать → equipment – жабдық, оборудование

Adjective + -(i)ty = noun

social – әлеуметтік, общественный → society – қоғам, общество
active – белсенді, активный → activity – белсенділік, активность
electric электрлік, электрический → electricity – электр қуаты, электричество

Noun + -ous = adjective

mountain – тау, гора → mountainous – таулы, горный
poison – у, яд → poisonous – улы, ядовитый
danger – қауіп, опасность → dangerous – қауіпті, опасный

Prefix re – (repetition of action)

Renew – жаңарту, обновлять; renewable – жаңартылатын, возобновляемый; rebuild – қайта салу, перестроить; rewrite – қайта жазу, переписать; reuse – қайта қолдану, повторное использование.

Exercise 15. Read and memorize the pronunciation of the following words.

Pollution [pəˈluːʃ(ə)n], crucial [ˈkruːʃ(ə)l], scientists [ˈsaɪəntɪsts], measure [ˈmeʒə], environment [ɪnˈvaɪrənm(ə)nt], civilization [ˌsɪvɪlaɪˈzeɪʃ(ə)n], ecological [iːkəˈlɒdʒɪk(ə)l], appearance [əˈpɪər(ə)ns], huge [hjuːdʒ], enormous [ɪˈnɔːməs], proportions [prəˈpɔːʃənz], international [ɪntəˈnæʃ(ə)n(ə)l], acid [ˈæsɪd], deforestation [ˌdiːfɒrɪˈsteɪʃ(ə)n], overpopulation [ˌəʊvəˌpɒpjʊˈleɪʃn], degradation [degrəˈdeɪʃ(ə)n], fortunately [ˈfɔːtʃ(ə)nətlɪ], technologies [tekˈnɒlədʒɪz], contamination [kənˌtæmɪˈneɪʃ(ə)n], prevention [prɪˈvenʃn], providing [prəˈvaɪdɪŋ], procedures [prəˈsiːdʒəz], society [səˈsaɪɪtɪ], necessary [ˈnesəs(ə)rɪ], ocean [ˈəʊʃ(ə)n], renewable [rɪˈnjuːəbəl], recycle [riːˈsaɪk(ə)l], purifying [ˈpjʊərɪfaɪɪŋ], success [səkˈses], safeguarding [ˈseɪfgɑːdɪŋ], resources [rɪˈzɔːsɪz], climate [ˈklaɪmət].

WORDS AND WORD COMBINATIONS TO REMEMBER

Acid rain *adj* – қышқылды жаңбыр, кислотный дождь
achieve *v* – жету, достигать
appearance *n* – пайда болу, появление
believe *v* – сену, верить
carry out *v* – өткізу, проводить
change *v* – өзгерту, менять

deforestation *n* – орманды жою, вырубка лесов
environment *n* – қоршаған орта, окружающая среда
enormous *adj* – орасан үлкен, огромный
overpopulation *n* – халықтың шамадан тыс көбеюі, перенаселенность

crucial *adj* – өте маңызды, важнейший
contaminations *n* – загрязнение ластану
crowded *adj* – лық толған, переполненный
deal with *v* – істес болу, иметь дело с
decrease *v* – азайту, снижать

pollutant *n* – ластаушы зат, загрязнитель
remain v – қалу, оставаться
several *adj* **–** бірнеше, несколько
solve *v* – шешу, решать
therefore *adv* – сондықтан, поэтому
threaten *v* – қауіп төндіру, угрожать

take measures – шаралар қабылдау, принимать меры
around the world – әлем бойынша, по всему миру
suffer from – зардап шегу, страдать от

Text 2 A

Read and translate the text.

Environment protection

The problem of pollution has become the most crucial one. Scientists believe that it was human activity that brought serious changes to our planet and caused environmental problems. The more civilization is developing the bigger the ecological problems are becoming. With the appearance of crowded industrial cities, huge amount of pollutants were created and the problem has become more important. Air and water pollution is now reaching enormous proportions.

The problem is changing from national into international. Many cities around the world suffer from air pollution. The seas and ocean crossing several countries are seriously polluted. Acid rains, global warming, deforestation, overpopulation are the problems that threaten our life. The Earth is in danger, and it is the only place where mankind can live, therefore it's the duty of every person to preserve and protect the environment against any kind of degradation.

Fortunately, it is not late to solve all these problems. Our scientific knowledge and modern technologies can help to eliminate them and make our planet a better, cleaner and safer place. Large-scale projects are already being carried out. They include various programs that are aimed at decreasing the risks to the environment from contaminations from wastes, fuels, and oils. These programs deal with pollution prevention measures such as providing procedures for safely working with hazardous materials, inspecting the storage vessels and locations of oil fields etc.

The essential feature in the environment protection is that we can solve ecological problems only on the level of world community. The planning of protection against pollution by human society should be imperative today and in the future. It is necessary to work out international programs to research data on land, atmosphere and to study oceanic resources, both renewable and non-renewable.

Each of us can take necessary measures to protect environment. We can plant trees, recycle litter and stop polluting activities. It is a big job and much remains to be done. However, we can achieve success in purifying air, water, soil and in safeguarding natural resources.

Notes to the Text

1. on the level of world community – на уровне мирового сообщества
2. much remains to be done – әлі де көп жұмыс бар, еще многое предстоит сделать

EXERCISES

Exercise 16. Look through the Text 2 A and answer the questions.

1. What is this text about? 2. What are the reasons of ecological problems? 3. What problems are threatening our life? 4. Why is the problem of pollution becoming a global one?

Exercise 17. Change the sentences in active voice into passive.

1. Plants and factories are polluting water and air. 2. Special public organizations are analyzing data on land, forest and air. 3. Scientist were taking measures to save Aral Sea. 4. The situation in Aral Sea is remaining very serious. 5. Ecologists are paying much attention to the development of international projects. 6. They are developing the theory of interaction of atmospheric and oceanic processes to determine the weather of the Earth. 7. They are discussing the most important ecological problems at the government level. 8. They were making considerable investments to eliminate air pollution. 9. Everyone realize that air and water pollution by industry is reaching dangerous levels.

Exercise 18. Translate the sentences.

1. The bigger the problem, the worse the situation. 2. The more we discuss the problems of environment, the quicker they are solved. 3. The more civilization is developing, the bigger the ecological problems. 4. The larger the city is, the greater the pollution is. 5. The more we listened to him, the less we believed his story.

Exercise 19. Match synonyms and antonyms.

a) synonyms

a few, large, various, huge, pollutant, achieve, at present, realize, several, different, essential, understand, important, work, contaminant, carry out, decrease, reach, reduce, big, enormous, nowadays, job, conduct.

b) antonyms

increase, slowly, small, huge, contaminate, decrease, tiny, appear, quickly, large, purify, disappear.

Exercise 20. Listening 2.1.

Pre-listening tasks

A. *Pay attention to the pronunciation of the following words*

carbon dioxide [ˈkɑːb(ə)n daɪˈɒksaɪd], vehicle [ˈviːɪk(ə)l], droughts [ˈdraʊts], famines [ˈfæmɪnz], glaciers [ˈglæsɪəz], electricity [ˌɪlekˈtrɪsɪtɪ], wind [wɪnd].

B. *Match the words with their translations*

1. warm	a. отырғызу (өсімдік), посадить (растение)
2. light	b. көлік, транспортное средство
3. to trap	c. жел диірмені, ветряная мельница
4. greenhouse effect	d. құрғақшылық, засуха
5. vehicle	e. мұздықтар, ледники
6. drought	f. ашаршылық, голод

7. famine	h. жылы, теплый
8. glaciers	i. жылыжай әсері, парниковый эффект
9. to plant	j. ұстап қалу, задерживать
10. windmill	k. жарық, свет

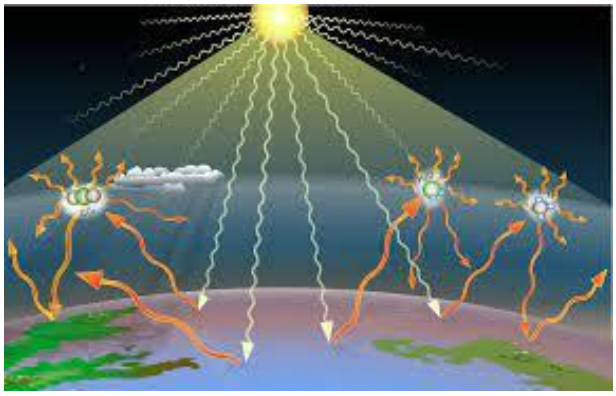
C. *While listening. Fill in the gaps.*

Text 2 B

Listen and read the text.

The problem of global warming

Earth is getting warmer. The climate has become warmer and colder in the past, but scientists think that it's now getting warmer faster than ever before and that it will stay [1]_____ in the future. Why is the climate changing? Earth gets heat from the sun. Some heat escapes, but some is trapped by a blanked of gasses like carbon dioxide.



This keeps Earth warm enough for us to live here. It's called the [2]_____. The problem now is that our vehicles, factories, and power stations have made a lot of carbon dioxide. So we're [3]_____too much heat, and Earth is getting too warm!

Weather in the future: more heat means

that there will be more rain, stronger winds, and storms in some places, and more [4]_____ and famines in others.

It also means that the snow and ice on mountains and around the Poles will melt, so sea levels will rise. If all the glaciers in the world melt, sea levels rise more than 60 meters (65.6 yards), and places near the ocean will go underwater! [5]_____ ice also helps keep Earth cool. If it melts, Earth will get even warmer!

What can we do? It's probably too late to stop the [6]_____ changing, but we can help to slow it down. We must make less carbon dioxide to help to keep Earth cool. We can use our cars less – we can walk or ride a bicycle. We can also

[7]_____more trees. Trees use carbon dioxide to make food, so if there are more trees, there will be less [8]_____ in the atmosphere.

Using energy from the weather: we need electricity, but we don't have to make it in power stations. Instead, we can make it from energy from the weather. [9]_____ energy and solar energy are called green energy. Green energy makes less carbon dioxide.

To make [10]_____, we can use strong winds to turn windmills that power turbines. Lots of windmills together are called a wind farm. Wind farms are often on hills or out in the ocean because the winds are stronger there.

Solar panels can change light from the sun into electricity. This electricity can power small machines or heat homes. People use [11]_____ all around the world.

The sun can even power cars and boats! Solar – powered [12]_____ can be expensive, but they don't make carbon dioxide. People keep finding new ways to use our amazing weather! In 1996, Kenichi Horie from Japan crossed the Pacific Ocean in this solar – powered boat.

D. *Post listening. Answer the questions.*

1. What is this text about? 2. Why is the Earth getting warmer? 3. What is the greenhouse effect? 4. What are the effects of global warming? 5. How can we reduce greenhouse effect on earth? 6. What is Green Energy?

Exercise 21. Listening 2.2. Listen to the text *Climate change* and do the following tasks:

a) Replace the words in bold with the words from the list. Change the form of the verb if necessary. Then listen and check.

hurricane, cut down on, species, turn off, destroy, danger,

1. Many politicians and scientists say it is the biggest **threat** we face.
2. Many **kind** of animal, fish, insect, frog, etc. are dying.
3. Our weather is changing so places are getting warmer, or colder, or are having more and stronger **whirlwind**.
4. We all need to do our bit so that climate change does not **kill** us.
5. It's important to **reduce** things that produce greenhouse gasses.
6. Doing simple things like **switching off** lights and recycling paper all help.

c) Answer the questions.

What does scientist and politicians think about climate change? What is happening because of climate change? What should we do to stop climate change?

Text 2 C

Read and translate the text.

Ecological Situation in Kazakhstan

The ecological situation in Kazakhstan is complicated. The main sources of pollution are industrial enterprises, heat power stations and transport. They pollute the atmosphere with million tons of dust and other harmful emissions. The most harmful are the lead-zinc industry of Oskemen, the phosphorous industry of Shimkent and Taraz, the chrome production in Aktobe and others.

It should be noted that the most serious problem of Kazakhstan is radioactive pollution. Kazakhstan began to suffer serious harm during the period of the Soviet Union. Between 1949 and 1991 the Soviet government carried out about 70 % of all of its nuclear testing in Kazakhstan, mostly in the north-eastern area near the city of Semey. About 500 nuclear explosions occurred both above and below ground near Semey, and more than 40 nuclear detonations occurred in western Kazakhstan and in the Qyzylqum desert. Air and soil were badly polluted. People living in those areas were exposed to dangerous levels of radiation. In the late 1980s Kazakhstan citizens held demonstrations. They wanted the nuclear testing to end, and in 1991 they were stopped. However, the testing grounds remain highly contaminated.

Another ecological disaster area in Kazakhstan is the Aral Sea. The Aral Sea has shrunk to less than half its former size since the early 1960s. It happened because of the increase of cotton fields. Excessive irrigation substantially decreased inflow to the Aral, and the Aral's shoreline began to recede rapidly. This led to severe environmental problems in the Aral Sea Basin, including the destruction of wildlife habitat as a result of desertification.

There is a problem of soil pollution from the overuse of pesticides in agriculture and the increasingly polluted waters of the Caspian Sea that partially happened as a result of hydrocarbons production.

Kazakhstan also faces the problem of urban pollution. Automobile transport is one of the main sources of atmospheric pollution. Almaty is one of the most polluted cities in Kazakhstan.

So we must take measures for improving the ecological situation and eliminating the pollution. For example, according to the Environmental Protection Law Almaty is declared as ecologically protected zone.

Notes to the Text

1. Harmful emissions – зиянды шығарындылар, вредные выбросы
2. Lead-zinc industry – қорғасын-мырыш өнеркәсібі, свинцово-цинковая промышленность
3. Nuclear testing – ядролық сынақтар, ядерные испытания
4. Nuclear explosions – ядролық жарылыстар, ядерные взрывы
5. To occur – орын алу, болу, происходить
6. Nuclear detonations – ядролық жарылыстар, ядерные взрывы
7. To be exposed to – ұшырау, подвергаться воздействию
8. Ecological disaster – экологиялық апат, экологическая катастрофа
9. Shrink (shrank, shrunk) – кішірею, сокращаться
10. Excessive irrigation – шамадан тыс суару, чрезмерное орошение
11. Desertification – шөлейттену, опустынивание

Exercise 22. Answer the questions of the Text 2 C.

1. What are the main sources of pollution in Kazakhstan? 2. What are the most polluting Industries of Kazakhstan? 3. What serious harm did Kazakhstan suffer between 1949 and 1991? 4. What is happening to the Aral Sea? 5. Why is the Aral Sea shrinking? 5. What is the reason of soil pollution? 6. Why is the Caspian Sea polluted? 7. What are the sources of atmospheric pollution?

CONVERSATION

Exercise 15. Answer the questions.

1. What is the reason of global warming? 2. What sources of pollution do you know? 3. What measure can we take to protect the environment?

Exercise 16. Speak about:

1. The problem of pollution is an international problem
2. Ecological problems in your country

Text 2 D

Read and retell the text.

Ecological Problems of large cities

Large cities have population from one to 30 million and more. Tokyo is the most populated city in the world. It has a population of 39 million people. People in large, overpopulated cities suffer from ecological problems: contaminated water, polluted air and soil. Urban climate is characterized by high temperature, oppressive atmosphere and intensive smog.

Some scientists think that it is practically impossible to protect the large modern cities from pollution. The World Health Organization (WHO) has been studying air pollution around the world and trying to solve the problem.

WHO has been studying the level of sulphur dioxide ($S0_2$) and smog in the air. Sulphur dioxide and smog pollute water and have serious effect on our environment and health of people.

Large cities also suffer from considerable level of Carbon dioxide (CO_2) in the air. CO_2 emissions are considered one of the main causes of Earth's climate change. The main sources of CO_2 emissions are driving, public transit, home heating, and household electricity usage.

Exercise 23. Listening 2.3. Listen to the text Air Pollution. Write the missing information.

Notes to the text Air pollution

Carbon dioxide – көмірқышқыл газы – углекислый газ
Methane – метан
Fluorinated gasses – фторланған газдар – фторсодержащие газы
Sulfur oxides – күкірт оксидтері – оксиды серы
Nitrogen oxides – азот оксиді – оксиды азота
Volatile organic compounds – ұшпа органикалық қосылыстар – летучие органические соединения
Mercury – сынап – ртуть
Lead – қорғасын – свинец

Dioxins – диоксин
Benzine – бензин
Respiratory distress – тыныс жетіспеушілігі – дыхательная недостаточность
Volcanic eruption – жанартау атқылауы – извержение вулкана

1. Air pollution consists of [1] _____ in the atmosphere
2. Some air pollution comes from [2] _____. But most air pollution results from [3] _____.
3. When we burn fossil fuels to produce energy they release [3] _____.
4. Emissions such as [4]_____ gasses trap heat from the sun in earth's atmosphere.
5. A type of air pollution, that reduces visibility [5] _____.
6. Sulfurous occurs from burning fossil fuels, such as [6] _____.
7. Photochemical smog is a result of the reaction between [7] _____.
8. Nitrogen oxides come from [8] _____.
9. Smog irritates the eyes, and causes [3]_____.
10. Another category of air pollution is toxic pollutants – chemicals such as [10]_____.

