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КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

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АНГЛИЙСКИЙ ЯЗЫК ДЛЯ АУДИТОРНЫХ ЗАНЯТИЙ И САМОСТОЯТЕЛЬНОЙ РАБОТЫ СТУДЕНТОВ НАПРАВЛЕНИЯ ПОДГОТОВКИ

35.04.03 АГРОХИМИЯ И АГРОПОЧВОВЕДЕНИЕ (УРОВЕНЬ МАГИСТРАТУРЫ)

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Пособие предназначено для студентов направления подготовки 35.04.03, изучающих дисциплину «Английский язык». Основной целью пособия является приобретение студентами коммуникативной компетенции, необходимой для квалифицированной информационной и творческой деятельности в различных сферах и ситуациях делового партнерства, совместной производственной и научной работы.

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ВВЕДЕНИЕ

Основной целью обучения студентов в магистратуре является приобретение обучающимися коммуникативной компетенции, необходимой для квалифицированной информационной и творческой деятельности в различных сферах и ситуациях делового партнерства, совместной производственной и научной работы. Обязательным условием достижения поставленной цели является решение следующих задач

- достижение зрелого владения всеми видами чтения и перевода литературы разных функциональных стилей.
- овладение всеми видами монологического высказывания (информирование, пояснение, уточнение, инструктирование и иллюстрирование высказывания, а также умение сделать доклад на иностранном языке).
- осуществление и понимание высказываний профессионального и научного характера в ситуациях приема зарубежных специалистов, обмена профессионально-значимой информацией в процессе повседневных бесед, деловых переговоров, при заключении сделок и контактов, обсуждении условий делового партнерства и деловом общении по телефону.

Предлагаемое учебное пособие построено с учетом преемственности обучения и состоит из самостоятельных блоков (Units). Цель каждого блока - развитие умения чтения и адекватного перевода текстов по направлению подготовки и написания тезисов, докладов, рефератов и аннотаций. Работа с данным пособием способствует формированию у студентов следующих компетенций: ОК-1, ОК-3, ОПК-1.

Учебные тексты служат для первичного введения языковых явлений и иллюстрацией их употребления в иноязычной речи. При подборе текстов учитывалась их актуальность, информативность, частотность представленной в них лексики и уровень языковой подготовки студентов.

Перед каждым текстом даётся подробный список лексики, предназначенный для активного изучения и закрепления в ходе выполнения послетекстовых упражнений. Упражнения направлены на активизацию лексического материала и развитие навыков устной речи.

Грамматический материал охватывает основные явления грамматики английского языка и направлен на закрепление знаний, полученных на бакалаврском уровне подготовки студентов.

PART 1. EDUCATION
Unit 1
EDUCATION IN MODERN SOCIETY. HIGHER EDUCATION

1. Read and translate the text:

Text 1. HIGHER EDUCATION IN RUSSIA

learning materials — учебные материалы
to bring up to date — довести до современных требований
information explosion — информационный взрыв
training and instruction — подготовка и обучение
over years — за многие годы
curricula are enriched and broadened — программы (курсы обучения) обогащаются и расширяются

Higher education plays an important part in the life of any country as it provides the country with highly-qualified specialists for future development and progress. It trains people to become teachers, engineers, doctors and other professional workers.

In all the industrial countries standards of living are steadily changing; this means that the kind of education, which was good enough thirty years ago, is not necessarily good for them today. The serious need to find ways and means of ensuring continuous and thorough adoption of the universities to contemporary needs in our rapidly changing world is widely recognized. And this means that styles of teaching, quality of learning materials and organization of the university itself have to be continuously brought up to date and improved.

Besides, knowledge and information which comes through the mass media must also be taken into consideration. This information explosion has affected every field of study, especially, of course, in the natural and applied sciences and in all other sciences as well. The increase of information requires new methods and new approaches to students' training and instruction.

At present a new system of education is introduced in this country — a distance education system. This computer system of learning helps working professionals to continue their education while remaining at their jobs. This system enables people to get knowledge and a good foundation in the sciences basic to his or her field of study. Distance learning has developed over years from satellite video courses to modern videoconferencing through personal computers.

The academic year usually lasts 9 months and is divided into two terms (semesters). The first- and second-year students obtain thorough instructions in the fundamen-

tal sciences of mathematics, physics, chemistry and drawing as well as computer engineering and a number of others. The curricula are enriched and broadened by instructions in such subjects as foreign languages, history and economics.

At the third year students get more advanced knowledge and begin to concentrate on their special interests, so to say, their «major» subject and take many courses in this subject. Specialized study and courses will help students to become specialists and prepare them for their future work.

After four years students will get a bachelor's degree. Then the students may go on with their studies and in a year or two of further study and research get a master's degree. After graduating from the university they may go on with their study and research and may get a still higher degree.

About 75 percent of students receive state grants and 15 percent are sponsored by enterprises. Universities have their own students' hostels and some of them have large and excellent sport centers.

Education is a process through which culture is preserved, knowledge and skills are developed, values are formed, and information is exchanged. Education is the way to success.

2. Practice the pronunciation of the following words:

Highly-qualified, steadily, ensuring, thorough, adoption, contemporary, instructions, science, curricula, preserve.

3. Answer the questions:

1. When does the academic year begin in this country? 2. How many exams did you pass to enter the University? 3. Do you pay for your education? 4. Do students get grants? 5. What subjects do students study in the first year? 6. Which subject is the most interesting for you? 7. Is there a sport center in your University? 8. What degree do students get after four years of study? 9. What degree can a student get after two years of further study and research? 10. What new education system is introduced in this country? 11. What specialties do people get after graduating from a university? 12. Why is higher education important in the life of every country?

4. Use Active and Passive Voice.

1. Students asked the lecturer many questions. The lecturer was asked many questions. 2. The monitor told the first-year students to come to the laboratory. The first-year students were told to come to the laboratory. 3. Usually a lab assistant shows the equipment to the students. Usually the equipment is shown to the students by a lab assistant. Usually students are shown the equipment by a lab assistant. 4. Students watched the process with great attention. The process was watched with great attention. 5. Tomor-

row our teacher will give us a new task. A new task will be given tomorrow. We shall be given a new task tomorrow. 6. Practice accompanies theory. Theory is accompanied by practice. 7. He asked me to bring a dictionary. He was asked to bring a dictionary. 8. The teacher told the students to sign their drawings. The students were told to sign their drawings. 9. The dean will send the students to a big plant in summer. The students will be sent to a big plant in summer. 10. He taught us to use the lab equipment. We were taught to use the lab equipment.

5.

A. Transform into Passive Voice.

1.You open the door. 2. We asked questions. 3. He will finish his project next week. 4. He can do this exercise. 5. They invited me to their conference. 6. 1 saw a new film. 7. My sister writes letters regularly. 8. Universities develop new methods of students' training. 9. After graduating from the University the students may get a still higher degree. 10. The study of foreign languages, history and economics must improve the curricula of technological universities.

B. Translate.

1. Mathematics, strength of materials, mechanics, and elements of machines as well as engineering physics are studied at technological institutes. 2. The development of science is closely connected with the development of higher education. 3. Students are provided with hostels, well-equipped laboratories and libraries. 4. Any country must be provided with good specialists in all branches of science and technology for its further development. 5. Large sums of money are spent by the state to train highly-qualified engineers. 6. Much attention must be paid to improve the standards of higher education. 7. Students of technological institutes are trained to analyze various facts and theories. 8. The scientific and technological progress of a country is determined by the qualification of specialists. 9. Some institutes of technology are reorganized into universities. 10. The country must be provided with specialists capable of working with the technology of tomorrow effectively.

6. Find Participle I and Participle II, translate.

1. The students studying at the institutes passed entrance exams in summer. 2. The subjects studied in the first two years are very important for future engineers. 3. The lecture delivered by our dean was on new methods of technology. 4. The man delivering this lecture is our professor on mathematics. 5. An article discussing the new system of school education appeared in all newspapers. 6. The results of the experiments discussed yesterday will be published. 7. The attention paid to the study of fundamental subjects is great. 8. Students interested in computer engineering enter technological in-

stitutes. 9. The number of specialists connected with new branches of science and engineering is increased every year.

7. Read and translate the text.

Text 2. HIGHER EDUCATION IN THE UK AND THE USA

to consist of - состоять из
self-governing - самоуправляющийся
tuition - обучение
to proceed - продолжать делать (что-либо)
a gown - мантия
a major subject - профилирующий предмет
a graduate school - старшие курсы
a five point scale - пятибалльная шкала

Part 1. Cambridge is one of the two main universities of England which is located at the Cam River. It was founded at the beginning of the 12th century. The University consists of 24 different colleges including 4 colleges for women. Each college is self-governing.

The head of the University is the chancellor who is elected for life. The teachers are commonly called «dons» and «tutors». Part of the teaching is by means of lectures organized by the University. Besides lectures teaching is carried out by tutorial system for which Cambridge University is famous all over the world. This is a system of individual tuition organized by the colleges.

Each student has a tutor who practically guides him through the whole course of studies. The tutor plans the student's work and once a week the student goes to his tutor to discuss his work with him. The training course lasts 4 years. The academic year is divided into 3 terms. The students study natural and technical sciences, law, history, languages, geography and many other subjects.

After three years of study a student may proceed to a Bachelor's degree, and later to the degrees of Master and Doctor. Students are required to wear gowns at lectures, in the University library, in the street in the evening, for dinners in the colleges and for official visits. All the students must pay for their education, examinations, books, laboratories, university hostel, the use of libraries, etc. Very few students get grants. Not many children from the working class families are able to get higher education, as the cost is high. The cost of education depends on the college and specialty.

A number of great men, well-known scientists and writers studied at Cambridge. Among them are: Erasmus, the great Dutch scholar, Bacon, the philosopher, Milton and Byron, the poets, Cromwell, the soldier, Newton and Darwin, the scientists.

Part 2. There is no national system of higher education in the United States. Higher education is given in colleges and universities. There are over 2100 various higher educational institutions, including colleges, technological institutes and universities. The average college course of study is 4 years. The academic year is usually 9 months or 2 terms (semesters) of four and a half months each. Classes usually begin in September and end in June. The first-year students are called freshmen. Students choose a major subject and take many courses in this subject. After four years, they get a traditional Bachelor's degree. Then the students may go on to graduate school and with a year or two of further study get a Master's degree.

After another year or two of study and research, they may get a still higher degree as Doctor of Philosophy (Ph. D.). The student's progress is evaluated by means of tests, term works and final examinations in each course. The student's work is given a mark, usually on a five point scale. Letters indicate the level of achievement.

«A» is the highest mark. «F» denotes a failure.

Most American colleges and universities charge for tuition. The methods of instruction in the universities are lectures, discussions, laboratory and course works and seminars. Most cities have colleges or universities that hold classes at night as well as in daytime. In this way people may work for a degree or just take a course in the subject that interests them.

8. Practice the pronunciation of the following words:

Tutor, tutorial system, guide, through, languages, chancellor, major, require, sciences, law, scholar, further, evaluated, Bachelor's degree, Master's degree, failure, method.

