ТУСУР

Кафедра иностранных языков

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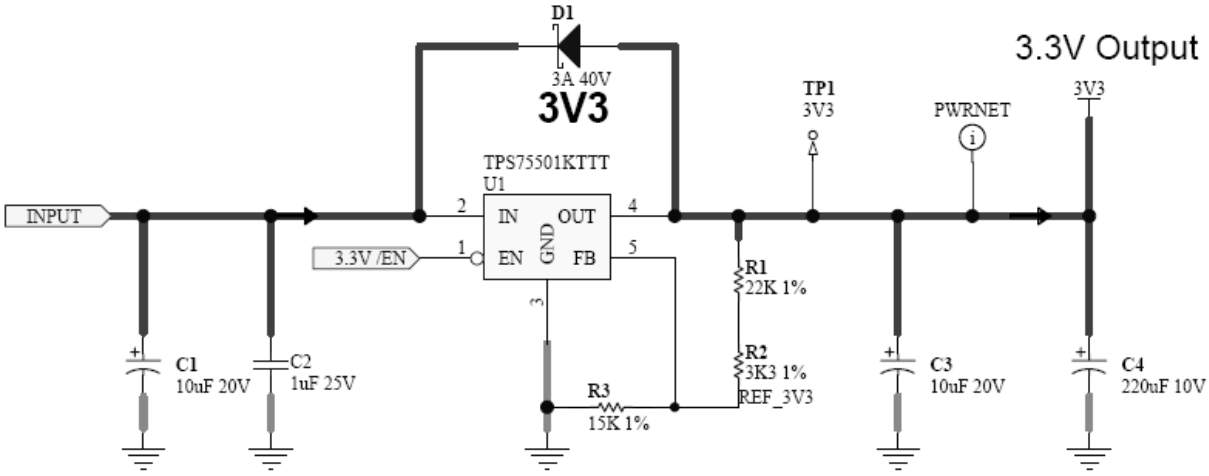
АНГЛИЙСКИЙ ЯЗЫК

Учебное методическое пособие
по чтению научно-популярной
и технической литературы для студентов
I и II курсов радиоконструкторского факультета



ТОМСК 2009

Федеральное агентство по образованию РФ

ТОМСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
СИСТЕМ УПРАВЛЕНИЯ И РАДИОЭЛЕКТРОНИКИ (ТУСУР)

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2009

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Английский язык. Учебное методическое пособие по чтению научно-популярной и технической литературы для студентов I и II курсов радиоконструкторского факультета.

Томск: Томский государственный университет систем управления и радиоэлектроники, 2009. – 83 с.

Цель пособия – подготовить студентов к чтению оригинальной литературы по специальности и ведению беседы в пределах проработанной тематики. В основу пособия положены тексты, посвященные основным направлениям подготовки бакалавров и специалистов – электричество, радиосвязь, цифровая и аналоговая электроника, экологический мониторинг и безопасность жизнедеятельности человека.

Пособие предназначено для студентов специальностей 210201, 160905, 020801, 280101 и дополняет основной курс английского языка, базовым учебно-методическим комплектом (УМК) которого выступает Reward Pre-Intermediate.

СОДЕРЖАНИЕ

ВВЕДЕНИЕ (INTRODUCTION)

Данное пособие по чтению научно-популярной и технической литературы на английском языке предназначено для студентов I и II курсов радиоконструкторского факультета ТУСУРа, имеющих знания базового английского языка.

Цель настоящего пособия – формирование навыков и умений чтения, понимания и перевода оригинальной научно-популярной и технической литературы на английском языке, стимулирование мыслительной деятельности студентов и развитие навыков устной речи в пределах проработанной тематики.

Тексты являются когнитивно значимыми, соответствуют профилю технических предметов, изучаемых по плану специальностей 210201, 160905, 020801, 280101 и дополняют основной курс английского языка, базовым учебно-методическим комплектом (УМК) которого выступает Reward Pre-Intermediate.

Структурно в целях лучшего восприятия содержания пособие состоит из 3 частей. Первая часть включает в себя 20 уроков, вторая – поурочный грамматический справочник, третья часть – пояснения и комментарии. Каждый урок имеет следующую структуру: словарь, основной текст, послетекстовые упражнения. В поурочных комментариях представлены: лексико-грамматический анализ предложений, термины и методы их перевода на русский язык.

Тексты снабжены подробным потекстовым словарем, что дает возможность читать тексты даже при ограниченном словарном запасе. Послетекстовые упражнения способствуют лучшему пониманию текста, направлены на овладение словообразовательными элементами, содержат задания, развивающие навыки эффективной коммуникации.

Пособие также представляет интерес для широкого круга лиц, изучающих английский язык самостоятельно.

PART I

LESSON 1

I. Words for understanding the text.

1. dirty грязный
2. poison яд
3. dust пыль
4. cold простуда, насморк
5. cough кашель
6. disease болезнь
7. lung легкое
8. hurt причинять боль, вред
9. plant растение
10. dirt грязь

II. Read the passage to find out whether the following statements are true or false.

Air pollution

_____ comes from smoke in the air
_____ comes from poison gases and dust
_____ makes dirty air
_____ helps people stay healthy
_____ can affect the heart
_____ hurts only people

Air Pollution

What is air pollution? It is dirt in the air. This is a big problem in some parts of the world. What causes air pollution? People cause it by burning fuel in buses, cars, factories, homes, schools, and trains. The smoke from burning fuel has poison gases and dust. These enter the air and make it dirty.

Why is air pollution bad? The dirty air hurts people. It helps to cause more colds, coughs, and diseases of the heart and lungs. It also hurts plants and animals and makes clothing and buildings dirty,

III. Check your understanding.

1. Answer the questions:

1. What causes air pollution?
2. Does the smoke from burning fuel have poison?
3. Why is air pollution bad?

2. What's the missing? Find the missing nouns in the text:

1. ___cause it by burning fuel
2. The____from burning fuel
3. Poison_____and dust
4. to cause more colds,_____, and diseases
5. makes_____and building dirty

IV. Enlarge your vocabulary.

1. Circle the correct answer.

1. Dirt in the air is called (a) disease; (b) pollution; (c) gases.
2. Burning fuel comes from (a) dust; (b)coughs; (c) cars.
3. Smoke carries (a) poison colds; (b) poison gases; (c) poison plants.
4. Dirty air is bad for the (a) hands and feet; (b) arms and legs; (c) heart and lungs.

2. Give your own answer: *What is air pollution?*

LESSON 2

I. Read the following words and expressions.

1. to play an important part	играть важную роль
2. society	общество, общественный строй
3. to entertain smb.	развлекать кого-либо
4. to influence smb./smth.	влиять, оказывать влияние на кого-либо/что-либо
5. in other words	другими словами, иначе говоря;
6. to shape public opinion	формировать общественное мнение;
7. to dominate	преобладать
8. most of the time	большая часть времени
9. habit	привычка
10. to resist smb./smth.	сопротивляться, оказывать сопротивле- кому-либо/чему-либо
11. audience	аудитория (публика)
12. sentimental drama	мелодрама
13. commercial firm	коммерческая фирма
14. to promote	помогать, содействовать
15. benefit	выгода, польза
16. to convince smb. of smth.	убедить кого-либо в чем-либо
17. to persuade	убеждать, уговаривать
18. dozen	дюжина
19. to bore smb.	надоедать кому-либо, нагонять скуку;
20. little artistic value	не иметь никакой художественной ценности
21. to dispute smth.	обсуждать что-либо, ставить под сомнение, оспаривать что-либо;
22. to show films, comedies	показывать фильмы, комедии
23. there are four separate TV channels	есть четыре отдельных канала на ТВ;
24. to provide	обеспечивать
25. a programme for local in-	местная программа
26. it is a waste of time watch- TV	это потеря времени смотреть телевизор;
27. to agree on the whole	соглашаться в целом
28. valuable	представляющий интерес

29. informative amusing — информационный развлекательный
30. effective — производящий впечатление
31. mass media — средства массовой информации
32. vital — насущный, первостепенной важности
33. to raise a problem — поднимать проблему
34. to talk politics — обсуждать политические события
35. smb's views (on smth.) — чьи-либо взгляды (на что-либо)
36. scientific — научный
37. development — развитие
38. to reach agreement — приходить к соглашению
39. plan for smth. — план относительно чего-либо
40. in protest against smth. — в знак протеста
41. to solve a problem — решать проблему
42. treaty (on smth.) — договор о чем-либо
43. disaster — катастрофа, бедствие
44. to call for smth. — призывать к чему-либо
45. to ensure order (stability, security) — обеспечивать порядок (стабильность,безопасность)
46. (foreign, home) policy — (внешняя, внутренняя) политика

II. Read the text and translate the new words and expressions in it.

Television in our Life

Mass media (that is the press, television and radio) play an important part in the life of society. The television informs, educates and entertains people. It also influences the way people look at the world and makes them change their views. Some people say, "news is not what happens - it is what you see or read in mass media." In other words, television shapes public opinion.

Millions of people in their spare time watch TV and read newspapers. TV dominates a person's life if the family watches it most of the time. TV set is not just a piece of furniture. It is also a habit-forming drug impossible to resist.

Various TV games, such as quiz programmes, attract a large audience. During TV quiz programmes the questions are answered by the viewers.

Then there are daily TV serials known as soap operas. They are sentimental dramas featuring domestic problems of a group of people. Some people find them boring; others consider them to be good entertainment and relaxation.

There is also a lot of advertising on TV. Some commercial firms buy time to advertise their goods.

Advertising promotes business and benefits businessmen but often annoys the general public. The play you are watching on TV may be interrupted several times by an appeal to use a new perfume or detergent.

To convince a viewer that a certain product is the best and to persuade him to buy it takes not only a lot of imagination but also a lot of time. The same advertisements are repeated dozens of times every day, which bores viewers.

But it is hardly fair to say that TV doesn't try to raise the cultural level of people or to develop their artistic taste. Many of TV programmes are excellent: they are made in good taste and with great professional skill. Television brings into millions of homes not only entertainment and news but also cultural and educational programmes.

There are a lot of useful educational programmes on TV - TV course in history, political economy, management and in many other subjects.

III. Check your understanding.

1. Answer the questions:(Use the sentences from the text)

1. What is the function of television?
2. How do you prove that life of a family is dominated by television?
3. What can one see on TV?
4. Why do people often find programmes boring?

2. Complete the phrases, choosing the expressions or sentences in brackets:

1. Television is often criticised for _____ (the poor educational and artistic value of programmes; devoting too much time to advertising; not raising a cultural level of people).
2. In our spare time we _____ (watch television; go to the theatre; go to the cinema; listen to the music; pursue our hobbies).
3. On TV one can see _____ (educational films; quiz programmes; advertisements).
4. A soap opera is _____ (tragedy; a comedy; a melodrama; exciting and emotional; boring, interesting).

IV. Enlarge your vocabulary.

Here is a list of different TV programmes.

Current affairs
Documentary
Sports
Educational film
The arts
News

a) Give a brief description of each kind of programmes.

Example: Current affairs. These programmes deal with policy and society. Their aim is to analyse problems and to show viewpoints.

b) Use these expressions in your description:

1. These programmes deal with
2. Their aim is to give
3. They are concerned with
4. They also include

c) *Say which programmes do you usually watch and why?*

LESSON 3

I. Words for understanding the text.

1. concern	касаться, иметь отношение, интересовать
2. to invent	изобретать
3. could hardly have imagined	едва ли мог представить
4.modem	современный
5. reason	причина
6.descendant	потомок
7.human beings	люди
8.no man alive	никто на свете

9.in fact	фактически, на самом деле
10. wages	заработная плата
11. scholar	ученый
12. to reduce	уменьшать
13. expert	специалист

II. Read the text and find the information to the following questions:

1) Who invented the first calculating machine?
2) Why are computers being used more extensively in the world?
3) Can man do 500, 000 sums in one second?
4) How do computers concern people in their daily lives and work?
5) Are computers a great help to scholars in the world of science and maths?
6) How is it possible to find a book or article very quickly?
7) Are there systems to translate articles from foreign magazines by a computer?

Computers Concern You

When Charles Babbage, a professor of mathematics at Cambridge University, invented the first calculating machine in 1812 he could hardly have imagined the present-day situation. In the modern world we do and control everything with the help of computers, the complicated descendants of his simple machine. People use computers 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 store huge amounts of information, and they do calculations in a fraction of the time taken by a human mathematician. No man alive does 500,000 sums in one second, but an advanced computer does. In fact, computers do many of the things we do, but fast and well. They pay wages, reserve seats on planes, control machines in 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.

Chief inspector Harston talks about ways in which computers help the police fight crime. Members of the public often think of detective work as fast and exciting when most of it is slow and boring. For example, a detective on a stolen car case checks through long lists of information, and in the time it takes him to do this the thief may well escape. With the new National Police Computer we are now able to find out details of car ownership and driving licences in a fraction of the time it takes by traditional methods. In police work speed is often essential, so computers are ideal for catching criminals.

Many people associate computers with the world of science and maths, but they are also a great help to scholars in other subjects, in history, literature and so on. It’s now possible for a scholar to find a book or article he needs very quickly, which, when a million or more new books are published each year, is quite an advantage. There’s a system controlled by a computer, of giving books a code number, reducing them in size by putting them on microfiche, and then storing 3,000 or more in a container no bigger than a washing machine. You tell the computer which subject you're interested in and it produces any microfiche you need in seconds. There are also systems to translate articles from foreign magazines by a computer, and to make up the many lists of information that are needed in a modern library. So computers help us to deal with the knowledge explosion in many ways.

III. Check your understanding.

1. Look through the text more carefully and tell whether the following statements are true, false or the information is not given in the text.

a) Charles Babbage invented the first calculating machine in 1812.
b) We don’t use computers extensively in the world today.
c) Computers have much worse memories than human beings.

d) Man does 50,000 sums in one second, but an advanced computer can't.
e) Computers concern people in their daily lives and work.
f) People don't associate computers with the world of science and maths.
g) There are systems to translate articles from one foreign language into another.
h) The graphic computer offers the most flexible means of communication between man and machine.
i) Ten years ago work for extremely powerful and cost-effective computers concentrated on new architectures.

2. Match parts of sentences from column A with parts of sentences from column B.

A	B
1. Charles Babbage invented …	1. does 500,000 sums in one second.
2. People use computers ...	2. pay wages, reserve seats on planes, compose music.
3. No man alive...	3. the first calculating machine.
4, They (computers) ...	4. more extensively in the world today.
5. There are also systems …	5. to translate articles from foreign magazines by a computer.

IV. Enlarge your vocabulary.

1. Find the nouns, verbs, adverbs and adjectives:

invent	hardly	situation
extensively	efficient	traditional
compose	daily	reserve
associate	knowledge	container
calculation	concern	detective

2. These words can be more than one part of speech. Make up sentences showing it.

Help, control, use, store, play, work, subject.
e.g. He often helps me with my computer studies.
His help is always very useful.

3. Group any words which go together:

a) foreign
b) modern
c) human
d) an advanced
e) a washing
f) world
g) computer
h) machine
i) magazines
j) beings

4. Give your own answer: *Are you a PC user? What do you use your computer for?*

LESSON 4

I. Words for understanding the text.

1. cast-off	ненужный, бросовый
2. software	программное обеспечение
3. proverbial	вошедший в поговорку, общеизвестный
4. white elephant	дорогая бесполезная вещь
5. in spite of	несмотря на
6. e-mail	электронная почта (by e-mail – по эл. почте)
7.to solve	решать
8. to arise	подниматься
9. confident	уверенный
10. ability	способность
11.to explore	исследовать
12. to be in touch	контактировать
13. message	послание, сообщение
14. brag	хвастаться
15. amazed	удивленный, пораженный, изумленный
16. to conquer	покорять
17. to install	установить
18. modem	модем

II. Read the text and say whether there is any information in the text:

a) concerning rules of sending e-mail?
b) how Gwen learned to use the computer?
c) showing that Gwen learned a little terminology?
d) about the family of Gwen and Tim?
e) about their town?
f) about computer games?

Computer

Gwen and her husband Tim live in a small town in Colorado in the USA. When Gwen was 77 years old and her husband was 84, their daughter gave them a cast-off computer and some software. Gwen and Tim were not much interested in it and saw the gift as the proverbial "white elephant". Their first responses were "Don't need one". "Won't use it". "I'm too old to learn".

In spite of their protest, their daughter left the computer with them. She says: “The computer makes it possible for you to be in communication with me when I’m on duty in London with my job, as well as with your grown children who live in different parts of the country”. She explained to them how to use the computer, but they didn't show any interest in it.

Some time later Gwen decided to try the computer. It was not easy. At first Gwen was afraid to “break” the machine. She called her son-in-law and asked him some questions about using e-mail. She learned the basics of computer communication and learned to solve problems which arise in the process of work with a computer.

After three months she sent e-mail to her children, a nephew, and anyone she could reach. She is now so confident in her abilities that she is exploring new ways of getting information with her computer.

Gwen says: "E-mail allows me to be in touch with people every day. It allows me to communicate regularly with my son who has health problems. I don't wait a certain time of day to call. I send and receive messages at any time".

And Gwen has a right to brag. When she goes to church or community social events and tells people about the computer, they are amazed at the fact that she can learn something like that.

She learnt a little terminology and can talk to people who know something about the computer. She conquered the technology. Now Gwen is planning to install a modem, join Internet and explore the net.

III. Check your understanding.

1. Agree or disagree to the statements according to the text.

a) Gwen and her husband Tim live in a big city in the USA.
b) Their daughter gave them a cast-off computer and they were much interested in it.
c) In spite of the parent's protest their daughter left the computer with them.
d) After three months she did not send e-mail to her children.
e) E-mail allows Gwen to be in touch with people every day.
f) People are not amazed at the fact that she send and receive messages.

2. Match the words on the left with their definitions on the right.

a) modem	a) a system that allows messages to be sent from one computer to another;
b) software	b) feeling certain;
c) e-mail	c) a piece of electronic equipment that allows information to be sent from one computer to another;
d) confident	d) a piece of news;
e) hard disk	e) a part inside a computer that can store technology, information;
f) information	f) the programmes that you put into computers to make them do the job you want;

IV. Enlarge your vocabulary.

1. Find word combinations in the text which mean the following:

их дочь оставила им компьютер; взрослые дети; они не проявили никакого интереса; основы компьютерной коммуникации; исследует новые способы получения информации через компьютер; регулярно общаться с сыном; отправлять и получать послания в любое время; немного терминологии; общественные события.