Exercise 24. Listen to the text Air Pollution (2.3). Answer the questions.
1. What are the sources of air pollution? 2. How do air pollutants affect human health? 3. How can we solve the problem of air pollution?

LESSON 3

Present perfect active/passive
Suffixes *-er/ -or, -ant/ -ent*
Prefixes – *un-/im-*

Text 3A. *Electricity*
Text 3B. *Sources of power*
Text 3C. *Renewable sources of power*
Text 3D. *Conductors and Insulators*

EXERSICES

Exercise 1. Complete the sentences with a verb from the list. Use present perfect.

Steal do have break be go decide see invite

1. Where is Zhandos? He _____ out. 2. I am looking for Almas. _____you _____him? 3. I can't find my wallet. Somebody _____it on the bus. 4. We are having a birthday party tonight. We _____ a lot of people. 5. Look! Somebody _____the window. 6. – Is Almas coming? – No, he _____not to go. 7. – Would you like to eat with us? – No, thank you. I _____ just _____breakfast. 8. I _____already _____ my homework. 9. I ____ never_____ to Paris.

Exercise 2. Read the situation and write sentences in present perfect, choose one of the following:

Arrive break go up cut grow improve ~~lose~~ clean enter

1. Aidar is looking for his key. He can't find it. He has lost his key
2. Alma can't walk and her leg is in plaster cast. _____.
3. Olzhas's German wasn't very good. Now it is much better. _____.
4. My father didn't have a beard last month. Now he has a beard. _____.
5. This morning I was waiting for a letter. Now I have it. _____.
6. Last month the bus fare was 100 tenge. Now it is 150. _____.
7. My room was in a mess. Now everything in its place. _____.
8. I am cooking now. Look, my finger is bleeding. _____.
9. He is so happy. He is a student now. _____.

Exercise 3. You are asking somebody questions about things he or she has done. Make questions from the words in brackets. Start with *Have you ever.* Then answer the question.

1. (you/ride/horse) _____ ?
2. (she/be/Canada) _____?
3. (you/speak/famous/person) _____?
4. (he/run/marathon) _____?
5. (you/eat/Korean food) _____?
6. (your friend/fail/an exam) _____?

Exercise 4. Change the sentences given in active voice into passive.

1. Somebody has cleaned the room. 2. They have postponed the concert. 3. They have built a new hospital near the airport. 4. He has broken his phone. 5. He has lost his key. 6. The students have done their homework. 7. I have left my laptop at home. 8. They have told me about the lecture. 9. Assem has finished her test. 10. We haven't made any mistakes. 11. We have met her at the station. 12. I haven't received your message.

WORD FORMATION

Exercise 5. Translate the following derived words.

Verb + -er/-or = noun

to teach – үйрету, оқыту, учить, обучать → teacher – оқытушы, учитель
to invent – ойлап табу, изобретать → inventor – ойлап шығарушы, изобретатель
to generate – өндіру, вырабатывать → generator – генератор
to transform – түрлендіру, преобразовать → transformer – трансформатор

Adjective suffixes -ant/-ent

important – маңызды, важный
efficient – нәтижелі, тиімді, продуктивный, эффективный

Negative prefixes un-/im-

Limited – шектеулі, ограниченный → unlimited – шексіз, неограниченный
Possible – мүмкін, возможный → impossible – мүмкін емес, невозможный

Exercise 6. Read and memorize the pronunciation of the following words.

Electricity [ˌɪlekˈtrɪsɪtɪ], civilization [ˌsɪvɪlaɪˈzeɪʃ(ə)n], transformer [trænsˈfɔːmə], specific [spəˈsɪfɪk], machine [məˈʃiːn], generator [ˈdʒenəreɪtə], service [ˈsɜːvɪs], imagine [ɪˈmædʒɪn], device [dɪˈvaɪs], source [sɔːs], consumption [kənˈsʌm(p)ʃ(ə)n], reduce [rɪˈdjuːs], advantage [ədˈvɑːntɪdʒ], efficient [ɪˈfɪʃ(ə)nt], developed [dɪˈveləpt], light bulb [laɪt bʌlb], electric current [ɪˈlektrɪk ˈkʌr(ə)nt], commercially [kəˈməːʃ(ə)li].

WORDS AND WORD COMBINATIONS TO REMEMBER

Essential [ɪˈsenʃ(ə)l] *adj* – маңызды, негізгі, существенный, основной
Entertainment [entəˈteɪnm(ə)nt] *n* – сауық-сайран, развлечения
Preserve *v* – сақтау, сохранять
Fascinating [ˈfæsɪneɪtɪŋ] *adj* – қызықты, увлекательный
Physicist [ˈfɪzɪsɪst] *n* – физик
Distinction [dɪˈstɪŋ(k)ʃ(ə)n] *n* – ерекшелік, различие
Amber *n* – шайыртас, янтарь
Establish *v* – орнату, устанавливать
Prove *v* – дәлелдеу, доказывать
Lightening [ˈlaɪt(ə)nɪŋ] *n* – найзағай, молния
Invent *v* – ойлап табу, изобретать
Generate *v* – жасау, вырабатывать
Resistance *n* – кедергі, сопротивление
Voltage *n* – кернеу, напряжение
Consumption *n* – тұтыну, потребление
Increase *v* – ұлғайту, увеличивать
Rapidly *adv* – жылдам, быстро
Improve *v* – жақсарту, улучшать
Reduce *v* – төмендету, снижать
Application *n* – қолданыс, применение

Continuous current – тұрақты ток, постоянный ток
To be credited for – еңбегін сіңіру, ставить в заслугу
To carry out – өткізу, проводить
Electric circuit – электр тізбегі, электрическая цепь

Text 3 A

Read and translate the text.

Electricity

We can't imagine our civilization without electricity. It is the essential energy source in our houses, offices and industries. Life without electricity might be very hard as there are many items in our homes that rely on it to function. It allows us to power the technology we use every day.

Electrically controlled technologies provide us with lots of things, such as communication, heat, water, transport and entertainment. Without electricity, you would no longer be able to turn on the central heating in your home, preserve food in your fridge or have clean running water, telephone lines would be down and phone signal lost, there would be no internet and Wi-Fi.

In science, electricity and its history is a fascinating topic that can help you to understand how life has changed because of electricity.

It has been the subject of scientific interest since the early 17th century. The first electrical engineer was the English physicist William Gilbert (1540-1603) who drew a clear distinction between magnetism and static electricity. The term "electricity" (from the Greek "electrum" means "amber") was established by him.

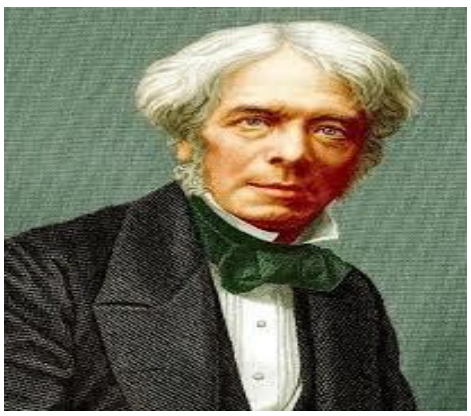
The American scientist Benjamin Franklin (1706-1790) is credited for discovering electricity in the 1700s. The scientist carried out experiments with atmospheric electricity using his kite. He flew a kite with a metal key tied to it during a thunderstorm and proved that lightening was a discharge of electricity.

Alessandro Volta (1745-1827), the famous Italian scientist was the first to get the electric current. He constructed the voltaic pile, the first source of continuous current and invented electric battery. With this invention Volta proved that electricity could be generated chemically.

French physicist Andre Ampere (1775-1836) researched the connection between electricity and magnetism and proved that magnetic effect could be produced without magnets, by means of electricity alone. The unit of measurement of electric current, the ampere, is named after him. His name is also one of the 72 names inscribed on the Eiffel Tower.

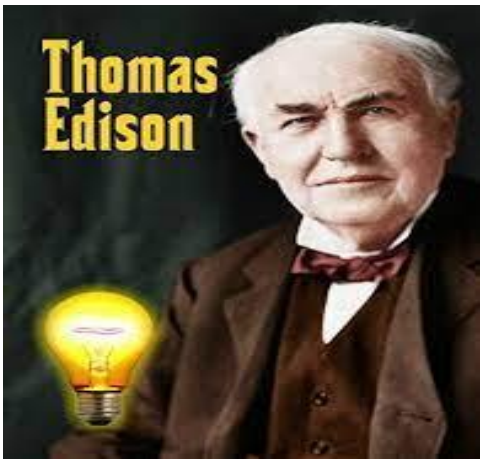
The German physicist George Ohm (1787-1854) established the main law of an electric circuit – the relationship between three basic quantities: resistance, current and voltage in 1827.

As a school teacher, Ohm researched the new electrochemical cell, invented by A. Volta. Ohm found that there is a direct proportionality between the potential difference (voltage) applied across a conductor and resultant electric current. The ohm, the unit of electrical resistance is named after him.



The greatest discovery was made by the English scientist Michael Faraday (1791-1867) in 1931. He discovered electromagnetic induction, which later became the basis of all modern electrical engineering.

Electricity was applied for the first time for industrial purposes in the silver workshops in Paris. The generator – a compact source of electricity — was also developed there.



The generator replaced the batteries and other devices that had been used before.

Electric lighting came into wide use with the development of the electric lamp by Thomas Edison in 1879. After that transformer was invented, the first electric lines and networks were set up, dynamos and induction motors were designed.

The successful development of electricity began throughout the industrial world at the beginning of the 20th century. The consumption of electricity was increasing rapidly.

Electricity has replaced other sources of energy as it offers improved service at reduced cost. One of the biggest advantages of electricity is that it is clean, easily regulated and it doesn't pollute the environment. Applications of electricity now cover all fields of human activity. Electricity is the productive source of the most recent technological advances such as the laser and electron beams. Electricity provides humanity with the energy of the future.

EXERCISES

Exercise 7. Look through the text 3A and answer the questions.

1. What is this text about? 2. Can we imagine our life without electricity? 3. What role does electricity play in our life? 4. Who was the first electrical engineer? 5. What does the term "Electricity" mean? 6. What theory did Benjamin Franklin prove? 7. Who invented the electric battery? 8. What research did Andre Ampere conduct? 9. What is George Ohm famous for? 10. What did Michael Faraday discover? 11. Where was the generator developed? 12. Who invented the electric lamp? 13. What advantages does electricity have?

Exercise 8. Change the sentences given in active voice into passive.

1. At home we use a whole range of time and labour saving devices. 2. The generator replaced the batteries and other devices. 3. The appearance of electricity has completely transformed our life. 4. At that moment Thomas Edison was carrying out the experiment on the development of the electric lamp. 5. Scientists have invented a new type of generator. 6. Scientists are applying electromagnetism in the case of radar and television. 7. Electricity will provide us with the energy of the future. 8. The generator changes mechanical energy into electric energy. 9. We can increase and reduce alternating voltage. 10. Will we use this device in our experiment tomorrow? 11. We must take it into consideration. 12. Electricity has provided mankind with the most efficient source of energy.

Exercise 9. Listening 3.1. Listen and make a list of the inventors, dates, and inventions.

Electrical inventions

	Inventors	Dates	Inventions
1			
2			
3			
4			
5			
6			

Exercise 10. Listening 3.2. Watch the video and do the tasks given below

Introduction to electricity.

Pre-watching

a) Match the terms with their definitions

Electricity	Strand or thin flexible rod of metal used to carry electric current
Current	A particle of matter with a negative electric charge
Circuit	The unit of the electromotive force
Electron	A reddish-brown metal used to make a wire
Wire	a form of energy carried by a certain particles of matter
Copper	Basic unit used for measuring an electric current
Voltage	A flow of electricity along wire
Ampere	Electric force measured in volts
Volt	The path of an electric current

b) Match the terms with their Russian equivalents

1. Charge	a. Замкнутая цепь
2. Conductor	b. Измерять
3. Copper	c. Лампочка
4. Device	d. Заряд
5. Current	e. Короткое замыкание

6. To measure	f. Цепь
7. Voltage	g. Проводник
8. Wire	h. Медь
9. Circuit	i. Прибор
10. Complete circuit	j. Ток
11. Short circuit	k. Провод
12. Bulb	l. Напряжение
13. Plug	m. Штепсель

While watching and listening

Fill in the gaps

1. Electricity is the movement of charged atomic particles called _____. 2. A battery is a _____ _____ designed to create the force needed to move electrons. 3. _____, usually metals like copper, provide a path for the electrons to flow on. 4. Electrons have a _____ _____, they travel out of the minus end of the battery and are attracted to the plus end. 5. Flowing electrons are called _____. 6. Current is measured in _____. 7. The force moving the electrons is voltage and _____ in volts. 8. Never connect the short wire from the minus to plus on any battery. This is called a _____ _____. 9. The path that an electric current follows is called a _____. 10. To move electricity through the bulb, we _____ the _____ by attaching the metal wire to each end of the battery. 11. Slowing things down we can see that once the _____ _____, an electric current appears, flowing from the minus end of the battery toward the plus end.

Post-listening

Answer the questions

1. What is electricity?
2. How are the flowing electrons called?
3. What moves the electrons?
4. What is the path that an electric current follows?
5. What happens when you attach a wire to both the positive and negative ends of a battery?
6. What happens if you connect a short wire from minus to plus on any battery?
7. Is it dangerous to touch an AA battery of 1 decimal 5 volts

SELF STUDY EXERCISES

Exercise 11. Define the part of speech according to the suffixes.

Invention, transformer, generate, pollutant, unquestionable, unknown, imperfect, unnecessary, confident, distant, excellent, tutor.

Exercise 12. Find:

a) antonyms (words with opposite meaning)

increase, essential, rapid, fascinating, distinction, boring, slow, reduce, similarity, unimportant;

b) synonyms (words with the same meaning)

application, advanced, appliance, power, reach, improve, carry out, energy, conduct, make better, achieve, use, device, developed.

Exercise 13. Open the brackets and put the verbs into correct forms.

1. Listen, Ann (to sing) in the next room. She (to sing) very well. She (to study) at the conservatory for two years. 2 What you (to write) ? — I (to write) a letter to my sister. We often (to write) letters to each other. I (to write) a letter for 10 minutes.

3. You ever (to be) to London? 4. I already (to clean) my room. 5. This is the most interesting film I ever (to see). 6. She already (to cook) the dinner when they came.

8. I (to live) in Great Britain since 1989. 9. How long you (to learn) English? I (to learn) English for 2 years. 10. The train (to leave) when she arrived to the station.

Exercise 14. Change the sentences given in active voice into passive.

1. The students have done their homework very well. 2. Bob has left his notebook at home. 3.1 have told you about a lecture. 4. The laboratory assistant had prepared the experiment by 2 o'clock. She had finished her test when we came. 6. The teacher will have corrected our dictation by the end of the week. 7. They have not made any mistakes.

CONVERSATION

Exercise 15. Answer the questions.

2. What is electricity? 2. What are the sources of electricity? 3. What are home uses of electricity? 3 What are the industrial applications of electricity?

Exercise 16. Speak about:

3. Electricity — its nature, history and development.
4. Applications of electricity cover all fields of human activity.

Text 3 B

Read the text. Speak about the energy sources.

Sources of Power

It is known that power is obtained mainly from two sources. One is from the burning of fossil fuels, that is coal, natural gas and oil. The second way of producing electricity is by means of generators that get their power from steam or water turbines.

Electricity so produced then flows through transmission lines to houses, industrial plants, enterprises, etc.

It should be noted, however, that the generation of electricity by these conventional processes is highly uneconomic. Actually, only about 40 per cent of heat in the fuel is converted into electricity. Besides, the world resources of fossil fuel are not ever-lasting. Therefore it is important to think about the other means of generating electricity.

Using atomic fuel for the production of electricity is highly promising. It is a well-known fact, that one pound of uranium contains as much energy as three million pounds of coal, so cheap power can be provided wherever it is required. However, the efficiency reached in generating power from atomic fuel is not high, namely 40 per cent.

Another promising field for the production of electric power is the use of ocean tides. Engineers are engaged in designing tidal power stations of various capacities.

No wonder, therefore, that scientists all over the world are doing their best to find more efficient ways of generating electricity.

Much is being done in the world today for the development of such renewable sources of energy as the sun, wind, water energy and others. Research is being carried out in these fields.

One of the most promising researches is the development of power stations with direct transformation of solar energy into electricity on the basis of photo-effect. This idea is now being intensively developed in many countries.

However, the efficiency of a solar power station is considerably reduced because of the limited time of its work during the year. But it is impossible to improve the efficiency of solar power stations by developing different combinations of solar power stations and traditional ones – thermal, atomic and hydraulic. Today some engineers are working at the problem of developing electric power stations with the use of a thermal-chemical cycle. It will operate on products of the transformation of solar energy, whereas the solar chemical reactor uses CO_2 and water steam of the thermal power stations.

It is planned that plants working on the energy of the solar heat provided by the sun will be built on a large scale.

That different wind energy plants are being developed is also well-known.

Alternative sources of energy can help to solve the energy problems and they do not have negative effects on the environment.

Exercise 17. Listening 3.3.