9. Read and translate the text.

Text 3. OXFORD UNIVERSITY

Oxford is renowned the world over. It ranks in importance with Athens, Rome and Paris because of the stream scholars who, for hundreds of years, and particularly in the 20th century, have come to sit at the feet of learned men, and have returned to their own countries, their minds enriched with the distilled learning to be found here, and imbued with an abiding love for the place. They have absorbed the almost indefinable "spirit of Oxford", and many of them return again and again, so strong is the pull of the place.

This book is designed to help the visitor whose stay is short. So many visitors want to know where the University is. In their home country, the universities are easily identifiable because they are compact, purpose-built places, and probably isolated from the domestic and commercial buildings which form the heart of the city from which they take their name.

Oxford is different. It has a golden heart - an area of less than half a square mile in which is to be found the most varied assortment of historic buildings in the world. But they do not stand in isolation; they are intermingled, in the must delightful way, with houses, shops and offices.

Over the last decade millions of pounds have been spent in restoring and cleaning the stonework of college and university buildings, which had become blackened and decayed, and in many cases was in danger of disintegrating. Great care was taken in the restoration, and the result is that the university buildings present the honey-colored facades which the great architects such as Wren and Hawksmoor created.

Interiors too, have been cleaned and restored - notably those of the Sheldonian Theatre and the Bodleian Library. Oxford is a place of great beauty, but it is not just a shrine to the past. It is a living entity and its historic buildings are the homes of masters and students whose learning, thinking and ideas have a profound influence on culture, education, science and politics, not only in England, but throughout the world.

The University did not come into being all at once. Oxford had existed as a city for at least 300 years before scholars began to resort to it. The end of the 12th century saw the real beginnings of the University. It is known that early in that century distinguished scholars were lecturing in Oxford, but it had no recognition as a place of learning. In about 1184 the University had become an accomplished fact as result of the migration to Oxford of students who brought their own traditions with them.

It is generally assumed that between 1164 and 1169, when Henry II forbade English clerks to go to the University of Paris, which at that time was the foremost in Europe, the scholars had to find somewhere else to continue their studies. Their choice fell on Oxford. The first group of scholars at Oxford may have been joined by others from Paris, and from other parts of Britain.

There is no ''university" as such. Each college is practically autonomous, with its own set of rules for its good government. There is a central administration, providing services such as libraries and laboratories.

10. Practice the pronunciation of the following words:

Rank, scholars, particularly, imbued, indefinable, short, purpose, varied, delightful, autonomous, distinguished, profound, disintegrating, foremost, migration.

11. Answer the questions:

1) Why is Oxford ranking amongst the world's top universities?
2) How does Oxford differ from other educational institutions?
3) Why do the Oxford's buildings need to be restored?
4) What architects have worked on the University's facades?
5) Why didn't Oxford deserve any recognition until the 12th century?
6) When was the heyday of Oxford?

7) Why does the author claim that there's no university such as Oxford?
8) Why did English clerks give up going to the University of Paris, which was considered to be the foremost in Europe?

12. Make up definitions:

Distinguished	Ahead of all others, especially in position or rank.
A scholar	Something that exists as a particular and discrete unit.
To intermingle	Standing above others in character or attainment or reputation.
An entity	An exposition of a given subject delivered before an audience or a class, as for the purpose of instruction.
Foremost	To mix or become mixed together.
A lecture	One who attends school or studies with a teacher.

Unit 2
THE QUALITY OF ENVIRONMENT. ENVIRONMENT PROTECTION

1. Read and translate the text.

Text 1. ENVIRONMENT PROTECTION MUST BE GLOBAL

That the problem of pollution and ecology has become the most important one for mankind is evident to all. The more civilization is developing, the greater the ecological problems are becoming. Air and water pollution by industry is now reaching tremendous proportions. In our era it is changing from a national to an international problem, especially in territories where rivers cross several countries. The seas and oceans are also becoming seriously polluted. A similar situation is developing in the atmosphere. It is known that many cities throughout the world suffer from air pollution.

However, our scientific knowledge and technological advancement make it possible to eliminate it if people use good will and make considerable investments for that purpose. The development of natural resources on a global scale is already possible from a scientific and technical standpoint. Large-scale experimental work in this area is successfully being carried out.

At present scientists in industrially developed countries are working on the theory of interaction of all the atmospheric and oceanic global processes that determine the climate and weather of the world. Increasing growth of population, industrialization and the use of resources are slowly but surely changing the global climate and water balance. This can be described as a great experiment, one that may bring about changes in the environment more serious than ever before.

The essential feature in the environment protection is that many problems can be solved only on the level of world community. Therefore, the planning of protection against pollution by human society as a whole is imperative today and in the near future. It is necessary to develop an international program to study data on land, forest, atmospheric and oceanic resources, both renewable and non-renewable. It is the joint efforts of many scientists and special public organizations that can deal with the problem and take necessary measures to protect the environment.

It is still a big job and much remains to be done. However, scientists are confident that planned actions of all countries can eliminate pollution and achieve successes in purifying air, water and soil and in safeguarding natural resources. At the same time one must realize that social and political circumstances may stand in the way of further progress in this field.

2. Answer the questions:

1. What is this text about? 2. What is ecology? 3. How does water (air) become polluted? 4. Why is the problem of water pollution becoming a global problem?

3. Read and translate the following international words:

Global, resources, problem, ecology, proportion, era, territory, ocean, oceanic, situation, atmosphere, process, climate, balance, experiment, social.

4. Read and translate the following words:

Environment, pollution, achieve, success, successful, successfully, purify, air, natural, however, job, remain, mankind, reach, special, especially, serious, throughout, world, knowledge, advance, eliminate, purpose, scale, weather, essential, therefore, data, joint, measure, realize, circumstance.

5. Answer the questions according to the example:

What is one of the most important problems for mankind now? (<u>the problem of pollution and ecology</u>).

<u>The problem of pollution and ecology</u> is one of the most important problems for mankind now.

1. What problem is becoming a global problem? (the problem of air and water pollution). 2. What makes it possible to eliminate air and water pollution? (scientific knowledge and technological advance, good will and large investments). 3. What are scientists in industrially developed countries currently working on? (the theory of interaction of the atmospheric and oceanic global processes). 4. What factors are slowly changing the global climate and water balance? (the growth of population, industrialization and use of resources). 5. What actions are necessary to take to deal successfully

with the problem of protecting the environment throughout the world? (planning, developing international programs to study ecological data, joint efforts of scientists and special public organizations).

6. Read and translate the following text without a dictionary:

It is difficult for mankind to predict changes in the environment accurately. It is known that natural changes in weather and climate may have more catastrophic global effects than human activity. But scientists are developing a new concept that can help make such prediction more accurately. It is based on our understanding that the Earth is an integral system. Its parts — oceans, atmosphere, land or life — cannot be understood in isolation to predict changes in the most accurate way. Modern scientific and technological progress made it possible to use new technologies for that purpose. That satellites can control physical, chemical, biological and geological changes on a global scale is well-known now. One must also know that the study of environmental problems with the help of satellites is becoming international. Russia, the US, France, Japan, Canada, India, China and Italy are planning to send their satellites in both polar and geostationary orbits.

7. Read and translate the text 2.

Text 2. LAST CHANCE FOR MOTHER EARTH?

(*From Scientific American)*

man’s intrusion upon nature - вторжение человека в природу
to intrude upon - вторгаться
to violate the laws of nature - нарушать законы природы
to destroy the balance - нарушать равновесие
to combat pollution - бороться с загрязнением атмосферы
to be faced with the problem of - стать перед проблемой
environment - окружающая среда
industrial waste - промышленные отходы
to govern the process - управлять процессом
to harm - наносить ущерб
to be aware of the consequences - осознавать последствия
radioactive fallout - радиоактивные осадки
to affect nature - влиять на природу
to threaten - угрожать
to contaminate the atmosphere - загрязнять атмосферу

The U.S. environment is seriously threatened by the garbage of the economy. The Apollo 10 astronauts could see Los Angeles as a smudge from 25000 miles in outer space. What most Americans now breathe is closer to filth than to air. Americans know pollution well. It is car-clogged streets and junk-filled landscape – their country's visible decay.

California's air pollution is already so bad that on many days Los Angeles school children are warned not to breathe too deeply because of heavy smog conditions.

The United States is far from alone in its pollution and waste. The smog is dense in Tokyo. Some of Norway's legendary fjords are awash with stinking industrial wastes.

Sections of the Rhine River which flows through the industrial Ruhr Valley to the North Sea are so toxic that even hardy eels have difficulty surviving. In Sweden, not long ago, black snow fell on the province of Smoland.

The earth has its own waste-disposal system, but it has limits. The winds that ventilate the earth are only six miles high; toxic garbage can kill the tiny organisms that normally clean rivers. Meanwhile, modern technology is pressuring nature with tens of thousands of synthetic substances, many of which almost totally resist decay. This includes aluminum cans that do not rust, inorganic plastics that may last for decades, floating oil that can change the thermal reflectivity of oceans and radioactive wastes whose toxicity lingers for centuries.

Where do most of the pollutants end up? Probably in the oceans, which cover70 per cent of the globe and have vast powers of self-purification. Yet even the oceans can absorb only so much filth; many scientists are worried about the effects on plankton — passively floating plants and animals, which produce about one fifth of the earth's oxygen. Emerging now is the importance of the science of survival — ecology. Trying to awaken a sense of urgency about the situation, ecologists sometimes do not hesitate to predict the end of the world. Yet they hold out hope too.

Ecology is the study of how living organism and the nonliving environment function together as a whole, or ecosystem, in the biosphere — that extraordinarily thin global envelope which sustains the only known life in the universe. Hundreds of millions years ago, plant life enriched the earth's atmosphere to a life supporting mixture of 20 per cent oxygen, plus nitrogen, argon, carbon dioxide and water vapor. The mixture has been maintained ever since by plants, animals and bacteria, which use and retain the gases at equal rates. The result is a closed system, a balanced cycle, in which nothing is wasted and everything counts.

The process is governed by distinct laws of life and balance. One is adaptation; each species finds a precise niche in the ecosystem. Another law is the necessity of diversity: the more different species in an area, the less chance that any single type will destroy the balance. Man has violated these laws — and endangered nature as well as himself.

A primitive community could harm only its own immediate environment. When it ran out of food, it had to move on or perish. But a modern community can destroy its land and still import food, thus possibly destroying ever more distant land without knowing or caring. Technological man forgets that his pressure upon nature may provoke revenge.

What most appalls ecologists is that technological man remains so ignorant of his impact. Neither the politicians nor the physicists who developed the first atomic bomb were fully aware of the consequences of radioactive fallout. The men who de-signed the automobile did not foresee that its very success would turn cities into parking lots and destroy greenery in favor of highways, all over the world.

Man's inadvertence has even upset the interior conditions of the earth. Wherever huge dams are built the earth starts shuddering. The enormous weight of the wa-ter in the reservoirs behind the dams puts a new stress on the subsurface strata. In consequence the earth quivers.

If technology got man into this environment crisis ant pollution mess, surely technology can get him out of it again.

There is no lack of hopeful ideas for balancing the environment and the most encouraging today is the swell of public opinion. We are at least starting to combat gross pollution. Even so, real solutions will be extremely difficult and expensive. Ideally, entire environment should be subjected to computer analysis. Whole cities and industries could measure their inputs and outputs via air, land and water. But this is a far-off dream. Far more knowledge is needed.