2. Give your own answer: *Is it difficult to learn how to use the computer? How much time a day do you spend in front of the computer? What are the advantages and disadvantages of computers?* ***Use these expressions:*** *give access, get virus, let communicate quickly, by e-mail, fail, lose all work, do some tasks, multimedia, virtual reality, obsolete (устаревший), update, replace, store in database, criminal, Internet.*

LESSON 5

I. Words for understanding the text.

1.	main	основной, главный
2.	desk computer	малогабаритная счетная машина
3.	to carry out	выполнять, делать

4. computation	вычисление, расчет
5. to believe	думать, полагать
6. to accept	признавать
7. to store	запасать, хранить
8. accessible	доступный
9. to replace	заменять
10. advent	приход, прибыль
11. to solve	решать
12. to workout	разрабатывать
13. development	развитие
14. as for	что касается
15. branch	область, отрасль
16. side by side	рядом, бок о бок
17. valuable	ценный

II. Read the text and look for answers to these questions:

1) What is the main characteristic of the present-day "computerization" in the West?
2) How does the desk computer function?
3) What does further development of the computer lead to?
4) What will the creation of the domestic computer industry allow to solve?
5) Will we organize the educational process on a new basis?
6) What will allow to have the contents of books, magazines and articles fed into the computer memory?
7) What is the advantage of minicomputer?

Will the Desk Computers Think Instead of Us?

One of the main characteristics of the present-day global “computerization” in the West is the boom in domestic computers. The desk computer functions as your personal librarian, carries out simple optimization computation, controls your budget or diet, plays several hundred games, etc. Further development of the computer will lead to a situation in which most of the knowledge accepted by mankind we will store in computers and make accessible to anyone with a home computer.

Communication between man and a computer will not replace man's creative abilities but will expand them. It is natural that the advent of minicomputers with extensive memories and possibilities will lead to a new higher level in information culture. The creation of the domestic computer industry will allow a lot of problems in culture and education to be solved. Among other things, we will organize the educational process in the country's colleges and universities and also in the system of school education on a new basis.

Working out computerized models of materials studied by schoolchildren or students will allow us to see the results of this instruction on a display screen, make understanding of the material very simple and make the development of a creative approach to the studying of knowledge and its application easier.

As for the information in various traditional branches of knowledge, the application of electronics will allow side by side with the traditional printed material to have the contents of books, magazines and articles fed into the computer memory, where this will be analysed, arranged in a certain order, stored and produced on request as a printed computer programme.

Knowledge is the most valuable wealth of our times and minicomputers will help to make it accessible to everyone.

III. Check your understanding.

1. Agree or disagree to the following statements on the text beginning with:

I agree with you
I think, you are mistaken
I am afraid that you are wrong
I don't think you are right
I don't think so
I think you are right

a) The boom in domestic computers is one of the main characteristics of the present-day global "computerization" in the West.
b) The desk computer cannot function as your personal librarian or control your budget or diet.
c) Communication between man and computer will replace man's creative abilities.
d) The creation of the domestic computer industry will allow to solve many problems in culture and education.
e) The application of electronics will not allow to have the contents of books fed in the computer memory.
f) Minicomputers will help to make knowledge accessible to everyone.

2. Make up sentences by matching the information from a) and b):

A	***B***
1. One of the main characteristics of global "computerization" …	a) will expand man's creative abilities
2. The desk computer can function …	b) will allow to solve a lot of problems in culture and education
3. Communication between man and computer..	c) to make knowledge accessible to everyone
4. The creation of the domestic computer industry …	d) as your personal librarian
5. Minicomputers will help …	e) is the boom of the domestic computers

3. Complete these sentences using information from the text:

a) The boom in domestic computers is ...
b) The desk computer functions as ...
c) The advent of minicomputers with extensive memories and possibilities will lead ...
d) Working out computerized models of materials will allow us ...
e) As for the information in various traditional branches of knowledge, the application of electronics...

IV. Enlarge your vocabulary.

1. Give Russian equivalents to the following word-groups:

the main characteristics, domestic computers, personal librarian, man's creative abilities, the advent of minicomputers, information culture, a lot of problems to be solved, the system of school education, a creative approach, the application of electronics, the traditional printed material.

2. Give the noun forms of the following:

develop, communicate, create, educate, instruct, apply

3. Give your own answer: *Will communication between man and computer replace man's creative abilities?*

LESSON 6

I. Words for understanding the text.

1. chip-run	микросхема
2. pin	булавка
3. wrist	запястье
4. glasses	очки
5. earring	серьга
6. to release	выпускать
7. to surf the Internet	бродить по Интернету
8. headlines	краткое содержание выпуска последних известий
9. to follow the stockmarket	следить за уровнем цен на бирже
10.to download	загружать, «скачивать»
11. bank account	банковский счет
12. neural network	нейронная сеть
13. to identify criminals	устанавливать преступников
14. Silicon Valley	Силиконовая Долина (центр компьютерной индустрии, расположенный в районе Сан-Франциско, Калифорния)

II. Read the text and look for answers to these questions:

a) Do we imagine life without computers?
b) What was the first computer like?
c) What country develops wearable computers?
d) What allows you to surf the Internet as well as to make calls?
e) What will the next generation computers do?
f) What will such computers help to do?
g) Where do most of computer terms come from?

The Language of Computers

50 years ago, people didn't even hear of computers, and today we don’t imagine life without them.

Computer technology is the fastest-growing industry in the world. The first computer was the size of a minibus and weighed a ton. Today, its job can be done by a chip the size of a pin head. And the revolution is still going on.

Very soon we'll have computers that we'll wear on our wrists or even in our glasses and ear-rings. The USA develops such wearable computers.

Japan's big mobile-phone company released its cleverest product, the i-mode, a mobile phone that allows you to surf the Internet as well as make calls. People are already using a phone to check news headlines, follow the stockmarket and download the latest jokes. They will buy cinema tickets and manage their bank accounts.

The next generation of computers will talk and even think for themselves. They will contain electronic “neural networks”. Of course, they'll be still a lot simpler than human brains, but it will be a great step forward. Such computers will help to diagnose illnesses, find minerals, understand and control the world's money markets, identify criminals and control space travel.

Computer revolution is changing our life and our language, too. We are constantly making up new words or giving new meanings to old ones. Most of computer terms come from Silicon Valley, the world's top computer-science centre.

III. Check your understanding.

1. Agree or disagree to the statements:

a) When you use the Internet, you need a computer, a radio and a phone line.
b) You use the Internet to read newspapers and magazines.
c) You don't use the Internet to play video games.
d) The Internet helps you to do shopping.
e) You use the Internet to "chat" with people and make new friends.
f) You need a CD to send e-mail.
g) Multimedia pages with pictures, music and video make down-loading slow.

2. Make up sentences by matching the information from a) and b):

a) chat room	a) the ability of computer to run several programmes at once
b) e-commerce	b) the screen you see after you've switched your on computer
c) joystick	c) an area on the Internet where people can communicate with each other in "real time"
d) cyberspace	d) the business of buying and selling goods and services on the Internet
e) desktop	e) a stick which helps you move in computer games
f) multitasking	f) the imaginary place where electronic messages, information pictures, etc. exist when they are sent from one computer to another

IV. Enlarge your vocabulary.

1. Give Russian equivalents to the following word-groups:

Computer technology, the size of a pin head, a mobile phone, follow the stockmarket, manage bank accounts, generation of computers, human brain, space travel, computer terms.

2. Match notions and definitions:

1. a flame	a) is to start a computer
2. a mouse	b) is to move around the Internet
3. to boot	c) is a person who knows everything about a computer
4. a bug	d) is a small insect
5. to surf	e) is to ride on board of the waves of the sea
6. a geek	f) is someone who bites the heads of alive chickens as a part of a show
	g) is an error in a computer programme
	h) is a small furry animal with a long tail
	i) is to kick
	k) is a red or yellow burning gas seen when something is on fire
	1) is a small box used to operate a computer
	m) is an unfriendly or rude e-mail

3. Choose an answer – a, b or c.

1.What is the modem used for?
a) to print a document
b) to play music on your computer

c) to send messages along a telephone line

2. What do you use when you want to look for sites on the World Wide Web?
   a) a browser
   b) a CD ROM
   c) a printer
3. What can the Internet be used for?
   a) to delete a file from your computer
   b) to help you find information and communicate with people
   c) to make your computer work faster
4. What is the scanner used for?
   a) to transfer photos and texts to your computer
   b) to find certain files on the Internet
   c) to clean your computer
5. How much is a gigabyte?
   a) 1,000 megabytes
   b) 100 megabytes
   c) 1000 bytes

4. Give your own answer: *Are you a part of computer revolution? How is computer revolution changing our life?*

LESSON 7

I. Words for understanding the text.

1. to contain	содержать
2. the same	одинаковый, тот же самый
3. to realize	представлять себе, понимать
4. average	средний
5. to express	выражать
6. to belong	принадлежать, относиться
7. to receive	получать
8. to revolve	вращаться
9. to shine	светить
10. reddish	красноватый
11. to appear	появляться
12.to close	подходить близко
13.to vary	меняться, изменяться
14.to take place	происходить, случаться

II. Read the text and answer the questions:

a) What chemical elements do the stars contain?
b) What scale do the astronomers use to express great distances?
c) What does "the family of the Sun" consist of?
d) What does our solar system consist of?
e) What is the closest planet to the sun?
f) What can you say about Mercury?
g) What is the largest planet in the solar system?
h) Does the appearance of Mars vary from year to year?
i) Is there plant life on Mars?

j) When was the last opposition of Mars?

The Solar System

The Sun is a star. There are many thousands of stars in the sky that are like the Sun. They are as large as the Sun, as hot as the sun and contain the same chemical elements. The Sun is a great mass of white hot matter. The temperature at the Sun's center is as high as 10,000.000 C°

The sun is much nearer to us than other stars. That is why we think that it is bigger and brighter than other stars. The average distance of the sun from the Earth is as much as 150 million kilometres. It is difficult to realize such a distance. But it is much more difficult to realize the distances of the stars which are millions and millions of kilometres still farther away. To express these great distances the astronomers use a very much larger scale than kilometres. Nothing in the world moves faster than light. It moves at the rate of 300,000 kilometres per second. So the astronomer's unit of measure is one light year, the distance that light travels in one year. This distance is a little less than 9.5 million kilometres. Most of the stars are thousand light years away from the Earth. It is hard to realize that these are not the greatest distances in the world.

Our sun and our Earth, our moon and the planets, meteors and comets belong to the «family of the Sun» which we call our «solar system».

Our solar system consists of nine planets and their moons. The closest planet to the Sun is Mercury. No other planet receives more light and heat than this one. It is the smallest of the planets. Mercury revolves around the sun at a higher rate of speed than other planets. Its speed is much higher than theirs.

Jupiter is the largest planet in the solar system. Venus is not so large as Jupiter, but it is the brightest planet in the sky. We see its quiet light in the morning as well as in the evening. When it is in the West it is the first point of light which we see in the evening.

We see it best of all on a dark night. The darker the night grows, the brighter it shines and the better we see it. When Venus appears in the East it is possible to see it in the early morning hours as well.

Mars shines with a reddish light. The appearance of Mars varies from year to year. It depends upon the distance of the planet from the earth. It closes to us every two years and two months. At such times Mars looks like a red lamp in the sky. The telescope reveals bluish markings on the planet. They vary with the changes of seasons. Mars has an atmosphere though it is not so dense as that of the Earth. Most astronomers think that there is plant life on Mars.

The last opposition of Mars when it is the nearest to the Earth took place at the beginning of September 1956. Astronomers of the entire world observed Mars and took photographs of the planet.

The result of their most important observation will help them to make a better study of the nature of Mars.

III. Check your understanding.

1. Look through the text more carefully and decide whether the following statements are true or false or the information is not given in the text.

a) Thousands of starts contain the same chemical elements as the sun.
b) The temperature at the sun's center is not high.
c) To express great distances the astronomers use kilometers.
d) The distance that light travels in one year is a little less than 9,5 million kilometers.
e) Our solar system consists of five planets.
f) Mercury is the smallest of the planets.
g) The brightest planet in the sky is Jupiter.
h) Mars has a dense atmosphere.

2. Complete these sentences:

a) The sun is ...
b) The temperature at the sun's center is ...
c) It is difficult to realize the distances...
d) Most of the stars are...
e) “The family of the sun” consists of...
f) Mercury revolves around...
g) When Venues appears ...
h) Mars shines ...
i) The last opposition of Mars...

IV. Enlarge your vocabulary.

1. Give the noun forms of the following:

express, contain, realize, move, revolve, appear, observe.

2. Find words in the text which have the same meanings to the following:

similar, substance, to understand, to employ, quick, speed, to get, to occur

3. Give Russian equivalents to the following word-groups:

chemical elements, hot matter, at the sun's center, the average distance, it is difficult to realize, great distances, at the rate, per second, light year, it is possible to see, morning hours.

4. Pay attention to the degrees of comparison and translate the phrases:

As large as the sun, is much nearer, it is bigger, much more difficult to realize, still farther away, much larger scale than, faster than light, a little less than, greatest distances, the closest planet, the darker ... the brighter.

5. Give your own answer: *Do you know what the distance of the sun from the Earth is?*

LESSON 8

I. Words for understanding the text.

1. digital computer	цифровой компьютер
2. attempt	попытка, опыт
3. Paul Nipkow	Пауль Нипков, немецкий инженер
4. to spin	вращаться
5. revolutions per minute	оборотов в минуту
6.sequence	ряд, чередование
7. sequential	последовательный
8. sample	образец
9. selenium cell	селеновый фотоэлемент
10. succession	последовательность, ряд
11.to propose	предлагать
12. to vary	изменять, менять
13. to transmit	передавать
14. receiver	телевизионный приемник, трубка
15. CRT-cathode-ray tube	электроннолучевая трубка
16. to store	хранить, запасать
17. charge	заряд

18. to induce	вызывать, возбуждать
19. electron beam	электронный пучок

II. Read the text and find answers to the following questions:

1.Was television an electrical medium or mechanical device from the very beginning?
2.Who was the first to patent the "electrical telescope"?
3.Why did Nipkow propose using a magneto-optic light modulator?
4.What TV system did Boris Rosing develop?
5.What was the most critical invention in 1923?
6.Who invented the kinescope?

From the History of Television

Unlike digital computers - which started out as mechanical devices and then went through a brief electromechanical period during the 1930s, finally becoming electronic only in the 1940s - television was an electrical medium from the very beginning.

Attempts to send images over distances with the use of electricity date to 1876, the year Alexander Graham Bell invented the telephone.

The first television invention that had practical consequences was the "electrical telescope", patented by Paul Nipkow in 1884. At the heart of his camera was the now famous Nipkow disk. It had 24 holes equally spaced along a spiral near the periphery of the disk. The image to be transmitted was focused on a small region at the disk's periphery, and the disk was made to spin at 600 revolutions per minute. As the disk rotated, the sequence of holes scanned the image in a straight line. A lens behind the image region collected sequential light samples and focused them on a single selenium cell. The cell would then produce a succession of currents, each proportional to the intensity of the light on a different element of the image.

At the receiving end, Nipkow proposed using a magneto-optic (Faraday-effect) light modulator to vary the intensity of the reconstructed image. To form the image, a second disk, identical to and rotating synchronously with the one at the transmitter, would be needed.

One step closer to reality was Boris Rosing from the Technological Institute of St.Petersburg in Russia, who in 1907 developed the TV system that used mechanical scanning on the transmitting end and the Braun CRT as a receiver.

Zworykin's most critical invention was the first iconoscope camera tube, which he patented in 1923. The key to its success was the fact that its silvered-mica photocatodes stored the charges induced by the image that was focused on them until the scanning electron beam simultaneously neutralized the charges and modulated itself.

A year after Zworykin invented the iconoscope, he invented the kinescope - a TV picture tube - thus becoming responsible for both the key transmitting elements and receiving ones of the electronic television.

III. Check your understanding.

1. Put Tor F to indicate whether the statements below are true or false according to the facts in the text:

a) Television started out as a mechanical device from the very beginning.
b) Alexander Graham Bell invented the telephone in 1876.
c) At the transmitting end Nipkow proposed using a magneto-optic light modulator.
d) Boris Rosing developed a TV system that used computer scanning in 1907,
e) Zworykin's most critical invention was patented in 1923.

2.Find words in the text which have a similar meaning to those below:

look through various

to change at last
to sugges
to make use of
to transform

3.Complete these statements according to information given in the text:

a) At the heart of his camera was....
b) It had 24 holes equally.,.
c) The image to be transmitted was focused...
d) As the disk rotated...
e) A lens behind the image region collected...
f)The cell would then produce ...
g)The key to its success was...
h) Zworykin invented a TV picture lube...

IV. Enlarge your vocabulary.

1. Group the words which go together:

electronic	invention
digital	modulator
mechanical	telescope
light	computer
electrical	device
critical	television

2. Use a dictionary if necessary to make sure you know the meaning of these words and phrases used in the text:

the image to be transmitted
disk's periphery
sequence of holes
intensity of the light single selenium cell
succession of currents disk, rotating synchronously
transmitter
silvered-mica photocatodes
scanning electron beam
transmitting and receiving elements

3. Give your own answer: *How important is television to you?*

LESSON 9

I. Words for understanding the text.

1. equipment	оборудование
2. to hold up	останавливать, задерживать
3. viewers	зрители
4. to afford	позволять
5. no doubt	без сомнения
6. to supersede	вытеснять
7. flat	плоский

8. conventional receiver box	обычный телевизор
9. fluorescent coating	люминисцентное покрытие
10. angle	угол
11. electronic gun	электронная пушка
12. reversing lens	реверсирующая линза
13. to accumulate	накапливать

II. Read the text and find answers to the following questions:

1. Who was the first scientist to take license for transmission of images in colour?
2. When did America first transmit television programmes in colour?
3. When did Britain start its regular colour service?
4. Did Russia introduce a colour television service?
5. What kind of screen will replace the conventional receiver box?

Colour Television

The technical problems of colour television were solved long ago - a German patent for the transmission of images in colour was taken out by the physicist, Otto von Bronk, as far back as 1902 -but the high cost of the equipment, especially receivers, held up its general introduction. In America, television programmes in colour have been transmitted since the early 1950s to a limited number of viewers who could afford the extra cost, and an experimental service began in Britain in 1955. Japan started its regular colour service in the autumn of 1960: a year later there were already 15000 receiving sets in operation, although the price of a colour set was still eight times as much as that of a black-and-white receiver. Then Russia, too, introduced a colour television service.

No doubt colour television will eventually supersede black-and-white transmissions. But there are other revolutionary developments to come, such as the flat screen-it will replace the conventional receiver box with its cathode-ray tube. The first screen, which can be hung on the wall like a picture, may be no more than 2 to 3 inches thick. It has a fluorescent coating like conventional tubes, but the electrons from the cathode move almost parallel with it instead of striking it at a right angle. They start their journey from an "electronic gun" at the top behind the screen, shooting downwards; at the bottom they are reflected by a "reversing lens" to travel vertically upwards along the screen, which they eventually hit by the influence of a grid of conductors which accumulate electric charges from the electron beam and give them off to the screen. The flat screen will be especially suitable for colour reception.