In this dialogue an energy specialist is answering questions about different sources of energy. He compares how long 10 kilograms of different kinds of fuel will last. Listen to this dialogue and write down the length of time for each type of energy source/process.

Energy sources

Energy generation per 10 kgs in a 2 million kilowatt power station

Fuel/Process	Running time per 10 kgs
Nuclear Power	
Hydrogen Fusion Reactor	
Fast Reactor	
Natural Uranium	
Oil	
Coal	

Text 3 C

Read the text. Speak about renewable energy sources.

Renewable sources of energy

The world population rises and so does the demand for energy to power our homes, offices, and industries. Innovation and expansion of renewable energy sources can help to maintain a sustainable level of energy and protect our planet from climate change as they don't release carbon dioxide or other harmful pollutants into the atmosphere.

A renewable energy source means energy that can't run out, or is endless, like the sun. The term 'alternative energy' it's usually referring to renewable energy sources too. It means sources of energy that are alternative to the most commonly used non-sustainable sources - like coal.

The most popular renewable energy sources are:

1. Solar energy
2. Wind energy
3. Hydro energy

Sunlight is one of our planet's most abundant and freely available energy resources. The amount of solar energy that reaches the earth's surface in one hour is more than the planet's total energy requirements for a whole year. Although it sounds like a perfect renewable energy source, the amount of solar energy we can use varies according to the time of day and the season of the year as well as geographical location.

Wind power is a clean and renewable energy source. Wind turbines harness energy from the wind using mechanical power to spin a generator and create electricity. Not only is wind an abundant and inexhaustible resource, but it also provides electricity without burning any fuel or polluting the air.

As a renewable energy resource, hydro power is one of the most commercially developed. By building a dam or barrier, a large reservoir can be used to create a controlled flow of water that will drive a turbine, generating electricity. This energy source can often be more reliable than solar or wind power (especially if it's tidal rather than river) and also allows electricity to be stored for use when demand reaches a peak.

Text 3 D

Read the text. Speak about renewable energy sources.

Conductor and Insulators

Conductors are materials which have a low resistance and current easily passes through them. The lower the resistance of the material, the more current can pass through it. The most common conductors are metals. Silver and copper are the best of them.

It should be taken into consideration that most materials change the value of resistance when their temperature changes. Metals increase their resistance when the temperature increases while carbon decreases its resistance when the temperature increases. Thus metals have a positive temperature coefficient of resistance while carbon has a negative temperature coefficient. The smaller is the temperature coefficient or the less the change of resistance with the change of temperature, the more perfect is the resistance material.

Insulators are materials which have a very high resistance. Current passes trough insulators with great difficulty. The most common insulators are paper. rubber, plastic, glass. Any insulator can conduct current when a high enough voltage is applied to it.

When an insulator is connected to a voltage source, it stores electric charge and a potential is produced on the insulator. Thus, insulators have the two main functions:

- to isolate conducting wires and thus to prevent a short circuit between them.
- to store electric charge when a voltage source is applied.

Post-reading exercises

1. Answer the questions

1. What materials are called conductors? 2. What is the relation between the value of resistance and the temperature? 3. What materials are called insulators? 4. What are the most common insulators?

2. Match the words with their definitions

To conduct	The ability of a substance to hinder the flow of electricity
To insulate	A fault in an electrical circuit in which current flows along a shorter route than the normal one
Resistance	Allow electricity to pass along or through
Rubber	Cover or protect something to prevent electricity from passing in or out
Short circuit	A strong elastic substance used for making tyres, balls etc.

LESSON 4

Sequence of tenses
Object
Object Clauses
Suffixes -*ible/-able*
Prefix - *dis*-

Text 4A. *Robots*
Text 4B. *Pepper the Emotional Robot*
Text 4C. *Robot teachers*
Text 4D. *Knowledgebase for Robotics*

EXERSICES

Exercise 1. Translate the sentences, paying attention to the rule of sequence of tenses.

1. We knew that his family lived in Astana. 2. He said that the students of that group were studying in the library. 3. She thought that she might finish her work by two o'clock. 4.1 didn't think he could come there in time. 5. He said that his name was Arman. 6. The students were told that they had four lectures every day. 7. The dean

said that he was busy. 8. We found that he had studied mathematics at the University. 9. The newspapers reported that the Trade Union Congress had finished its work. 10. Students were informed that they would have industrial training in the third year. 11. The weather-man reported over the radio that it would be cold the following weekend.

Exercise 2. Put the verbs in brackets according to the rule of sequence of tenses.

A. 1. He says that he (want) to be an engineer. 2. He thinks that he (see) a new device already. 3. He knows that he (lose) his watch yesterday. 4. He says that he (help) with work next week. 5. He said that he (know) him. 6. He understood that the speaker (be) in London recently. 7. He said that he (think) about it later. 8. He asked what they (want) to do. 9. They asked when we (come) to see him. 10. He asked if I (can) stay with them. 11. The teacher wanted to know whether I (be) good at maths. 12. The professor wanted to know whether I (take) part in our conference the week before. 13. My friend wanted to know whether I (go) to the library next Saturday. 14. He asked which book she (read) at that moment.

B. 1. The engineer was told that he (may) test the device in the afternoon. 2. It was known that the head of our laboratory (be) a graduate of Cambridge University. 3. They thought that she (graduate) from a technical institute. 4. Our professor informed us that he (give) the following lecture on quantum mechanics on Monday. 5. At the meeting it was said that our lecturer (work) at a new programme of laboratory work. 6. The teacher told us that the term «engineering» (have) many Russian equivalents. 7. The chief engineer believed that we (work) at that problem for a month the following summer.

Exercise 3. Determine how the object is expressed in sentences, translate them.

1. The students of our group saw a new film yesterday. They said it was very interesting. 2. The dean's assistant told us to do all our work in time. 3. Our laboratory has been equipped with modern devices. 4. The students were informed at the meeting that they would have their practical training in St. Petersburg. 5. We asked the dean if he was busy. 6. The new student asked when our lectures would begin. 7. He also asked to show him where the chemistry laboratory was. 8. He wanted to know whether we had already had our industrial training. 9. I did not know then if I should see him again. 10. We didn't know whether it would be possible to use a computer for our work.

Exercise 4. Translate the sentences into English.

1. Менің досым көп жұмыс істейтінін айтты.\Мой друг сказал, что он много работает. 2. Ғалым өз еңбегі туралы мақала жазғанын хабарлады.\ Ученый сообщил, что он написал статью о своей работе. 3. Олар менен жұмысымды орындадым ба деп сұрады.\Меня спросили, сделал ли я свою работу. 4. Оның жазда Астанада болатынын білгісі келді.\Она хотела знать, будет ли он летом в Астане. 5. Мұғалімнен төртінші сабақта қанша жаңа сөз

бар екенін сұрадық.\Мы спросили преподавателя, сколько новых слов в четвертом уроке. 6. Оның жазда тәжірибелік практикасы болатынын білмедік. \Мы не знали, будет ли у него практика летом. 7. Ол екі шет тілін білетінін айтты.\Он сказал, что знает два иностранных языка. 8. Ол ағасының Қарағандыда тұратынын білген.\Он знал, что ее брат живет в Караганде.

WORD FORMATION

Exercise 5. Translate the following derived words.

noun or verb + *-ible/-able = adjective*
access – қол жеткізу, доступ - accessible – қол жетімді, доступный
to rely – сену, доверять - reliable – сенімді, надежный,
practice – орындау (практика жүзінде) осуществление (на практике) - practicable – орындауға мүмкін, осуществимый
to use – usable, to consider – considerable, to avail – available;

Prefix dis- (has negative meaning)
to appear – пайда болу, появляться - to disappear – Жоғалып кету, жоқ болу, исчезать
to like – to dislike, illusion – disillusion, similar – dissimilar, comfort – discomfort, to connect – to disconnect, connection – disconnection, connected – disconnected, to organize – to disorganize, organized – disorganized, organization – disorganization.

Exercise 6. Read and translate international words.

Action ['ækʃ(ə)n], territory ['terɪt(ə)rɪ], material [mə'tiəriəl], million ['miljən], communication [kəˌmjuːnɪ'keɪʃ(ə)n], central ['sentrəl], programme ['prəugræm], transmission [[trænz'mɪʃ(ə)n], telephone ['telifəun], cable ['keibl], signal ['sɪgn(ə)l], crystal ['krɪst(ə)l], code [kəud], visual [['vɪʒuəl], video, regular ['regjulə], zones ['zəunz].

Exercise 7. Read and memorize the pronunciation of the following words.

research [ri'səːʧ], to spread [spred], instead [in'sted], watch [wɔʧ], provide [prə'vaid], artificial [,a:ti'fiʃəl], convenient [[kən'viːnɪənt], nowadays ['nauədeiz], wire ['waɪə], launching [[lɔːnʧiŋ], to break [breik], to produce ['prədjuːs], production [prə'dʌkʃ(ə)n], to weigh [wei], clear [kliə], major ['meɪʤə], available [ə'veɪləbl], satellite ['sæt(ə)laɪt], size [saiz], tape [teip], liquid [likwid].

WORDS AND WORD COMBINATIONS TO REMEMBER

appear *v* –пайда болу, появляться
artificial *a* – жасанды, искусственный
occur *v* – болу, происходить, возникать
offer *v* – ұсыну, предлагать

compare *v* – салыстыру, сравнивать, сопоставлять, сверять
contain *v* – құрамында болу, ұстау; содержать, вмещать
convenient *adj* – ыңғайлы; удобный
consistently [kən'sıst(ə)ntlı] – бір нәрсеге тән; 1) в соответствии с, сообразуясь с, сообразно, согласно 2) последовательно, согласованно
deploy – қашықтықтан орнатуды жүзеге асыру; выполнить дистанционную инсталляцию
equipment *n* – құрал-жабдық, сайман; оборудование
execute ['eksıkju:t] – жүзеге асыру, орындау; выполнять; казнить; исполнять; осуществлять; совершать; оформлять
facilities *n* – қызмет етуге қажетті құрал; оборудование; предметы обслуживания; аппаратура; приспособления; средства
humanoid [ˈhju:mənɔıd]– адам тәріздес; человекообразный
influence *n* – әсер ету; влияние
intelligence [ın'telıʤ(ə)n(t)s] – ақыл-ой қабілеті; интеллект, рассудок, разум; умственные способности
perceptive [pə'septıv] – алғыр, зерек, түсінгіш, қабілетті; **1)** восприимчивый, воспринимающий, ощущающий 2) проницательный
point-to-point 1. 1) двухточечный, двухпунктовый (о линии передачи) 2) поточечно, от точки к точке
precisely [prı'saıslı] – дәлме-дәл, точно, строго, определённо
rapidly *adv* – жылдам, быстро
receive *v* – алу, получать
replicate ['replıkeıt] – дәлме-дәл біреудің іс-қимылын қайталау; повторять; имитировать; моделировать; воспроизводить
research *n* – зерттеу, исследования
resembling [rı'zemblıŋ] – ұқсас, аналогичный, подобный, похожий, сходный
restricted – шектеулі; 1) ограниченный, узкий 2) ограниченного применения
simultaneously *adv* – бір кезеңде, одновременно
sophisticated – кемелдендірілген, жетілдірілген, қиындатылған; сложный, усложненный, усовершенствованный
state *v* – бекіту, утверждать
surgery ['sɜ:ʤ(ə)rı] – хирургия, операция
transmit *v* – қолына табыстау, тапсыру, передавать
weigh *n* – өлшеу, весить, взвешивать
violate ['vaıəleıt] – қоқанлоқы көрсету, балағаттау, түрпектеу; 1) нарушать, попирать, преступать 2) осквернять 3) применять насилие
Variable Sequence Robot – қозғалыстарды ауыспалы түрде орындайтын дәйекті әрекет роботы, робот последовательного действия с переменным выполнением движений
to be able to – қолынан келу, мочь, быть в состоянии
to take into consideration – назарға алу, ескеру, принимать во внимание, в расчет
injure ['ınʤə] – жарақаттау, зиян келтіру; 1) а) ранить, ушибить б) испортить, повредить

Text 4 A

Read and translate the text.

ROBOTS

Oxford dictionary. A machine resembling a human being and able to replicate certain human movements and functions automatically.

A robot is a machine that can carry out a series of functions. Originally, these functions were very basic. For example, in 1930 a robot called Elektro could walk by voice command, speak about 700 words, smoke cigarettes and move his head and arms. Elektro was a humanoid – that is he looked like a human with arms and legs. However, his movements were very slow and mechanical.

Robots became more sophisticated with the development of microprocessors. They became smarter and faster and could be programmed to perform a wide range of functions. The first digitally operated and programmable robot called Unimate was invented in 1954. Unimate was used to assemble car components in the USA. This was the first big step towards the automation of car manufacturing.

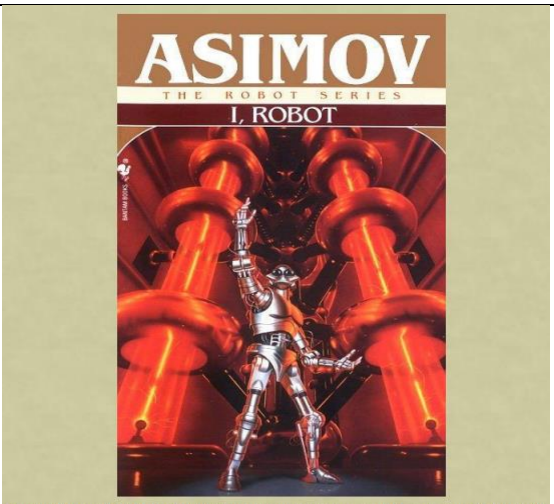
Today, robots are a part of many aspects of industry, medicine, science, space exploration, construction, food packaging and are even used to perform surgery. The most recent robots can move talk, walk, run or fly, and work independently of humans. They have 'intelligence' which allows them to make independent decisions and interact with humans. As they become more adaptable, they can be used for everything from military purposes to looking after elderly people.

Some people think robots have many benefits over humans. They don't get sick or bored. They do their jobs very precisely and consistently. They don't need food or sleep and they never argue or complain, and they can also do many things that humans can't. However, some people are worried that robots will become too intelligent and may one day take over the world.

Today's robots are a combination of manipulative, perceptive, communicative, and cognitive abilities. Today's robots are capable of so many tasks. Yet, there is so much more on the horizon.

Laws of Robotics

Isaac Asimov proposed the following three Laws of Robotics and later added the "zeroth law ":	
Law 0: A robot may not injure humanity or through inaction, allow humanity to come to harm.	
Law 1: A robot may not injure a human being or through inaction, allow a human being to come to harm, unless this would violate a higher order law.	

Law 2: A robot must obey orders given to it by human beings, except where such orders would conflict with a higher order law.	 Image taken from http://www.therobotspajamas.com/book-report-i-robot/ Go to http://www.asimovonline.com/asimov_home_page.html
Law 3: A robot must protect its own existence as long as such protection does not conflict with a higher order law.	

Classification of Robots

- **JIRA** (Japanese Industrial Robot Association):
- Class 1: Manual-Handling Device
- Class 2: Fixed Sequence Robot
- Class 3: Variable Sequence Robot
- Class 4: Playback Robot
- Class 5: Numerical Control Robot
- Class 6: Intelligent Robot
- **RIA** (Robotics Institute of America):
- Variable Sequence Robot (Class3): A device that performs the successive stages of a task according to a predetermined method easy to modify.
- Playback Robot (Class 4): A human operator performs the task manually by leading the Robot.
- Numerical Control Robot (Class5): The operator supplies the movement program rather than teaching it the task manually.
- Intelligent Robot (Class6): A robot with the means to understand its environment and the ability to successfully complete a task despite changes to the environment.
- **AFR (Association FranÇaise de Robotique):**
- Type A: Manual Handling Devices/ telerobotics
- Type B: Automatic Handling Devices/ predetermined cycles
- Type C: Programmable, Servo controlled robot, continuous point-to-point trajectories
- Type D: Same type with C, but it can acquire information

Robots are:

• Machines - mechanical devices designed for doing work.
• Automatic - operations which are executed without external help.

• Reprogrammable - multifunctional and flexible: not restricted to one job but can be programmed to perform many jobs (nearly all robot systems contain a reprogrammable computer).

• Responsive - must be able to react based on their sensory input.

Exercise 8. Look through the text 4 A and answer the questions.

1) What is robot? 2) How did Electro look like? 3) When did Robots become more sophisticated? 4) What can you tell about modern Robots? 5) What do you know about Lows of Robotics? 6) How are Robots classified?

Exercise 9. Listening 4.1. Listen and fill in the gaps.

A long time ago, robots _____fiction. Children loved looking at movies with robots. Today, robots are real, and _____. In the future, we will all have robots. They will vacuum the floor, wash the dishes, _____our cars. I even think one day we'll have robot friends. In Japan today, _____ making robots to help old people and to_____. It's still early days. I'd say we are another 20 to 30 years away from robots _____in our lives. What will happen to us when the world is full of robots? There'll be no jobs. McDonalds will be _____. Maybe one day we won't be able to tell robots and humans apart. Maybe _____ world.

Text 4 B

Read the text. Speak about the peculiarities of Pepper Robot .