Even the simplest ecosystem is so complex that the largest computer cannot fully unravel it.

Technological man is bewitched by dangerous illusion that he can build bigger and bigger industrial society with scant regard for the iron laws of nature. Pessimists argue that only a catastrophe can change that attitude – too late. By contrast, the hopeful ecologist put their faith in man's ability.

8. Read and translate the following words and word-combinations

Garbage, smudge, breathe, decay, synthetic substances, radioactive wastes, linger, self-purification, filth, carbon dioxide, vapor, govern, species, violate, immediate environment, subjected to computer analysis, bewitched.

9. Agree or disagree with the statements given below. Use the following phrases:

1. What most Americans now breathe is very clean air and they have no idea about pollution.
2. Some other countries are faced with the same problem of pollution and waste as the U.S.

3. Modern technology does not affect nature in any way.
4. We needn't worry about the resources of our environment for they are inexhaustible.
5. The oceans can absorb as much filth as necessary.
6. It is plants that help maintain the mixture of oxygen, nitrogen, carbon dioxide and water vapor.
7. Ecology is a linguistic science.
8. Man has violated laws of nature and is going to pay for it.
9. When the primitive community ran out of food it perished.
10. The men who designed automobiles knew only too well that some day the automobiles would turn cities into parking lots and destroy all the greenery in them.
11. More attention ought to be paid to ecology.
12. We are actually ruining our own habitat.
13. It will be very difficult to balance the environment now.
14. Technical progress has greatly affected nature.
15. The big cities of today are not faced with any important problems such as traffic and so on.
16. A catastrophe is inevitable and there's no solution to the problem.

10. Sum up discussion. Use the following phrases:

Summing it up… On the whole…

Summarizing the discussion I'd like to say that…

Model: The garbage of economy is a serious threat to our environment.

Summing it up I'd like to say that the garbage of economy is a serious threat to our environment.

1. Pollution has grown into an urgent problem.
2. Nature is being seriously damaged by civilization.
3. Immediate measures must be taken to change the grave situation.
4. Politicians and scientists must realize full well dangers we are faced with.
5. The consequences of this violation of nature are hard to foretell.
6. Measures must be taken to save the plankton of oceans.
7. The problem of man and biosphere is very acute.
8. Radioactive fallout must be strictly controlled.
9. Computers must be of much help in solving the problem.
10. Technology will help man to get out of this critical situation.

11. Comment upon the following problems.

1. Modern technology and its impact upon nature.

2. The resources man has been using for centuries are not inexhaustible and there is an urgent need for an efficient research into our environment.
3. How do you picture the development of science in ten years' time?

12. Dispute the problems given below. The group can be divided into two opposing parties, each advocating their viewpoint.

Use the following phrases:

It must be admitted that…
My point is that…
It seems reasonable to assume…

1. There can hardly be any solution to the problem raised in the text. A catastrophe is inevitable.
2. Big cities are now becoming self-defeating for their growth entails numerous insoluble problems. They ought not to be developed, renewed or replanned.
3. Nature is being destroyed by growing civilization. We can hardly stop or prevent it.

13. Read and translate the text 3.

Text 3.THE QUALITY OF ENVIRONMENT

emissions – выбросы в атмосферу
pollutants– загрязняющие примеси
automobile exhausts – автомобильные выхлопные газы
to expose to air pollution – подвергаться воздействию воздушного загрязнения
portable water – питьевая вода
water pipe network – городской водопровод
ferrous metallurgy – черная металлургия
mechanical engineering industry – машиностроение
non-ferrous metallurgy – цветная металлургия
eroded soil–эродированная почва
degrading land– приходящая в упадок почва
coniferous forest – хвойный лес

Poisonous atmospheric emissions by Russia's industry were close to 32 m tons in 1991. Russia's European part accounts for nearly 65% of the country's industrial air pollution. Automobile exhausts in Russian cities contaminated the air with another 21 m tons of pollutants in 1990. Some 50 m people in Russia were breathing air with harmful

content amounting to 10 MAC; over 60 m were exposed to air pollution of between 5 and 10 MAC. (Maximum admissible concentration).

In 1991 the water run-off of some southern rivers was decreasing at a progressive rate, as a result of human economic activity. A lot of Russia's small rivers, most badly affected by human activity throughout the last 10 or 15 years, were deteriorating rapidly. The quality of portable water in Russia is far from satisfactory. About a quarter of municipal water pipe networks and one-third of industrial ones carry water which was not properly purified. The most common water surface pollutants include petroleum products, phenols, organic matter, copper and zinc compounds, etc. Surface water is heavily polluted by ferrous and non-ferrous metallurgy, the coal, oil, 25gas, chemical and petrochemical industries, farms, municipal drainage, etc. chemicals arc washed in large quantities into rivers and lakes from adjacent areas. Livestock farms, pastries and sown land are responsible for high content of biological and organic matters in water.

The ozone content in the atmosphere has been decreasing lately in high and medium latitudes of the Northern Hemisphere. The ozone layer depletion is especially fast (10% in ten years) in the lower stratosphere, that is, at altitudes between 15 and 20 kilometers.

Many small and detached fields were overgrown with woods and shrubs. Soils on large areas were eroded, flooded or turned into marsh. Arid lands are degrading everywhere in Russia, giving way to deserts. Soils contaminated with heavy metallic isotopes, oil products and other toxic substances lay in rings dozen of kilometers wide around big cities and centers of metallurgical, chemical petrochemical and mechanical engineering production.

The national timber wealth in standing trees totals 81.6 bn cubic meters. Over the past 20 years, timber cutting and forest fires reduced the country's reserve of ripe wood in coniferous forests by 8 bn cu meter, including by 3 bn cu m. over the past 5 years.

14. Read and translate the following international words:

Atmospheric, industry, automobile, progressive, economic, human, activity, satisfactory, industrial, portable, products, phenols, zinc , metallurgy, chemical, ozone, biological, organic, stratosphere, eroded, isotope, toxic, petrochemical, production, reserve, substance.

15. Practice the pronunciation of the following words:

Exhausts, content, admissible, throughout, deteriorating, purify, water surface, quantify, adjacent, decrease, latitude, altitude, flooded, dessert, wealth, timber, reduce, ripe, coniferous, include.

16. Sum up a discussion. Use the following phrases:

Summing it up… On the whole…

Summarizing the discussion. I'll like to say that…

Model: The garbage of the economy is a serious threat to our environment. Summing it up I'd like to say that the garbage of economy is a serious threat to our environment.

1. The atmosphere, rivers, lakes and underground stores hold less than 1% of all fresh water and this tiny amount has to provide the fresh water needed to support the Earth population.
2. Fresh water is a precious resource and the increasing pollution of our rivers and lakes is a cause for alarm.
3. Industry often uses water for cooling processes sometimes discharging large quantities of warm water back into river.
4. Raising the temperature of the water lowers the level of dissolved oxygen and upsets the balance of life in the water.
5. Contaminants in the soil can adversely impact the health of animals and humans.
6. Everywhere in the world where people change a natural ecosystem into agriculture, the land degrades.
7. Soil can degrade without actually eroding. It can lose its nutrients and soil biota.
8. Probably one of the most dangerous disasters that can be averted to a great extent is a forest fire.
9. When out of control, forest can cause extensive damage not only the forest cover, but also to human life and the environment.

17. Agree or disagree with the following statements given below.

1. Nature means simply what is around us.
2. We never know the world of water till the well is dry.
3. There are no passengers on Spaceship Earth. We are all crew.
4. We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong we may begin to use it with love and respect.
5. There is enough oxygen in the water and in the atmosphere.
6. Rivers are not polluted, because factories don't produce a lot of waste and don't pour it into rivers.
7. Economic advance is not the same thing as human progress.
8. Take care of the earth and she will take care of you.
9. The ozone layer in the atmosphere protects us from dangerous radiation.
10. Understanding of laws of nature does not mean that we are immune to their operations.

11. The universe is not required to be in perfect harmony with human ambition.
12. Man is a complex being: he makes deserts bloom and lakes die.
13. In its broadest ecological context, economic development is the development of more intensive ways of exploiting the natural environment. Give the examples.
14. The system of nature of which man is a part tends to be self-balancing, self-adjusting, self-cleaning. Not so with technology.

18. Comment upon the following problems.
1. In efficiency of timber use Russia lags far behind other countries.
2. Over 80% of timber in Russia is logged in clear cutting.
3. Fortunately there are many ways to reduce erosion.

19. Fill in the blanks with the following words and word-combinations and translate the text 3.

Careful, to say nothing of, in addition, oil, urbanization, to result in, according to, growth of industry, contamination, crude oil, harmful, laundry, poisonous waterways, due to, catastrophe, substances, discharging, depredations, tons.

There are many causes of water pollution which may be classified into four main categories

1. pollution from chemicals, 2. pollution from solids, 3. pollution from radioactive wastes, 4. pollution from living matter.

Text 3. WATER POLLUTION

immense urbanization – колоссальный рост городов.
contamination of water from fertilizers – загрязнение воды удобрениями.
tons of detergents – моющие средства.
crude oil – неочищенная сырая нефть.
refuse – отходы.
to make worse – ухудшать.
to bring about degradation – приводить к деградации.
heavy expenditures - значительные расходы.
mass campaign – массовая компания.
sad statistics – неутешительные данные статистики

The first two causes are perhaps more dangerous than the others due to the tremendous _____and the immense_____ in large cities. Pollution from chemicals and solids includes _____of water from fertilizes and pesticides, acids, alkalis, mercury and cadmium (i.e. from heavy metals) which are widely used in industry_____ detergents from

washing _____are also dumped into the water. The above-mentioned _____ are extremely _____ for the living matter and once found in water in large quantities they kill everything and turn our rivers into _____. A remarkable illustration of such pollution is the Thames in England and the Rhine in Europe - up until recently there was no fish in these two rivers.

The banks of these rivers and many others represent a sad picture of cans, plastic containers, paper and refuse. Furthermore man not only pollutes water in the rivers and lakes, but he also pollutes seas and oceans as well. Let us take for example oil from _____tankers and supertankers. As we know each supertanker is capable of carrying hundreds upon thousands of _____. Sea water is used to clean the tankers after _____ and to make things still worse almost every year _____sad statistics there occurs at least one shipwreck in the sea _____bad weather conditions, faulty navigation aids, grounding, etc. This _____ tremendous contamination of sea and the sea shore too. One of the vivid examples of such a disaster was the wreckage of the supertanker TORREY CANYON in the English Channel. Not only the sea but the beautiful beaches in England and in France were covered with oil.

This _____ brought about huge losses of sea birds and animals _____ the heavy expenditures by the French and British governments in a mass clean-up campaign.

We should remember that we are all passengers aboard the ship “Earth”. We must be more _____ and must do everything to protect our beautiful planet from the_____ of man, i.e. ourselves.

20. Read and translate the following international words:

Urbanization, classify, chemicals, radioactive, pesticides, mercury, cadmium, ocean, heavy metals, contamination, illustration, result, substances, tons, supertanker, passengers, protect, campaign.