III. Check your understanding.

1. Find the best item to complete each sentence according to the information given in the text:

1. They solved the technical problems of colour TV ....
   a) early in the 20^{th} century; b) late in the 19^{th} century.
2. They held up the general introduction of colour television because of the high cost of...
   a) receivers; b) transmitters.
3. … first introduced colour TV service.
   a) The USA; b) Japan.
4. The flat screen will replace...
   a) cathode-ray tube; b) the conventional receiver box with its cathode-ray tube.

2. Tick all the statements from the list below which are true:

a) Japan started its regular service in winter 1990.
b) The price of a colour set will be ten times as much as that of a black-and-white receiver.
c) Colour television will eventually supersede black-and-white transmission.

d) The first screen may be no more than 2 to 3 inches thick.
e) It has a fluorescent coating like conventional tube, but the electrons from the cathode move almost parallel with it instead of striking it at a right angle.
f) They start their journey from an electric "gun" at the bottom behind the screen.

3. How would you define the "flat" screen TV set?

IV. Enlarge your vocabulary.

1. Find words in the text which have opposite meanings to those below:

high	finish
unlimited	at the bottom
irregular	downwards
to place	horizontally
wrong	at last

2. Find the nouns in the text which relate to these verbs:

to hold up	to start
to transmit	to introduce
to begin	to supersede
to hang	

3. Group the words which go together:

technical	service
colour	beam
experimental	angle
conventional	problems
right	television
electron	tube

4. Use a dictionary if necessary to make sure you know the meaning of these words and phrases used in the text:

high cost of the equipment
a limited number of viewers
no doubt
instead of
to accumulate electric charges
suitable for colour reception

5. Give your own answer: *What is the function of television?*

LESSON 10

I. Words for understanding the text.

1. analogue system	аналоговая система
2. to encode	кодировать
3. to the extent	до определенной степени
4. capacity	мощность, емкость

5. to demand	требовать
6. invariably	постоянно, неизменно
7. perform	выполнять, осуществлять
8. to split	расщеплять
9. broadcasting camera	телекамера
10. to feed	подавать, подводить
11. binary recordings	бинарный, двоичный
12. circuit	цепь
13. to unscramble	раскодировать, расшифровывать
14. tremendous scope	огромный объем
15. at the rate	при скорости
16. to recognize	признавать

II. Read the text and find answers to the following questions:

1.What have Russian experts managed to do using digital systems?
2.What are the advantages of digital techniques over analogue electric systems?
3. How does digital television work?
4.What are the weak points about digital television?
5.What have Russian researchers found studying this problem?

Digital Television

The so-called analogue systems of television are to be superseded by digital systems in the near future. Using this new system, Russian experts have managed to encode and compress flows of visual information to the extent that the requirement in the carrying capacity of communication channel was cut by nearly 86 per cent.

The advantages of digital techniques over analogue electronic systems have demanded that we use them in television. These advantages improve the quality of the picture. While in the analogue system of recording signals noises and errors invariably accumulate at every stage of their transmission or copying, digital recording is almost free of signal errors.

How does digital television work? Basically it performs by splitting the continuous analogue signal into a series of separate pulses. A continuously varying electric signal generated by a usual broadcasting camera is fed into an electronic device which converts it into pulses. These pulses represent binary recordings of the signal's values at any given moment. At the receiving end of the circuit, the digital signal of binary pulses can be unscrambled back into the analogue signal which is then fed into ordinary TV sets. But the advantages of digital techniques can themselves be used in TV sets in order to improve their reception qualities considerably.

Digital TV, however, has its disadvantages. The main one lies in the tremendous scope of information to be transmitted. And it must be done at the rate of 216 million pulses per second. This great flow of information is rather difficult and extremely expensive to transmit over great distances by the technical means available today.

Russian researchers studying this problem have found help in the principles they have observed in living nature. And the efforts of Russian researchers in this field are internationally recognized.

III. Check your understanding.

1. Put Tor F to indicate if the statements are below true or false according to the facts in the text:

a) The so-called digital systems of television are to be superseded by analogue systems.
b) The advantages of digital techniques over analogue electronic systems have demanded that they can be used in aviation.

c) These advantages improve the quality of the picture.
d) It's performed by splitting the continuous analogue signal into a series of separate pulses.
e) The main disadvantages lies in the tremendous scope of information to be transmited.
f) It must be done at the rate of 100 million pulses per second.

IV. Enlarge your vocabulary.

1. Use a dictionary if necessary to make sure you know the meaning of these words and phrases used in the text:

digital television
analogue systems of television
digital systems
flows of visual information
video and audio signals
communication channels
electric signal

2. Translate these word combinations, paying attention to the attributes which are in bold type:

a) **in** the **near** future; **every** stage of **their** transmission; **these** advantages; **usual broadcasting** camera; **binary** recordings; **all** stages;
b) **reception** qualities; the TV tube; **communication** channels;
c) **continuous analogue** signals; **technical** means **available** today;
d) a continuously **varying** electric signals; at the **receiving** end of the circuit; the researchers **studying** this problem;
e) at any **given** moment; signals **generated** by a camera;
f) information **to be transmitted;** data **to be received; TV** set **to be repaired;** the text **to be read.**

3. Give your own answer: *When will we have only digital television?*

LESSON 11

I. Words for understanding the text.

1. mass media	средства массовой информации
2. to inform	сообщать, информировать
3. what's going on	что происходит
4. possibility	возможность
5. entertainment	развлечение
6. to report	сообщать, писать о
7. event	событие, происшествие
8. objectively	объективно
9. fair	честный, справедливый
10. to provide	обеспечивать
11. reliable	надежный
12. ordinary	обычный, заурядный
13. disaster	бедствие
14. crash	авария
15. murder	убийство
16. robbery	грабеж

17. to make headlines	попасть в заголовки газет, вызвать сенсацию
18. freedom	свобода
19. to intrude	вторгаться
20. private	частный, личный
21. to follow	преследовать
22. celebrity	знаменитость
23. to print	печатать
24. sensational	сенсационный
25. untrue	ложный, неверный
26. half-true	полуправдивый
27. intimate	интимный
28. source	источник
29. advantage	преимущество
30. seeing is believing	лучше раз увидеть, чем сто раз услышать
31. besides	кроме того
32. politician	политик
33. to lie	лгать
34. to prefer	предпочитать
35. to react	реагировать
36. extra detail	дополнительные сведения, подробности
37. comment	комментарий
38. background information	«закулисная» информация
39. the Internet	Интернет
40. recently	недавно

II. Now look at these questions and read the text to find the answers:

1. Do you think that the media influence our life?
2. Millions of people get most of their news from television. What about you?
3. Do you read newspapers?
4. When do you usually listen to the radio?
5. Do you agree that most news we get from the media is bad news?
6. Do you think it would be nice (было бы приятно) if all news printed in newspapers and shown on TV was good news?
7. Do you think that journalists are given too much freedom?
8. Do you want to watch bodies of people who have died in a plane crash on TV?
9. How do paparazzi earn their living?
10. Are you interested in politics? Do you think that some politicians use the media to influence their voters (избиратели)?
11. What is the main advantage of the Internet?

Mass Media

The mass media play an important part in our lives. Newspapers, radio and especially TV inform us of what is going on in this world and give us wonderful possibilities for education and entertainment. They also influence the way we see the world and shape our views.

Of course, not all newspapers and TV programmes report events objectively, but serious journalists and TV reporters try to be fair and provide us with reliable information. It is true that the world today is full of dramatic events and most news seems to be bad news. But people aren't interested in ordinary events. That is why there are so many programmes and articles about natural disasters, plane crashes, wars, murders and robberies. Good news doesn't usually make headlines. Bad news does.

Some people say that journalists are given too much freedom. They often intrude on people's private lives. They follow celebrities and print sensational stories about them which are untrue or half-true. They take photos of them in their most intimate moments. The question is — should this be allowed?

The main source of news for millions of people is television. People like TV news because they can see everything with their own eyes. And that's an important advantage. Seeing, as we know, is believing. Besides, it's much more difficult for politicians to lie in front of the cameras than on the pages of newspapers.

Still, many people prefer the radio. It's good to listen to the radio in the car, or in the open air. or when you do something about the house.

Newspapers don't react to events as quickly as TV, but they usually provide us with extra details, comments and background information.

The Internet has recently become another important source of information. Its main advantage is that news appears on the screen as soon as things happen in real life and you don't wait for news time on TV.

III. Check your understanding.

1. Put TorFto indicate if the statements below are true or false according to the facts in the text.

a) TV doesn't inform us of what is going on in the world.
b) All newspapers and TV programmes report the events objectively.
c) There are so many programmes and articles about natural disasters, plane crashes and wars.
d) Newspapers don't react to events as quickly as TV.

2. Complete these sentences using the information from the text.

a) The mass media play ...
b) It is true that the world today is full of...
c) People like TV news because ...
d) The Internet main advantage is …
e) Seeing, as we know, is ...

3. Match the word to its definition:

TELEVISION - facts of details that tell you about a situation, event, person, place etc.
NEWS - the system of broadcasting pictures and sound;
HEADLINE - all the organizations that are involved in providing information to the public, especially newspapers, TV and radio;
NEWSPAPER - to have an accident in a car, train, etc. by hitting something;
CRASH - the words in big letters at the top of a newspaper report that all you what the report about;
INFORMATION - reports about recent events, printed in newspapers or given on television or radio;
THE MEDIA - a set of large folded sheets of paper containing news, articles, pictures, etc., which is printed and sold every day or every week;

IV. Enlarge your vocabulary.

1. Which prefix forms the opposite of these words?

... fair ... true ...reliable ... natural
...ordinary ...important ...advantage ..real ...possible

2. Fill in the correct words from the box. Use the words only once.

mass, serious, reliable, important, private, sensational, ordinary, open

1. … information
2. … life
3. … media
4. … part
5. … journalist
6. … event
7. … story
8. … air

3. Look at the words in the box. Find words connected with the mass media.

TV programme,	journalist
newspaper,	celebrity
food,	politicians
event,	building
hotel,	shop

4. Find the nouns, verbs, adjectives, adverbs.

especially, wonderful, information, intrude, inform, possibility, advantage, serious, reliable, provide, politician, intimate, objectively, ordinary, usually.

5. Give your own answer: *Do the media play an important part in your life?*

LESSON 12

I. Words for understanding the text.

1. access	доступ
2. to appear	появляться
3. to attach	присоединяться
4. because of	из-за
5. button	кнопка
6. to consist of	состоять из
7. data	данные
8. drive	дисковод
9. to encase	помещать в корпус
10. to execute	выполнять
11. to hold	держать, удерживать
12. immediate	немедленный, непосредственный
13. to include	включать, содержать в себе
14. item	частица, единица
15. job	задание
16. in order to	для того, чтобы
17. to process	обрабатывать
18. processing	обработка
19. to refer (to)	обращаться, относиться
20. referred to	называемый, обозначаемый

21. to remove	перемещать, удалять
22. to save	сохранять
23. set of	ряд, несколько
24. to store	запоминать, хранить
25. storage	запоминающее устройство
26. temporary	временный
27. to vanish	исчезать

II. Read the text and look for answers to these questions:

1) What is a computer?
2) How do we call a person working at the computer?
3) Where do we hold the programs and data?
4) What do you do if you want to save the work?
5) What does a common configuration consist of?
6) What is the heart of the computer?
7) What do programmers use in order to write the software?
8) Where are the drives?
9) Are floppy disks removable?
10) When does the old information vanish?

A Brief Look at Computers

A computer is a machine that can be instructed to do a variety of jobs. You are the user, or person working at the computer, and the person who writes them is a programmer.

You use an input device to put data and programs into the computer and an output device to see what the computer has done. Thus, what you put into a computer is called input, and what you get from a computer is called output. We hold the programs and data temporarily in memory, which consists of circuits on silicon chips. If you want to save the work, you tell the computer to record it on storage, a special medium such as a disk or a tape.

A common configuration, or assortment of components, designed to do these jobs consists of the computer, two storage devices (a hard disk drive and a floppy disk drive), a specific amount of memory, two input devices (a keyboard and a mouse), and two output devices (a monitor and a printer). The computer contains the central processing unit, or CPU, which holds the circuits that actually execute the instructions. Because of its functions (referred to collectively as processing), the CPU is often nicknamed the brain or the heart of the computer.

The CPU executes two types of instructions, or software. The first manages the Circuits of a computer so that the computer can get something from storage or put a letter or number on the screen. This software is system software. The other software, the application software, helps you do a job. The computer game Flight Simulator is application software for entertainment, and Paradox is application software for organizing data. Programmers use a number of computer programming languages, or special codes, in order to write the software.

The CPU accesses, or gets, the data and programs from storage such as a hard or floppy disk. A disk is a flat, circular piece of magnetized material. The hard disk is encased in and read by a hard disk drive, and the floppy disk is read by a floppy disk drive. The drives are usually built into the computer. Floppy disks are removable, while most hard disks on microcomputers are not. Any instructions or data that the computer has accessed from storage is kept in memory for immediate use.

You command the computer to access items in storage or do other jobs by typing words and numbers on a keyboard or by moving a mouse and pressing the buttons on it (called point and click). As you type, the words and numbers appear on a screen, or monitor, that looks like a television set. This is called soft-copy output, because it is temporary: as soon as you turn off the monitor or ask for new information, the old information vanishes. Your system might also in-

clude a printer for making paper copy -that is, hard-copy output (also called printouts). Hard copy can be read without using a computer and can be easily carried around, written on, or given to other readers. Any of the input and output devices that are attached to the computer are called peripherals.

III. Check your understanding.

1. Look through the text more carefully and decide whether the following statements are true or false:

a) A computer is a device transforming electric energy into mechanical energy.
b) The user is the person who writes programs.
c) What you put into the computer is called output, and what you get from a computer is called input.
d) If you want to save the work, you can tell the computer to record it on storage.
e) The heart of the computer is the central processing unit.
f) Programmers use various devices in order to write the software. As soon as you turn the monitor or ask for new information, the old information doesn't vanish.

2. Make up sentences by matching the information from a) and b):

A	B
1. A computer is ...	1. two input devices, two output devices, computer and two storage devices.
2. A programmer is...	2. a flat circular piece of magnetized material.
3. A common configuration consists of	3. without using a computer.
4. A disk is...	4. input and output devices that are attached to the computer.
5. Hard copy can be read ...	5. the person who writes programs.
6. Peripherals are ...	6. a machine to do a variety of jobs.

3. Now try to complete these definitions using the information given in the text. Look at the example:

e.g. The user is a person working at the computer.
a) A programmer is the person ...
b) What you put into a computer is called ...
c) A disk is ...
d) The central processing unit (CPU) is ...

IV. Enlarge your vocabulary.

1. Give the noun forms of the following:

Use, store, organize, write, magnetize, inform, read

2.Find the nouns, verbs, adverbs and adjectives.

user	programmer	temporarily
consist	configuration	assortment
collectively	contain	application
encase	actually	television
flat	special	removable

3. Find words in the text which have opposite meaning to those below:

input device

unmagnetized
disappear
new
hard

4.Group any words which go together:

Silicon, hard, paper, input, programming, device, language, chips, disks, copy

5. Give your own answer: *1) What are the main components constituing a computer?*

2) You are watching TV with a friend. What could you say in each situation below? Look at the example first.

LESSON 13

I. Words for understanding the text.

1. consumption	потребление, расход
2. alarming	тревожный, волнующий
3. trash	мусор, хлам
4. to throw smth away	выбрасывать
5. generator	производитель, источник энергии
6. solid	твердый
7. discard	что-либо ненужное, брак, отходы (мн.ч.)
8. household	домашнее хозяйство
9. can	урна, мусорный ящик
10. landfill	полигон для мусора
11. laughable	смешной, забавный, комичный
12. to deplete	опустошать
13. depletion	опустошение, очищение
14. raw materials	сырье
15. leachate	сточные воды, загрязнение воды элементами
16. to percolate	просачиваться, проходить сквозь
17. contaminant	загрязнитель
18. significant	важный, значащий
19. to engage	нанимать, заниматься
20. eventually	в конечном счете, в итоге

II. Read the text and answer the following questions:

1) Why should we recycle?
2) What does recycling conserve?
3) Does recycling save natural resources?
4) Recycling helps solve the solid waste problem, doesn't it?

Recycling

Today, the world's resources are in danger of being exhausted, while consumption of these resources has continued to increase at an alarming rate. Every American discards an average of 5 pounds of material per day. As a nation, we discard almost 250 million tons of solid waste annually.

An individual's responsibility should not end when the trash can is emptied. The individual cannot just "throw it away" for there is no "away." The waste generator is responsible for problems of solid waste disposal and can contribute in solving those problems.

One way to prolong our resources is by recycling. After reducing our discard to a minimum by reuse of materials, we should recycle what we do discard.

Recycling household wastes helps conserve energy. For example, one ton of aluminum from ore requires 16,000 kilowatt hours (kwh) of electricity while one ton of recycled aluminum ore requires only 187 kwh. Recycling of other household discards such as paper, cans and glass all contribute to energy conservation.

Ore deposits throughout the world are rapidly depleted. Much of this nation's metal ore needs are supplied by foreign countries. It is obvious that continual reuse and recycling will delay the depletion of existing resources and decrease our dependence on imports.

We can also preserve the quality of our environment by practicing recycling. Recycling one ton of paper saves 17 trees. Many industries that manufacture materials from recycled materials cause less air and water pollution than industries producing equivalent products from raw material.

Much of the solid waste generated each year ends up in landfills. This causes many problems, the most serious of which is "leachate," formed when water percolates through waste, picking up contaminants. Leachate eventually pollutes surrounding land and water for many years.

Landfill space is rapidly filling up; adequate replacements are difficult to find. While recycling won't eliminate landfill use, it does reduce valuable landfill space.

Recycling is not a cure - all for solid waste problems. There are many and various ways to conserve energy, save resources and help the solid waste volume problem. Recycling is only one step, but it is a significant one in which we should engage, we have one earth. The establishment of a "Recycling Program" for household material is the responsibility of your local government. In 1988, the Virginia General Assembly passed House Bill 1743, instructing "local government" to establish programs that recycle 10% of solid waste stream materials by 1991, 15% by 1993 and 25% by 1995. North Carolina has a similar law.

Following this mandate, each locality is currently developing and implementing a program that best suits the geographical and population characteristics of its jurisdiction. These plans center around either a "curb-side" or a "drop off program. The "curb-side" program, which is utilized in urban areas, calls for materials to be picked up at your particular residence. "Drop-off boxes," on the other hand, ask for you to deliver materials to a centralized location, and then separate them into different containers.

In lieu of taking material to a "drop-off center you can deliver and sell it to a "buy-back depot" or scrap processor. Markets change, but materials such as aluminum cans, copper and miscellaneous steel have economic value.

In all programs, the material then goes to a "Material Recycling Facility," such as Cycle Systems, where it is further sorted and processed into a physical form as specified by the consuming steel, paper or plastic manufacturer.