Pepper the Emotional Robot

Imagine a robot which can tell how you feel just by listening to the sound of your voice and looking at your body language. It sounds like something from a sci-fi film but this technology is already here! Meet Pepper, the 'social robot' which can understand human emotions!

Pepper was created by a French company called Aldebaran in 2014 and went on sale in Japan in 2015, and in the USA the following year. And even though it costs more than $2,000, the robot is very popular! Pepper is a humanoid robot. This means that it looks a bit like a person. It is 1.2m tall with a head and two arms, and two wheels to move around. Its head has got four microphones and two HD cameras (one is its mouth and one on its forehead), and these allow it to move around and connect with people. Pepper can understand 20 languages and it can know if it's talking to a man, woman or child. Also, of course, the robot can understand how a person is feeling by the tone of their voice and their body language. Then, if you're feeling sad it tries to make you happy. It can tell you a joke, sing a song and even dance to cheer you up.

Pepper might not sound very useful – after all, it can't cook food or help with the housework. But in many places this robot is making a big difference in people's lives. Two hospitals in Belgium, for example, use Pepper as a receptionist. These upgraded models can do various jobs around the hospitals.

For example, they can greet new patients and walk with them to the correct department. Also, they can cheer up sick children and help them to do their physical exercises.

The inventors of Pepper are always creating new software to improve the robot. They also say that Pepper has the ability to learn itself over time. So, who knows what Pepper will think of next to put a smile on our faces.

Exercise 1. Read the text and questions (1-4) choose the correct answer (A, B, C or D).

1. The first Pepper robots were bought in

A 2000
B 2015
C 2014
D 2016

2. Pepper can see using cameras on its

A head
B arms
C wheels
D hands

3. In two Belgian hospitals Pepper robots

A find out patients' illnesses.
B help children with schoolwork.
C have replaced human nurses.
D help patients find their way around.

4. Pepper's creators say that it

A can learn on its own.
B can't accept new software.
C doesn't live for a long time.
D will be replaced by a new robot.

Exercise 2. Read again and answer the questions.

1. What is a 'humanoid' robot?
2. How can Pepper move around?
3. How do Pepper robots help young patients in Belgian hospitals?
4. Apart from hospitals where else could people use Pepper robots? In what way?
5. Would you like to own a robot like Pepper? Why?/Why not?

Exercise 2. Complete the advert. Use: ***cheer, greet, move, understand, make, tell.***

Pepper – the social robot

- Pepper can 1) …… human emotions.
- It can 2) ……. people up when it recognizes a sad voice or body languages.
- It can 3) …… jokes, and sing and dance.
- It has cameras and microphones and can 4) …… around on two wheels.
- It can 5) ……. customers and show them around.
- Pepper can 6) ……. a big difference in people's lives. Buy yours today.

CONVERSATION

Exercise 2. Discuss the following questions

1) Why do you think Pepper is so popular in Japan?
2) Are robots popular in your country?
3) Could Pepper be part of your family? Why (not)?
4) Why do you think scientists are trying to develop robots that look like and behave like humans?

Text 4C.

Read an article about robot teacher to practice and improve your reading skills.

Robot teachers

Before reading

Do the preparation task first. Then read the text and do the exercises.

Preparation task

Match the definitions (a-f) with the vocabulary (2-6).

Vocabulary	**Definitions**
1. ….. a takeover	a. the ability to think of new ideas
2. ….. to adapt	b. to think something is less than it is
3. ….. to underestimate	c. to work out what kind of illness someone has
4. ….. empathy	d. when someone takes control of something, like a job or a place
5. ….. to diagnose	e. to change something so that it fits better
6. ….. creative	f. the ability to deeply understand someone's situation or feelings

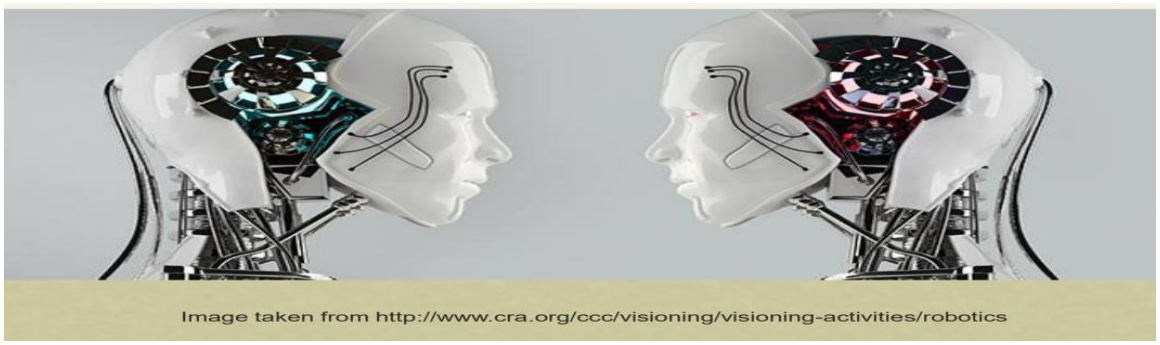


Image taken from http://www.cra.org/ccc/visioning/visioning-activities/robotics

If you think of the jobs robots could never do, you would probably put doctors and teachers at the top of the list. It's easy to imagine robot cleaners and factory workers, but some jobs need human connection and creativity. But are we underestimating what robots can do? In some cases, they already perform better than doctors at diagnosing illness. Also, some patients might feel more comfortable sharing personal information with a machine than a person. Could there be a place for robots in education after all?

British education expert Anthony Seldon thinks so. And he even has a date for the robot takeover of the classroom: 2027. He predicts robots will do the main job of transferring information and teachers will be like assistants. Intelligent robots will read students' faces, movements and maybe even brain signals. Then they will adapt the information to each student. It's not a popular opinion and it's unlikely robots will ever have empathy and the ability to really connect with humans like another human can.

One thing is certain, though. A robot teacher is better than no teacher at all. In some parts of the world, there aren't enough teachers and 9–16 per cent of children under the age of 14 don't go to school. That problem could be partly solved by robots because they can teach anywhere and won't get stressed, or tired, or move somewhere for an easier, higher-paid job.

Those negative aspects of teaching are something everyone agrees on. Teachers all over the world are leaving because it is a difficult job and they feel overworked. Perhaps the question is not 'Will robots replace teachers?' but 'How can robots help teachers?' Office workers can use software to do things like organise and answer emails, arrange meetings and update calendars. Teachers waste a lot of time doing non-teaching work, including more than 11 hours a week marking homework. If robots could cut the time teachers spend marking homework and writing reports, teachers would have more time and energy for the parts of the job humans do best.

Exercise 1. Are the sentences true or false?

1	Most jobs seem as if they can be done by robots or computers.	True	False
2	Robots are always better at diagnosing illnesses than doctors.	True	False
3	Many experts agree robots will replace teachers by 2027.	True	False

4	One advantage of robot teachers is that they don't need to rest.	True	False
5	Robot assistants could help teachers by marking homework and writing reports.	True	False
6	Some teachers use robots to reduce their time answering emails and marking homework.	True	False

Exercise 2. Choose the best answer.

1. It's easy to think robots ….
 a) will replace people even if we don't like the idea.
 b) are more capable than people and it's true.
 c) can do less than people but it's not always true.
2. Anthony Seldon thinks teachers in the future will …
 a) help robots in class.
 b) teach knowledge to students.
 c) no longer exist.
3. Robots will probably never …
 a) have human understanding of emotions.
 b) be a popular choice for teachers.
 c) be intelligent enough to work in education.
4. Some parts of the world ...
 a) pay robots to teach.
 b) already use robots in teaching jobs.
 c) have a shortage of teachers.
5. Teachers …
 a) work harder than office workers.
 b) have less help than office workers.
 c) leave their jobs to become office workers.
6. Robots could …
 a) empathize with students.
 b) mark homework.
 c) prepare lessons.

Discussion

Would you like to have a robot as a teacher?

Text 4 D

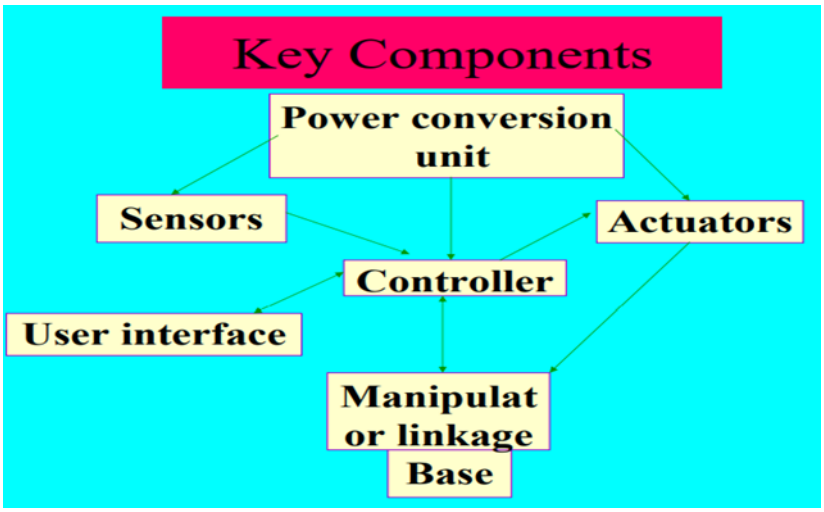
Read the text and discuss it with your groupmate

Knowledgebase for Robotics

- Typical knowledgebase for the design and operation of robotics systems
– Dynamic system modeling and analysis

– Feedback control
– Sensors and signal conditioning
– Actuators (muscles) and power electronics
– Hardware/computer interfacing
– Computer programming

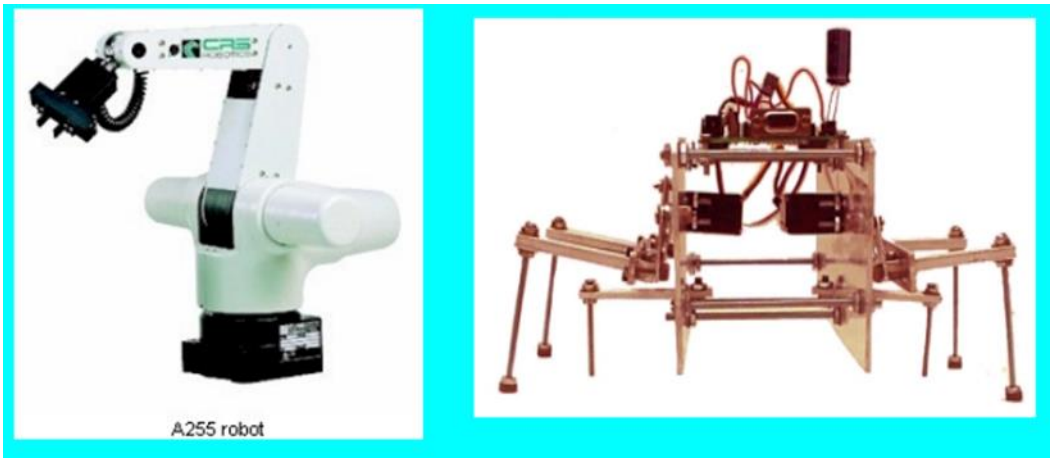
Disciplines: mathematics, physics, biology, mechanical engineering, electrical engineering, computer engineering, and computer science.



Robot Base: Fixed v/s Mobile

Robotic manipulators used in manufacturing are examples of fixed robots. They cannot move their base away from the work being done.

Mobile bases are typically platforms with wheels or tracks attached. Instead of wheels or tracks, some robots employ legs in order to move about.



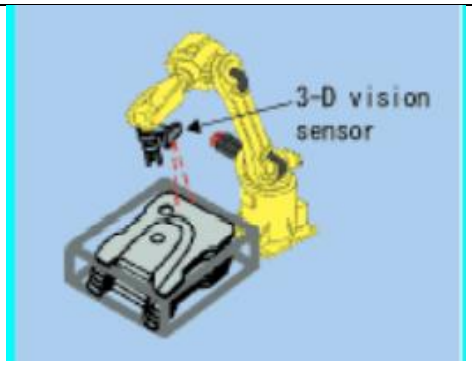
Sensors

Human senses: sight, sound, touch, taste, and smell provide us vital information to function and survive.

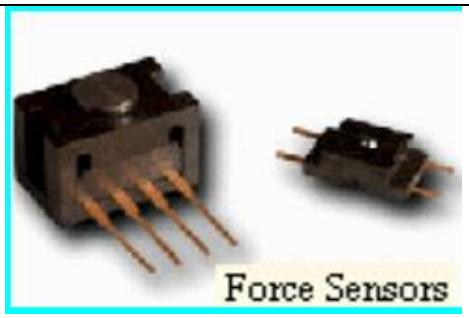
Robot sensors: measure robot configuration/condition and its environment and send such information to robot controller as electronic signals (e.g., arm position, presence of toxic gas).

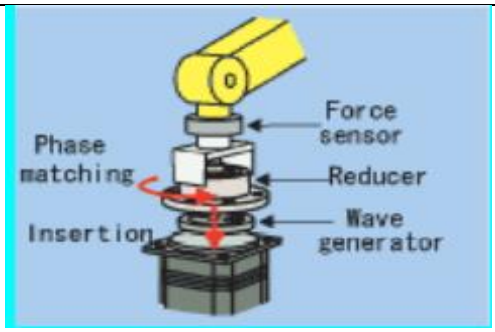
Robots often need information that is beyond 5 human senses (e.g., ability to: see in the dark, detect tiny amounts of invisible radiation, measure movement that is too small or fast for the human eye to see).

Vision Sensors

Vision Sensor: e.g., to pick bins, perform inspection, etc.	
Part-Picking: Robot can handle In-Sight Vision Sensors work pieces that are randomly piled by using 3-D vision sensor. Since alignment operation, a special parts feeder, and an alignment pallete are not required, an automatic system can be constructed at low cost.	

Force Sensors

Force Sensor: e.g., parts fitting and insertion, force feedback in robotic surgery.	

Force Sensor: e.g., parts fitting and insertion, force feedback in robotic surgery	

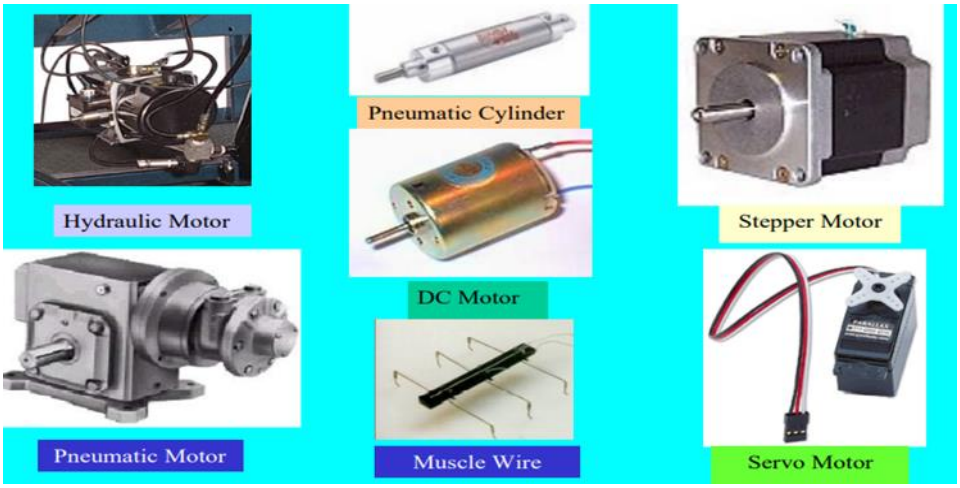
Proximity Sensors

	
•ultrasonic sonar transducers to explore wide, open areas •Obstacle detection over a wide range from 15cm to 3m • 16 built-in infrared proximity sensors (range 5-20cm) •Infrared sensors act as a “virtual bumper” and allow for negotiating tight spaces	

Actuators/Muscles: I

Common robotic actuators utilize combinations of different electro-mechanical devices – Synchronous motor – Stepper motor – AC servo motor – Brushless DC servo motor – Brushed DC servo moto	

Actuators/Muscles: II



Controller

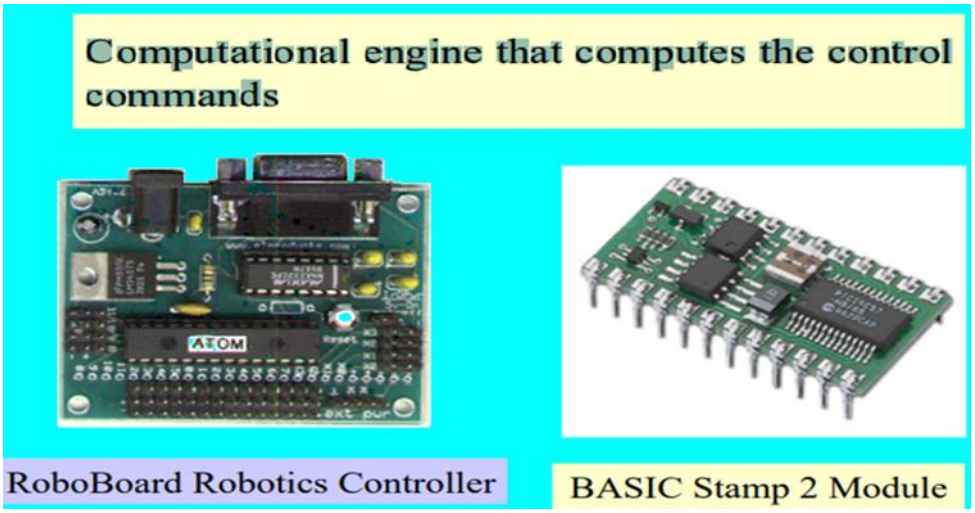
- Provide necessary intelligence to control the manipulator/mobile robot.
- Process the sensory information and compute the control commands for the actuators to carry out specified tasks.