21. Practice the pronunciation of the following words:

Cause, dangerous, tremendous, immense, fertilizer, detergent, above-mentioned, dump, quantity, turn into, discharging, remarkable, poisonous, occur, due to, ship-wreck, refuse, wreckage, faulty, furthermore, laundry, according to, loss, worse, beautiful.

22. Read the text and give English equivalents to the following Russian words and word-combinations:

Бурный промышленный рост, в соответствии с, разделить на, бытовые отходы, широко применяться, в больших количествах, превратить в, до недавнего времени, загрязнить моря и океаны, происходить, приводить к, вызывать, колоссальный рост городов, тонны моющих средств, сырая нефть, отходы, загрязнение воды, значительные расходы правительств, ухудшать, гибель морских птиц и животных, неутешительные данные статистики, массовая компания.

23. Agree or disagree with the statements given below. Use the following phrases:

That's right
I don't think so
Exactly
You're wrong there
I fully agree with you
Just the reverse

1. The causes of water pollution may be classified into two main categories pollution from solids and pollution from living matter.
2. Pollution from chemicals is unknown to large cities inhabitants.
3. Chemicals and solids contaminate water.
4. Fertilizers and pesticides are seldom used in industry.
5. The above-mentioned substances including acids, mercury and cadmium kill everything.
6. The Thames in England and the Rhine in Europe bound in fish.
7. Sea water is never used to clean the tankers after discharging.
8. The shipwrecks occur due to bad weather conditions, faulty navigation aids.
9. Sea catastrophes do not cause tremendous contamination of sea and the sea shore
10. The supertanker Torrey Canyon catastrophe brought about losses of sea birds and animals.
11. Water pollution doesn't affect people's health.
12. We do everything to protect our planet.

24. Sum up a discussion. Use the following phrases:

Summing it up…
On the whole …
Summarizing the discussion…
I'd like to say that…

1. Powerful purifying systems are urgently needed in Russia.
2. Water contamination has grown into a serious problem.
3. Oil transporters should meet the ecological safety requirements.
4. Water pollution is inevitable in big cities.
5. Contamination from chemicals could hardly be avoided today.
6. The problem of biosphere is very acute.
7. Ecological education of individuals and preventive measures can do more than penalties of the violators.
8. Cars make the human life dependable, thus aggravating the hard ecological situation in small and big cities.
9. Water transport is harmful for sea nature.

25. Comment upon the following problems:

1. Nature is threatened by technological progress.
2. Human mankind acidified lakes and streams and they can't support fish, wildlife, plants or insects.
3. Acid rain is killing forests.
4. Water contamination could lead to shortage of safe drinking water.
5. Civilization has upset nature's sensitive equilibrium polluting rivers and oceans with industrial wastes.
6. Computers project that between now and the year 2030 sea levels would rise by several meters, flooding coastal area and ruining vast tracts of farmland.

26. Dispute the problems given below. The group can be divided into two opposing parties, each advocating their viewpoint. Use the following phrases:

It must be admitted that …
My point is that…
It seems reasonable to assume…

1. We are obliged to remove factories and plants from cities, redesign and modify purifying systems for cleaning and trapping harmful substances.
2. We must review our wasteful, careless ways of life, we must consume less, recycle more, conserve wildlife and nature.
3. We should act according to the dictum «think locally, think globally, act locally».
4. We are obliged to protect and increase the greenery.
5. 159 countries – members of the UNO hold conferences and set up environmental research centers.
6. The 5th of June is proclaimed the World Environmental Day by the UNO and is celebrated every year.

Unit 3
MASS MEDIA AND THEIR ROLE IN CONTEMPORARY SOCIETY

1. Read and translate the following international words:

Politics, communication, process, individual, group, term, technical, type, publication, classify, electronically, function, specific, totalitarian, democratic, electorate, idea, contrast, rehabilitation, paralyze, focus, idealize.

2. Practice the pronunciation of the following words:

Lament, among, citizen, government, heterogeneous, disperse, audience, circulation, relative, population, through, target, entertainment, interpreting, influence, agenda,

socialize, moreover, official, accountable, dual, capability, view, although, prominent, particularly, doggedly, resignation, award-winning, severely, wounded.

3. Read the text and give English equivalents to the following Russian words and word combinations:

Обычная жалоба, не ладят, для того, чтобы жить мирно, передача информации, от одного человека, разнородная аудитория, живущая в разных местах, основные примеры, тиражи, обычно, средства вещания, для целевого общения, СМИ, зарабатывать деньги, главным образом, развлекательные мероприятия, влияние на общественное мнение, формировать план работы, знакомить граждан с политической жизнью, способствовать, ответственный за свои действия, заметный, кинофильмы, наиболее сильные политические идеи, с упорством разоблачали, перенес болезненную реабилитацию, превратился.

4. Read and translate the text:

Text 1. PEOPLE, GOVERNMENT AND COMMUNICATIONS

lament - жалоба
to get along – ладить, жить мирно
heterogeneous – разнородный, различный
disperse – рассеиваться
technical device – техническое устройство, прибор
circulation —тираж
relative to – относительно, касательно
broadcast media – средства вещания
targeted - целенаправленный
entertainment – развлекательное мероприятие
agenda – повестка дня, план действий
promoting – способствующий
to be responsible to – ответственный за что-либо
moreover –более того
electorate - избиратели
accountable for – ответственный, подотчетный
voter – голосующий, избиратель
capability - способность
reflect – отражать
shape - формировать
prominent - заметный

motion pictures – кинофильм
convey – нести, содержать (информацию)
doggedly – упрямо, упорно
expose - разоблачать
resignation – уход в отставку
paramilitary - военизированный
seamy – *зд*. грязный

«We never *talk* anymore» is a common lament among people who are living together but not getting along very well. In politics, too, citizens and their government need to communicate in order to get along well. **Communication** is the process of transmitting information from one individual or group to another. Mass **communication** is the process by which individuals or groups transmit information to large, heterogeneous, and widely dispersed audiences. The term **mass media** refers to the technical devices employed in mass communication. The mass media are commonly divided into two types:

1. Print media communicate information through the publication of written words and pictures. Prime examples of print media are daily newspapers and popular magazines. Because books seldom have very large circulations relative to the population, they are not typically classified as a mass medium.

2. Broadcast media communicate information electronically through sounds or sights. Prime examples of broadcast media are radio and television. Although the telephone also transmits sounds, it is usually used for more targeted communications and so is not typically included within the mass media.

The mass media are in business to make money, which they do mainly by selling advertising through their major function, entertainment. We are more interested in the five specific functions the mass media serve the political system: *reporting* the news, *interpreting* the news, *influencing* citizens' opinions, *setting* the *agenda* for government action, and *socializing* citizens about politics.

Our special focus is on the role of the mass media in promoting communication from a government to its citizens *and* from citizens to their government. In totalitarian governments, information flows more freely in one direction (from government to people) than in the other. In democratic governments, information must flow freely in both directions; a democratic government can be responsible to public opinion only if its citizens can make their opinions known. Moreover, the electorate can hold government officials accountable for their actions only if voters know what their government has done, is doing, and plans to do. Because the mass media provide the major channels for this two-way flow of information, they have dual capability of reflecting and shaping our political views.

Although this text concentrates on political uses of the four most prominent mass media - newspapers, magazines, radio, and television - you should understand that political content can also be transmitted through other mass media, such as recording and motion pictures. Rock actors like Peter Gabriel and U2 often express political ideas in their music.

And motion pictures often convey particularly intense political messages. In the 1976 film All the President's Men, Dustin Hoffman and Robert Redford played Carl Bernstein and Bob Woodward, the two Washington Post reporters who doggedly exposed the Watergate scandal in a series of articles that led to President Richard Nixon's resignation in 1974. This motion picture dramatized a seamy side of political life that contrasted sharply with an idealized view of the presidency. In his series of "Rambo" films Sylvester Stallone played a paramilitary superhero that solved difficult international problems through combat. In contrast, the award-winning Born on the Fourth of July starred Tom Cruise in the real-life story of Ron Kovic, who enlisted in the marines and was severely wounded in Vietnam. Paralyzed from the waist down, he underwent painful rehabilitation and turned into an antiwar-activist. This film presents a very different view of fighting.

5. Answer the questions:

1. What is the difference between 'communication' and 'mass communication?'
2. What types are the mass media divided into?
3. What are the mass media main functions?
4. What conveys particularly intense political messages?

6. Choose the right variant:

2.1. Communication is

a) speaking on the telephone
b) the transmitting information from one to another object
c) individuals transmit information to large audience
d) a device for transmitting information

2.2. The mass media are commonly divided into ..... types.

a) three
b) five
c)four
d) two

2.3. Which doesn't refer to the print media?

a) books
b) magazines
c) newspapers
d) posters

2.4. Telephone isn't typically included within the mass media because
a) the quality of the sound is bad
b) radio and television are more interesting for audiences
c) it doesn't transmit information through sounds or sights
d) it is commonly used for more specific communications
2.5. The mass media make money by
a) selling valuable information
b) interpreting the news
c) selling advertising through entertainment
d) reporting the news
2.6. Mass media reflect and shape our political views because
a) they are responsible to public opinion
b) they provide the major channels for two-way flow
c) they report topical news
d) they concentrate on political issues

7. Read and translate the text:

Text 2. THE MASS MEDIA

The mass media transmit information to large, heterogeneous, and widely dispersed audiences through print and broadcasts. The main function of the mass media is entertainment, but the media also perform the political functions of reporting news, interpreting news, influencing citizens' opinions, setting the political agenda, and socializing citizens about politics.

The mass media in many countries are privately owned and in business to make money, which they do mainly by selling space or air time to advertisers. Both print and electronic media determine which events are newsworthy, a determination made on the basis of audience appeal. The rise of mass-circulation newspapers in the 1830s produced a politically independent press in the United States and Europe. In their aggressive competition for readers, those newspapers often engaged in sensational reporting, a charge sometimes leveled at today's media.

The broadcast media operate under technical, ownership, and content regulations set by the government, which tend to promote the equal treatment of political contests on radio and television more than in newspapers and news magazines.

The major media maintain staffs of professional journalists in major cities across the world. All professional journalists recognize rules for citing sources that guide their reporting. What actually gets reported in the media depends on the media's gatekeepers, the publishers and editors.

Although more people today get more news from television than newspapers, newspapers usually do a more thorough job of informing the public about politics. Despite heavy exposure to news in the print and electronic media, the ability of most people to retain much political information is shockingly low-and less than it was in the mid-1960s. It appears that the problem is not with the media's inability to supply quality news coverage, but the lack of demand for it by the public. The role of the news media may be more important for affecting interactions among attentive policy elites than in influencing public opinion.

The media's elite including reporters from the major television networks tend to be more liberal than the public.

From the standpoint of majoritarian democracy, one of the most important effects of the media is to facilitate communications from the people to the government through the reporting of public opinion polls. The media zealously defend the freedom of the press, even to the point of encouraging disorder through criticism of the government and the granting of extensive publicity to violent protests, terrorist acts, and other threats to order.

8. Develop the following ideas:

1. The message of an article or a TV program is more important than the form.
2. The media zealously defend the freedom of the press.
3. The media's elite tend to be more liberal than the public.
4. To facilitate communications from the people to the government is one of the most important effects of the media in democratic countries.