To find out specifically what program is planned for your particular area and household, contact your local government. Municipalities are continuously adding staff people to help develop and implement programs.

III. Check your understanding.

1. Which of the following statements are true and which are false?

a) Today the world resources are in danger of being exhausted.
b) The waste generator isn't responsible for problems of solid waste disposal.
c) One way to prolong our resources is by recycling.
d) Recycling household wastes doesn't help conserve energy.
e) Recycling one ton of paper saves 17 trees.

f)While recycling will eliminate landfill use, it doesn't reduce valuable landfill space.

2. Complete the sentences below using the information in the box opposite:

1. Every American ...	a. we should recycling what we do discard.
2. After reducing our discard to a minimum by reuse materials,...	b. generated each year ends up in landfills.
3. Recycling of other household discards such as ...	c discards on overage of 5 pounds of materials per day.
4. Ore deposits throughout the world...	d. are being rapidly depleted.
5. Much of the solid waste ...	e. paper, cans and glass all contribute to energy conservation.

IV. Enlarge your vocabulary.

1. Supply the appropriate prepositions.

1. We can also preserve the quality _____our environment practicing recycling.
2. Recycling one ton _____ paper saves 17 trees.
3. Many industries that manufacture materials _____recycled materials cause less producing equivalent products raw material.

2.Translate the following phrases from the text:

alarming rate; problems of solid waste disposal; recycled aluminium; tomorrow's metal mines; continual reuse and recycling; water percolates; adequate replacements; eliminate landfill use; household discards.

3. Give your own answer: *What does the word "recycling" mean?*

LESSON 14

I. Words for understanding the text.

1. to maintains	поддерживать, сохранять
2. to employ	использовать
3. enormous	огромный
4. to transform	изменять, преобразовывать
5. unavoidable	неизбежный, неминуемый, неоспоримый;
6. particulate	в форме частиц, макрочастица
7. soot	сажа, копоть, нагар
8. chimney	труба, дымоход
9. to contaminate	загрязнять, заражать
10. rubbish	мусор, сор, хлам
11 sewage	нечистоты, сточные воды
12. to reduce	снижать, сокращать
13. to recharge	перезаряжать
14. fossil fuel	ископаемое топливо
15. sulphur oxide	оксид серы

16. thermal — теплый, горячий, термальный
17. elimination — выбрасывание, удаление, очищение
18. consumption — потребление, расход
19. to tackle — решать, биться
20. to exhaust — истощать, исчерпывать, отработать
21. irreparable — непоправимый, безвозвратный

II. Read the text and answer the following questions:

1) Can we create energy?
2) What causes pollution?
3) How can particulates be collected?
4) What can we do to reduce pollution?
5) Why are lakes and rivers devoid of marine life?

Everything Must Go Somewhere

To maintain his standards of living, 20th century man employs technology to produce an enormous variety of goods and services. Technology needs energy and matter. But we can neither create nor destroy energy and matter, only transform them. And since everything must go somewhere, the transformations which are part of production processes cause pollution in some form or other - this is unavoidable. So a talk of cleaning up the environment and 'pollution-free' cars, products or industries is a scientific impossibility.

For example, we can collect particulates (such as smoke, dust or soot) from factory chimneys by means of filters, but these solid wastes will then contaminate our water or soil. Similarly, we can collect rubbish, and remove solid wastes from sewage, but we must then either burn them (causing air pollution), dump into our rivers, lakes and oceans (water pollution), or deposit on the land (soil pollution, and water pollution if they run away).

Another example is air pollution from cars. We can reduce air pollution from petrol- and diesel-propelled cars by changing over to electric cars. But electric cars can have their batteries recharged almost every night, and so we should need to increase the number of power plants to generate the extra electricity required. And an increase in the number of power plants that use fossil fuels can result in increased air pollution (from sulphur oxide, nitrogen oxide and smoke), increased water pollution (from heat), and increased land pollution (from mining). We can shift to nuclear power, which is not dependent on fossil fuels. But nuclear power increases thermal pollution of the water, and adds the danger of releasing radioactive substances into the environment.

From these examples we see that pollution elimination is impossible. Instead, our aim must be pollution reduction and control. One means of doing this is to make the best possible use of technology. In fact, technology is essential in keeping pollution below the danger level. However, pollution control alone is not enough. It must be accompanied by population control, and control over production and consumption. The reason is that there is no point in controlling pollution without at the same time stabilizing world population, production of goods, and consumption of materials. But if we tackle all these matters at the same time, pollution control is possible.

Time is running out, however. Everything must go somewhere, and so pollution is beginning to have serious effects. Already many of the world's rivers and lakes are devoid of marine life - killed by industrial waste. Already the amount of lead in the bodies of people living in urban areas is dangerously high, because of car exhaust gases. Already the hearing of millions of factory workers is irreparably damaged, as a result of industrial noise. Everything must go somewhere - yes. But it is for man to decide how much pollution he creates, what form it takes, and where goes.

III. Check your understanding.

1. Which of the following statements ate true and which are false?

a) Technology needs energy and matter.
b) But we can neither create nor destroy energy and matter, only transform them.
c) We can collect particulates from factory chimneys by means of boxes, but these solid wastes will then contaminate our water or soil.
d) We can shift to nuclear power, which is not dependent on fossil fuels.
e) Instead, our aim must be pollution elimination.
f) However, pollution control alone is not sufficient.
g) Already the amount of lead in the bodies of people living in urban areas is too low, because of car exhaust gases.

2. Match parts of sentences from column A with parts of sentences from column B.

A	B
1. But nuclear power ...	a. at the same time pollution control is possible.
2. Technology...	b. and so pollution is beginning to have serious effects.
3. We can reduce air pollution ...	c how much pollution he creates, what form it takes, and where goes.
4. So a talk of "cleaning up the environment"...	d. increases thermal pollution of the water, and adds the danger of releasing radioactive substances into the environment.
5. But if we tackle all these matters	e. needs energy and matter.
6. Everything must go somewhere,	f. from petrol -and-diesel-propelled cars by changing over to electric
7. But it is for man to decide ...	cars. g. and pollution-free cars, products or industries is a scientific impossibility.

3. Answer the questions:

1. What does technology need?
2. Why does man employ technology?
3. What are the transformations?
4. How can people reduce air pollution?
5. What does the nuclear power increase and add?
6. When is the pollution control possible?
7. Why is the amount of lead in the bodies of people dangerously high?

IV. Enlarge your vocabulary.

1. Which words in this box are not connected with the theme of the text?

Energy	matter	environment	apple	pollution	car	
control	gas	water	rubbish	ball	fuel	technology
power	soot					
chimney	foot					

2. Each of the following words has a synonym in the article. Read the article carefully and find the matching synonym.

1. pipe
2. to lower
3. to use
4. to support
5. to decide
6. dust
7. to pollute
8. cleaning
9. to change
10. expenditure
11. dirt

3. Insert prepositions given below. You can use more than one.

For example, we can collect particulates (such as smoke, dust or soot) … factory.

Chimney …means … filters, but these solid wastes will then contaminate our water or solid. Similarly, we can collect rubbish, and remove solid wastes … sewage, but they must then be either burned (causing air pollution), dumped … our rivers, lakes, and oceans (water pollution), or deposited … the land (soil pollution, and water pollution if they run away).

By, of, from, into, on.

4. Use must or have to. Mind the tense. Negative forms are possible.

a)If you want to have e-mail, you ... install a modern.
b)You .,. wait a certain time of day to call.
c)In our country children ... stay at school till the age of 17.
d)I... translate all the letters in our office.
e)It was late, so I ... go home.
f)Many children ... go to a kindergarten because their mothers work.
g)The car broke so we ... repair it.
h) You ... switch off the light when you leave the house.
i) All citizens ... follow the law.
k) All the flights were booked, so we ... go by train.

5. Give your own answer: *Is pollution a very important problem nowadays?*

LESSON 15

I. Words for understanding the text.

1 . sulphur dioxide	двуокись серы
2. airborne	воздушный
3. lead pollution	загрязнение свинцом
4. car exhaust	выхлопные газы
5. combustion	сгорание
6. fossil fuel	ископаемое топливо
7. contaminant (pollutant)	загрязняющее вещество
8. nitrogen oxide	окись азота
9. particle	частица
10. mortality rate	смертность
11. acid rain	кислотный дождь

12. decline of forests	гибель лесов
13. long-range	крупномасштабный
14. vehicle	транспортное средство, средство автопередвижения
15. contamination	загрязнение, заражение
16. emission	выброс загрязняющих веществ в атмосферу
17. fine suspended particulate matter	мельчайшие взвешенные в воздухе частички
18. major pollution events	случаи сильного загрязнения воздуха
19. soot	сажа

II. Read the text and answer the following questions:

1. When did people realise a new danger for their health? What kind of danger is it?
2. Why are the lungs of town inhabitants greyish in colour?
3. What pollutants pose the most wide-spread and acute risks ?
4. What does suspended particulate matter include?
5. What are the sources of large particles? Small particles?
6. Which particles are the most dangerous and why?
7. What are the effects of particulate pollution?
8. Which gases cause acid rain?
9. What are the sources of these gases?
10. How does acid rain form?
11. How does acid rain affect the plants? Buildings? Lakes and soil?
12. What is the main problem with air pollution? Prove your statement.
13. How do people try to curb air pollution?

Air Pollution and Acid Rains

Without air there can be no life. Without air of good quality there cannot be a healthy life. Air pollution is an old problem, which has in this century assumed wide economic and social significance. Perhaps the first general realization of the new dangers came with the great London smog of December 1952. For five days the capital of England was enveloped in a grey shroud, and over 4 thousand people died and incalculable numbers suffered from a worsening of bronchitis and heart disease.

An average person requires over thirty pounds of air a day or about six pints every minute. Daily the individual draws 26000 breaths, between 18 and 22 each minute, many of which are of filthy air. The lungs of town inhabitants are usually greyish in colour, those of country people are normally pale pink.

The air is being polluted by acid gases, dust, petrol and diesel fumes and poisonous chemicals. These come from cars, factories and power plants.

Of all the pollutants, that taint the air, fine suspended particulate matter, sulphur dioxide and ozone pose the most wide-spread and acute risks. However, airborne lead pollution, coming from car exhausts, is a critical concern in many cities as well.

Particulate Pollution

Suspended particulate matter is nearly ubiquitous urban pollutant. It is a complex mixture of small and large particles of varying origin and chemical composition. Larger particles, ranging from 2,5 microns to 100 microns in diameter, usually comprise smoke and dust from industrial processes, agriculture, construction and road traffic, as well as plant pollen and other natural sources. Smaller particles - those less than 2,5 microns in diameter - generally come from combustion of fossil fuels. These particles include soot from vehicle exhaust, which is often coated with various chemical contaminants or metals. They also include fine sulphate and nitrate aerosols that form when sulphur dioxide and nitrogen oxides condense in the atmosphere. The largest source of fine particles is coal-fired power plants, but auto and diesel exhaust are also prime contributors, especially along busy transportation corridors.

The health effects of particles are strongly linked to their size. Small particles, such as those from fossil fuel combustion, are most dangerous, because they can be inhaled deeply into the lungs, setting in areas, where the body's natural clearance mechanisms can't remove them. The constituents in small particles are more chemically active and may be acidic as well and therefore more damaging.

Particulate pollution causes acute changes in lung function, respiratory illnesses, heart disease and aggravation of asthma and bronchitis. During major pollution events, when particulate levels in the air increase up to 200 micrograms of particulate matter per cubic meter, daily mortality rates could increase as much as 20 per cent.

Acid Rains

Other very dangerous pollutants are sulphur and nitrogen oxides. These gases are released by factories and power plants when fossil fuels are burnt and by cars. These oxides reach high into the atmosphere and mix with water and other chemicals to form rain that can be as acid as vinegar. Acid rains are responsible for the decline of many forests. Tiny droplets of acid attack plant leaves, disrupting the production of chlorophyll. It also weakens the tree by altering the chemistry of the soil that surrounds its roots.

Acid falls down to earth as rain and snow. Black snow, as acid as vinegar, fell in Scotland in 1984.

Acid rain affects everything it falls on. Rivers, lakes and forests are at risk throughout Europe and North America. In Sweden more than 18000 lakes have become acidic, 4000 of them very seriously indeed. This kills fish and drives out fish-eating wild life.

Forests are particularly badly affected by acid rain and in many places previously green, luxuriant trees show bare branches at the top, stripped of foliage. In West Germany 50 per cent of trees are affected and, unless some curb is placed on pollution, the figure is certain to rise. In Austria, if nothing is done, scientists and environmentalists have predicted that there will be no trees left by the end of the century.

There is a possibility that damage to ecosystems from acid deposition may be more fundamental and long-lasting than was first believed. Scientists now report that acid rain leaches as much as 50 per cent of the calcium and magnesium from the forest soils. These minerals neutralise acids and are essential for plant growth. If soil chemistry is changed in this way, it may take many decades for all linked ecosystems to recover. Besides this, acid rain releases heavy metals and other toxic substances, providing a persistent source of toxicity to surrounding vegetation and aquatic life.

Buildings "die" too. Some of the most beautiful historic buildings in the world are eaten away by the dilute acid, rained on them. Notre Dame, Cologne Cathedral and St Paul's Cathedral are damaged.

A major problem with air pollution is that it does not obey national boundaries. The planet's wind cycles and currents can carry pollution hundreds of miles away from its original source.

Acid rain emerged as a concern in the 1960s with observations of dying lakes and forest damage in Northern Europe, the United States and Canada. It was one of the first environmental issues to demonstrate how the chief pollutants (oxides of sulphur and nitrogen) can be carried hundreds of miles by winds before being washed out of the atmosphere in rain, snow and fog.

As evidence grew of the links between air pollution and environmental damage, legislation to curb emissions was put in place. The 1979 Geneva Convention on Long-Range Transboundary Air Pollution set targets for reduction of sulphur and nitrogen emissions in Europe that have largely been achieved. The 1970 and 1990 Clean Air Acts have led to similar improvements in the USA.

Many nations have adopted air quality standards to safeguard the public against the most common pollutants. These include sulphur dioxide, carbon monoxide, suspended particulate matter, ground-level ozone, nitrogen dioxide and lead - all of which are tied directly or indirectly to the combustion of fossil fuels. Substantial investments in pollution control have lowered the le-

vels of these pollutants in many cities of some developed countries. But poor air quality is still a major concern throughout the industrialised world.

Meanwhile, urban air pollution has worsened in most large cities in the developing world, a situation driven by population growth, industrialisation and increased vehicle use. Despite pollution control effects, air quality has approached the dangerous levels, recorded in London in the 1950s, in such megacities as Delhi, Jakarta and Mexico City.

Many countries in the world are trying to solve the problem of air pollution in various ways, either by trying to bum fossil fuels more cleanly or by fitting catalytic converters to their cars, so fewer poisonous gases are produced.

III. Check your understanding.

1. Which of the following statements are true and which are false?

a) An average person requires over thirty pounds of air a day or about six pints every minute.
b) The air is being polluted by smoke of burned leaves.
c) Of all the pollutants, that taint the air, fine suspended particulate matter, sulphur dioxide and ozone pose the most wide-spread and acute risks.
d) These particles don't include soot from vehicle exhaust.
e) Acid rains are responsible for the decline of many forests.
f) Acid rain doesn't affect everything it falls on.
g) Scientists now report that acid rain leaches as much as 50 per cent of the calcium and magnesium from the forest soils.
h) A major problem with air pollution is that it obeys national boundaries.
i) Poor air quality is still a major concern throughout the industrialized world.
j) Many countries in the world aren't trying to solve the problem of air pollution.

2. Match parts of sentences from column A with parts of sentences from column B.

A

1) Air pollution is …
2) The lungs of town inhabitants …
3) The health's effects of particles …
4) Particulate pollution cause …
5) Acid falls down …
6) Beside this, acid rains releases …
7) Some of the most beautiful historic buildings …

B

a) are usually grayish in colour.
b) an old problem, which has in this century assumed wide economic and social significance.
c) acute changes in lung function respiratory illnesses, heart disease.
d) are strongly linked to their size.
e) heavy metals and other toxic substances.
f) are being eaten away by the dilute acid, rained on them.
g) to earth as rain and snow.

3. Write a summary of the article. (Look Part III for summary writing)

4. Find the following English equivalents in the text.

1. двуокись серы
2. частицы
3. сгорание
4. загрязняющее вещество
5. сажа

6. заражение
7. городской воздух
8. смертность
9. главная проблема
10. загрязнение, заражение

IV. Enlarge your vocabulary.

1. Complete these sentences with one of the following expressions:

airborne lead pollution; combustion of fossil fuels; particles; decline of many forests; air quality standards; vehicle use; toxic substances.

1. However, _____, coming from car exhausts, is a critical concern in many cities as well.
2. Acid rains are responsible for the____ .
3. Smaller particles-those less than 2,5 microns in diameter-generally come from____.
4. The constituents in small_____ are more chemically active and may be acidic as well and therefore more damaging.
5. Many nations have adopted_____to safeguard the public against the most common pollutants.
6. Meanwhile, urban air pollution has worsened in most large cities in the developing world, a situation driven by population growth, industrialization and increased_____ .
7. Besides this, acid rain releases heavy metals, and other____ , providing a persistent source of toxicity to surrounding vegetation and aquatic life.

2. Find in the text sentences with the Passive Voice, read them and translate into Russian.

3. Give your own answer: *Are acid rains dangerous?*

LESSON 16

I. Words for understanding the text.

1. to contain	содержать
2. to make up	составлять
3. however	однако
4. to split	раскалывать, расщеплять
5. to join	соединять
6. either … or	или …. или
7. poisonous	ядовитый
8. to damage	повреждать, портить, наносить вред
9. although	хотя
10.to occur	случаться, происходить
11. to increase	увеличить
12. to reduce	уменьшить
13. to locate	располагаться, находиться
14. band	видное, удобное положение; полоса, лента
15. fragile	хрупкий, слабый; недолговечный
16. crucial	решающий, критический
17. to absorb	поглощать
18. solution	решение
19. issue	спорный вопрос; предмет спора

20. to protect	защищать
21. to worry	беспокоить
22. greenhouse	теплица, оранжерея

II. Read the text and find answers to the following questions:

1. What is ozone?
2. Where is the ozone layer located?
3. Why is ozone a problem?
4. Why is the ozone layer necessary for the inhabitants of the Earth?
5. What other problems are there on our planet?

Ground-Level and High-Level Ozone

Most of the free oxygen molecules in the earth's atmosphere contain two oxygen atoms. This is known as diatomic oxygen and it makes up 20.95% of our atmosphere. It is this type of oxygen that we need to breathe. However, the two atoms can be split up by solar radiation and when each of these then joins with diatomic oxygen, the result is a three-atom molecule of oxygen. This triatomic form of oxygen is called ozone. The earth's ozone is found mainly in two areas: either at the ground level or high above our heads. The presence of ozone can be a good or a bad thing ... it depends on where it is.