Storage Hardware

Storage devices: e.g., memory to store the control program and the state of the robot system obtained from the sensors.

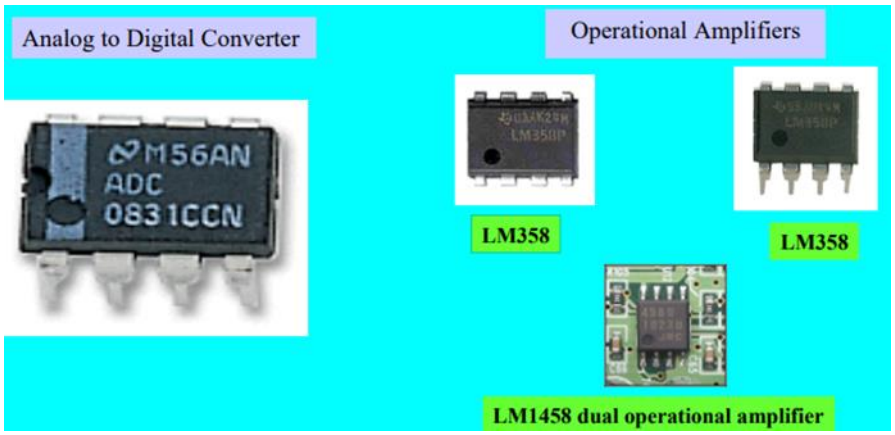
Computation Hardware

Computational engine that computes the control commands



Interface Hardware

Interface units: Hardware to interface digital controller with the external world (sensors and actuators)



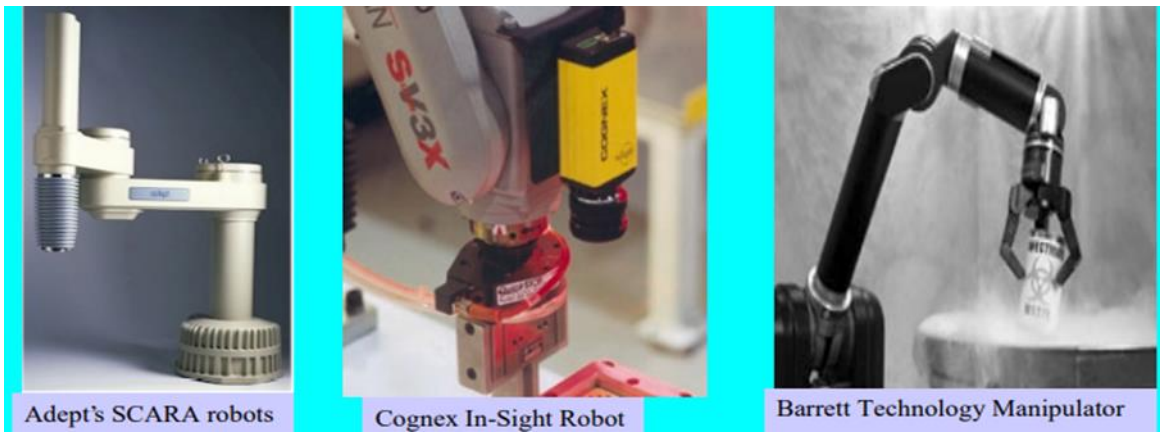
History of Robotics

The first industrial robot: UNIMAT

1954: The first programmable robot is designed by George Devol, who coins the term Universal Automation. He later shortens this to Unimation, which becomes the name of the first robot company (1962).

1978: The Puma (Programmable Universal Machine for Assembly) robot is developed by Unimation with a General Motors design support.

1980s: The robot industry enters a phase of rapid growth. Many institutions introduce programs and courses in robotics. Robotics courses are spread across mechanical engineering, electrical engineering, and computer science departments.



1995-present: Emerging applications in small robotics and mobile robots drive a second growth of start-up companies and research.

2003: NASA's Mars Exploration Rovers will launch toward Mars in search of answers about the history of water on Mars.

SELF STUDY EXERCISES

Exercise 10. Name the stem from which the following words are derived:

development, conveniently, communication, production, continuous, beginning, transmitter, action, recorder, electronic, simultaneously, different, usable, central, calculator, possibility, disconnect.

Exercise 11. Write out synonyms and antonyms.

tiny – small; to disappear – to appear; a lot of – many; different – various; next – following; short – long; to watch – to see; program – show; commonly – usually; less – more; possible – impossible; true – untrue; small – large; nowadays – at present, now; large – tremendous; advance – progress; to start – to begin; major – main; to report – to announce; to occur – to take place; convenient – suitable.

LESSON 5

Passive Voice (Simple, Continuous, Perfect). Attributes. Attributive clauses Suffixes – *ive, -ure*. Text 5A. *Computers. Is there an End to the Computer Race?* Text 5B. *Computers Concern You* Text 5C. *Computer system* Text 5D**.** *Quantum computers*

EXERSICES

Exercise 1. Translate the phrases paying attention to the expression of attribute.

A new invention, to be of great importance, books available in this library, at this time, our professor's lectures, the building of their institute, an institute's library, a television programme, our central TV programme, the first television set, the first pocket-size colour television set, today's shows, a tiny nine-by-twelve inch box, the 1939 World Fair, a reading room, people living in different time zones of the country, modern TV sets appearing now, a written text, a factory built in Siberia, an article to translate, the first to translate those texts.

Exercise 2. Find the attribute in the sentences and translate them.

A. 1. There are twenty-five students in our group, five students got excellent marks for all their exams. 2. Students studying at our institute must know mathematics well. 3. The device made at our laboratory will be used in industry. 4. It

is a short and easy text; our students don't need a dictionary to translate it. 5. Scientists working at new computers have a lot of different problems to solve. 6. A citizen of our country was the first to circle the globe. 7. The first television black-and-white pictures produced a sensation in 1939. 8. A tiny nine-by-twelve-inch box was displayed at the 1939 World Fair. 9. Now we can see many different radio and TV sets in every house. 10. Computers of different types and sizes have appeared in every country of the world.

B. 1. Materials necessary at present to produce supercomputers are difficult to make. 2. A system capable of transmitting long distance messages was developed at the end of the last century. 3. People present at the World Fair in New York were interested in the new invention. 4. Some general engineering subjects difficult for the first-year students are necessary for studying specialized subjects.

Exercise 3. Change the sentences where possible according to the examples and translate.

A. *e.g.: The experiments* ***which Satpaev made*** *were discussed at the University meeting. The experiments* ***Satpaev made*** *were discussed at the University meeting.*

1. Newton's great work which was published in 1687 is called «Principia». 2. The Chemical Society which is named after Mendeleev was organized more than a century ago. 3. The subjects that the students study in the first and second years are very important for their future specialty. 4. The invention which the scientist made did not interest the government.

B. e.g.:*: The laboratory* ***in which the students will work*** *is in a new building. The laboratory* ***which the students will work in*** *is in a new building. The laboratory* ***the students will work in*** *is in a new building.*

1. The film about which we were told had been made several years before. 2. The magazine in which a very interesting article is published is available in our library. 3. The material of which this instrument is made is a new one. 4. This is a subject about which we don't know much. 5. The actors about whom we heard so much came to our town. 6. Have you seen the main components which the new device consists of?

Exercise 5. Find the translation for the following phrases.

to be in general usage; electronically controlled; in other words; of a few square millimeters; commonly; the more ..., the more; operation by operation; according to; advantage over; a thousand times faster.

сәйкес, бойынша, согласно; көлемі бірнеше мм, размером в несколько мм; электронды түрде басқарылады, с электронным управлением; неғұрлым көп ... соғұрлым көп, чем больше ..., тем больше; жалпылай пайдалануда болады, являться общеупотребительным; бір іс-әрекеттен кейн екінші іс-әрекет, операция за операцией; әдетте, обычно; 1000 есе жылдам, в 1000 раз быстрее;

басқа сөзбен\ өзгеше\ нақты айтқанда, другими словами, артықшылығын салыстыратын болсақ, преимущество по сравнению.

WORD FORMATION

Exercise 6. A. Translate the following derived words:

Verb or noun + -ive = adjective

to act *–әрекет жасау\ қимылдау, действовать;* active *– жігерлі, әрекетті, деятельный;*

intensity – қарқындылық, интенсивность; intensive – қарқынды, жедел, шұғыл, интенсивный;

to conserve – conservative, progress – progressive, effect – effective, mass – massive, to react – reactive;

suffix of the noun - ure

nature – *табиғат, түп негіз, жаратылыс, природа;* culture – *мәдениет, культура;*

structure, manufacture, future, measure, feature, agriculture;

prefix super- (аса (жоғары), сверх, супер)

supernatural *–ғажайып, бұрын-соңды болып көрмеген, сверхъестественный;* superpower – *күшті, бақуатты, басымды держава, сверхдержава;*

supergenius, supercomputer, superman, supermarket, supersonic, superhot, superconductor.

B. Form and translate derivative words according to the sample:

Prefixes: ***micro-, mini-*** *(микро-, мини-)*

microscope – микроскоп, microscopic – микроскопиялық, микроскопический

computer, chip, electronics, fiche, film, phone, processor, wave, organism;

minimum – минимум, minimal – ең аз, ең кем, ең қысқа, ең төмен, минимальный; minimize – ықшамдау, азайту, минимизировать, сводить к минимуму;

computer, screen, tour, bus, skirt, -sized.

Exercise 6. Read and translate international words.

computer, supercomputer [su͡ːpə(r)kəmpju͡ːtə(r)], general ['ʤen(ə)r(ə)l], millions, electron, electronics, electronic instrument, electronically controlled machines [mə'ʃiːnz], airplane, globe ['gləub], millimeter, center, operation, components [kəm'pəunənts], materials [mə'tıərıəlz], laboratory [lə'bɔrət(ə)rı], modern, seconds, physical ['fızık(ə)l], limit, specialists ['speʃ(ə)lıst], photons ['fəutɔnz].

Exercise 7. Read and memorize the pronunciation of the following words.

race [reɪs], usage ['juːsɪʤ, -zɪʤ], device [dɪ'vaɪs], circle ['sɜːkl], world [wɜːld] circuit ['sɜːkɪt], undoubtedly [ʌn'dautɪdlɪ], require [rɪ'kwaɪə, quality ['kwɔlətɪ], quantity ['kwɔntətɪ] purity ['pjuərətɪ], produce ['prɔdjuːs], throughout [θru'aut], reliable [rɪ'laɪəbl], whole [həul], perform [pə'fɔːm], simultaneously [ˌsɪm(ə)l'teɪnɪəslɪ], basic ['beɪsɪk], available [ə'veɪləbl], research [rɪ'sɜːʧ], expect [ɪk'spekt].

WORDS AND WORD COMBINATIONS TO REMEMBER

according to *adv* – сәйкес, бойынша, согласно, соответственно
available *a* – қолжетімді, доступный, имеющийся в распоряжении
beam *n* – сәуле, нұр, луч
built-in *p.p.* – кіріктірілген, бірге орналастырылған, встроенный
by means of *prp* – арқылы, бір заттың көмегі арқылы, посредством, при помощи
calculation *n* – есептеу, вычисление
generation *n* – ұрпақ, поколение
go on v – жалғастыру, продолжать (ся)
machine-tool *n* – машина, станок
matter *n* – іс, мәселе, дело, вопрос
ordinary – кәдімгі, обыкновенный
perform v – орындау, жасау, выполнять, делать, исполнять
quality *n* – сапасы, качество
reliable *a* – сенімді, берік, надежный
ferrite [ˈfɛrʌɪt] – магнитодиэлектрлі, магнитодиэлектрик; ферриттік, ферритный
ternary ['tɜːn(ə)rɪ] – үш трёхкомпонентті, трёхкомпонентный
obsolescence [ˌɔbsə'les(ə)n(t)s] – ескіру, тозу, устаревание; моральный износ
capable – қабілетті, способный
circuit *n* – схема, сызба, тізбек, схема, цепь
close *a* – жақын, таяу маңда, тығыз, близкий, тесный
complete v – аяқтау, бітіру, завершать
control – басқару, жүргізу, управлять, контролировать
depend on v – бір нәрсеге тәуелді болу, зависеть от
fast *a* – тез, жылдам, быстрый
require v – сұраныс, талап ету, требовать(ся)
speed *n* – жылдамдық, скорость
surround v – қоршау, окружать
task *n* – жаттығу, тапсырма, задание, задача
up to *prp* – дейін, вплоть до
usage *n* – пайдалану, қолдану, использование
whereas *conj* – болғанда, кезінде, ал, тогда как, в то время как
co-founder *noun* **a joint founder** – компанияның, корпорацияның негізін қалаушы, основатель компании (корпорации)
ubiquitous [juːˈbɪkwɪtəs] – барлық жерде, түгел дерлік, жер-жерде болатын, повсеместный вездесущий;
superficial [ˌs(j)uːpə'fɪʃ(ə)l] – үстіртін, негізсіз, поверхностный; неглубокий; неосновательный внешний;

Text 5A

Read the text and comment on its title. Is the author correct in giving such a title? Find relevant facts in the text. Translate.

Is there an End to the Computer Race?

In our modern world the word “electronics” is in general usage. Millions of people have various electronic gadgets. In industrial enterprises and plants we are surrounded with electronically controlled machines and instruments, we travel by airplanes, ships, trains and cars with built-in electronic devices and satellites circle the universe.

A tiny silicon plate[1] of a few square millimeters, an integrated circuit[2], or a chip[3], as it is more commonly known is undoubtedly one of the most sophisticated[4] inventions of humanity, science and technology. It is in the heart of every electronic device and the more electronic devices we need, the more integrated circuits are required.

As the operation of an integrated circuit depends on microscopic «components», the purity of all materials and the cleanness at the plant they are produced at must be of the highest quality. A continuous search is going on in laboratories throughout the world for developing more perfect, reliable and high speed electronic circuits.

In the past it took[5] scientists and researchers a whole lifetime to make a few thousand calculations, whereas for a modern computer this task is a matter of a few seconds. At present computers capable of performing billions of operations a second are required. Supercomputers are different from ordinary computers. The ordinary computer does the computations operation by operation, while the supercomputer operates like a brain: all operations are being done simultaneously.

In the next few years engineers will complete the work on computers of above 2 billion operations a second. It will take a few more years to produce a 10-billion operations computer. Computers performing 100 billion operations a second will become available in the near future. Is there an end to this race?

According to some researchers, we are close to what can be regarded as a true physical limit. But other specialists think that photons will make the operation a thousand times faster. This means that in the future it will be possible to expect the appearance of photon computers and that computations will be done by means of light. Light has several advantages over electronics: light beams are faster, travel in parallel lines and can pass through one another without interference[6]. Already, the optical equivalent of a transistor has been produced, and intensive research on optical-electronic computers is being carried out in a number of countries around the world. In a few decades a new age of light may replace the still youthful electronic age. The race is going on.

Notes to the Text

1. silicon plate – кремний пластинасы, кремниевая пластина
2. integrated circuit – интегралдық схема, сүлбе, интегральная схема
3. chip – кристалл, қатты зат, кристалл
4. sophisticated – күрделі, сложный
5. it takes ... (one year) – қажет, керек, требуется
6. interference – өзара ықпал ету, кедергі, взаимное влияние, помехи

Exercise 8. Look through the text 5 A and answer the questions.

1. What electronic products can we meet in our everyday life?
2. What is an integrated circuit?
3. Can electronic devices operate without an integrated circuit?
4. What are the ideal conditions for operation of an integrated circuit?
5. How are supercomputers different from ordinary computers?
6. What advantages does light have over electronics?

Exercise 9. Indicate which of the following statements correspond to the content of the text 5A.

1. Nowadays an integrated circuit is the main component of everyday device. 2. Supercomputers are in general usage now. 3. The operation of integrated circuits depends on their microscopic component quality. 4. Some researchers think that we are close to a physical limit in increasing computer operation speed. 5. Supercomputers are similar to ordinary computers. 6. By the beginning of the 21st century the electronic age may replace the light age. 7. It is possible to expect the appearance of optical-electronic computers in the future.

Exercise 10. Listening 5.1. Listen to the texts and fill in the gaps.

It's hard to believe that no one had _____ a few years ago. I wonder how people lived. There must have been a lot of _____. I can't _____ writing everything by hand. I also wonder how everything worked without computers. We need computers today for everything. Hospitals, airports, the police… nothing can _____ without computers. I'm sure I'd be ten times _____ than now if I didn't have a computer. Imagine having to find a piece of paper and an envelope and then walking down the street to _____ letter! I love my computer. It makes everything _____so convenient. Sure, it freezes and crashes sometimes. Sure I _____ some data. But that's not often. Most of the time my computer is like my best friend.