9. Additional questions:

1.What electronic media are of importance nowadays?
2. What helps newspaper publishers to win the competition for readers?

10. Read and translate the text:

Text 3. THE INTERNET

The Internet is a magnificent global network with millions and millions of computers and people connected to one another where each day people worldwide exchange an immeasurable amount of information, electronic mail, news, resources and, more important, ideas.

It has grown at a surprising rate. Almost everyone has heard about it and an increasing number of people use it regularly. The current estimate is that over 70 million people are connected, in some way, to the Internet — whether they know it or not.

With a few touches at a keyboard a person can get access to materials in almost everywhere. One can have access to full-text newspapers, magazines, journals, reference works, and even books. The Web is one of the best resources for up-to-date information. It is a hypertext-based system by which you can navigate through the Internet. Hypertext is the text that contains links to other documents. A special program known as «browser» can help you find news, pictures, virtual museums, electronic magazines, etc. and print Web pages. You can also click on keywords or buttons that take you to other pages or other Web sites. This is possible because browsers understand hypertext markup language or code, a set of commands to indicate how a Web page is formatted and displayed.

Internet Video conferencing programs enable users to talk to and see each other, exchange textual and graphical information, and collaborate.

Internet TV sets allow you to surf the Web and have e-mail while you are watching TV, or vice versa. Imagine - watching a film on TV and simultaneously accessing a Web site where you get information on the actors of the film. The next generation of Internet-enabled televisions will incorporate a smart-card for home shopping, banking and other interactive services. Internet-enabled TV means a TV set used as an Internet device.

The Internet is a good example of a wide area network (WAN). For long distance or worldwide communications, computers are usually connected into a wide area network to form a single integrated network. Networks can be linked together by telephone lines or fiber-optic cables. Modern telecommunication systems use fiber-optic cables because they offer considerable advantages. The cables require little physical space, they are safe as they don't carry electricity, and they avoid electromagnetic interference.

Networks on different continents can also be connected via satellites. Computers are connected by means of a modem to ordinary telephone lines or fiber-optic cables, which are linked to a dish aerial. Communication satellites receive and send signals on a transcontinental scale.

11. Answer the questions:

1. What is the Internet? 2. How many people are connected to the Internet today? 3. What is Hypertext? 4. What are computers usually connected into? 5. What advantages do fiber-optic cables offer?

12. Read and translate the text:

Text 4. A “FREE PRESS” MUST MEAN JUST THAT

(by Adriana Lopez)

waffle – *ам. жарг*. болтать, пустословить
toll - потери
misdeed- преступление, злодеяние
trafficking - торговля
volatile – непостоянный, нестабильный
flawed – порочный, с изъяном
ambiguity – неясность, двусмысленность
loophole - лазейка
guerrilla – партизанский
withdraw – отзывать
take for granted –считать (что-либо) доказанным/ не требующим доказательства, само собой разумеющимся.

We take freedom of speech for granted in the United States, but in the rest of the hemisphere it is the exception, not the rule. The Organization of American States met to discuss this issue and, for a while, it looked as if the United States was waffling.

A draft of the Inter-American Declaration on Freedom of Expression stated that the OAS is «convinced that the unlawful restrictions on the exercise of freedom of expression not only violate individual human rights but threaten democratic society itself». But it also said that «freedom of expression may be subject to certain restrictions established under domestic law and international obligations».

That loophole could have licensed Latin American countries to ban – and punish – members of the press.

Journalists in Latin America already face enough threats. In the last decade the death toll has reached nearly 200. Thousands of journalists are being severely punished for exposing the misdeeds of their countries’ powerful people. Attacks come as a direct result of their work. Reporters are subjected to harassment, kidnapping, torture, imprisonment and murder.

Gustavo Gorriti, a Peruvian journalist and recipient of the 1998 International Press Freedom Award of the Committee to Protect Journalists, has been continually harassed by the Peruvian and Panamanian governments. Gorriti has said that any journalist in Latin America who engages in serious, substantive reporting «will almost certainly face certain forms of harassment. You are literally taking your life in your hands».

Latin America’s rocky road from dictatorship to democracy – with drug trafficking, government corruption, left-wing guerrilla groups and paramilitary organizations all putting up obstacles – has made journalism one of the most dangerous careers in this

volatile region. Peruvian novelist and one time presidential candidate Mario Vargas Llosa once noted that «a fully free press won't be secure until democratic values and a rule of law are more firmly embedded».

Fortunately, Victor Marrero, U.S. ambassador to OAS, withdrew the flawed draft late last month, citing «ambiguities which should be clarified». He requested that the draft return to a working group for further revision before being voted on. This belated move at least puts the United States on the right track. The U.S. government should not back any kind of press restriction, and Latin America should not have to deal with double standards when it comes to freedom.

13. Questions for discussion:

1. Is freedom of speech taken for granted in your country?
2. Are journalists in your country subjected to any forms of harassment? If yes, why?
3. Freedom of expression may be subject to certain restrictions. Do you agree with this statement?

Unit 4
SCIENCE AND SOCIETY IN THE USA

1. Read and translate the text. Comment on the statement: «Science is a powerful engine by which the genius of the few is magnified by the talents of the many for the benefits of all».

Text 1. SCIENCE AND SOCIETY IN THE USA

entitlement – *зд.* установленная норма (панацея)
maintain – сохранять
generate – порождать
outright – полный
frustratingly – потрясающе, слишком уж
volatility – смена, перемена
commitment – обязательство (*зд*. вклад)
vistas – перспективы
embark – начинать (дело), *зд*. основываться
superstring – суперсерия или суперряд
give an account – объяснять, описывать
resolution – *зд*. расширение
underpinning – *зд*. свидетельство, пример
forestall – предвосхищать

poise – *зд.* склоняться (балансировать)
pinnacle – *зд.* кульминация

Science on the scale that it exists and is needed today can, however, be maintained only with large amounts of public support. Large-scale public support will be provided only if science and technology are meeting the critical needs of society. Intellectual progress, as measured by advances in specific public disciplines, is not in itself sufficient to generate such support. Perhaps it should be, but it is not. Public support for science may be wise policy, but is not an entitlement.

The central problem is that the costs of meeting the needs of society are too high, and the time scale for meeting them is too long. Both the ideals and the pragmatics of American society are based on improvement in the quality of life. We expect better health care, better education, and economic security. We expect progress towards the reduction, if not outright elimination of poverty, disease, and the environmental degradation.

Progress towards these goals has recently been frustratingly slow and increasingly expensive. The heavy costs of providing and improving health care and education are examples.

The situation has produced a volatility in public opinion and mood that reflects a lack of confidence in the ability of government and other sectors of society, including science and technology, to adequately address fundamental social needs.

If this mood hardens into a lack of vision, of optimism, of belief in the future, a tremendous problem for science will result. Science, in its commitment to innovation and expanding frontiers of knowledge, is a thing of the future.

The vistas of science are inspiring. Condensed matter physics is embarked on materials by design, nanotechnology and high temperature superconductivity, each containing the seeds of new industries as well as new scientific understanding. Molecular biology is in full bloom with a vast potential for further intellectual progress, betterment of human (and plant and animal) health, and commercialization. Neuroscience seems poised for dramatic progress.

Research into the fundamental laws of physics is aiming at a pinnacle. There is a candidate theory - the superstring theory – which is proposed as a unification of all the known fundamental forces in nature and which is supposed to give an account, complete in principle, of all physical phenomena, down to the shortest distances currently imaginable. At the largest scales of distance, observational astronomy is uncovering meta-structures which enlarge the architecture of the universe a deepening of the problem of cosmology preliminary to its resolution.

Underpinning much of this progress, and progress in countless other areas as well has been the emergence of scientific computing as an enabling technology.

All this is first-rate science. All this is not enough – either to forestall change or to ensure adequate support for science in the present climate. Why it is not enough – and what else is required – are the subjects of a special inquiry.

2. Discussion.

1. Are there statements in the text that you disagree with? What are they?
2. Are you aware of the latest achievements in your field of science? What are they?
3. Do you think the achievements of science are not sufficient to ensure adequate support for science?
4. If you were in power what would you do to support science in Russia?

PART 2. ESPECIAL FIELD OF SCIENCE AND RESEARCH

Unit 5
BIODIVERSITY

1. Read the text and say how suitable habitat for wild life is created.

Text 1. BIODIVERSITY.

Farmers are both custodians and users of biodiversity at all levels. At the gene level, traditional and adapted seeds and breeds are preferred for their greater resistance to diseases and their resilience to climatic stress. At the species level, diverse combinations of plants and animals optimize nutrient and energy cycling for agricultural production. At the ecosystem level, the maintenance of natural areas within and around organic fields and absence of chemical inputs create suitable habitats for wildlife. The frequent use of under-utilized species (often as rotation crops to build soil fertility) reduces erosion of agro-biodiversity, creating a healthier gene pool - the basis for future adaptation. The provision of structures providing food and shelter, and the lack of pesticide use, attract new or re-colonizing species to the organic area (both permanent and migratory), including wild flora and fauna (e.g. birds) and organisms beneficial to the organic system such as pollinators and pest predators. The impact of organic agriculture on natural resources favors interactions within the agro ecosystem, which are vital for both agricultural production and nature conservation.

Ecological services derived include soil forming and conditioning, soil stabilization, waste recycling, carbon sequestration, nutrients cycling, predation, pollination and habitats. By opting for organic products, the consumer through his/her purchasing pow-

er promotes a less polluting agricultural system. The hidden costs of agriculture to the environment in terms of natural resource degradation are reduced.

2. Fill in the blanks:

1. Farmers are both _____of biodiversity at all levels.
2. At the gene level, _____are preferred for their greater resistance to diseases and their resilience to climatic stress.
3.At the species level, _____optimize nutrient and energy cycling for agricultural production.
4.At the ecosystem level, _____and absences of chemical inputs create suitable habitats for wildlife.
5.The frequent use of under-utilized species ____creating a healthier gene pool – the basis for future adaptation.
6. ____ attract new or re-colonizing species to the organic area, including wild flora and fauna and organisms beneficial to the organic system such as pollinators and pest predators.
7. The impact of organic agriculture on natural resources favors _____.
8._____ and nature conservation.
9. Ecological services derived include _____.
10. By opting for organic products, the consumer _____promotes a less polluting agricultural system.

3. Find the false sentences and correct them using the information from the text.

1. Farmers are both custodians and users of biodiversity at all levels.
2. At the gene level, traditional and adapted seeds and breeds are preferred for their smaller resistance to diseases and their resilience to climatic stress.
3. At the species level, diverse combinations of plants and animals minimize nutrient and energy cycling for agricultural production.
4. At the ecosystem level, the maintenance of natural areas within and around organic fields and absence of chemical inputs create suitable habitats for wildlife.
5. The frequent use of under-utilized species (often as rotation crops to build soil fertility) enhances erosion of agro-biodiversity, creating a healthier gene pool - the basis for future adaptation.
6. The impact of organic agriculture on natural resources favors interactions within the agro-ecosystem, which are vital for both agricultural production and nature conservation.
7. The hidden costs of agriculture to the environment in terms of natural resource degradation are enhanced.