Ozone is poisonous and damaging - this makes the ground-level ozone a problem. Although it does occur naturally, human activities are increasing the amount of ozone that we breathe. Action is needed to reduce ozone on the earth's surface.

About 90% of ozone in the earth's atmosphere is located in the stratosphere - a band 15-50 km above our heads. This fragile layer, known as the ozone layer, is crucial to our life on the planet. It absorbs 99 per cent of the ultraviolet (IJV) radiation of the sun. Without the ozone layer, this radiation would probably kill most of us. It is the damage being caused to this layer that is worrying people. We need to take measures to protect it.

These two problems can't balance each other out. We need to find different solutions for both issues.

Some human activities indirectly produce ozone and these levels can be high enough to cause damage to our health, and to animals, trees, plants, crops and everyday materials. Increasing levels of the ground-level ozone also adds to the acid rain and greenhouse effect problems.

III. Check your understanding.

1. Now read the text carefully, looking up anything you don't understand in a dictionary. Put T or Flo indicate if the statements below are true or false according to the facts in the text.

1. Our atmosphere contains 20.95 % of oxygen.
2. Ozone is a triatomic form of oxygen.
3. Ozone is always dangerous for people.
4. There are measures to protect us from ozone.
5. The safe ozone layer is about 15-50 km above our heads.
6. If there were no ozone layer the ultraviolet radiation would kill us.

2. Choose the sentence fragment that best completes each of the following according to the text.

1. two atoms can be

a) made up
b) split up
c) formed

2. we needto take
a) activities
b) measures
c) problems
3. human activities
a) produce ozone
b) doesn't cause the damage
c) reduce the ozone level
4. at ground level ozone is
a) crucial to our life
b) safe for our health
c) absorbed

IV. Enlarge your vocabulary.

1 .Find words in the text which mean the same as:

quantity
various
to consist of
generally
to take place
to rise
to lower
to be a reason
to bother
question

2. Find words in the text which mean the opposite of these:

to reduce
absence
to connect
the same
directly
busy
usefulness
below
unknown

3. Give your own answer: *What ecological problems exist in your town?*

LESSON 17

I. Words for understanding the text.

1. diagram	рисунок, график
2. terminal	*зд.* полюс, вывод
3. linear	линейный
4. transfer	передаточный
5. domain	область
6. amplitude	амплитуда
7. response	отклик, реакция

8. tangent	тангенс
9. impedance	комплексное сопротивление, импеданс
10. successive	последовательный
11. attenuation	регулировка
12. cycle	цикл
13. delay	задержка
14. ratio	соотношение, коэффициент
15. zero	ноль, нулевой
16. emphasize	*зд.* усиливать
17. gain	коэффициент усиления
18. condition	условие
19. to distort	искажать
20. fidelity	точность, верность
21. d.c. amplifier	усилитель постоянного тока
22. multistage	многокаскадный
23. power amplifier	усилитель мощности
24. v.f. amplifier	усилитель звуковой частоты (УЗЧ)

II. Read the text and answer the following questions:

1) What is an amplifier used for?
2) What is a linear amplifier?
3) When is the time delay constant for all parts of the signal in the time domain?
4) What does a multistage amplifier consist of?
5) What can you tell the gain of a power amplifier?

Amplifiers

1. Introduction. To "amplify" means to make bigger or enlarge. An amplifier is a piece of electrical equipment for making signals bigger. In Fig. 1 the amplifier is shown as a "black box" with two terminals on the left and two on the right. In diagrams signals move from left to right where possible, so the input signal is connected across the two terminals on the left, and the output is taken from across the two terminals on the right. The box in Fig. 1 is a four terminal device with two ports. A great many amplifiers are three terminal devices as shown in Fig. 2, but they are still two port.

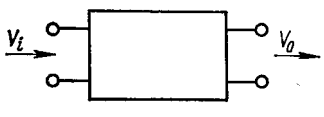


Fig. 1. V_i – input signal; V_o – output signal

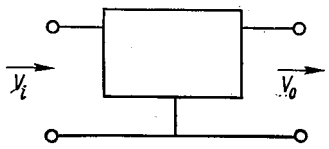


Fig. 2. V_i – input signal; V_o – output signal

If an input signal is perfectly reproduced at the output of the amplifier, changed only by being bigger, then the amplifier is "linear". This is shown in Fig. 3. The straight line which gives the relationship between the input and the output signal is called the transfer characteristic for the device, a linear amplifier in this case. The ratio of the amplitude of the output signal to that of the input signal is called the gain. For a linear amplifier the gain is constant, that is, the tangent θ is a constant. A delay, Δt is shown in Fig. 3. If all parts of the output signal are delayed by the same amount, this is not bad.

Fig. 4 shows an amplifier which must operate under certain conditions in order to be linear. The input signal amplitude must not be greater than A and must operate about the point P on the transfer characteristic. Point P is the operating point for the amplifier. If the operating point moves, because of changes in temperature or power supply levels, or if the input signal A is too great, then the output signal will be distorted.

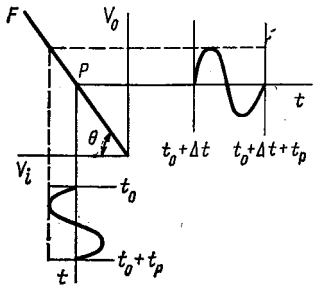


Fig. 3. V_i – input signal;
V_o – output signal;
F – transfer characteristic

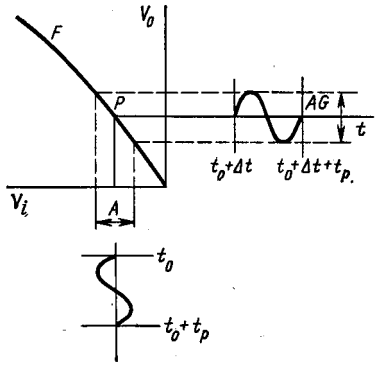


Fig. 4. V_i – input signal;
V_o – output signal;
F – transfer characteristic

2. Frequency Domain. So far amplifiers are described by the use of waveforms, that is, in the time domain. They can also be completely described by their response to sinusoids, that is, in the frequency domain. An amplifier that is linear has the frequency domain characteristics of constant gain for sinusoids over the frequencies of interest and phase delays proportional to their frequencies. Fig. 5 should make this statement clear. When phase delay is proportional to frequency, then the time delay At is constant for all the parts of the signal in the time domain.

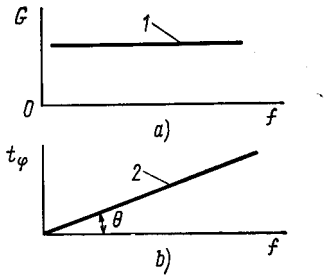


Fig. 6. 1 – constant level; 2 – constant slope; G – gain; t_φ – phase delay; f – frequency

It is not possible to have the ideal gain and phase characteristics shown in Fig. 5 over the whole frequency range. Amplifiers are named by the frequency range over which they operate. Amplifiers which have the required characteristics at zero frequency and higher are called d.c. amplifiers. A v.f. amplifier is for voice frequencies, 300 to 3,300 cycles per second (Hertz). A Hi-Fi (high fidelity) amplifier might have a range from 20 to 25,000 Hz.

3. **Multistage and Power Amplifiers.** An amplifier may have only one active element in it to change the power from its power supply into enlarged signal wanted. This is called a single stage amplifier. If more amplification is needed, amplifiers can be connected in tandem. For instance, an amplifier with four active elements providing four successive stages of amplification is a four stage amplifier. A power amplifier is designed to transfer the most power to its load. If the load is resistive, then Z_{out} is designed to be equal to R. The gain of a power amplifier is the ratio of the output power (transferred to the load) to that provided at its input. This ratio is written in a special way. For example, if the gain of an amplifier is 100, then this is written first as 10^2, the 2 is

then multiplied by 10, and the result written as 20 db; db means decibel (pronounced "dee-bee", the word "decibel" is rarely used in conversation and "bel" is never heard).

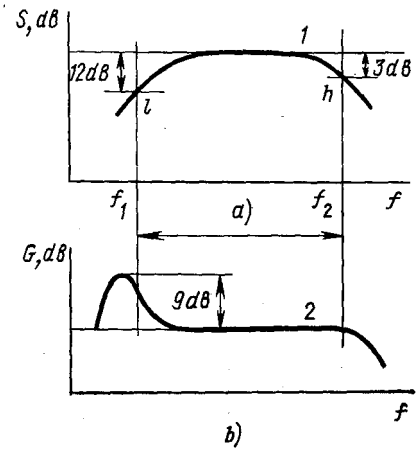


Fig. 6. 1 – magnetic pick-up head output; 2 – amplifier with emphasis; S – signal; l – low end; h – high end; f – frequency; G – gain; $f_1 \ldots f_2$ – required range

Some amplifiers are designed to be non-linear. For example, when playing a record a magnetic pick-up head has a poor frequency response at the "low end" (of its frequency range). This is shown in Fig. 6. In order to correct this, signal levels or amplitudes in the low end of the frequency range are emphasized by a non-linear amplifier. When an amplifier is provided only for emphasis to correct the signal, and is then followed, in tandem, by a linear amplifier, then pre-emphasis is being used. The opposite of gain is attenuation. This can be shown graphically as negative gain if a db scale is used, or as a gain less than one if a linear scale is used.

III. Check your understanding.

1. Find the English equivalents for the following Russian words and word combinations:

1. общее сопротивление; 2. мощность; 3. соотношение; 4. многокаскадный; б. затухание; 6. частотная область; 7. форма сигнала; 8. последовательно; 9. усилители постоянного тока; 10. усиление, коэффициент усиления; 11. задержка; 12. усиливать

1. frequency domain; 2. waveform ; 3. delay; 4. impedance; 5. in tandem; 6. power; 7. multistage; 8. ratio; 9. emphasize; 10. attenuation; 11. gain; 12. d.c. amplifiers

2. Arrange synonyms in pairs and translate them:

a) change, constant, amount, similar to, rarely, in tandem, amplify, supply, happen, for instance, join

b) in series, seldom, provide, alike, quantity, stable, vary, enlarge, take place, for example, couple

3. Translate the following definitions and memorize the terms:

Amplifier. An electronic instrument for strengthening and controlling electrical signals, consists of a preamplifier-equalized section plus a power amplifier section.

Decibel(db). A numerical expression of acoustical or electrical rations, such as the relative intensity of a sound or relative strength of a signal. Two decibels is the smallest change in sound perceptible to the ear.

Frequency. The number of periods per unit time.

Gain. The increase in signal power in transmission from one point to another under stated conditions.

Generator. A machine that converts mechanical power into electric power.

IV. Enlarge your vocabulary.

1. Name the verbs from which the following nouns derived and translate them:

amplifiers, distortion, attenuation, connection, introduction, equipment, statement, correction, generator, transference, expression

2. Fill in the blanks with the following words:

element, characteristics, an amplifier, decibel, ideal, operating, attenuation, non-linear

1. ... can be shown as a “black box”. 2. One of the ... of an amplifier is the gain. 3. Point P is the ... point for the amplifier. 4. Amplifiers can't have the ... gain and phase characteristics. 5. It is necessary to have one active ... in an amplifier to change the power. 6. The word ... is often used in different fields of telecommunication. 7. There are linear and ... amplifiers. 8. ... can be shown graphically as negative gain.

3. Use the words in brackets in the correct form, active or passive.

a) A computer (to instruct) to do a variety of jobs.
b) All the instructions (to execute) by the CPU.
c) The drives (to build) into the computer.
d) As soon as the monitor (to turn off) the old information disappears.
e) As the words and numbers (to type) they appear on a screen.
f) You can (to read) hard copy without using a computer.

4. Give your own answer: *What types of amplifiers do you know? What are their applications?*

LESSON 18

I. Words for understanding the text.

1. layer	слой, пласт
2.chromosphere	хромосфера
3. photosphere	фотосфера
4. core	ядро
5. to regard	считать, рассматривать
6. since	так как
7. solid	твердый
8. outermost	самый дальний от середины
9.visible	видимый
10. surface	поверхность
11.outward	внешний, направленный наружу
12. eclipse	затмение
13. filmy	пленчатый, тонкий
14. sight	вид, зрелище
15. fan	веер

II. Read the text and look for answers to these questions:

1.How many zones is the Sun divided into?
2.What are they?
3.What zones are regarded as the Sun's atmosphere?
4.Why is it hard to tell where the atmosphere ends?
5.What is the corona?
6.What temperature does the corona reach?
7.What is at the center of the Earth's solar system?

8.What is the temperature of the sun?

The Sun's Atmosphere

Solar astronomers do know that the Sun is divided into five general layers or zones. Starting at the outside and going down into the sun, the zones are the corona, chromosphere, photosphere, convection zone, and finally the core. The first three zones are regarded as the Sun's atmosphere. But since the Sun has no solid surface, it is hard to tell where the atmosphere ends and the main body of the Sun begins.

The Sun's outermost layer begins about 10.000 miles above the visible surface and goes outward for millions of miles. This is the only part of the Sun that can be seen during an eclipse such as the one in February 1979. At any other time, the corona can be seen only when special instruments are used on cameras and telescopes to block the light from the photosphere.

The corona is a brilliant, pearly white, filmy light, about as bright as the full Moon. Its beautiful rays are a sensational sight during an eclipse. The corona's rays flash out in a brilliant fan that has wispy spikelike rays near the Sun's north and south poles. The corona is generally the thickest at the Sun's equator.

The corona is made up of gases streaming outward at tremendous speeds that reach a temperature of more than 2 million degrees Fahrenheit. Gas thins out as it reaches the space around the planets. By the time gas of the corona reaches the Earth it has a relatively low density.

At the center of the Earth's solar system lies the Sun. The temperature of the Sun is over 10.000 degrees Fahrenheit at the surface, but it rises to perhaps more than 27.000.000° at the center. The Sun is much hotter than the Earth so that matter can exist only as gas, except perhaps in the core. In the core of the Sun, the pressures are so great that, despite the high temperature, there may be a small cold core. However, no one really knows, since the center of the Sun can never be directly observed.

III. Check your understanding.

1. Look through the text more carefully and decide whether the following statements are true, false, or the information is not given in the text.

1. Astronomers do not know how many layers the Sun is divided into.
2. Corona, chromosphere and photosphere are regarded as the Sun's atmosphere.
3. It is hard to tell where the atmosphere ends because the Sun has no solid surface.
4. The Sun's outermost layer is not the only part that can be seen during an eclipse.
5. Our solar system consists of nine planets and their moons.
6. The corona is generally the thickest at the Sun's center.
7. When gas of the corona reaches the Earth it has a high density.
8. Jupiter is the largest planet in the solar system.
9. At the surface the temperature of the Sun is over 10.000 degrees Fahrenheit.

2. Make up sentences matching the information from a) and b)

A	*B*
1. The Sun is divided into …	a) a brilliant pearly white, filmy light
2. The corona can be seen only …	b) rises to more than 27.000.000
3. The corona is …	c) five general layers or zones
4. The gas thins out as …	d) when special instruments are used on cameras and telescopes
5. The tempreture of the Sun at the center …	e) it reaches the space around the planets

3. Complete these sentences using the information from the text.

a) The Sun is divided into five general layers such as ...
b) Convection zone and the core are not regarded as ...
c) The Sun's outermost layer begins about...
d) The corona's rays are ...
e) The gas thins out as it...
f) The center of the Sun can never...

IV. Enlarge your vocabulary.

1. Give Russian equivalents to the following word-groups.

General layers, solid surface, the main body, outermost layer, visible surface, the only part, at any other time, special instruments filmy light, a sensational sight, a brilliant fan, tremendous speed, solar system.

2. Find the nouns, verbs, adjectives, adverbs:

general, special, tremendous, convection, photosphere, reach, finally, beautiful, relatively, begin, sensational, pressure, visible, brilliant, directly.

3. Look at the words in the box. Find the words connected with astronomy.

Prosecution, layer, computer, corona, bill, surface, reason, Moon, article, light, drive, eclipse, wage, telescope

4. Group the words which go together:

a) general	a) instrument
b) solid	b) light
c) special	c) surface
d) brilliant	d) speed
e) tremendous	e) layer

5. Check your grammar: make up questions to these sentences.

a) The first three zones are regarded as the Sun's atmosphere.
b) The Sun's outermost layer begins about 10.000 miles above the visible surface.
c) The corona is a brilliant light about as bright as the full Moon.
d) Gas thins out as it reaches the space around the planets.
e) The Sun is much hotter than the Earth so that matter can exist only as gas.

6. Give your own answer: *Do the ozone holes influence our health?*

LESSON 19

I. Words for understanding the text.

1.	waste	отходы
2.	to contribute	содействовать, способствовать
3.	benefit	выгода, польза, прибыль
4.	abundant	обильный
5.	to consume	потреблять, расходовать
6.	to complement	дополнять
7.	taken together	вместе взятые

8. to range from — колебаться
9. operating cost — текущие расходы
10. maintenance cost — эксплуатационные расходы
11. to incur — подвергаться
12. performance — производительность, коэффициент полезного действия (КПД)

II. Read the text and answer the following questions:

1. What does the term "renewable energy" mean?
2. Why do renewable technologies offer important benefits?
3. Why do the economics of renewable energy technologies improve in comparison with conventional technologies?
4. What systems do not contribute any carbon dioxide to the atmosphere?
5. How many years have modern applications of renewable energy technologies been under serious development?

Progress in Renewable energy Technologies

The term "renewable energy" is energy derived from a broad spectrum of resources, all of which are based on self-renewing energy sources such as sunlight: wind, flowing water, the earth's internal heat, and biomass such as energy crops, - agricultural and industrial waste, and municipal waste. These resources can be used to produce electricity for all economic sectors, fuels for transportation, and heat for buildings and industrial processes.

Renewable energy contributes as much today to U.S. energy production as nuclear power (10%). Each renewable energy technology is in a different stage of development and commercialization. Some technologies are already commercial, at least for some situations and applications. Of the renewable energy consumed in the United States in 1998, hydropower comprised 55%; biomass, including municipal solid waste, 38%; geothermal, 5%; solar, 1 %; and wind, 0.5%.

Renewable energy technologies offer important benefits compared to those of conventional energy sources. Renewable energy resources are abundant; worldwide. 1000 times more energy reaches the surface of the earth from the sun than is released today by all fossil fuels consumed. Table 1 gives the energy delivered per square meter of land for four renewable resources. Similar to fossil fuels, renewable energy resources are not uniformly distributed throughout the world. However, every region has some renewable energy resource. And, because different renewable energy resources complement each other, taken together they can contribute appreciably to energy security and regional development in every nation of the world, without dependence on foreign energy sources that are subject to political instability or manipulation.