Listen again and answer the questions.

1. What role does a computer play in his life?
2. What problems does he usually have with his computers?

Exercise 11. Listening 5.2. Listen to the texts and fill in the gaps.

When I was a kid, I had never heard of _____. If someone showed me this word, I would have no _____ what it meant. Today, of course, it's probably one of our most commonly used _____. We can't live nowadays without software. We need an _____ to run our computers. Then we need software to make documents, _____ our music and photos, play games, surf the Internet, and a million other things. Without software, the _____ would probably stop. The great thing about software is that it gets better and better. A few years ago, software didn't do much. It was very simple. Today, there's very little software can not do. I'm not sure what my _____ software is. There is too much to choose from.

Listen again and answer the questions.

1.What is software?
2. What do we need software for?

Exercise 12. Specify how the attribute is expressed in the sentences.

A. Two days ago we watched a very late TV programme of a football match. 2. Toktar Aubakirov made his first space flight on October 2, 1991. 3. I've heard that 20 well-equipped laboratories could be opened in our research institute. 4. This country has powerful energy systems with the world's largest hydro and thermal power stations and nuclear plants. 5. How can architects solve the problem of living in a region where night lasts for several months and where the temperature may be between 40 °C and 50 °C?

B. 1. The experiments carried out by Bell and Watson didn't give any positive results for a long time. 2. In many countries scientists interested in electricity wanted to find out whether it could be used for a long distance communication. 3. Articles published by Franklin in 1752 dealt with electricity. 4. Communication satellites used by all countries make intercontinental television transmission possible.

C. 1. Nowadays computers capable of performing billions of operations a second are required. 2. People present at the demonstration of the new invention were sure of its great future. 3. Wind and solar energies available throughout the earth must be used for useful purposes. 4. Computers available everywhere nowadays make our life easier.

D. 1. Mendeleev was the first to make a classification of chemical elements. 3. The thermometer is a device to measure temperature. 4. Faraday was the first to invent a dynamo. 5. A telephone set is a device to reproduce sounds.

E. 1. Materials new computers depend on must be of the best quality. 2. The number of components supercomputers consist of is great. 3. The plants computer components are produced at must be superclean. 4. The laboratory the Curies worked in was very primitive. 5. The problem Bell was interested in was not an easy one and it took several years to solve it.

SELF STUDY EXERCISES

Exercise 13. Form words with the prefix -*super* and translate them.
man, power, genius, hot, hard, natural, conductor.

Exercise 14. Find words with a negative meaning.
true, unusual, important, disappearance, incapable, information, undiscovered, capable, untrue, changing, usual, undetected, unimportant, appearance, detected, discovered, intention, possible, include, impossible, disadvantages, imagine, unchanging.

Exercise 15. Determine what parts of speech the words belong to.
superconductivity, superconductive, quality, qualitative, qualitatively, quantity, quantitative, quantitatively, pure, purity, manufacture.

Exercise 16. Name the derivatives of the following words, translate them.
electron, operate, compute, calculate.

Exercise 17. Name the starting form of the words.
factories, carried, living, more, depends, components, highest, took, qualitatively.

Exercise 18. Find in column B the equivalents of the phrases in column A.

A	B
2. to make faster 3. able 4. a lot of 5. at present 6. to make better 7. to be different from 8. a computer which does all operations simultaneously 9. it takes	a. many b. supercomputer c. to improve d. capable e. nowadays f. to increase g. to differ h. it requires

Exercise 19. Find antonyms.

simple, untrue, begin, sophisticated, reliable, efficient, close to, true, complete, low, disadvantage, far from, high, unreliable, inefficient, advantage.

CONVERSATION

Exercise 1. Answer the questions.

1. What influences the operation of an integrated circuit? (the quality of microscopic components it consists of) 2. What is the function of a computer? (making a great number of calculations at a very high speed) 3. What can increase the operation speed many times compared to the present computers? (a photon) 5. What physical phenomenon can be used to improve a computer's speed? (light) 6. What are the advantages of light for computation purposes over electronics? (the capability to move faster, in parallel lines and pass one another)

Exercise 2. Make a sentence out of the two parts.

1. Nowadays electronic devices 2. We are surrounded 3. There are 4. A personal computer 5. People are carried by 6. The modern production is unthinkable 7. It is impossible to imagine	1. airplanes, ships, trains and cars having built-in electronic circuits and instruments. 2. is being used more widely at home and in office. 3. without electronically controlled machine-tools. 4. with electronics everywhere in everyday life and at plants and factories. 5. scientific research without computers. 6. are in general usage. 7. electronic watches we wear, telephone, radio, and TV sets we speak, listen to and watch.

Exercise 3. Speak about:

The application of electronics in everyday life.

New developments in computers.

Use exercise 1, 2 and the following words and word combinations for your topic: to be in general usage, research is going on, throughout the world, further development, high speed electronic circuits of the highest quality, according to some researchers, a photon computer, by means of light, advantage over, in a few decades.

Text 5B

Read the text and find information about the use of computers in people's daily lives and work. Translate the text. Write out and translate the attributive clauses.

Computers Concern You

When Ch. Babbage, a professor of mathematics at Cambridge University, invented the first calculating machine in 1812, he could hardly have imagined the situations we find ourselves in today. Almost everything in modern world is done with the help of computers — the complicated descendants (ұрпақтар, потомки) of his simple machine. Computers are being used more and more extensively in the world today, for the simple reason that they are far more efficient than human beings. They have much better memories and can store (есте сақтау, запоминать) great amount of information and they can do calculations in a fraction of the time required by a human mathematician. No man alive can do 500,000 sums in one second, but a modern computer can.

In fact, computers can do many things we do, but faster and better. They can control machines at factories, work out tomorrow's weather and even play chess, write poetry or compose music. Let's look now at some of the ways in which computers concern people in their daily lives and work.

Many people associate computers with the world of science and mathematics, but they are also a great help to scholars in other subjects: in history, literature and so on. It is now possible for a scholar to find a book or an article he needs very quickly, which nowadays when a million or more new books are published each year is quite an advantage. You tell the computer which subject you are interested in and it produces any microfiche (микрофише, диамикрокарта) you need in seconds.

There are also systems which are being developed to translate articles from foreign magazines by computer and to make up many lists of information which are needed in a modern library. So, computer can help us to deal with the knowledge explosion in many ways. One can imagine a time when libraries will be run by computers, without human beings at all.

Or, let's take another example. When a man drives a car for long distances he has two problems: to keep the car at a constant speed and watch that he does not run into the car in front of him. Engineers are now experimenting with a system which has a computer control of these two problems. The car's computer keeps the speed constant. At the same time the distance between the car and any other car in front of it is measured by a beam of light transmitted forwards. The beam meets the rear

reflectors of the car in front and it is reflected back, which enables to measure the distance. This information is fed to the computer which adjusts (реттеу, регулировать) its speed control accordingly.

Text 5C

Briefly retell the main content of the text in English.

Computer system

A computer is a system unit in which a motherboard is installed with a central processor with a cooling system, RAM, a video processor or a video card, a sound processor or a card and connectors for connecting drives, a monitor, a keyboard and a mouse.

The computer is powered by a power supply that is already installed in the case or sold separately.

A home computer is a universal device for work and entertainment. You can work with graphics, edit videos and play computer games on it. Choosing a home computer, you can choose a laptop, a monoblock, or assemble the system yourself from the system unit, monitor and peripherals.

After the invention of the integrated circuit, the development of computer technology accelerated dramatically. This empirical fact, noticed in 1965 by Intel co-founder Gordon E. Moore, was named after him Moore's Law. The process of miniaturization of computers is also developing rapidly. The first electronic computers (for example, such as the ENIAC created in 1946) were huge devices that weighed tons, occupied entire rooms and required a large number of maintenance personnel for successful operation. They were so expensive that only governments and large research organizations could afford them, and they seemed so exotic that it seemed as if a small handful of such systems would be able to meet any future needs. In contrast, modern computers – much more powerful and compact and much less expensive - have become truly ubiquitous.

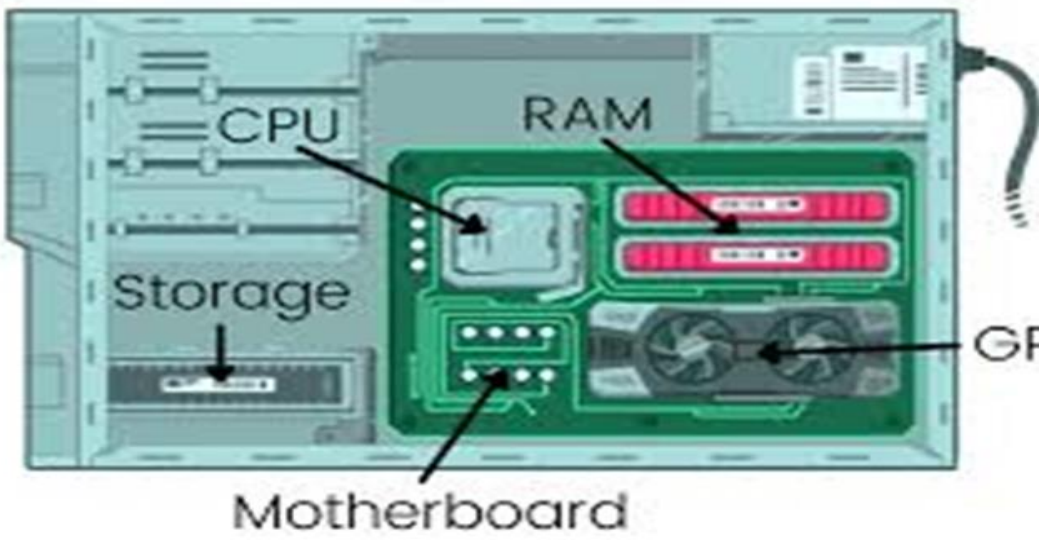
The element basis of a digital computer

- Relay
- Tube
- ferrite diode
- Transistor discrete
- transistor integral

The first ternary computer "Setun" on ferrite-diode cells was built by Brusentsov at Moscow State University.

The superficial nature of the presented approach to the classification of computers is obvious. It is usually used only to indicate the general features of the most common computer devices. The rapid pace of development of computer technology means the constant expansion of its application areas and the rapid

obsolescence of the concepts used. For a more rigorous description of the features of a particular computer, it is usually required to use other classification schemes.



Physical implementation

A more rigorous approach to classification is based on tracking the technologies used in the creation of computers. The earliest computers were completely mechanical systems. Nevertheless, already in the 1930s, the telecommunications industry offered developers new, electromechanical components (relays), and in the 1940s the first fully electronic computers were created, which were based on electronic lamps. In the 1950s and 1960s, transistors replaced lamps, and in the late 1960s and early 1970s, semiconductor integrated circuits (silicon chips) that are still used today. The above list of technologies is not exhaustive; it

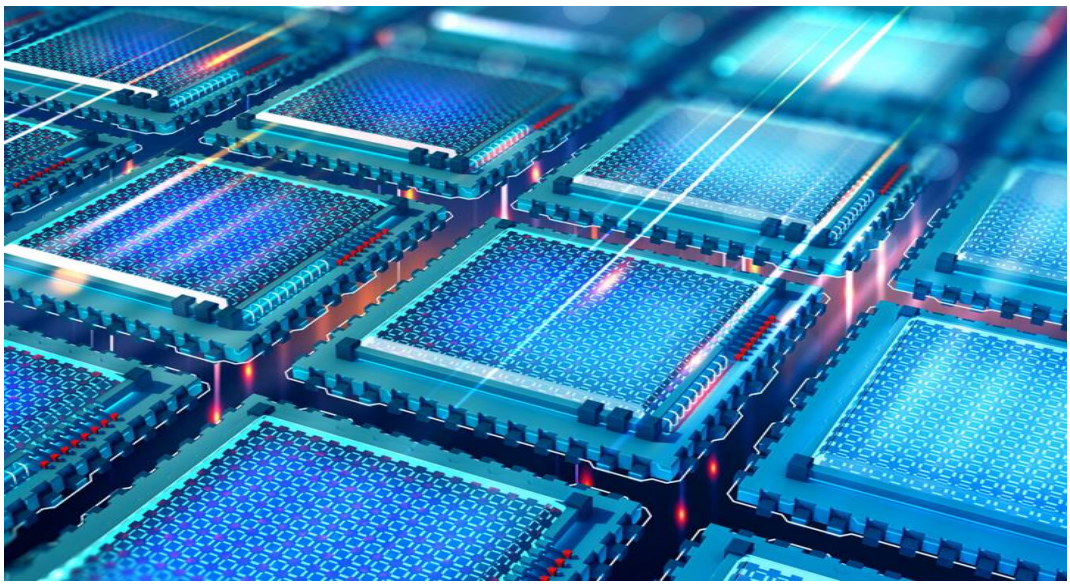
describes only the main trend in the development of computer technology. In different periods of history, the possibility of creating computing machines based on many other, now forgotten and sometimes very exotic technologies has been investigated. For example, there were plans to create hydraulic and pneumatic computers, between 1903 and 1909, a certain Percy I. Ludget even developed a project of a programmable analytical machine operating on the basis of sewing mechanisms (the variables of this calculator were planned to be determined using thread coils).

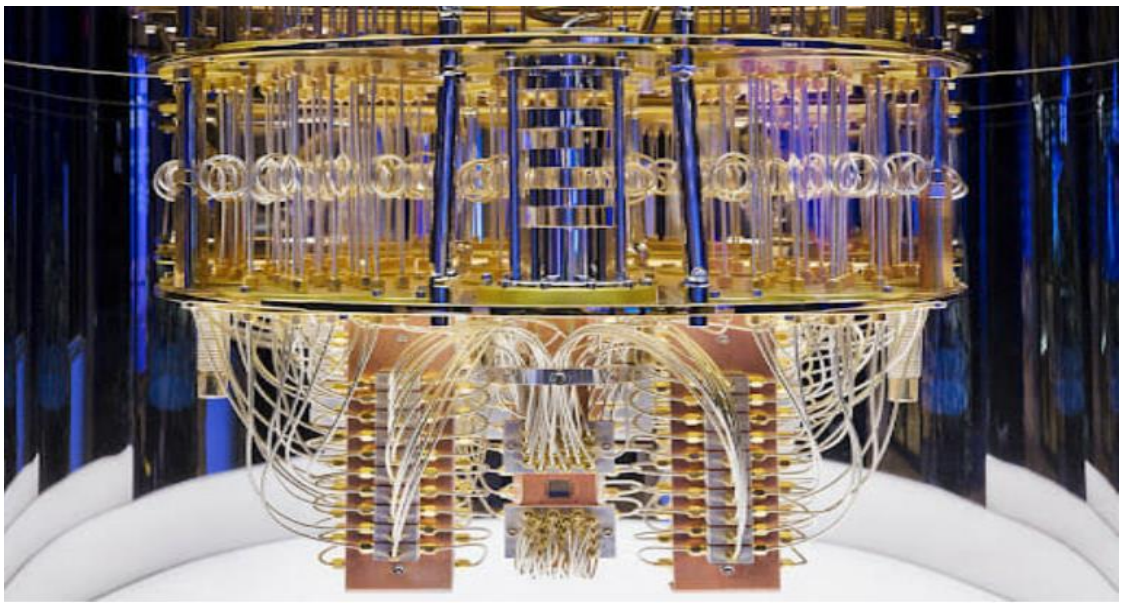
Text 5D

Read the text, find new words and translate the text.

Quantum computers

A quantum computer is a computing device that uses the phenomena of quantum superposition and quantum entanglement to transmit and process data. A quantum computer operates not with bits, but with qubits. As a result, it has the ability to process all possible states simultaneously, achieving huge superiority over conventional computers in a number of algorithms. A full-fledged quantum computer is still a hypothetical device, the very possibility of building which is associated with a serious development of quantum theory. Developments in this field are associated with the latest discoveries and achievements of modern physics. Currently, only single experimental systems have been implemented that execute a fixed algorithm of low complexity. The first practical high-level programming language for this type of computer is considered to be the Equipped language based on Haskell.





Programming

The ability of a machine to execute a certain changeable set of instructions (programs) without the need for physical reconfiguration is a fundamental feature of computers. This feature was further developed when machines acquired the ability to dynamically control the process of program execution. This allows computers to independently change the order of execution of program instructions depending on the state of the data. The first really working programmable computer was designed by the German Konrad Zuse in 1941.

With the help of calculations, a computer is able to process information according to a certain algorithm. The solution of any problem for a computer is a sequence of calculations. In most modern computers, the problem is first described in a form that they understand (while all information is usually presented in binary form - in the form of ones and zeros, although the computer can be implemented on other bases, both integer - for example, a ternary computer, and non-integer), after which the actions for its processing are reduced to the use of simple logic algebra. A sufficiently fast electronic computer can be used to solve most mathematical problems, as well as most information processing tasks that can be reduced to mathematical ones.

ADDITIONAL TASKS

Exercise 1. A. Read the following phrases from text 5A and try to guess the meaning of the highlighted words in this context.