4. Give the Russian equivalents for the following words and phrases.

Custodians and users of biodiversity; preferred for their greater resistance; resilience to climatic stress; diverse combinations of plants and animals; maintenance of natural areas; chemical inputs; suitable habitats for wildlife; frequent use of under-utilized species; healthier gene pool in terms of natural resource degradation; hidden costs of agriculture to the environment.

5. Answer the following questions.

1. Who are farmers for the environment?
2. What seeds and breeds are preferred at the gene level and why?
3. What combinations of plants and animals optimize nutrient and energy cycling for agricultural production at the species level?
4. Does the maintenance of natural areas within and around organic fields and absence of chemical inputs create suitable habitats for wildlife or not at the ecosystem level?
5. The frequent use of under-utilized species (often as rotation crops to build soil fertility) reduces erosion of agro-biodiversity, creating a healthier gene pool – the basis for future adaptation, does it?

6. Read the text and tell if organic farmers can produce enough food for everybody.

ability – возможность;
to access – получать;
having to rely – вынуждены полагаться;
external input – вклад извне;
to substitute – заменить;
land tenure – землепользование;
constraint – принуждение, напряженность;
simultaneously – одновременно;
to outperform – делать лучше, чем другой;
circumstance – условие, обстоятельство.

Text 2. FOOD SECURITY.

Food security is not only a question of the ability to produce food, but also of the ability to access food. Global food production is more than enough to feed the global population; the problem is getting it to the people who need it. In marginalized areas, organic farmers can increase food production by managing local resources without having to rely on external inputs or food distribution systems over which they have little

control and/or access. It is to be noted that although organic management of natural resources can substitute external agricultural inputs, land tenure remains a main constraint to the labor investments needed for organic agriculture. Organic farms grow a variety of crops and livestock in order to optimize competition for nutrients and space between species: this results in less chance of low production or yield failure in all of these simultaneously. This can have an important impact on local food security and resilience. In rain fed systems, organic agriculture has demonstrated to outperform conventional agricultural systems under environmental stress conditions. Under the right circumstances, the market returns from organic agriculture can contribute to local food security by increasing family income.

7. Say if these statements true (T) or false (F) according to the article. Correct the false ones.

1. Food security is only a question of the ability to produce food.
2. Global food production is a problem to feed the global population.
3. In marginalized areas, organic farmers can increase food production only by managing local resources.
4. Land tenure remains a main advantage to the labor investments needed for organic agriculture.
5. Organic farms grow a variety of crops and livestock in order to minimize competition for nutrients and space between species.
6. Organic agriculture has demonstrated to outperform conventional agricultural systems under environmental stress conditions.
7. The market returns from organic agriculture can contribute to local food security by decreasing family income.

8. Complete the following sentences using the information from the text.

1. Food security is not only a question of the ability to produce food, but…
2. Global food production is more than enough to feed the global population; the problem is …
3. In marginalized areas, organic farmers can increase food production by …
4. It is to be noted that although organic management of natural resources can substitute external agricultural inputs, land tenure remains …
5. Organic farms grow a variety of crops and livestock in order to…
6. This can have an important impact on …
7. In rain-fed systems, organic agriculture has demonstrated …
8. Under the right circumstances, the market returns from organic agriculture can contribute …

9. Give English equivalents for the following words and phrases.

Обеспечение продуктами питания; возможность получать пищу; производство продуктов питания во всем мире; на отдаленных территориях распределения продуктов питания; основная преграда; различные сельскохозяйственные культуры и сельскохозяйственные животные; увеличить конкуренцию; важное влияние; в соответствующих условиях; вносить вклад; увеличивать доход.

10. Answer the following questions.

1. Is food security only a question of the ability to produce food or not?
2. What are problems of global food production?
3. How can organic farmers increase food production in marginalized areas?
4. What remains a main constraint to the labor investments needed for organic agriculture?
5. What do organic farms grow in order to optimize competition for nutrients and space between species?
6. Can it have an important impact on local food security and resilience?
7. What has organic agriculture demonstrated in rain-fed systems?
8. What can the market returns from organic agriculture contribute under the right circumstances?

Unit 6.
ORGANIC CROP PRODUCTION SYSTEM

1. Read the text and say what is essential to successful organic crop production system.

essential – необходимый, существенный;
to maintain – поддерживать, удерживать, сохранять;
sustainability– поддержка, подкрепление, стойкость, выносливость;
requirement – требование, необходимость;
caution – осторожность, предусмотрительность, предостережение;
to supplement – пополнять, добавлять;
tillage – обработка почвы, возделанная земля.

Text 1.

Fertile soil is essential to successful organic crop productions systems. Synthetic fertilizer use is not allowed, therefore organic farmers must use various other means to replace nutrients and improve soil fertility. Organic soil management techniques build

organic matter and humus, protect the soil from erosion, reduce nutrient loss, and maintain soil in a condition that supports diverse life-forms.

Crop rotations are an essential component in fertility management, pest control and long-term sustainability. Soil testing is an important practice in managing an organic farm and is also a requirement of many organizations providing organic certification. Proper soil sampling and testing should be done every two or three years to provide the producer with a record of soil nutrient status. A soil test will include information on texture, pH, organic matter content, caution exchange capacity, salinity and electrical conductivity.

Nutrient Requirements. There are 17 essential nutrients required for plant growth. The essential macronutrients are nitrogen (N), phosphorus (P), potassium (K) and sulphur (S). Calcium (Ca) and magnesium (Mg) are considered secondary nutrients. Micronutrients include iron (Fe), manganese (Mn), boron (B), molybdenum (Mo), copper (Cu), zinc (Zn), nickel (Ni) and chlorine (Cl).The remaining nutrients, carbon, hydrogen (H), and oxygen (O) compose more than 90% of the dry matter weight of the plant and are supplied from air and water. The soil often provides the majority of the nutrients, however, the remainder must be supplemented.

Nutrient Loss. Conserving nutrients is an important part of any farm operation. Nutrient loss may harm the environment, in addition to the loss of money, time and resources. For example, nutrients leaching into ground or surface water may cause excessive algae growth and oxygen depletion, harming natural flora and fauna. Nutrient run-off increases when certain factors exist: fine-textured (clay) soils with low infiltration rates, high rainfall and excessive tillage and crop residue incorporation. Nutrient loss can be reduced with effective use of catch crops, crop rotations and good manure management techniques.

2. Find the Russian equivalents of the following words phrases:

Fertile soil, nutrients, organic matter, nutrient loss, diverse life-forms, crop rotation, soil sampling, soil nutrient status, caution exchange capacity, salinity, electrical conductivity, nitrogen (N), phosphorus (P), potassium (K) and sulphur (S), calcium (Ca), magnesium (Mg), (Fe), manganese (Mn), boron (B), molybdenum (Mo), copper (Cu), zinc (Zn), nickel (Ni), chlorine (Cl), carbon, hydrogen (H), and oxygen (O), conserving nutrients, to harm the environment, nutrients leaching, excessive algae growth, oxygen depletion, nutrient run-off, fine-textured (clay) soils, crop residue incorporation, catch crops, manure management techniques.

3. Say if these sentences true or false. Correct the false sentences.

1. Organic soil management help maintain soil in a good condition.
2. Organic soil management techniques build organic matter and humus, protect the soil from erosion, reduce nutrient loss.

3. Crop rotation are not essential component for soil fertility.
4. Proper soil sampling and testing should be done every year to provide the producer with a record of soil nutrient status.
5. Soil testing includes only information on texture.
6. There are a few essential nutrients required for plant growth.
7. Conserving nutrients is an important part of any farm operation.
8. Nutrient loss may harm the environment and can't be reduced.

4. Complete the following statements:
1. Organic soil management technique build ….
2. Crop rotations are an essential component in ….
3. Soil testing is an important practice in….
4. Proper soil sampling and testing should be done ….
5. A soil test will include information on ….
6. There are 17 essential macronutrients required for plant growth …
7. The soil often provides the majority of….
8. Conserving nutrients is an important part of ….
9. Nutrient loss may harm ….
10. Nutrient loss can be reduced with ….

5. Answer the questions:
1. What kind of soil is essential to successful organic crop productions systems?
2. Synthetic fertilizer use is not allowed, is it?
3. What are organic soil management techniques used for?
4. Crop rotations are an essential component in fertility management, pest control and long-term sustainability, aren't they?
5. Is soil testing an important practice in managing an organic farm or not?
6. What will a soil test include?
7. What are 17 essential nutrients required for plant growth?
8. Is conserving nutrients an important part of any farm operation or not?

6. Read the following text. Learn the new words:

tillage – обработка почвы, возделанная земля;
decomposition – распад, разложение;
amendment – поправка, исправление;
to retard – задерживать, замедлять, отставать;
compaction – плотность, компактность;
to smother – подавлять, устранять;

to inhibit – препятствовать, сдерживать, подавлять;
to inoculate – сделать прививку;
subsequent – последующий;
perennial – многолетний, длящийся круглый год.

Text 2.

Soil Fertility. Nutrients to meet both the needs of the crop and organic certification standards may be supplied by several management tools:

Animal Manure. Manure from any source must be composted for a specific period before application on organic fields (check with your certification body for specific requirements):

– The compost must not be allowed to pollute water sources and the pile must be turned regularly to allow effective decomposition;

– The levels of the various nutrients in the manure vary according to the type of animals, the nature of the feed and how the manure was stored; Manure generally contains all macro-and micronutrients, but rarely in the proportion needed by crops. Manure or compost analysis is essential to identify which nutrients may need supplementation from another source.

– Its physical and biological characteristics make manure an excellent amendment for low organic matter, eroded, saline and other poorly structured soils.

Green Manure. A green manure is a crop grown primarily for the purpose of being plowed down to add nutrients and organic matter to the soil. Organic farmers consider green manure to be an essential part of the farm ecosystem. Green manure plays a role in soil improvement, nutrient management and pest management. It is effective in controlling erosion, adding organic matter, improving soil structure, stimulating biological activity in the soil and reducing compaction. Legumes such as alfalfa and sweet clover can fix over 200 lb. per acre of nitrogen. Effective green manure smothers weeds, breaks insect and disease cycles and provides a habitat for bees, parasitic wasps, and other beneficial organisms. Fall rye and oats are particularly competitive. Some crops such as yellow sweet clover and mustard are allelopathic and produce natural chemical toxins that retard germination and inhibit the early growth of weed species. The value of green manure can vary with the type of crop and the timing of the plow down process.

Legumes in the rotation. When properly inoculated before planting, annual legumes such as peas and lentils will fix 50-90% of the N they require from the air. Legume residue breaks down more quickly than nonlegume residue, which allows N to be available sooner to subsequent crops when the residue is worked into the soil. Perennial legumes such as alfalfa supply substantial amounts of N to the soil from their root systems, even though much of the top growth may be removed as hay or grazed pasture.

Rotating high and low nutrient demand crops. Different crops require different amounts of the various essential nutrients. Rotating high and low nutrient demand crops may avoid depleting one of more of those essential nutrients in the soil. Knowing the nutrient demands of various crops is essential to the producer and many resources are available to provide this information.