Most renewable energy systems are modular, allowing flexibility in matching load growth. Today's markets for renewable energy technologies range from specialized niche markets to centralized energy production. For centralized energy production, renewable energy systems are relatively capital intensive compared to competing conventional technologies such as natural gas combined cycle power plants. However, after the initial investments that were made, the economics of renewable energy technologies improve in comparison with conventional technologies because operating and maintenance costs are low compared with those incurred using conventional fuels. This is especially true in the regions of the world where world fuel prices are relatively high, and will be especially true in the future as fuel prices increase.

Renewable energy systems generate little if any waste or pollutants that contribute to acid rain, urban smog, and health problems, and do not require environmental cleanup costs or waste disposal fees. Potential global climate change, caused by excess carbon dioxide and other gases in the atmosphere, is the latest environmental concern; systems using solar, wind, and geothermal sources do not contribute any carbon dioxide to the atmosphere.

Although the energy of the sun and wind are used by mankind, modern applications of renewable energy technologies have been under serious development for only about 20 years. In

that period of research and development investment by industry and government [primarily the U.S. Department of Energy (DOE)], dramatic improvements have occurred in the cost, performance, and reliability of renewable energy systems.

Table 1

Comparison of Renewable Energy Delivery per Unit Land Area

Resource	**Annual Delivered Energy (kWh/m^2)**
Wind Energy (intermittent)	11 (average wind speed) 18 (high wind speed)
Biomass (baseload)	15 (low efficiency) 45 (high efficiency)
Photovoltaics (intermittent)	50-100
Geothermal (The Geysers) (baseload)	160-200

III. Check your understanding.

1. Match the words on the left with the words on the right.

1. internal	a. waste
2. economic	b. clean up
3. conventional	c heat
4. environmental	d. technologies
5. solid	e. sector

2. Choose the sentence fragment that best completes each of the following.

1. The term "renewable energy" is energy derived from ...
   a) resources that can be used only for production of electricity.
   b) a broad spectrum of resources.
2. Renewable energy resources are ...
   a) limited.
   b) enormous.
3. Modern applications of renewable energy technologies have been under serious development for ...
   a) millennia.
   b) only about 20 years.
4. The economics of renewable energy technologies improve because ...
   a) fuel prices increase.
   b) operating and maintenance costs are low.

IV. Enlarge your vocabulary.

1. Insert suitable words in each gap.

Uniformly, development, electricity, energy security, buildings, transportation

1. Renewable energy resources can be used to produce ... for all economic sectors, fuels for ..., and heat for ... .
2. Similar to fossil fuels, renewable energy resources are not ... distributed throughout the world.
3. Because different renewable energy resources complement each other, they can contribute to ... and regional ... in every nation of the world.
4. Today's markets for renewable energy technologies range from ... to ...
5. Renewable energy systems do not require environmental ... costs and waste ...fees.

2. What do the following numbers refer to ?

10%; 55%; 38%; 5%; 1%; 0,5%; 1000 times; 20 years.

3. Fill in the blanks with prepositions:

after, by, of, with, on, in, without, to, and.

1. A broad spectrum ... resources are based ... self-renewing energy sources.
2. ... the renewable energy consumed ... the United States ... 1998 solar energy comprised 1%.
3. Because different renewable energy resources complement each other, they can contribute ... energy security ... regional development ... every nations ... the world, ... dependence ... foreign energy sources that are subject... political instability.
4. However ... the initial investments have been made, the economics ... renewable energy technologies improve ... comparison ... conventional technologies.
5. Potential global climate change was caused ... excess carbon dioxide and other gases ... the atmosphere.

4. Give your own answer: *What renewable energy technologies do you know?*

LESSON 20

I. Words for understanding the text.

1. residual stress	остаточное напряжение
2. alloy	сплав, легировать
3. amplify	усиливать
4. bow	гнуться
5. chatter	дрожание, вибрация, дробление, стук
6. clamping	зажимание, зажим, скрепление
7. compressive	сжимающий
8. cutter	фреза
9. distortion	искажение формы, перекашивание
10. disturb	нарушать, расстраивать
11. fabrication	холодная обработка давлением, изготовление сваркой
12. feed rate	скорость подачи
13. fixture	зажимное приспособление
14. forging	ковка
15. heat-treating	термическая обработка
16. induced stress	напряжение, вызванное другим напряжением
17. inherent	присущий
18. notorious	известный
19. originate	порождать, создавать
20. overhang	вылет, свес, выступ
21. plate	пластина
22. pose	ставить
23. release	разжимать, отпускать, освобождать
24. reliance	уверенность
25. setup	установка, наладка, настройка
26. shearing	срезание, резка
27. shop	*зд.* цех, мастерская (workshop)

28.	stock	материал, толстый листовой металл
29.	tensile	прочный, растяжимый
30.	twist	крутить, двигаться по винтовой линии
31.	versatile	легко приспособляемый, универсальный
32.	vulnerable	уязвимый

II. Read the text and say what problem is discussed:

Stress Management

When milling high-performance aluminum alloys, the best way to prevent part distortion is to control residual stresses.

Residual stresses in high-performance aluminum alloys pose extreme challenges to customary milling methods. In forging or plate stock, these tensile or compressive stresses originate in deformation of the material during part fabrication and are released when the surface of the part is disturbed. Heat-treating an aluminum workpiece or machining it with endmills 1" in diameter or larger usually releases residual stresses in an uncontrolled manner. The result is part distortion.

7000-series aluminum materials such as 7050, 7055, and 7150 are particularly vulnerable to residual-stress problems. Many metalworking shops avoid jobs involving these materials because they are notorious for causing production difficulties. Other shops, however, are discovering that they can minimize part distortion by using residual-stress-management (RSM) techniques to control or reduce stress in a predictable way.

Although residual stresses are inherent in the work material, they may be amplified by induced stresses, such as heat and cutting forces. 7000-series aluminum is very susceptible to heat due to alloying agents in the material. If the cutter is ground improperly, or if the feed rate and speed don't correlate, the poor shearing action in the cut will induce stress into the part. Chatter caused by cutter walk may induce stress to the point where it bows or twists the part.

Distortion of a 7000-series aluminum part during processing is caused by stresses induced by traditional manufacturing techniques. These techniques often fail to control surface core stresses that serve as a release mechanism for residual stresses in the material. Because of their over-reliance on past practices in machining aluminum, machinists may choose inappropriate processing methods to mill and heat-treat 7000-series alloys. Unless machinists use the proper machining and heat-treating techniques, they won't be able to control the release of residual stresses in the workpiece material that lead to part distortion.

The RSM techniques apply to the milling of high-performance aluminum alloys as well as other aluminum materials. Although high-speed machines are used to mill aluminum, the less sophisticated machines still are more common.

The machine tool should permit all operations to be performed on the part in the same setup. Using a versatile machine eliminates the need to move or refixture the part, thereby avoiding induced stresses due to the pressures of clamping fixtures and part handling. If a less versatile machine is used, the need for multiple setups will increase the stresses in the part. The fixture must clamp the part securely and give full support under the work. Overhang should be kept to a minimum.

III. Check your understanding.

1. Fill in the correct word(s) from the list below:

high-performance, stresses, compressive, forces, rate, shearing, manufacturing, shops, processing, machine

1 residual	6 cutting..... .....
2 ..... alloys	7..... action
3 metalworking ……	8 feed.....

4 ..... techniques 9 ..... methods
5 versatile ..... 10.....stresses

2. Match the numbers to the letters, then join the two parts.

1. Chatter may
2. These techniques fail
3. The fixture must
4. Overhang should be
5. Residual stresses are

a) kept to a minimum.
b) clamp the part securely.
c)inherent in the work material.
d) induce stress.
e) to control surface core stresses

IV. Enlarge your vocabulary.

1. Fill in the correct prepositions, then choose any three and make sentences.

1) pose sth ... sth/smb; 2) the surface ... the part; 3) minimize sth ... using sth; 4) originate ...sth; 5) very susceptible ...sth; 6) due ...sth; 7) because ... sth; 8) the need ... sth

2. Fill in the correct word(s) from the list below.

high-speed machines, induced stresses, multiple setups, release, involving

1) Heat-treating an aluminum workpiece usually ... residual stresses in an uncontrolled manner. 2) Many metalworking shops avoid jobs ... these materials. 3) Residual stresses may be amplified by .... 4) ... are being used to mill aluminum. 5) The need for ... will increase the stresses in the part.

3. Match the numbers to the letters.

1. extreme	a) allow
2. customary	b) decrease
3. deformation	c) if not
4. reduce	d) though
5. although	e) extraordinary
6. due to	f) traditionally
7. induce	g) distortion
8. unless	h) safely
9. permit	i) cause
10. securely	j) thanks to

4. Make questions to the words in bold.

1) Many metalworking shops avoid **jobs** involving these materials. 2) The result is **part distortion.** 3) Some shops can minimize part distortion **by using** residual-stress-management techniques. 4) **Because of** their over-reliance on past practices in machining aluminum, machinists may choose inappropriate processing methods. 5) **Using a versatile machine** eliminates the need to move or refixture the part.

5. Give your own answer: *What is residual-stress-management?*

PART II (GRAMMAR REFERENCES)

LESSON 1, LESSON 2

Present Simple (to be – быть, существовать)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I am (I'm)	I am not	Am I ?
You are (You're)	You are not (You aren't)	Are you ?
He is (He's) She is (She's) It is (It's)	He is not (He isn't) She is not (She isn't) It is not (It isn't)	Is he ? Is she ? Is it ?
We are (We're)	We are not (We aren't)	Are we ?
You are (You're)	You are not (You aren't)	Are you ?
They are (They're)	They are not (They aren't)	Are they ?
They are students.	*They aren't students.*	*Are they students?*

Present Simple (to have – иметь, обладать)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I have (I've) у меня есть	I don't have	Do I have?
You have (You've) у тебя есть	You don't have	Do you have?
He has (He's) у него есть She has (She's) у нее есть It has (It's) у него (нее) есть	He doesn't have She doesn't have It doesn't have	Does he have? Does she have? Does it have?
We have (We've) у нас есть	We don't have	Do we have?
You have (You've) у вас есть	You don't have	Do you have?
They have (They've) у них есть	They don't have	Do they have?
We have a lecture on philosophy.	*We don't have a lecture on philosophy.*	*Do we have a lecture on philosophy?*

Present Simple

Утвердительная форма	Отрицательная форма	Вопросительная форма
I work	I don't work	Do I work?
You work	You don't work	Do you work?
He works She works It works	He doesn't work She doesn't work It doesn't work	Does he work? Does she work? Does it work?
We work	We don't work	Do we work?
You work	You don't work	Do you work?
They work	They don't work	Do they work?

Present Simple употребляется:

- для выражения действия, происходящего обычно, регулярно повторяющегося. Обычно сопровождается такими наречиями и выражениями, как: every day/morning/year каждый день\утро\год, at night ночью, in the morning/afternoon/evening утром\днем\вечером, always всегда, often часто, rarely редко, seldom редко, usually обычно, never никогда, some-

times иногда. (I get up at seven every day except Sunday. Я встаю в семь утра каждый день, кроме воскресенья.)

-для обозначения общеизвестных фактов и явлений, которые являются неопровержимой истиной (The sun rises in the east and sets in the west. Солнце всходит на востоке и заходит на западе.)

There is\ There are

Оборот **there is\there are** указывают на наличие какого-либо не называвшегося ранее предмета или лица в определенном месте. Перевод предложений с данным оборотом надо начинать с обстоятельства места.

There is (there's) a telephone *on the table.* На столе (стоит) телефон.

There are a lot of students *in the classroom.* В классе много студентов.

После оборота **there is\there are** исчисляемые существительные в единственном числе употребляются с неопределенным артиклем (a), а исчисляемые существительные во множественном числе и неисчисляемые существительные – с местоимениями some, any.

Если в предложении имеется более одного подлежащего, то сказуемое согласуется с первым из них.

There's a blouse, two skirts and two dresses in the wardrobe.

There are some trees, a flowerbed and a small bench in the garden.

« ? » – Are there any students in the classroom?

Is there a telephone on the table?

How many students **are there** in the classroom?

« – » – There are not (there aren't) any students in the classroom**.**

There is not (there isn't) a telephone on the table.

Структура вопросов

1. В специальных вопросах, относящихся к любому члену предложения (кроме подлежащего и его определения) и начинающихся с вопросительного слова, вспомогательный глагол стоит перед подлежащим, а основной глагол в форме инфинитива без частицы to сохраняет свое место после подлежащего.

Вопросительные слова	Вспомогательный глагол	Подлежащее и определение к нему	Смысловой глагол (инфинитив)	Другие члены предложения
What Where When	do does	you he your sister	do go return	in the evening?

2. В вопросах, относящихся к подлежащему или его определению, само вопросительное слово является подлежащим или определением подлежащего, поэтому полностью сохраняется порядок слов утвердительного предложения:

Who knows his address? Кто знает его адрес?

Ответы на вопросы:

1. Ответ на общий вопрос обычно бывает кратким:

Yes, I do. No, I don't.

2. Специальный вопрос требует полного, развернутого ответа: What language do you study at university? - I study English. Какой язык ты изучаешь в университете? – Я учу английский. Where does your mother work? - She is a school teacher. Кем работает твоя мама? – Она учительница в школе.

3. Специальный вопрос к подлежащему, как правило, требует краткого ответа:

Who translates articles from English journals? – I do. Кто переводит статьи из английских журналов? – Я перевожу.

Present Continuous

Его форма образуется следующим образом: ***to be в настоящем времени (am, is, are) + Participle I смыслового глагола (глагол + ing).*** Глаголы в форме Present Continuous переводятся на русский язык глаголами несовершенного вида, иногда с добавлением слова «сейчас».

Утвердительная форма	Отрицательная форма	Вопросительная форма
I'm working	I am not working	Am I working?
You're working	You aren't working	Are you working?
He's working She's working It's working	He isn't working She isn't working It isn't working	Is he working? Is she working? Is it working?
We're working	We aren't working	Are we working?
You're working	You aren't working	Are you working?
They're working	They aren't working	Are they working?

Present Continuous употребляется:

- для передачи действия в его развитии, происходящее или в момент разговора, или в данный период времени, рассматриваемый как момент совершения действия. В предложении могут употребляться следующие обстоятельства времени: *now* сейчас, теперь*; at this moment* в настоящий момент. (They are translating the new article. – Они сейчас переводят новую статью.)

Следующие **глаголы** обычно **не употребляются** в ***Present Continuous:***

See, hear, smell, sound, feel, look, taste, notice; believe, guess, imagine, mean, realize, know, recognize, remember, suppose, understand; fear, love, like, hate, want, wish, prefer; seem, concern, consist of, deserve, depend on, involve, need, contain, resemble, keep; belong, own, owe, possess.

Артикль (The Article)

Артикль – служебное слово, поясняющее существительное. В английском языке два артикля: неопределённый **a (an)** для существительных только единственного числа и определённый **the.** Артикли обычно не переводятся, но иногда неопределённому артиклю при переводе могут соответствовать слова **один, какой-то, любой,** а определённому – **этот(эти), тот(те).**

Например: Give me a pen. – Дай мне (любую) ручку.

Who can solve the problem. – Кто может решить (эту) проблему.

Употребление неопределенного артикля	**Употребление определенного артикля**	**Отсутствие артикля**
1. с исчисляемыми существительными, если они упоминаются впервые: I can see a bird on the tree.	1. с существительным, которое упоминается второй раз: There is a flower in the vase, the flower is beautiful.	1. с существительными во множественном числе: We are students. This room has got chairs and curtains.
2. с названиями профессий и занятий: I am a student. He is a teacher.	2. с существительными, обозначающими предметы/явления единственные в своём роде: the moon, the sun, the earth, the president	2. в ряде устойчивых словосочетаний: go home, at home, by bus, at work, in time for example, at night

3. с существительными после оборотов there is…, it is…, this is… , а также после слов such, quite, what: This s a flower. There is a kitchen. It is a book. Marry is such a clever girl.	3. с некоторыми географическими названиями: the South, the Crimea, the USA, the Black Sea, the Urals	3. с названиями стран, городов, дней недели, месяцев: Tomsk, Russia, Monday, March
4. с некоторыми выражениями количества: a lot of books, a little water, a few pictures.		4. перед сществительными breakfast, lunch, dinner, supper

Число (Number)

В английском языке, как и в русском, два числа: *единственное и множественное*. Форма единственного числа служит для обозначения одного предмета: a table – *стол, a pen – ручка*. Форма множественного числа служит для обозначения двух или более предметов: tables – *столы*, *pens – ручки*.

Образование множественного числа имен существительных.

Имена существительные образуют множественное число путем прибавления окончания **-s.** Правила добавления окончания:

-s dog — dogs, cat — cats
-es после -s, -sh, -ch, -x bus — buses match — matches dish — dishes box — boxes
-ies → y family — families, baby — babies
-s после ay, -ey, -oy, -uy day — days, key — keys, boy - boys
-es после — o tomato — tomatoes Но: radio — radios, photo — photos, piano — pianos
-ves → -f, -fe knife — knives, wife — wives Но: roof — roofs
сложные существительные: shopkeeper — shopkeepers sister-in-law — sisters-in-law
особые случаи: man — men, woman – women foot — feet, child — children, fish — fish, tooth – teeth, louse — lice, deer — deer, sheep — sheep, mouse — mice,
существительные употребляемые только в единственном числе: weather, money, knowledge, hair
существительные употребляемые только во множественном числе: trousers, scissors, binoculars
собирательные существительные, употребляемые в единственном и множественном числе: army, class, family, team

LESSON 3, LESSON 4

Past Simple (to be – быть, существовать)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I was	I wasn't	Was I ?
You were	You weren't	Were you ?
He was She was It was	He wasn't She wasn't It wasn't	Was he ? Was she ? Was it ?
We were	We weren't	Were we ?
You were	You weren't	Were you ?
They were	They weren't	Were they ?
They were students last year.	*They weren't students last year.*	*Were they students last year?*

Past Simple (to have – иметь, обладать)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I had (I'd)	I didn't have	Did I have?
You had (You'd)	You didn't have	Did you have?
He had (He'd) She had (She'd) It had (It'd)	He didn't have She didn't have It didn't have	Did he have? Did she have? Did it have?
We had (We'd)	We didn't have	Did we have?
You had (You'd)	You didn't have	Did you have?
They had (They'd)	They didn't have	Did they have?
We had a lecture on philosophy yesterday.	*We didn't have a lecture on philosophy yesterday.*	*Did we have a lecture on philosophy yesterday?*

Past Simple

Правильные глаголы образуют формы в Past Simple путем ***прибавления к инфинитиву (без частицы to) суффикса -ed (-d) для всех лиц единственного и множественного числа***.

Например: to ask (спрашивать) — asked (спросил); to translate (переводить) – translated (перевел)

Неправильные глаголы образуют формы в Past Indefinite различными способами (см. таблицу неправильных глаголов).