1. the **word** «electronics» is in general usage
2. more **perfect** electronic circuits
3. **billions** of operations
4. what can be **regarded** as
5. the still youthful electronic **age**

B.Choose for each word or phrase highlighted in A that proper to it in meaning.

a. excellent, exact, accurate
b. combination of written symbols forming vocabulary of a language
c. consider
d. great or long period of time with special characteristics
e. one thousand million (GB), 109 (US)

Exercise 2. Read the following definitions of computer terms, dive the Russian equivalents of the highlighted words and phrases. Translate the sentences.

1. **Hardware** means the different types of equipment a computer consists of.
2. A computer's hardware comprises a **central processing unit (CPU)** which is the heart and brain of the computer.
3. **Input and output devices** capable of putting information into a computer and getting it out of it are types of peripheral equipment.
4. **Peripherals** are the units connected to the CPU: input devices, output devices and storage devices.

5. The simplest and most common type of input device is a keyboard, containing a typewriter **keyboard.**

6. A **laser printer** is a kind of output device to print information.

7. Software means the programs needed to operate computer equipment.

8. These programs are on disks, the hard disks inside the computer, or floppy disks, or on CD-ROMs, that is, Compact Disk Read Only Memory, which you can put on or store a large amount of information. A disk is a storage device made of flat circular plates with magnetizable surfaces. A hard disk is a disk made from a solid magnetic material and used as a storage device. A floppy disk (also called diskette) is a disk made of flexible plastic material upon which data are stored on magnetic tracks. Tracks are areas marked on the surface of a disk. A disk drive is the electronic mechanism that actually reads what is on a disk. In hard disks, the disk and the drive are built into a single unit.

9. A word processor is a computer used to write documents, letters and reports, or the software that is used for this purpose.

10. Databases are programs, which allow you to store, look at or change a large quantity of information quickly and easily.

11. Graphics are pictures and symbols a computer program can produce.

12. An extra copy on a floppy disk is called a back-up copy, a copy of data or software, usually kept in case the original disk is damaged or destroyed.

13. A bug possible in a computer operation, also a virus is a software problem or error in a program. Debugging means correcting program errors or bugs.

14. People send e-mail (electronic mail) messages with the help of the Internet, a system that lets computers connect by telephone lines.

15. A laptop is a portable computer weighing about 2 – 4 kg.

16. With a device called the mouse you can do a number of things by clicking on different icons.

17. A mouse is a small input device, on the top of which there are one or more buttons for communicating with the computer.

18. Clicking is a basic mouse action to place a cursor to close a window, etc.

19. An icon is a small picture representing an object, process or function.

Exercise 3. Fill in the gaps with common computer terms. Remember them.

1. data ...	12. mini ...
2. integrated ... or chip	13. ... copy
3. soft ...	14. fifth ... computer
4. ... ROM	15. ... processor
5. hard ...	16. e-...
6. floppy ...	17. ... age
7. ... disk	18. photon ...
8. input, output ...	19. ... writer
9. super ...	20. key ...

10. physical ... 11. ... network	21. laser ... 22. mini ...

Exercise 4. Complete the word formation table.

Verb, Noun	Adjective
Create	…
……	possessive
Act	…
Compete	competitive
Attract	…
…	comparative
Expense	…
Sense	…
Mass	…

Exercise 5. Complete the word formation table.

Noun	Adjective	Adverb
• • • •	• • • •	questionably
Availability	• • • •	—
Capability	• • • •	• • •
• • • •	Usable	—
• • • •	• • • •	possibly
Reliability	• • • •	• • • •
Quality	• • • •	• • • •
quantity	• • • •	Intensively
indispensability	• • • •	—

Exercise 9. Watch videos, write down the new words, try to remember the content and retell.

Video 1. Computer Basics. Inside a Computer.

Video 2 Computer parts

Exercise 10. Match words 1-6 with definitions a-f.

1. online/offline 2. a chat room 3. a provider 4. to publish (a page) 5. a search engine 6. a browser	a) to put (a page) on the worldwide web b) a programme that lets you read information on the internet c) connected/not connected to the internet d) a place where you can 'talk' to other people online e) a company that gives you an Internet connection f) software for finding web pages with the information you want

Exercise 11. Complete the text with the words in the box.

Crashed, download, logged on, network, password, plug, run, run out, save, surfed

My dad told me a story about when he was travelling some time ago and was in an airport VIP lounge. He decided to use his laptop to do some work. There was a place to ***plug*** his laptop in – but he didn't have an adaptor with him, so he had to _____ the laptop on the battery.

Anyway, he switched the computer on and found there was a free Wi-Fi _____ so he got a user name and a _____ and _____ to the internet. He _____ the net for a while, and he found some interesting files connected to his work that he wanted to _____ onto his hard drive. So he started to _____ them. While that was going on, he went off to get something to drink.

When he came back, he found that his computer had _____ . The battery had _____, of course. And not only that – his plane was delayed for three hours and he couldn't use his laptop any more.

LESSON 6

Modal verbs and their equivalents
Verb *to cause*
Combination; *no longer, because of, due to, thanks to*
Suffixes *-ness; -ance/ence; -ist; -ful; -ess*

Text 6A. *New Materials in Engineering*
Text 6B. *Different Types of Engineering Materials*
Text 6C. *Kevlar*
Text 6D. *Car made of the latest hi-tech engineering materials*

EXERSICES

Exercise 1. Replace modal verbs with appropriate equivalents.

1. Students must take exams in January. 2. She can speak French well. 3. You may take this book till tomorrow. 4. We must learn new words every week. 5.1 live not far from my work. I can go by bus or I can walk. 6. You may come in. 7. We can take this book from the library. 8. She cannot do this work in time. 9. He must go to St. Petersburg for a few days. 10. We can see electrical devices everywhere.

Exercise 2. Translate the sentences, paying attention to the translation of modal verbs.

1. Everyone should know a foreign language. 2. To make supercomputers, we need highly developed electronics and new materials. 3. One should do one's work in time. 4. The students ought to know the history of their institute. 5. The development of new materials does not mean that old materials should lose their significance. 6. Marie Curie needed a laboratory and equipment for her research. 7. Every institute ought to be proud of their famous graduates. 8. One should know that «roentgen» is a unit (единица) of radiation.

Exercise 3. Choose the correct modal verb or its equivalent.

есептеуге болады, можно вычислить — (must, can, should) calculate; орындай алу, быть в состоянии выполнить — (have to, be able to, be allowed to) carry out; болжау мүмкін емес, нельзя предсказать — (can't, needn't, be not able to) predict; 10-да басталу керек, должны начаться в 10 — (have to, may, be to) begin at 10; білу керек, следует знать — (should, may, need) know; құрудың қажеті жоқ, не нужно создавать — (may not, needn't, should not) create; пайдалану қажет, необходимо использовать — (must, be allowed, may) use; сіз бұл кітапты ала аласыз, можно взять эту книгу — (must, can, may) take this book; қыңырлана жасағысы келмеу, упорно не желать сделать — (need, wouldn't, must) do.

Exercise 4. Translate the sentences.

1. Ол ағылшын тілінде оқи алады және жаза алады.\Он может читать и писать по-английский. 2. Ол бұл жұмысты айдың соңында орындауы керек.\Она должна сделать эту работу в конце месяца. 3. Студенттер енді аудиторияға кіре алады.\Теперь студенты могут войти в аудиторию. 4. Ол осында жаттыға алады.\Она может заниматься здесь. 5. Ол бұл мақаланы оқуы керек.\Он должен прочитать эту статью. 6. Оқулығыңызды алуға болама? \Можно мне взять ваш учебник? 7. Мен кітапханаға барып, кітаптар алуым керек.\Я должен пойти в библиотеку и взять книги. 8. Сізбен бірге баруға болама? \ Можно мне поехать с вами? 9. Бұл бала жүре алама? \ Умеет (может) этот ребенок ходить? 10. Кітапты ертең қайтаруыңыз керек.\ Вы должны вернуть книгу завтра.

WORD FORMATION

Exercise 5. A. Translate the following derived words.

noun+ -ful = adjective

use — пайда, польза -> useful — пайдалы, полезный;

power, skill, success;

noun + -less = adjective

use —пайда, польза -> useless — пайдасыз, бесполезный

change, noise, water, help, end;

adjective + -ness = дерексіз зат есім;

weightless — салмақсыз, невесомый -> weightlessness — салмақсыздық, невесомость

useful, dark, hard, weak;

noun or adjective + -ist = noun

science — ғылым, наука; scientist — ғалым, ученый;

special, art, motor, biology.

B. Translate nouns with suffixes *-ance/-ence:*

resistance — кедергі, қарсылық, сопротивление

consequence, distance, appearance, difference, absence, presence.

Exercise 7. Read and translate international words.

surprise [sə'praɪz], substance ['sʌbst(ə)n(t)s], magnetic [mæg'netɪk], laser ['leɪzə], polymer ['pɔlɪmə], plastics ['plæstɪks], experiment [ɪk'sperɪmənt], orbital ['ɔ:bɪt(ə)l], expert ['ekspɜ:t], start [sta:t], simulate ['sɪmjəleɪt], principle ['prɪn(t)səpl], gravitational [ˌgrævɪ'teɪʃ(ə)n(ə)l], convection [kən'vekʃ(ə)n], temperature ['temp(ə)rəʧə], zero-gravity ['zɪərəuˌgrævətɪ], hydromechanical [ˌhaɪdrəumɪ'kænɪk(ə)l], acceleration [əkˌselə'reɪʃ(ə)n], project ['prɔʤekt].

Exercise 8. Read and memorize the pronunciation of the following words.

label ['leɪb(ə)l], material [mə'tɪərɪəl], alloys ['ælɔɪz], peculiar [pɪ'kju:lɪə], numerous ['nju:m(ə)rəs], pave [peiv], vehicle ['vi:ikl], inertia [ɪ'nɜ:ʃə], process ['prəuses], Archimedes [ˌɑ:kɪˈmi:di:z], consequently ['kɔn(t)sɪkwəntlɪ], separate ['sep(ə)rət], component [kəm'pəunənt], quite [kwait], gases [gæsiz], cause [kɔ:z], research [rɪ'sɜ:ʧ], biochemist [ˌbaɪəu'kemɪst], biological [ˌbaɪəu'lɔʤɪk((ə)l)], special ['speʃ(ə)l].

WORDS AND WORD COMBINATIONS TO REMEMBER

aim v – талпыну, мақсат қою, стремиться, целиться)

alloy *n* – қоспа, сплав

approach v – көзқарас, тәсіл, тәсілдеме, приближаться, подходить

liquid *n* – сұйық, жидкость, жидкий

general background – дайындықтың жалпы деңгейі, общий уровень подготовки

bush [bʊʃ] – қосымша бет, вкладыш; тығын, втулка || тығынды кіріктіру, вставлять втулку или вкладыш; қорап, букса, жең, гильза, өткінші айырғыш зат, оқшаулағыш, проходной изолятор
cement concrete – цементті бетон, цементобетон
certain *a* – белгілі, определенный
condition *n* – жағдай, условие
consequently *adv* – демек, следовательно
corrosive environment – коррозиялық орта, коррозионная среда, агрессивті орта, агрессивная среда
covalent bond – ковалентті байланыс, ковалентная связь
creep resistance – крип, ақырын сырғу, сусымалы қарсылық, крипоустойчивость, сопротивление ползучести
data *n* – деректер, данные
density *n* – тығыздығы, плотность
deterioration [dɪˌtɪərɪə'reɪʃ(ə)n] – нашарлау, бұзылу, ухудшение порча, повреждение, амортизация, тозу, износ
duplex stainless steel – екі фазалы тот баспайтын болат, двухфазная нержавеющая сталь
ductility [dʌk'tɪlətɪ] – 1) икемділік, ковкость, тягучесть, тұтқырлық, вязкость (металла)
2) майысқақтық, иілгіштік, серпімді, созылымдылық, пластичность, эластичность
elevated temperature – жоғары температура, жылылық, қызу, повышенная температура
except *prp* – басқа, бөлек, кроме, қоспағанда, за исключением
expenses incurred – жұмсалған шығындар, понесенные расходы
inevitable [ɪ'nevɪtəbl] – сөзсіз, неизбежный, жалтарыла алмайтын, неминуемый, еріксіз, неотвратимый
manned *p* –адамның көмегімен басқарылатын (корабль), пилотируемый, борттағы адаммен, с человеком на борту
obtain v – алу, получать
oil refinery – мұнай өңдеу зауыты, нефтеперегонный завод; мұнай сүзу зауыты, нефтеочистительный завод
possess v – қолда қажетті мәліметтер болу, обладать, ие болу, қожалық ету, владеть
prohibitive [prə'hɪbətɪv] – шамадан тыс, чрезмерно, өте жоғары, непомерно высокий
reinforce – бекіту, укреплять, күшейту усиливать
i.e. [that is] – яғни, то есть
teflon – политетрафторэтилен (тефлон), тефлон
thus *adv* – солай, осылай болған жағдайда, так, таким образом
solid-state device – қатты күйдегі құрылғы, твердотельный прибор
transmission gear – от алдыру қорабының тісті доңғалағы, шестерня коробки передач
vehicle n – көлік, транспортное средство, ғарыш кемесі, космический летательный аппарат
weight *n* – салиақ, вес
whisker-reinforced – күшейтілген жіп тәрізді кристал, армированный нитевидными кристаллами
Fe – **iron** темір, железо
C – көміртек, углерод
Al – **aluminium** алюминий, алюминий
Cu – **copper** мыс, медь

exposed [ık'spəuzd, ek-] – қорғалмаған, незащищённый, осал, уязвимый, қорғансыз, беззащитный
exposure [ık'spəuʒə], [ek-] – душар ету, (белгілі бір әсерге) подвергание (какому-л. воздействию); көрсету, выставление, күн астында, жаңбырда қалдыру, оставление (на солнце, под дождём)
fireclay ['faıəkleı] – отқа төзімді саз, огнеупорная глина
flake 1) қабыршық, чешуйка 2) үлпек, хлопья 3) үлпек түрінде түсу, выпадать в виде хлопьев; қабыршыққа айналу, превращаться в чешуйки

Ag – **silver** күміс, серебро
Au – **gold** алтын, золото

Text 6A.

New Materials in Engineering

Read the text, give information about new materials in Engineering. Translate the text.

Historical Perspective of Materials

As science and technology advance in the 21st century, progress in many fields will depend on the discovery and development of new materials, processed in more complex ways, and with new kinds of properties.

Materials have been deeply involved with our culture since precivilization era. Historically, the advancement of societies was intimately tied with the development of materials to fulfil the needs of those eras. That is why the civilizations have been named by the level of their material development, for example, Stone Age, Bronze Age, steel age and plastic age. Stone, clay, wood, etc. were the common materials in historical days, but the scenario of present era is completely changed.

Interest in new materials

Interest in new materials for solid-state devices, space technology, and superconductivity, as well as a better understanding of the behavior of materials in the design of structures, automobiles and aircraft, plant processing equipment, electronic devices, biomedical devices, etc., have increased the need for people trained in science and technology of materials.

Education for this field of engineering requires basic studies in mathematics, chemistry, physics and mechanics, plus a general background in engineering

principles, followed by intensive training in the application of these principles to the development and use of materials in a technological society.

Modern Perspective

The advancement of any engineering discipline is not possible without the development of materials and their science, engineering and technology. Rapid advancement in electron-based computers or probable light-based computers in the future, changes in electronics engineering from vacuum valves to very-large-scale microchips (VLSCs), cement concrete (CC) to polymer-reinforced concrete (PRC) in civil engineering, pure metals to duplex stainless steel (DSS) in mechanical engineering, wood to ferroelectrics and ordinary steel to ferrites in electrical engineering are some illustrations which became possible due to developments in materials science.

Why do we study materials?

Many an applied scientist or engineer, whether mechanical, civil, chemical, or electrical, will at one time or another be exposed to a design problem involving materials. Examples might include a transmission gear, the superstructure for a building, an oil refinery component, or an integrated circuit chip. Of course, materials scientists and engineers are specialists who are totally involved in the investigation and design of materials.

Many times, a materials problem is one of selecting the right material from the thousands that are available. The final decision is normally based on several criteria. First of all, the in-service conditions must be characterized, for these will dictate the properties required of the material. On only rare occasions does a material possess the maximum or ideal combination of properties. Thus, it may be necessary to trade one characteristic for another. The classic example involves strength and ductility; normally, a material having a high strength will have only a limited ductility. In such cases a reasonable compromise between two or more properties may be necessary.

A second selection consideration is any deterioration of material properties that may occur during service operation. For example, significant reductions in mechanical strength may result from exposure to elevated temperatures or corrosive environments.

Finally, probably the overriding consideration is that of economics: What will the finished product cost? A material may be found that has the ideal set of properties but is prohibitively expensive. Here again, some compromise is inevitable. The cost of a finished piece also includes any expense incurred during fabrication to produce the desired shape.

The more familiar an engineer or scientist is with the various characteristics and structure – property relationships, as well as processing techniques of materials, the more proficient and confident he or she will be in making judicious materials choices based on these criteria.

Exercise 9. **Review text 6A and answer the questions.**

What is this text about? 2. What do you know about the level of material development? 3. What basic subjects are students required to learn to know better about new materials? 4. Why do we study materials?