Crop Residues. Returning crop residues to the soil contributes tremendously to the organic matter and the nutrient pool available for new plant growth. Crop residues also prevent soil erosion and improve the waterholding and infiltration properties of soils.

Conclusion. The health of the soil is essential for a successful organic cropping system. Any management practice that increases biological activity in the soil will enhance the productivity of the soil environment. All living things depend on a healthy soil – plants, animals and humans alike. Proper attention to fertility in an organic production system will be the key to the farm's sustainability.

7. Find the Russian equivalents to the following words and phrases:

Legumes, alfalfa, sweet clover, weed, bee, parasitic wasp, beneficial organisms, rye, oats, yellow sweet clover, mustard, allelopathic, chemicaltoxin, germination, weed species, pea, lentil, hay, grazed pasture, nutrient pool, properties of soil, fertility, farm's sustainability.

8. Find true sentences according to the text.

1. Nutrients to meet both the needs of the crop and organic certification standards.
2. Manure from any source must not be composted for a specific period before application.
3. Animal manure contains all macro and micronutrients needed for crops.
4. Green manure is being plowed down to reduce nutrients in soil.
5. Green manure plays a role in soil improvement, nutrient management and pest management.
6. Effective green manure smothers weeds, breaks insect and disease cycles and provides a habitat for bees, parasitic wasps, and other beneficial organisms.
7. Legumes will fix 50-90% of N if they are not inoculated.
8. Crops demand similar amount of essential N.
9. Crop residues prevent soil erosion.
10. The health of the soil is essential for a successful organic cropping system.

9. Complete the sentences.

– Nutrients to meet both the needs of the crops and organic certification standards may…..

– Animal manure must be composted for….

– Its physical and biological characteristics make manure….
– Green manure is a crop grown for…
– Green manure is effective in…
– Perennial legumes supply substantial nutrients to….
– Rotating high and low nutrient demand crops may avoid …
– Crop residues contribute …
– All living things depend on …

Unit 7.
CHEMICAL AND PHYSICAL PROPERTIES OF SOILS

1. Read, translate the text and complete the tasks below:

Text 1. THE CHEMICAL PROPERTIES OF SOILS

All soil has chemical properties, which are important to how other agents react to the soil. For instance, the chemical properties of the soil determine what plant life can grow in the soil, as well as other factors like soil's effect on water in the environment. There are five chemical properties of soil, including pH, salinity, cation exchange, organic matter and carbon to nitrogen ratio.

1)pH

The soil's pH tells how much acid or alkaline it contains. Plant roots won't be able to thrive outside a precise pH level, which varies by plant type. If the soil is too acidic or too alkaline, the plant will eventually die. A neutral pH is 7, while acidic is a pH under 7 and alkaline is above 7. When growing plants, the most advantageous pH is between 5.5 and 7.5. Plant toxicity can occur when soil has a pH level less than 6 and has increased amounts of aluminum.

2) Salinity

Soil salinity describes the level of soluble salts it contains. Problems with irrigated soils can occur when there are elevated evaporation rates and low rainfall, which in turn causes salts to build up. Buildup can also occur due to irrigation water, compost, manure and fertilizers. It is possible to filter the salt by gradually applying surplus water. Approximately 3 inches of water can remove 50 percent of the salts, while 5 inches can remove 90 percent.

3) Cation Exchange Capacity

Cation exchange capacity is the soil's potential to hold cations (positively charged ions). Most nutrients are cations. Soil particles are made up of silicate and aluminosilicate clay and are negatively charged colloids (matter that is scattered evenly throughout another matter). Cations are bound to the surface of these particles.

4) Organic Matter

Organic matter, the remains of plants and animals, has many beneficial effects on soil properties. The physical effects are that it evens out the soil structure, lowers bulk solidity and can develop water-holding distinctiveness.

Organic matter also has a higher cation exchange capacity and can act as a pH barrier. Furthermore, organic matter provides energy and bodybuilding components for soil organisms and is a resource for nutrients.

5) Carbon to Nitrogen Ratio

The carbon to nitrogen ratio for soils ranges from 8:1 to 15:1, and is typically between 10:1 and 12:1. Climate conditions affect the variations that can occur. In dry regions, the carbon to nitrogen ratio tends to be lower. It is also lower in warm areas as well as in subsoil as compared to topsoil.

PHYSICAL PROPERTIES OF SOILS

The structure of soil contributes greatly to its physical properties. Different combinations of the components commonly known to make up soil occur in different locations and can therefore influence what sort of plants will grow there. Understanding the physical properties specific to a certain area can help a gardener or homeowner best care for the lawn and plants they choose to grow.

1) Soil Composition

The size of the particles of the various components of soil greatly contribute to its physical properties. Clay and silt generally have very small particles while sand particles are considerably larger. Stones and gravel are the largest. The combination of sand, silt and clay based on percentages determines the texture of the soil as well as its porosity, or the amount of air and water trapped in between soil particles. Organic material distributed within the particles serves to bind or aggregate the particles, a feature that is very important to plant growth.

Aggregation contributes to porosity and the appropriate porosity provides for good movement of air, water and nutrients, all factors vital to successful plant growth.

2) Permeability and Porosity

Permeability, or the ability of water to move through soil and at what rate, is directly influenced by porosity. The number of pores as well as the size of pores affect permeability in that larger pores allow for more movement and thus more readily available water for plant growth whereas smaller pores do not. However, the largest pores are not necessarily most conducive to growth.

Porosity is determined by the size, texture and structure of particles as well as the type and distribution of organic matter. Soils with a fine texture hold more water but medium-textured soils are actually best for growing plants.

3) Soil Compaction

The amount of compaction is also an important property to consider. The more compact the soil is the less porous it is. This restricts the ability of roots to grow to an acceptable depth, water stored in available pores is less likely to be absorbed and erosion may be prominent. Crops will likely be unsuccessful in an area of high compaction and ponding of water may occur on its surface.

2. Translate the following expressions from English into Russian:

Basic nutrients; to involve chemical processes; proper use of chemicals, insufficient knowledge of the subject; to lack knowledge; absolutely accurate; to rely on one's memory; entire world; extremely important; under threat of; to endanger crops; to research thoroughly; resistant to weather changes; poor harvest; food processing industry; storage temperature; to perform a task; preceding operation; to attach a separate part to the machine; to stir all the components; to ship within a week.

3. Translate the following sentences from English into Russian:

1) Mineral particles are involved in chemical reactions taking place in soil.
2) Decaying organic matter plays an important role in nutrient production.
3) Crops require the proper amounts of air and water for its healthy growth.
4) The soil in this area lacks water.
5) Irrigation is necessary in extremely dry areas.
6) Crops are threatened by weeds, plant diseases and insects.
7) Improper use of pesticides may endanger the environment.
8) The newest crop varieties developed by the scientists are more resistant to pests.

4. Read the text and complete the tasks below:

Text 2. BASIC PRINCIPLES OF CROP PRODUCTION

All crops require nutrients (nourishing substances) and water to grow. Soil supplies most of the nutrients. It also stores the water that the crops need. Crops differ, however, in the amount of nutrients and water they require for healthy growth. A farmer must therefore make sure that the soil and water resources meet the needs of each crop. A farmer must also plan measures to control pests, which could damage or ruin a crop. Most farmers plan their methods of soil and water management and of pest control well in advance of the growing season.

Soil management. Soil consists chiefly of mineral particles mixed with decaying organic (plant and animal) matter. Chemical reactions involving these substances produce most of the nutrients that crops need. To be fertile, therefore, soil must consist of

the right mixture of minerals, organic matter, and helpful microbes. It must also have the proper amounts of air and water.

After deciding which crops to grow, farmers analyze their soil to learn if any nutrients are insufficient or lacking. To get an accurate analysis, most farmers send samples of the soil to a soil-testing laboratory. The test results help farmers plan a scientific fertilizer program for their crops.

The richest soil lies at and just below the surface. If this topsoil is not protected, it may be blown away by strong winds or washed away by heavy rains—a process called erosion. Effective soil management therefore also includes methods of soil conservation.

5. Answer the questions to the text:

1) How and when should farmers plan their methods of soil and water management and of pest control?
2) How are the nutrients produced by the soil?
3) What does soil fertility mean?
4) What do farmers need to plan a fertilizer program for their crops?
5) Why must the topsoil be protected?

6. Define whether the following statements are true or false:

1) Plants can't grow without nutrients and water.
2) The amount of nutrients and water for healthy growth is not different for every crop.
3) Chemical reactions involving mineral particles produce the nutrients that crops need.
4) The most fertile soil lies deep below the surface/

7. Insert prepositions where necessary:

1) Crops differ____ the amount___nutrients they require__healthy growth.
2) Farmers plan their methods__soil management well__advance__the growing season.
3) Soil consists chiefly__mineral particles mixed__organic matter.
4) The richest soil lies ___ and just__the surface.
5) Farmers often rely__rainfall__the necessary moisture.
6) The word «pests» is used__referring__weeds, plant diseases, and harmful insects.
7) Farmers also use other methods of pest control__addition__pesticides.
8) Scientists have developed varieties__crops that are more resistant__diseases and insects.

8. Find in the text the synonyms to the following words:

to need, to destroy, beforehand, substance, to contain, right, to include, concerning, ploughing.

9. Read the text and complete the tasks below:

Text 3. FOUR MAJOR COMPONENTS OF SOIL

Once you step out onto a piece of ground, you step out onto something that is alive. Soil is not just a piece of dirt. Soil is made up of living and nonliving material spread as a very thin layer over the entire surface of the planet we call earth.

Soil must provide nutrients, water, and air and helps to support the plant. Soil is a combination of materials. One part of soil is rock that has been broken down over time by wind, water, and chemical processes. Another material is called organic matter. It is made up of decaying plant and animal matter. Water and air are the other ingredients in soil. In a good garden soil, about 45 percent will be rock particles, 5 percent organic matter like leaves, 25 percent water, and 25 percent air.

a. Define,if this statement: Soil is not just a piece of dirt. It is alive.
а) true
б) false
в) there is no information

b. Define,if this statement: Water and air are the main ingredients in soil.
а) true
б) false
в) there is no information

c. Define the main idea of the text.
а) Soil is made up of living and nonliving material.
б) Soil is rock that has been broken down over time.
в) Water and air are the other ingredients in soil.

10. Read the text and complete the tasks below:

Text 4. SOIL TYPES

1. People describe soil types in all kinds of ways such as heavy, light, sandy, clay, loam, poor or good. Soil scientists describe soil types by how much sand, silt and clay are present. This is called texture. It is possible to change the texture by adding different things. Changing texture can help in providing the right conditions needed for plant growth.

2. Sand is the largest particle in the soil. When you rub it, it feels rough. This is because it has sharp edges. Sand doesn't hold many nutrients.

3. Silt is a soil particle whose size is between sand and clay. Silt feels smooth and powdery. When wet it feels smooth but not sticky.

4. Clay is the smallest of particles. Clay is smooth when dry and sticky when wet. Soils high in clay content are called heavy soils. Clay also can hold a lot of nutrients, but doesn't let air and water through it well.