Например: to go ходить — went (пошел); to write писать — wrote (написал); to come приходить — came (пришел); to give давать — gave (дал); to take брать — took (взял)

Утвердительная форма	Отрицательная форма	Вопросительная форма
I worked	I didn't work	Did I work?
You worked	You didn't work	Did you work?
He worked She worked It worked	He didn't work She didn't work It didn't work	Did he work? Did she work? Did it work?
We worked	We didn't work	Did we work?
You worked	You didn't work	Did you work?
They worked	They didn't work	Did they work?

His father worked at the university two years ago.	*His father didn't work at the university two years ago.*	*Did his father work at the university two years ago?*

Сводная таблица неправильных глаголов			
Infinitive	**Past Simple**	**Participle II**	**Перевод**
rise	arose	arisen	возникать
awake	awoke, awaked	awoke, awaked	будить, просыпаться
be	was, were	been	быть
bear	bore	born	рождать
bear	bore	born, borne	носить, выносить
beat	beat	beaten	бить
become	became	become	становиться
begin	began	begun	начинать(ся)
bend	bent	bent	гнуть(ся), сгибать(ся)
bind	bound	bound	связывать
bite	bit	bitten	кусать
blow	blew	blown	дуть
break	broke	broken	ломать
breed	bred	bred	выводить, разводить
bring	brought	brought	приносить
build	built	built	строить
burn	burnt	burnt	гореть, жечь
burst	burst	burst	разрываться
buy	bought	bought	покупать
cast	cast	cast	бросать, кидать
catch	caught	caught	ловить, схватывать
choose	chose	chosen	выбирать
cling	clung	clung	прилипать, цепляться
come	came	come	приходить
cost	cost	cost	стоить
creep	crept	crept	ползать
cut	cut	cut	резать

deal	dealt	dealt	иметь дело
dig	dug	dug	копать
do	did	done	делать
draw	drew	drawn	тащить; рисовать
drink	drank	drunk	пить
eat	ate	eaten	есть
fall	fell	fallen	падать
feed	fed	fed	кормить (ся)
feel	felt	felt	чувствовать
fight	fought	fought	бороться, сражаться
find	found	found	находить
fly	flew	flown	летать
forbid	forbade	forbidden	запрещать
forget	forgot	forgotten	забывать
freeze	froze	frozen	замерзать, замораживать
get	got	got	получать, становиться
give	gave	given	давать
go	went	gone	идти, ехать
grind	ground	ground	точить; молоть
grow	grew	grown	расти, выращивать
hang	hung hanged	hung hanged	висеть вешать
have	had	had	иметь
hear	heard	heard	слышать
hide	hid	hid, hidden	прятать
hit	hit	hit	ударять, поражать
hold	held	held	держать
hurt	hurt	hurt	повредить, ушибать
keep	kept	kept	держать, хранить

know	knew	known	знать
lay	laid	laid	класть
learn	learnt learned	learnt learned	учиться
leave	left	left	оставлять, уезжать
let	let	let	позволять, сдавать внаем
lie	lay	lain	лежать
light	lit lighted	lit lighted	зажигать, освещать
lose	lost	lost	терять
make	made	made	делать, заставлять
mean	meant	meant	значить, подразумевать
meet	met	met	встречать
pay	paid	paid	платить
put	put	put	класть
read	read	read	читать
ride	rode	ridden	ездить (верхом)
ring	rang	rung	звонить, звенеть
rise	rose	risen	подниматься
run	ran	run	бежать
saw	sawed	sawn	пилить
say	said	said	говорить, сказать
see	saw	seen	видеть
sell	sold	sold	продавать
send	sent	sent	посылать
set	set	set	помещать, ставить, заходить (о солнце)
shake	shook	shaken	трясти
shine	shone	shone	снять, светить
shoot	shot	shot	стрелять
show	showed	shown	показывать
shrink	shrank	shrunk	сморщиваться, сокращаться

shut	shut	shut	закрывать
sing	sang	sung	петь
sink	sank	sunk	погружаться, тонуть
sit	sat	sat	сидеть
sleep	slept	slept	спать
slide	slid	slid	скользить
smell	smelt smelled	smelt smelled	пахнуть
sow	sowed	sown	сеять
speak	spoke	spoken	говорить
speed	sped	sped	спешить, ускорять
spell	spelt spelled	spelt spelled	писать или произносить слова по буквам
spend	spent	spent	тратить
spill	spilt spilled	spilt spilled	проливать
spin	span, spun	spun	прясть
split	split	split	раскаливать (ся)
spoil	spoilt spoiled	spoilt spoiled	портить
spread	spread	spread	распространять (ся)
stand	stood	stood	стоять
stick	stuck	stuck	приклеивать (ся)
sting	stung	stung	жалить
strike	struck	struck	ударять; бастовать
strive	strove	striven	стремиться
sweep	swept	swept	мести
swell	swelled	swollen	пухнуть, раздуваться
swim	swam	swum	плавать
swing	swung	swung	качать(ся), размахивать
take	took	taken	брать
teach	taught	taught	обучать, учить
tear	tore	torn	рвать
tell	told	told	рассказывать
think	thought	thought	думать

throw	threw	thrown	бросать
understand	understood	understood	понимать
wake	woke waked	woken waked	будить, просыпаться
wear	wore	worn	носить
win	won	won	выигрывать
wind	wound	wound	заводить, виться
write	wrote	written	писать

Past Simple употребляется:

- для выражения ряда последовательных действий в прошлом. (He stood up, came up to the window and saw an endless stream of cars running along the street. Он встал, подошел к окну и увидел бесконечный поток машин, едущих по улице.)

- когда действие соотносится с обстоятельственными словами, точно обозначающими прошедшее время, например: наречия ago тому назад, yesterday вчера, last month/week/year в прошлом месяце/на прошлой неделе/в прошлом году и т.п. (My friends came to see me on Saturday. – Мои друзья приходили ко мне в субботу. We didn't get home until midnight. – Мы добрались домой только в полночь.)

- когда интересуются временем совершения действия в прошлом, т.е. в вопросительном предложении, начинающемся с when?, what time? (When did you see her last? – Когда вы видели ее в последний раз? What time did you arrive home? – Когда вы добрались домой?)

Have got

В разговорной речи вместо to have очень часто употребляется have, has got (‘ve/'s got):

I've got a good car.	У меня хорошая машина.
Have you got an English dictionary?	У вас есть английский словарь?
I haven't got an English dictionary.	У меня нет английского словаря.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I have (I’ve) got	I have not (I haven’t) got	Have I got?
You have (You’ve) got	You have not (You haven’t) got	Have you got?
He has (He’s) got She has (She’s) got It has (It’s) got	He has not (He hasn’t) got She has not (She hasn’t) got It has not (It hasn’t) got	Has he got? Has she got? Has it got?
We have (We’ve) got	We have not (We haven’t) got	Have we got?
You have (You’ve) got	You have not (You haven’t) got	Have you got?
They have (They’ve) got	They have not (They haven’t) got	Have they got?

Притяжательный падеж (Posessive ‘s)

Существительное в притяжательном падеже служит определением к другому существительному и отвечает на вопрос *whose? – чей?,* обозначая принадлежность предмета.

Притяжательный падеж с **‘s/s’**	**“of”**
1. Существительное в единственном числе (люди и животные) + 's *the girl's dress the cat's tail*	1. of + неодушевленные существительные *the banks of the river* *the price of success*

2. Существительные во множественном числе + 's *the girls' dresses*	2. of + существительные в притяжательном падеже; притяжательные местоимения, существительное + определительное слово (this, some и т.д.) *That s a friend of Mary's. I've got a book of you*
3. Существительные во множественном числе (имеющие особую форму) + 's *The children's toy*	
4. Составные существительные + **'s** *my brother-in-law's car*	
5. 's после целой группы слов *Ted and Mary's house*	
6. 's после каждого слова в группе слов *Ted 's and Mary's houses*	

Местоимение (The Pronoun)

Личные местоимения (кто?– who?)	Косвенный падеж личных местоимений (кому? кого? и т.д. – whom?)	Притяжательные местоимения (чей? – whose?)	Абсолютная форма притяжательных местоимений (чей? – whose?)	Возвратные местоимения
I	me	my	mine	myself
You	you	your	yours	yourself
He	him	his	his	himself
She	her	her	hers	herself
It	it	its	–	itself
We	us	our	ours	ourselves
You	you	your	yours	yourselves
They	them	their	theirs	themselves

LESSON 5, LESSON 6

Способы выражения будущего времени в английском языке

To be going to + infinitive

Утвердительная форма	Отрицательная форма	Вопросительная форма
I'm going	I am not going	Am I going ?
You're going	You aren't going	Are you going ?
He's going She's going It's going	He isn't going She isn't going It isn't going	Is he going ? Is she going ? Is it going ?
We're going	We aren't going	Are we going ?
You're going	You aren't going	Are you going ?
They're going	They aren't going	Are they going ?

Конструкция «to be going + infinitive» употребляется:

- для выражения действия в будущем времени, которое действующее лицо *планирует или намеревается осуществить*. На русский язык переводится *собираться, намере-*

ваться сделать что-либо. Иногда могут употребляться выражения tonight, tomorrow. (She's going to have a bath. – Она собирается принять ванну.)

- для выражения действия в будущем времени, признаки которого очевидны в настоящем. (He's got a toothache. He's going to see his dentist. – У него болит зуб. Он пойдет к дантисту.) Часто используется после таких глаголов как: be sure, believe.

Present Continuous

может обозначать будущее действие (особенно с глаголами come, go, stay, start, leave), если оно является заранее *намеченным и решенным*. (She's coming back tomorrow. – Она возвращается завтра.)

Future Simple

Future Simple образуется при помощи shall (для 1 лица ед. и мн. числа) и will (для всех остальных лиц) + инфинитив.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I shall (I'll) go	I shan't go	Shall I go ?
You will (You'll) go	You won't go	Will you go ?
He will (He'll) go She will (She'll) go It will (It'll) go	He won't go She won't go It won't go	Will he go ? Will she go ? Will it go ?
We shall (We'll) go	We shan't go	Shall we go ?
You will (You'll) go	You won't go	Will you go ?
They will (They'll) go	They won't go	Will they go ?
She will enter the university next year.	*She won't enter the university next year.*	*Will she enter the university next year.*

Future Simple употребляется:

- для выражения действия в будущем со следующими обстоятельствами времени:

tomorrow — *завтра,* next week — *на будущей (следующей) неделе,* next month — *в следующем месяце,* next year — *в будущем году,* in two (three) days — *через два (три) дня,* in a week — *через неделю,* in a month — *через месяц,* in a year — *через год* и т.д. (I'll go to the theatre tomorrow. – Я пойду завтра в театр.)

- для выражения мнения говорящего, предположения, размышления о будущем после глаголов: *assume, be/feel sure, expect, hope, know, suppose, think* или после наречий: perhaps, *possibly, probably, surely*. (I hope he'll be here at 5 o'clock tomorrow. – Я надеюсь, он завтра будет здесь в 5.)

- для выражения факта, истины, относящихся к будущему. ("Live Journal" will replace newspapers in two years. – «Живой журнал» вытеснит газеты через два года.)

Неопределенные местоимения и их производные (some, any, etc)

	Некоторый, несколько	что-то	кто-то	где-то, когда-то
+ (в утвердительных предложениях)	some	something	somebody, someone	somewhere
- (в отрицательных предложениях при утвердительной форме глагола)	no	nothing	nobody	nowhere

? (в вопросительных предложениях и в предложениях с отрицательной формой глагола)	any	anything	anybody, anyone	anywhere
	I've got some books on computer science.	*There is something at the floor.*	*There was nobody in the room.*	*I didn't see him anywhere.*

Местоимения: много, мало (much, many, a little, a few)

с исчисляемыми существительными:

много:	мало (недостаточно)	мало (достаточно)
many, a lot of	few	a few
There are a lot of apples in the garden.	There are few apples on the plate.	There are a few books on the shelf.
В саду много яблок.	На тарелке мало яблок.	На полке немного книг.

с неисчисляемыми существительными:

много	мало (недостаточно)	мало (достаточно)
much, a lot of	little	a little
He has a lot of free time.	We have little milk in the bottle.	There is little jam on the plate.
У него много свободного времени.	У нас в бутылке мало молока.	На тарелке мало варенья (но достаточно для нас).

"to + infinitive"

используется для обозначения цели (зачем?). (They went there early *to get good tickets*. – Они пошли туда рано, *чтобы достать хорошие билеты*.)

LESSON 7, LESSON 8

Предлоги (Prepositions)

Предлоги времени

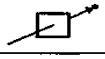
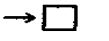
Seasons	Days of the week	Years	Centuries
in (the) spring in (the) summer in (the) autumn in (the) winter (весной, летом и т.д.)	on Sunday on Monday on Tuesday on Wednesday on Thursday on Friday on Saturday (в воскресенье и т.д.)	in 1980 in the 1980s during the eighties (в 80м году)	in the nineteenth century (в 19 веке)

Словосочетания

at 2 o'clock — в 2 часа
about 2 months — около 2 месяцев
by 3 o'clock — к 3 часам
since 5 o'clock — с 5 часов
till 10 o'clock — до 10 часов
from 5 to 6 o'clock — с 5 до б часов
for 3 hours — в течение 3 часа

in time – вовремя
after the lesson — после урока
in 3 days — через 3 дня
after the war — после войны
during the war — во время войны
before 1913 —до 1913 г.

Предлоги места, движения

	on	на		across	через
	in	в (где?)		through	сквозь
	to	в (куда?)		into	в (внутрь)
	at, near by	около, возле, у		out of	из
	under	под		from	с
	behind	позади		up	вверх
	above over	над		down	вниз
	in front of	перед		along	вдаль
	between	между		(a) round	вокруг, за
	among	среди		towards	к

Степени сравнения прилагательных

В английском языке различают три степени сравнения прилагательных: положительную (the positive degree), **сравнительную**(the comparative degree) и **превосходную**(the superlative degree). Прилагательные в положительной степени не имеют никаких окончаний, например: slow, straight, productive, curious.

Образование

Сравнительная и превосходная степени образуются двумя способами:

1. Путем прибавления суффикса **–er** в сравнительной степени и **–est** в превосходной степени к основе **односложных** прилагательных (таких как new, big, quick), и **двусложных** прилагательных, оканчивающихся на **-y** (таких happy, heavy). Некоторые двусложные прилагательные, такие как **quiet, clever, narrow, shallow, simple** могут образовывать степени сравнения как первым, так и вторым способом.

При прибавлении суффиксов –er, -est необходимо соблюдать следующие правила правописания:

- Прилагательные, оканчивающиеся на –y , которому предшествует согласная, меняют –y на –i, например: heavy – heavier – the heaviest.
- Прилагательные, оканчивающиеся на –y , которому предшествует гласная, конечную букву не меняют.
- Односложные прилагательные с кратким гласным удваивают конечную согласную, например: big – bigger- the biggest, fat – fatter - the fattest.
- Прилагательные, заканчивающиеся на –e, прибавляют только –r и -st, например: fin**e** – finer – the finest.

2. С помощью слов **more** в сравнительной степени и **the most** в превосходной степени перед **многосложными** прилагательными и **двусложными**, оканчивающимися на

–ful, -less, -ed, -ing и некоторыми другими (например: careful – more careful – the most careful, personal – more personal – the most personal, tired –more tired – the most tired, afraid - more afraid –the most afraid). Наречия, заканчивающиеся на **–ly**, также образуют сравнительную степень с помощью **more,** например: slowly – more slowly, easily – more easily, carefully – more carefully.

Некоторые прилагательные образуют степени сравнения не по общему правилу:

Little – less – the least
Much, many – more – the most
Good –better – the best
Bad – worse – the worst
Far – farther – the farthest (о расстоянии)
Far – further – the furthest (о времени и расстоянии)
Near – nearer – the nearest (о расстоянии)
Near – nearer – the next (о порядке следования)
Late – later –the latest (о времени)
Late – latter the last (о порядке следования)
Old-older – the oldest (о возрасте)
Old –elder –the eldest (о старшинстве)

- **Сравнительная** степень используется, когда сравниваются два предмета. При этом используется союз **than:**

I'm now more experienced **than** two years ago. Я теперь более опытен, чем 2 года назад.

- Прилагательные в **превосходной** степени часто переводятся на русский язык с помощью слова **самый**. В превосходной степени всегда употребляется определенный артикль **the**.

It was **the hottest** day of the year. Это был **самый** жаркий день в году.

It was **the most boring** film I've ever seen. Это был **самый** скучный фильм,который я когда-либо видел.

- Равное качество предметов, действий или явлений выражается с помощью союзов **as…as…** При этом употребляется **положительная** степень сравнения.

I'm **as** tall **as** you. Я такой же высокий, как и ты.

It was **as** cold **as** in winter there. Там было холодно, как зимой.

- Неравное качество предметов выражается с помощью **not as (so)…as…**

I'm **not as (so)** rich **as** Mike. Я не такой богатый как Майк. (Майк богаче)

I do**n't** know **as** many people **as** you do. Я знаю не так много людей, как ты. (Ты знаешь больше)

- Если одно явление зависит от другого, то в таком случае используется конструкция **the…the…** и сравнительная степень прилагательного. **The…the…** переводится на русский язык как **чем…тем…** (не путать с использованием артикля в превосходной степени!)

The warm**er** the weather, **the better** I feel**. Чем** теплее погода, **тем** лучше я себя чувствую.

The long**er** she waited, **the more** impatient became. **Чем** дольше она ждала, **тем** нетерпеливее она становилась.

LESSON 9, LESSON 10, LESSON 11

Present Perfect

Образуется время Present Perfect при помощи глагола ***have (has)*** + ***Participle II (3-я форма спрягаемого глагола).***

Утвердительная форма	Отрицательная форма	Вопросительная форма
I have worked (I've worked)	I haven't work	Have I worked?
You have worked (You've worked)	You haven't work	Have you worked?
He has worked (He's worked) She has worked (She's worked) It has worked (It's worked)	He hasn't work She hasn't work It hasn't work	Has he worked? Has she worked? Has it worked?
We have worked (We've worked)	We haven't work	Have we worked?
You have worked (You've worked)	You haven't work	Have you worked?
They have worked (They've worked)	They haven't work	Have they worked?
He has seen her this week.	*He hasn't seen her this week.*	*Has he seen her this week?*

Present Perfect употребляется:

- для выражения завершившегося действия, когда время действия не указано. (I have seen a new film. – Я видел новый фильм.)

- с обстоятельствами, выражающими период времени, не закончившийся до момента речи (today, this week, this month, this year). (They have completed the work this week. – Они закончили работу на этой неделе.)

- с наречиями неопределенного времени: always всегда\ seldom редко\ ever когда-либо\ already уже\often часто\ just только что\ never никогда\ not yet еще не\. В этом случае глагол в форме Present Perfect обычно переводится на русский язык глаголом несовершенного вида. (I have never read that book. – Я никогда не читал той книги. He has been to London many times. – Он много раз бывал в Лондоне.