Exercise 10. **Find sentences with modal verb equivalents *to have to, to be to***

1. Our country has become a highly industrial one. 4. Why couldn't you do it the day before yesterday? – Because I had to stay late at work. 5. Some materials with useful qualities will have to be produced in space. 6. Such metals as iron, cobalt, nickel and some alloys are much more magnetic than any other substances. 7. The main aim of this article is to explain methods and means of space industrialization. 8. Experiments for industrial production of materials in space are being carried out in many countries. 9. The quality of these metal parts is to be very high.

SELF STUDY EXERCISES

Exercise 11. Determine the parts of speech the words belong to and translate them.

requirement, constituent, scientific, distance, agronomist, ancient, density, differ, hardness, structural, various, magnificent, presence, property, culture, conductor, presentation, probably.

Exercise 12. **Write the verbs that match the words**

surprisingly, difference, equipment, mixture, coming, estimation, weightlessness, production, separately, development, movement, disappearance, functional.

Exercise 13. **Form adjectives from these nouns**

magnet, industry, absence, speciality, weight, probability, orbit, dynamics, preparation, supertransparency, independence, gravitation, superpurity, difficulty, variety.

Exercise 14. **Translate the words, taking into account the meaning of the prefix *super-***

supercritical, superactive, supercooled, superalloy, superhard, superplastic.

Exercise 15. **Give for the following words:**

a) synonyms

to start, movement, nowadays, quality, research, various, a means, manufacture, possess, to occur, consequently, numerous, spacecraft, to use, to substitute, certain;

b) antonyms

distant, to stop, few, to reduce, invaluable, unusual, dependence, minimum.

Exercise 16. **Make sentences about the materials with "*can*…, but … *can't*", or "*can*… and … *can*".**

1. (bend / metal / wood) *You can bend metal, but you can't bend wood.*
2. (heat /air / water) *You can heat air and you can heat water.*
3. (melt / plastic / wood) _____.
4. (scratch / glass / metal) _____.
5. (stretch / nylon / glass) _____.
6. (break / glass / wood) _____.
7. (cut / wood / metal) _____.
8. (compress / air / glass) _____.

Exercise 17. **Listening 6.1. Listen to the text and fill the gaps.**

It's amazing _____ any plastic one hundred years ago. Now it's everywhere. Almost everything _____ plastic in it. Whoever invented it must be really rich. There are all kinds of plastic. It's _____. I once went to an exhibition on plastic. I was shocked to see _____ it is in our lives. Look around you and count how many things you see or have or are wearing that _____. One day, we'll need to find a replacement for plastic. That's because oil _____ plastic is made from oil. Maybe in the future there'll be plastic museums _____ plastic. People will buy antique plastic. I think I'll save some pens and plastic carrier bags. They might _____ in the future.

Text 6 B

Read and discuss the text

Different Types of Engineering Materials

Solid materials have been conveniently grouped into three basic categories: metals, ceramics, and polymers. This scheme is based primarily on chemical makeup and atomic structure, and most materials fall into one distinct grouping or another. In addition, there are the composites, which are engineered combinations of two or more different materials. A brief explanation of these material classifications and representative characteristics is offered next. Another category is advanced materials — those used in high-technology applications, such as semiconductors, biomaterials, smart materials, and Nano engineered materials;

Engineering Materials: Research, Applications and Advances

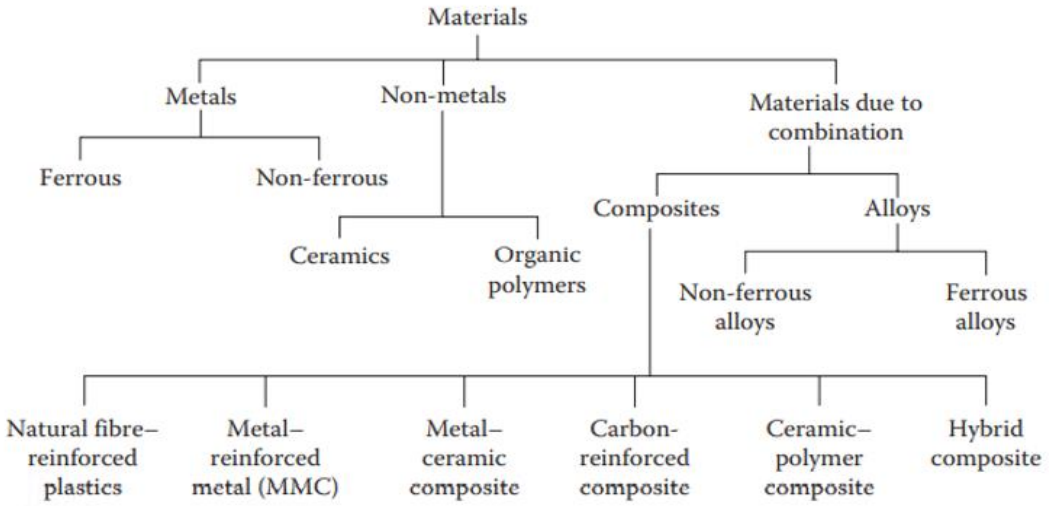


FIGURE 1.1
Broad classification of engineering materials.

Metals

Metals are elemental substances capable of changing their shape permanently. They are good conductors of heat and electricity. These may be of ferrous or non-ferrous type. The behavior and properties of ferrous metals depend on the percentage and the form (phase and constituents) of carbon present in them.

Nonferrous Metals

Non-ferrous metals do not contain Fe and C as their constituents. Aluminum, copper, silver, nickel, zinc, tin, chromium, etc. are some examples. Al, Cu, Ag and Au are good conductors of electricity; Ag is the most malleable, Au is the most ductile, and chromium is corrosion resistant. Zinc is used in metal plating, tin is used to make bushes, and nickel imparts strength and creep resistance.

Ceramics

Ceramics are generally metallic or non-metallic oxides. Physically separable and chemically homogeneous constituents of materials consisting of phases are also ceramics. Rocks, glasses, fireclay and firebricks, cements and limes are ceramics. Ferrites, garnets, ferroelectrics and ceramic superconductors are the latest developments in this area.

Organic Polymers

Organic polymers are relatively inert and light and generally have a high degree of plasticity. These are derived mainly from hydrocarbons. These consist of covalent bonds formed by carbon, chemically combined with oxygen and hydrogen. The word mer in Greek means a unit, mono means one and poly means many. Thus, polymers are obtained from monomers bonded by a chemical reaction (a process

called polymerization). In this process, long molecular chain having high molecular weight is generated. Bakelite, polyethylene, nylon and Teflon are some examples.

Alloys

An *alloy* is a combination of two or more metals. They possess properties quite different from those of their constituent metals. An alloy is prepared for a specific purpose to meet the particular requirement of an application. Alloys may be ferrous alloy or non-ferrous depending on the base metal used.

Composites

Composites may be inorganic or organic. They have two or more constituents of dissimilar properties. The two major constituents may be metals and ceramics, or metals and polymers, or ceramics and polymers or other combinations. Alloys may also be used instead of metals to make composites. One of the constituents (called reinforcing constituent) may be in particulate form, fibrous form or flake form. Fibrous composites are more common in present-day applications. Whisker-reinforced composites are likely to be the future material.

Exercise 18. **Watch videos, write down the new words, try to remember the content and retell.**

Video 1. What is Metal

Video 2. New materials technology

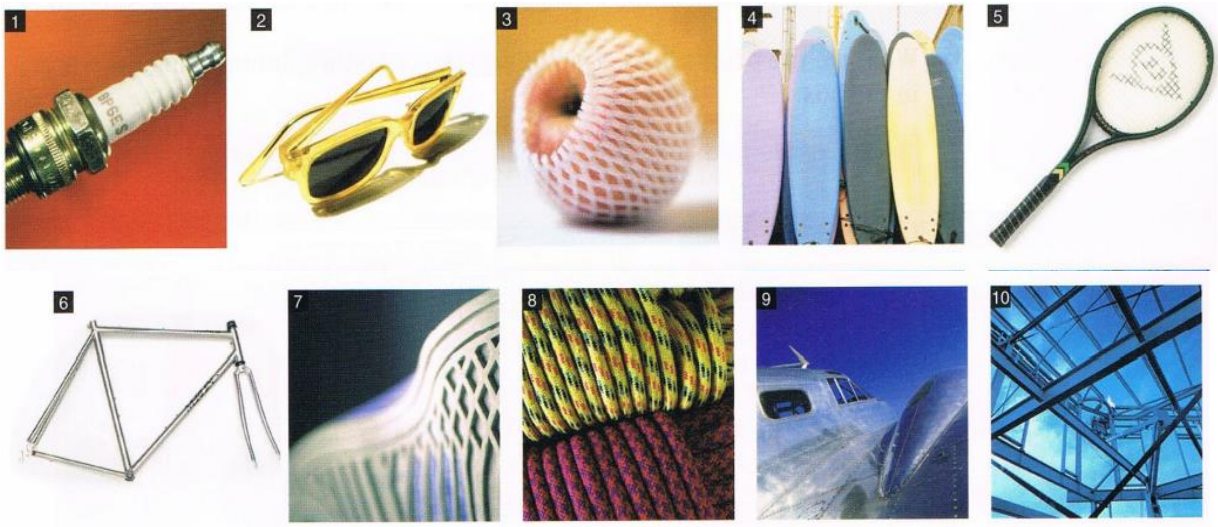
Video 3. Wood sponges that soak up oil

Exercise 19. Find the names of 14 materials in the puzzle and circle them. The words go vertically from top to bottom, and sideways from left to right. No words go diagonally.

B	A	J	L	0	Y	C	O	M	P	0	S	I	T	E
P	L	A	S	T	I	C	E	T	O	Z	P	R	A	K
L	U	R	T	I	B	K	Y	L	L	B	O	J	L	I
O	M	A	L	J	M	O	Q	A	Y	U	L	S	D	A
F	I	B	R	E	G	L	A	S	S	I	Y	T	I	Y
B	N	S	D	R	A	R	X	P	T	B	C	N	A	O
T	I	T	A	N	I	U	M	D	Y	F	A	H	M	I
J	U	E	K	Y	L	B	N	T	R	I	R	V	O	Z
A	M	E	B	L	C	B	F	G	E	A	B	H	N	I
J	R	L	K	O	Q	E	S	V	N	U	O	Z	D	W
Y	Z	C	O	N	C	R	E	T	E	X	N	B	G	Y
H	I	R	J	T	K	U	L	C	E	R	A	M	I	C
S	V	N	X	P	G	R	A	P	H	I	T	E	Q	W
I	Y	B	T	L	E	K	O	E	U	J	E	C	D	I

Exercise 20. What are these made of? Match the photos with these materials.

aluminium, ceramic, fiberglass, graphite, nylon, polycarbonate, polystyrene, rubber, steel, titanium



Text 6 C

Kevlar[1].

Complete this text.

KEVLAR is increasingly popular with manufacturers of motorcycle components and protective clothing. This is because of its (1) _____ (rigid / rigidity), its (2) _____ (tolerant / tolerance) to heat and its high impact (3) _____ (resistant/ resistance). Hiking boot manufacturers use Kevlar® in uppers, soles and laces because it is more (4) _____ (durable / durability) than other fibres. Kevlar also appears in hiking clothes because it is highly (5) _____ (resistant / resistance) to tears and abrasion from branches and rocks. Tennis, squash and badminton racquet strings are often made of Kevlar because it is highly (6) _____ (stretch resistant / stretch resistance). Kevlar frames (7) _____ (resistant / resistance / resist) cracking and fracturing. They are also incredibly (8) _____ (lightness / lightweight) and have extreme (9) _____ (rigid / rigidity).

Kevlar makes high-performance skis and ski boots lighter, more (10) _____ (rigid / rigidity) and more responsive, and (11)_____ (absorbs / absorbent / absorbency) vibration and impact very well. Speed, (12) _____ (stable /stability) and good turning ability are the qualities expected for high performance skis.

Kevlar[1] is a resilient synthetic fiber with a strength of 5 times higher than steel. Developed by scientists of the company "DuPont".

Writing

Exercise 20. **Read sentences *1— 5* about things that Kevlar is used for. Match them to the properties of Kevlar *a — e* that make it suitable for these things**.

1. __*b*__ Kevlar is used for ice hockey masks; it protects the faces of ice hockey players from the flying puck (rubber disc).
2. ____ Fire officers' gloves contain Kevlar, which protect their hands from cuts and fire.
3. ____ In oil production, Kevlar is used to reinforce the risers, the pipes that carry the oil from the ocean floor back up to the production platform.
4. _____ Aircraft cabin floors are built with lightweight, honeycomb-core Kevlar paper, which is fire-resistant and does not easily transmit noise.
5. _____ Snowboard manufacturers use Kevlar to increase board stability and reduce vibration and weight.

a) It provides lightweight rigidity.
b) It has high impact resistance.
c) It is non-flammable and soundproof.
d) It is heat-resistant and abrasion-resistant.
e) It is flexible and waterproof.

Exercise 22. **Make a chart like this about the main materials used in your technical field, and their properties.**

Example: *Technical field: Construction*

Application	Material	Properties
beams and columns	reinforced concrete	rigidity; compressive strength

Exercise 23. Match the adjectives 1-8 with their definitions a-h.

1 *f* ___absorbent	a) can stretch and go back to its original length
2 ____ ductile	b) can resist loads without bending
3 _____durable	c) can be rolled or pulled into a longer, thinner shape
4 _____elastic	d) burns easily
5 _____flammable	e) can be permanently formed into a new shape
6 _____flexible	f) can reduce the effect of a sudden impact
7 _____malleable	g) can bend easily without breaking
8 _____rigid	h) stays in good condition for a long time

Exercise 24. **Match the words with their opposites.**

1	tough	a)	soft
2	hard	b)	heavy
3	rigid	c)	weak
4	strong	d)	brittle
5	light	e)	flexible

Text 6 D

Car made of the latest hi-tech engineering materials

This racing car is made from the latest hi-tech engineering materials. It's made from metals, alloys, ceramics, plastics and composites. Many materials in the car are light, but very strong.

The nose cone of the vehicle is made of strong, light fiberglass.

The spoiler and the wings are made from two materials. The inner core is light. It's made of polystyrene. The outer skin is hard and made of fiberglass.

The frame is light, but very tough and rigid. It's made of cromoly, a steel alloy. The radiator is made of aluminum. The aluminum is coated with ceramic. These two materials are corrosion-resistant.

The engine and pistons are made of a light aluminum alloy. Each piston inside the engine is coated with a heat-resistant ceramic.

The wheels are made of a strong, light aluminum alloy. The tyres are made of a tough rubber composite.

(An alloy is a mixture of two or more metals. A composite is a mixture of two types of material. Fiberglas is a composite. It is a mixture of a plastic and a ceramic.)

Part	What's it made of?	What are its properties?
nose	(1)	(2)

Spoiler and wings	coated with (3)	(4)
wheels	(5) alloy	(6)
tyres	(7) composite	(8)
pistons	coated with (9)	(10)
frame	(11)	(12)
radiator	(13)	(14)

Exercise 25. **Design a plane. Choose one material for each part of the plane.**

1. (nose cone / plastic / aluminium) ***The nose cone is made of aluminium.*** 2. (wheels / fiberglass / aluminium alloy) _____. 3. (tyres / ceramic / rubber composite) _____ . 4. (frame / composite / polystyrene) _____ . 5. (inside / fiberglass / rubber composite) _____ . 6. (seats / plastic / ceramic) _____ . 7. (engine / fiberglass / aluminium alloy) _____ . 8. (wings / aluminium alloy / plastic) _____ .	

ADDITIONAL TASKS

Exercise 27. **Complete with the appropriate modal verb + have + past participle of the verbs in brackets.**

1. A: Did you see the match last night?

B: Yeah, it was brilliant! But Miles _____ (injure) his back quite badly. He could barely walk by the end.

2. A: You _____ (go) mountain biking by yourself! You _____ (get) injured and nobody would have been there to help you.

B: Yeah, I realize that now.

3. A: I heard that Jack has an interview at the university to become an assistant professor.

B: What are you talking about? He _____ (apply) for the position. He hasn't even finished his studies yet.

4. A: Hi, Aizhan. How are you feeling? You sounded depressed on the phone, so I brought you something to cheer you up.

B: I'm a bit better, actually. But you _____ (come) over, and you definitely _____ (buy) all these sweets for me.

5. A: Hey, Cindy. You look nice and relaxed.

B: Yeah. I've taken up pilates and I feel wonderful. I _____ (lose) some weight too, but I haven't weighed myself so I'm not sure.

A: Well, whatever it is you're doing, it's working. Keep it up!

Exercise 25. **Fill in the word formation tables.**

Noun	Adjective	Opposite Adjective
use	• • •	• • •
thought	Thoughtful	• • •
care	…	• • •
...	...	Hopeless

Adjective	Noun	Noun, Adjective	Noun
hard	...	Journal	...
tough	Toughness	Science	…
useful	...	economy	…
• • •	Uselessness	• • •	Metallurgist
hopeful	…	Active	• • •
…	hopelessness	• • •	Humanist
...	Carefulness	chemistry	• « •
careless	...	...	Physicist

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