- для обозначения действия, начавшегося в прошлом и продолжающегося в настоящем, со словами since с, с тех пор как и for в течение, в этом случае глагол в форме Present Perfect обычно переводится на русский язык глаголом в настоящем времени. (I have known him since 1970. – Я знаю его с 1970 года. He has lived here for many years. – Он живет здесь уже много лет.)

Придаточные определительные предложения

Who/that	Which/that	Where
для определения человека, живого существа	для определения предмета или животного	для определения месторасположения
A druggist is someone who/that sells medicine in a shop.	*A subway is a railway which/that runs under the ground.*	*A parking lot is a place where you park your car.*

Describing objects

It's a thing you use + **to + infinitive**.
It's + **for + V – ing**.
It's + noun + **to do something with (on, in)**.

It's + **for + V – ing something out of (with, in)**.

LESSON 12, LESSON 13, LESSON 14

Модальные глаголы (The Modal Verbs)

Модальные глаголы выражают не само действие или состояние, а отношение к ним со стороны говорящего. С помощью модальных глаголов можно показать, то действие возможно или невозможно, обязательно или не нужно, вероятно или неправдоподобно, желательно и т. д. Модальными являются глаголы can, may, must, ought, should, would, need, shall, will. **Особенностью модальных глаголов является** то, что они:

1. не имеют полного самостоятельного значения и употребляются в сочетании с инфинитивом смыслового глагола (без частицы to);
2. не имеют инфинитива, причастия, герундия;
3. не имеют окончания -s в 3-м лице единственного числа настоящего времени;
4. не имеют формы прошедшего времени, кроме can, may и будущего времени;
5. образуют вопросительную и отрицательную форму без вспомогательного глагола to do.

Значения и варианты употребления модальных глаголов.

CAN

Глагол can имеет значение *мочь, обладать физической или умственной способностью*.

Настоящее время – can – могу, может, можем и т.д. (Can you speak English? – Вы можете говорить по-английски?)

Прошедшее время – could – мог, могла, могло и т.д.

Сочетание **to be able to *быть в состоянии*** с последующим инфинитивом является эквивалентом глагола can и восполняет его недостающие формы. (We shall be able to do it only tomorrow. – Мы сможем сделать это только завтра.)

MAY

Глагол may имеет значения *разрешения и возможности*: **may (настоящее время) могу, может, можем и т.д.; might (прошедшее время) мог, могли и т.д**. (May I come in? – Можно мне войти? He may be at home. – Он, может быть, дома.)

Сочетания **to be allowed to и to be permitted to** с последующим инфинитивом являются эквивалентом глагола may и восполняют его недостающие формы в значении ***мочь, иметь разрешение.*** (He was allowed to come in. – Ему разрешили войти.)

MUST

Глагол **must** выражает *необходимость, моральную обязанность* и соответствует в русском языке словам ***должен, нужно, надо.*** Глагол must имеет только одну форму настоящего времени. (You must do it yourself. – Вы должны это сделать.)

Наряду с глаголом must и взамен его недостающих форм употребляются эквиваленты **to have to** (должен в силу обстоятельств) и **to be to** (должен в силу запланированности, намеченности действия). (It was raining heavily and we had to stay at home. – Шел сильный дождь, и мы должны были остаться дома. He is to take his exam in June. – Он должен сдавать этот экзамен в июне.)

OUGHT

Глагол ought выражает моральный долг, желательность действия, относящиеся к настоящему и будущему времени. На русский язык **ought** переводится словами ***следовало бы, следует, должен.*** После ought инфинитив всегда употребляется с частицей to. (You ought to see a doctor. – Тебе следовало бы обратиться к врачу.)

SHOULD

Глагол **should** в качестве модального глагола выражает обязанность, желательность

действия, совет, рекомендацию. На русский язык should переводится как ***следует, должен, обязан***. (You should know about it. – Вам следует знать об этом.)

WOULD

Глагол would в качестве модального глагола может выражать:

а) обычные и повторяющиеся действия в прошлом (в этом значении он является синонимом выражению used to). (He would spend hours in the Tretyakov Gallery. – Он обычно проводил многие часы в Третьяковской галерее. = He used to spend hours in the Tretyakov Gallery. – Он любил проводить многие часы в Третьяковской галерее.)

б) упорное нежелание выполнить какое-то действие. (I asked him to do it but he wouldn't. – Я попросил его сделать это, но он ни за что не хотел.)

в) присущее свойство, характеристику (часто встречается в технической литературе). (Paper would burn. – Бумага хорошо горит.)

г) результат воображаемой ситуации. На русский язык переводится частицей «бы». (Where would you go? – Куда бы вы поехали?)

NEED

Need может употребляться как модальный глагол и как правильный глагол. Как модальный глагол need имеет только одну форму. Он в основном употребляется в отрицательных предложениях. (You needn't come here today. – Тебе не нужно приходить сюда сегодня.)

SHALL and WILL

Эти глаголы являются не только вспомогательными, но и модальными. Когда shall стоит во всех лицах, он означает *приказание, обещание, угрозу*. (He shall be punished. – Он будет наказан. (угроза))

Когда will стоит в 1-м лице, он означает не только будущее время, но и желание или намерение что-либо сделать. (I will help him. – Я ему помогу. (это мое желание))

LESSON 15, LESSON 16, LESSON 17

Past Continuous

Формы Past Continuous образуются следующим образом: ***to be в прошедшем времени (was, were) + Participle I смыслового глагола (глагол + ing).***

Утвердительная форма	Отрицательная форма	Вопросительная форма
I was working	I wasn’t working	Was I working?
You were working	You weren’t working	Were you working?
He was working She was working It was working	He wasn’t working She wasn’t working It wasn’t working	Was he working? Was she working? Was it working?
We were working	We weren’t working	Were we working?
You were working	You weren’t working	Were you working?
They were working	They weren’t working	Were they working?
He was translating the article when I came.	*He wasn’t translating the article when I came.*	*Was he translating the article when you came?*

Past Continuous употребляется:

- для выражения действия, которое продолжало совершаться в определенный момент или отрезок времени в прошлом, обозначаемом либо точным указанием момента или отрезка времени, либо другим действием, выраженным глаголом в Past Simple. (We were working in the lab from 5 till 7 o'clock. – Мы работали в лаборатории с 5 до 7 часов.)

1) Subject + Past Continuous when + Subject + Past Simple.

2) While + Subject + Past Continuous, Subject + Past Simple.

3) Subject + Past Simple while + Subject + Past Continuous.

Present Simple Passive, Past Simple Passive, Future Simple Passive

Страдательный залог — Passive Voice - показывает, что предмет или лицо, являющееся подлежащим, подвергается действию. (The radio in Russia was invented by Popov. – Радио в России было изобретено Поповым.)

Времена Present Simple, Past Simple и Future Simple в страдательном залоге образуются при помощи ***вспомогательного глагола to be в соответствующем времени активного залога и Participle II (причастие прошедшего времени) смыслового глагола.***

Present Simple Passive

Утвердительная форма	Отрицательная форма	Вопросительная форма
I'm told мне рассказывают	I am not told	Am I told ?
You're told тебе рассказывают	You aren't told	Are you told?
He's told ему рассказывают She's told ей рассказывают	He isn't told She isn't told	Is he told ? Is she told?
We're told нам рассказывают	We aren't told	Are we told ?
You're told вам рассказывают	You aren't told	Are you told ?
They're told им рассказывают	They aren't told	Are they told ?
It's translated by my brother.	*It isn't translated by my brother.*	*Is it translated by your brother?*

Past Simple Passive

Утвердительная форма	Отрицательная форма	Вопросительная форма
I was told мне рассказали	I wasn't told	Was I told ?
You were told тебе рассказали	You weren't told	Were you told?
He was told ему рассказали She was told ей рассказали	He wasn't told She wasn't told	Was he told ? Was she told?
We were told нам рассказали	We weren't told	Were we told ?
You were told вам рассказали	You weren't told	Were you told ?
They were told им рассказали	They weren't told	Were they told ?
It was built by Gustave Eiffel.	*It wasn't built by Gustave Eiffel.*	*Was it built by Gustave Eiffel?*

Future Simple Passive

Утвердительная форма	Отрицательная форма	Вопросительная форма
I'll be told мне расскажут	I shan't be told	Shall I be told ?
You'll be told тебе расскажут	You won't be told	Will you be told?
He'll be told ему расскажут She'll be told ей расскажут	He won't be told She won't be told	Will he be told ? Will she be told?
We'll be told нам расскажут	We shan't be told	Shall we be told ?
You'll be told вам расскажут	You won't be told	Will you be told ?
They'll be told им расскажут	They won't be told	Will they be told ?
It'll be done tomorrow.	*It won't be done tomorrow.*	*Will it be done tomorrow?*

На русский язык глаголы в **Passive Voice могут переводиться** следующими способами:

1) Сочетанием глагола *быть* (в прошедшем и будущем временах) с краткой формой причастия страдательного залога. (The article will be translated immediately. – Статья будет переведена сейчас же.)

2) Глаголом с окончанием на -ся, -сь. (Foreign languages are studied in all technical colleges. – Иностранные языки изучаются во всех технических институтах.)

3) Неопределенно-личными предложениями (без подлежащего). (A telegram will be sent to the winner. – Победителю пошлют телеграмму.)

В английском языке **в страдательном залоге показателем времени** служит глагол **to be**, который **изменяется в зависимости от лица и числа подлежащего**. Смысловой глагол стоит всегда в форме Participle II, т.е. остается неизменным. (New films are shown here every week. – Новые фильмы показывают здесь каждую неделю. The laboratory is equipped with automatic machinery. – Лаборатория оборудована автоматическими механизмами. A new film was shown here yesterday. – Новый фильм был показан здесь вчера.)

Если **указывается, кем или чем производится действие,** то употребляется существительное или местоимение с предлогами **by или with**, выражающими отношение творительного падежа. (The new engine was designed by our engineers. – Новый двигатель был сконструирован нашими инженерами.)

В английском предложении за сказуемым в страдательном залоге может следовать предлог; слово, с которым этот предлог соотносится, является подлежащим. Поэтому **при переводе на русский язык предлог ставится перед этим словом**. (The engineer was sent for. – За инженером послали. This article is much spoken about. – Об этой статье много говорят.)

Expressions of quantity

Too much/many + noun
Too + adjective
Not enough + noun
Not + adjective + enough

LESSON 18, LESSON 19, LESSON 20

Условные предложения (Conditionals)

Type	If - clause	Main clause
First Conditional (реальная, вероятная ситуация и ее результат в настоящем времени)	If + any present form (Present Simple, Present Continuous or Present Perfect)	Future/Imperative Can/may/might/must/should + infinitive without “to”
	If you go to America, you’ll need a visa.	
Second Conditional (Нереальное, воображаемое, маловероятное условие и его результат в настоящем времени)	If + Past Simple or Past Continuous	Would/could/might + infinitive without “to”
	What would you do if you lived on the island?	

Past Perfect

Формы глагола в Past Perfect Active образуются при помощи ***вспомогательного глагола to have в прошедшем времени (had) и Participle II смыслового глагола***.

Утвердительная форма	Отрицательная форма	Вопросительная форма
I had worked (I'd worked)	I hadn't work	Had I worked?
You had worked (You'd worked)	You hadn't work	Had you worked?
He had worked (He'd worked) She had worked (She'd worked) It had worked (It'd worked)	He hadn't work She hadn't work It hadn't work	Had he worked? Had she worked? Had it worked?
We had worked (We'd worked)	We hadn't work	Had we worked?
You had worked (You'd worked)	You hadn't work	Had you worked?
They had worked (They'd worked)	They hadn't work	Had they worked?
I'd already sent the letter by 6 o'clock yesterday.	*I hadn't sent the letter.*	*Had you already sent the letter?*

Past Perfect употребляется

- для выражения действия, закончившегося до начала другого действия или до указанного момента в прошлом. (He had already sent the letter when I came to see him. – Он уже отправил письмо, когда я пришел к нему.)

After/when/because + Subject + Past Perfect , Subject + Past Simple.

↓ ↓

(действие произошло раньше), (действие произошло потом).

After he had decided to go to Britain, he packed his bags.

PART III (NOTES)

LESSON 1

- is called – называют
- by + V-ing – делая что-либо. (by burning – сжигая)
- this – these – этот – эти.

LESSON 2

- person's life – жизнь человека
- are answered by the viewers – на вопросы отвечают зрители
- known as – известные как
- may be interrupted several times – могут прерывать несколько раз
- are repeated – повторяют

LESSON 3

- far more efficient – намного более эффективные
- may well escape – могут благополучно сбежать
- computers are now able to find – компьютеры сейчас способны найти
- are published – печатают
- that are needed – которая необходима

LESSON 4

- won’t use it! – не буду использовать!
- as well as your grown children – также как и со своими старшими детьми
- are amazed – потрясены
-

LESSON 5

- where this will be analysed, arranged, stored and produced on request – где все проанализируют, упорядочат, сохранят и выдадут по запросу
- accepted by mankind – полученное человечеством

LESSON 6

- the fastest-growing industry – самая быстро развивающаяся отрасль промышленности
- can be done – может быть сделана
- its cleverest product – свой самый «умный»
- a lot simpler – намного проще

LESSON 7

- bluish markings – голубоватые отметины

LESSON 8

- finally becoming electronic only – наконец став полностью электрическим
- the image to be transmitted – изображение для передачи
- at the receiving end – на принимающей стороне
- thus – соответственно

LESSON 9

- were solved – были решены
- was taken out – был получен
- have been transmitted – передают

LESSON 10

- are to be superseded – должна быть вытеснена
- was cut – было урезано
- is fed – подается
- can themselves be used – могут самостоятельно использоваться
- are internationally recognized – международно признаны

LESSON 11

- Should this be allowed? – Следует ли это разрешить?

LESSON 12

- that can be instructed – которую можно научить
- is called – называют
- is often nicknamed – часто еще называют
- can be read, carried around, written on, given to other readers – может быть считана, перенесена, записана, передана другим
- that are attached to the computer – которые присоединены к компьютеру

LESSON 13

- in danger of being exhausted – на грани истощения
- is emptied – опустошена
- are rapidly depleted – быстро истощаются, исчерпываются
- are supplied – поставляется
- it does reduce – сократит (усилительное «does»)
- which is utilized – который утилизируют
- is planned – планируют

LESSON 14

- it must be accompanied – она должна сопровождаться

LESSON 15

- are being eaten – разъедаются
- by the dilute acid, rained on them – разжиженной кислотой, выпадающей в виде дождя

Краткое содержание прочитанного (Summary writing)

Краткое содержание обычно составляет 10-15% оригинального текста. Данный вид работы исключает использование таблиц, графиков, прямой речи, стилистических приемов речи (эпитетов, метафор, сравнений), дополнительной информации к тексту.

Методика написания краткого содержания:

1. Прочтите текст на один раз.
2. Определите его основную тему.
3. Читая текст во второй раз, выделяйте ключевые слова (слова, раскрывающие главную тему).
4. Сформулируйте для себя суть и цель каждого абзаца (помните, что обычно первое предложение абзаца содержит в себе основную идею всего абзаца).
5. Подумайте, не являются ли некоторые абзацы ненужными в плане их отношения к основной теме повествования.
6. Составьте черновой вариант краткого содержания на основе проделанных вами операций.
7. Проверьте, нет ли в вашей работе лишних слов или не относящейся к сути информации.
8. Составьте вторую «улучшенную» версию краткого содержания
9. Проверьте работу на грамотность.

LESSON 16

- It is the damage being caused to this layer that is worrying people – Именно ущерб, причиненный озоновому слою, беспокоит людей.

LESSON 17

- the input signal is connected across two terminals on the left — входной сигнал поступает через две клеммы слева
- but they are still two port — но они все равно являются четы рехполюсниками
- parts of the output signal — фазы выходного сигнала
- power supply levels — *зд.* значения мощности источника
- They can also be described by their response to sinusoids — Усилители можно также классифицировать по их реакции на синусоидальный сигнал
- the frequency domain characteristics of constant gain for sinu soids over the frequencies of interest — следующие частотные характе ристики: постоянное усиление для синусоидальных сигналов в ра бочем диапазоне частот
- frequency — *зд.* частота синусоидального сигнала

LESSON 18

- starting at the outside and going down to the Sun – начиная от внешних границ и перемещаясь к Солнцу

LESSON 19

- compared to those of conventional energy sources – сравнимые с теми, которые предлагают традиционные источники энергии

LESSON 20

- When milling – При дроблении, фрезеровке
- machining it with endmills 1" in diameter or larger – обработка его торцевой фрезой диаметром в 1 дюйм (1" – one inch) или больше

ЗАКЛЮЧЕНИЕ (CONCLUSION)

Неотъемлемой частью происходящих в современном мире процессов глобализации и интернационализации являются углубляющиеся контакты и интеграция государств во всех областях науки и техники, культуры и искусства, следствием чего становится повышение мобильности человеческих ресурсов и знаний, конкуренция во всех сферах от образовательной до исследовательской.

Подготовить студентов к чтению оригинальной литературы по специальности и ведению беседы в пределах собственной тематики – это сложный и многогранный процесс. Заметим, что основная цель многих упражнений – чтение, понимание перевод словосочетаний и предложений. Имеются вопросно-ответные упражнения, упражнения на словообразование для отработки аффиксальных моделей и на многозначность слов.

Количество упражнений достаточно велико и позволяет обеспечить как работу в аудитории, так и самостоятельную работу студентов. В заданиях к упражнениям не указывается форма (письменная или устная) их выполнения, она выбирается преподавателем и определяется уровнем подготовки конкретной группы студентов. Выполнение ряда упражнений рассчитано на работу со словарем.

В заключение пожелаем студентам приобретения необходимых навыков и развития системности мышления в любых сферах своей практической деятельности и успехов в достижении поставленных целей.

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ПРИЛОЖЕНИЕ 1

Схема структурно-содержательного соотнесения с базовым УМК Reward Pre-Intermediate

Учебное методическое пособие по чтению научно-популярной и технической литературы на английском языке для студентов I и II курсов РКФ	Базовый УМК Reward Pre-Intermediate
Lesson 1	Lessons 1 – 5
Lesson 2	Lessons 1 – 5
Lesson 3	Lessons 6 – 10
Lesson 4	Lessons 6 – 10
Lesson 5	Lessons 11 – 15
Lesson 6	Lessons 11 – 15
Lesson 7	Lessons 16 – 20
Lesson 8	Lessons 16 – 20
Lesson 9	Lessons 21 – 25
Lesson 10	Lessons 21 – 25
Lesson 11	Lessons 21 – 25
Lesson 12	Lessons 26 – 30
Lesson 13	Lessons 26 – 30
Lesson 14	Lessons 26 – 30
Lesson 15	Lessons 31 – 35
Lesson 16	Lessons 31 – 35
Lesson 17	Lessons 31 – 35
Lesson 18	Lessons 36 – 40
Lesson 19	Lessons 36 – 40
Lesson 20	Lessons 36 – 40