5. Particle size has a lot to do with a soil's drainage and nutrient holding capacity. To better understand how big these three soil particles are, think of them like this. If a particle of sand were the size of a basketball, then silt would be the size of a baseball, and clay would be the size of a golf ball. Line them all up, and you can see how these particles compare in size.

a. Define, if this statement: It is possible to change the texture by adding different things.
а) true
б) false
в) there is no information

b. Define, if this statement:It is not possible to change the texture by adding different things.
а) true
б) false
в) there is no information

c. Define, if this statement: Sand holds many nutrients.
а) true
б) false
в) there is no information
d. Point out which abstract (1,2,3,4,5) matches the following idea: It is possible to change the texture of the soil.
а) 1
б) 2
в) 3
г) 4

e. Point out which abstract (1,2,3,4,5) matches the following idea: Soils high in clay content are called heavy soils.
а) 1

б) 2
в) 3
г) 4

f. Answer the following question: What is texture?

g. Define the main idea of the text.
а) Soil types are defined by how much sand, silt and clay are present.
б) It is possible to change the texture of the soil.
в) There are different types of soil.

11. Read the text and complete the tasks below:

Text 5. BASIC PRINCIPLES OF CROP PRODUCTION (part 2)

Water management. Crops cannot grow without water. In most cases, farmers rely entirely on rainfall for the necessary moisture. In extremely dry areas, however, farmers must irrigate their crops. Many farms often have too much water rather than too little. The problem is greatest on low-lying land and on land crossed by streams or rivers. Fields that tend to collect water must have a drainage system.

Pest control. Agronomists use the word «pests» in referring to weeds, plant diseases, and insects that threaten crops. Most farmers control pests with chemicals called pesticides. Scientists have developed hundreds of pesticides for use on farms. Each one is designed to fight certain types of weeds, plant diseases, or harmful insects. All pesticides must be used with extreme care. If they are used improperly, they may pollute the environment or the food supply and so endanger people's health.

Farmers also use other methods of pest control in addition to pesticides. For example, turning the soil with a plough or mechanical cultivator kills most weeds. However, special pesticides called herbicides control weeds more thoroughly than does soil turning. Some herbicides remain active in the soil for some time and so kill weed seedlings as they develop. Plant scientists have developed varieties of corn, wheat, and other crops that are more resistant to diseases and insects than were earlier varieties.

a. Answer the questions to the text:
1) When are irrigation and drainage systems used?
2) What does the word «pests» mean?
3) Why must pesticides be used with extreme care?

b. Write out of the text all the words and word combinations that can be classed into each of the following groups:

– water management;

– pest control.

Unit 8.
TILLAGE PRACTICES

1. Translate sentences paying attention to the meaning of the words «too», «much».

1. Seeds do not germinate well if there is too much water in the soil.
2. This method is effective too.
3. Rye requires much colder conditions for its growth than cotton.

2. Read the text and complete the tasks below:

Text 1. TILLAGE PRACTICES

Tilling is used to remove weeds, shape the soil into rows for crop plants and furrows for irrigation. This leads to unfavorable effects, like soil compaction; loss of organic matter; degradation of soil aggregates; death or disruption of soil microbes and other organisms including mycorrhiza, arthropods, and earthworms; and soil erosion where topsoil is blown or washed away. No-till farming avoids these effects by excluding the use of tillage. With this way of farming, crop residues or other organic amenities are retained on the soil surface and sowing/fertilizing is done with minimal soil disturbance. Continuous no-till needs to be managed very differently in order to keep or increase yield on the field. Residue, weeds, equipment, crop rotations, water, disease, pests, and fertilizer management are just some of the many details of farming that change when switching to no-till.

No-till farming can increase organic (carbon based) matter in the soil, which is a form of carbon sequestration. However, there is debate over whether this increased sequestration detected in scientific studies of no-till agriculture is actually occurring, or is due to flawed testing methods or other factors. Regardless of this debate, there are still many other good reasons to use no-till, e.g. reduction in fossil fuel use, no erosion, soil quality.

One of the purposes of tilling is to remove weeds. No-till farming does change weed composition drastically. Faster growing weeds may no longer be a problem in the face of increased competition, but shrubs and trees may begin to grow eventually.

Some farmers attack this problem with a “burn-down” herbicide such as glyphosate in lieu of tillage for seedbed preparation and because of this, no-till is often associated with increased chemical use in comparison to traditional tillage based methods of

crop production. However, there are many agroecological alternatives to increased chemical use, such as winter cover crops and the mulch cover they provide, solarization or flaming.

3. Suggest the English for:

операция по обработке земли, сельскохозяйственные машины, применять удобрения, достаточно, размер семени, высококачественный травостой.

4. Complete the sentences according to the text.

1. Harrowing and rolling are the operations that….
2. Farm machines can prepare the soil,….
3. Everybody knows the depth of planting the seed….
4. The coarse seeds of corn and peas are to be planted much deeper….
5. Before planting a grower has to perform some tillage….
6. Mechanical harvesting helps farmers obtain….

5. Write out of the text all the words and word combinations that can be

classed into each of the following groups:

– time of plowing
– minimum tillage
– planting the seed
– harvesting

6. Retell the text with the help of the following questions:

1. What is the first tillage operation?
2. What other tillage operations are necessary before planting? What is minimum tillage?
3. What are the advantages of minimum tillage?
4. What factors are important during planting?
5. What is the last cultural practice?

7. Read the text and complete the tasks below:

Text 2. NO-TILL FARMING

No-till farming (also called zero tillage or direct drilling) is a way of growing crops or pasture from year to year without disturbing the soil through tillage. No-till is an agricultural technique which increases the amount of water that infiltrates into the soil and

increases organic matter retention and cycling of nutrients in the soil. In many agricultural regions it can eliminate soil erosion.

It increases the amount and variety of life in and on the soil, including disease causing organisms and disease suppression organisms. The most powerful benefit of no-tillage is improvement in soil biological fertility, making soils more resilient. Farm operations are made much more efficient, particularly improved time of sowing and better trafficability of farm operations.

8. Finish the sentences joining two parts of them.

1.No-till farming	a) making cultivation unnecessary/
2.They should include both a contact herbicide to kill early weeds or sod,	b) is a way of growing crops or pasture from year to year without disturbing the soil.
3.Zero-tillage continues to move from	c) South to North and from hills to flatlands.
4.The residual herbicide also controls weeds during the corn growing season,	d) and a residual herbicide.

9. Answer the following questions:

1. When did the no – tillage method begin to be practically used?
2. What was the first herbicide?
3. How are herbicides used?
4. What soils do not fit for the non tillage method?

10. Read the text:

Text 3. STRIP-TILL

Strip-till is a conservation system that uses a minimum tillage. It combines the soil drying and warming benefits of conventional tillage with the soil-protecting advantages of no-till by disturbing only the portion of the soil that is to contain the seed row. This type of tillage is performed with special equipment and can require the farmer to make multiple trips, depending on the strip-till implement used, and field conditions. Each row that has been strip-tilled is usually about eight to ten inches wide.

11. Read the text and complete the tasks below:

Text 4. CHALLENGES OF BOTH STRIP-TILL AND NO-TILL SYSTEMS

In reduced tillage strategies, weed suppression can be difficult. In place of cultivation, a farmer can suppress weeds by managing a cover crop, mowing, crimping, or herbicide application. The purchase of mowing and crimping implements may represent an unjust expenditure. Additionally, finding an appropriate cover crop mix for adequate weed suppression may be difficult. Also, without mowing or crimping implements it may not be possible to achieve a kill on the cover crop. If mowing, crimping, and suppression with a cover crop mixture fail, herbicides can be applied.

However, this may represent an increase in total farm expenses due to herbicides being used in place of cultivation for weed suppression. There are some disadvantages specific to strip-till systems. Some farmers may not be able to strip-till if there is an early freeze. Though strip tillage can be successful without a global position system (GPS) based guidance, it can be beneficial. Lastly, strip-till systems requires a high-horsepower tractor; however, the energy requirement is less than with conventional tillage systems.

12. Translate the text and say what agrotechnical method is mentioned here.

Text 5. ZONE TILLAGE

Zone tillage is a form of modified deep tillage in which only narrow strips are tilled, leaving soil in between the rows untilled. This type of tillage agitates the soil to help reduce soil compaction problems and to improve internal soil drainage.

Zone tillage is designed to only disrupt the soil in a narrow strip directly below the crop row. In comparison to no-till, which relies on the previous year's plant residue to protect the soil and aides in postponement of the warming of the soil and crop growth in Northern climates, zone tillage creates approximately a 5-inch-wide strip that simultaneously breaks up plow pans, assists in warming the soil and helps to prepare a seedbed. When combined with cover crops, zone tillage helps replace lost organic matter, slows the deterioration of the soil, improves soil drainage, increases soil water and nutrient holding capacity, and allows necessary soil organisms to survive.

It has been successfully used on farms in the mid-west and west for over 40 years and is currently used on more than 36% of the U.S. farmland. Some specific states where zone tillage is currently in practice are Pennsylvania, Connecticut, Minnesota, Indiana, Wisconsin, and Illinois.

Unfortunately there aren't consistent yield results in the Northern Corn belt states however; there is still interest in deep tillage within the agriculture industry. In areas that are not well-drained, deep tillage may be used as an alternative to installing more expensive tile drainage.

PART 3
SUPPLEMENTARY READING

IMPROVED SELECTION OF BETTER VARIETIES

Many artificial selection methods have been developed for crop improvement. These include molecular marker assisted breeding, and use of statistical principles to design field tests of crop candidate performance.

Genome science (chromosome sequence decoding and computer assisted dissection of gene functions and structure) is also being used to help identify traits and select improved progeny. One approach is to compare genes in different species (comparative genomics) to take advantage of the greater ease of gene sequencing with small, compact genomes such as those of Arabidopsis thaliana, or of rice. Of the main cereal crops, rice has the smallest genome; at least three rice genomes have been analyzed in terms of detailed gene sequence, already yielding much information about the repeated genome, chromosome and gene duplications that have occurred in this species during natural evolution.

Identifying the particular gene and DNA sequences that determine a phenotype of relevance to agriculture (such as resistance to rust fungal pathogens) opens up many ways of creating new, useful genetic variation by direct manipulation of DNA, and for devising tests for tracking traits such as water use efficiency and pathogen resistance which are difficult to identify in breeding experiments, thus speeding up plant breeding in the greenhouse and field trial stages. For instance, microsatellite molecular markers have been developed that are useful for detecting the important Stem rust resistance trait (Sr2, present in cultivar 'Hope') in wheat.

ROLE OF PLANT BREEDING IN ORGANIC AGRICULTURE

Critics of organic agriculture claim it is too low-yielding to be a viable alternative to conventional agriculture. However, part of that poor performance may be the result of growing poorly adapted varieties. It is estimated that over 95% of organic agriculture is based on conventionally adapted varieties, even though the production environments found in organic vs. conventional farming systems are vastly different due to their distinctive management practices. Most notably, organic farmers have fewer inputs available than conventional growers to control their production environments. Breeding varieties specifically adapted to the unique conditions of organic agriculture is critical for this sector to realize its full potential. This requires selection for traits such as:

- Water use efficiency
- Nutrient use efficiency (particularly nitrogen and phosphorus)

- Weed competitiveness
- Tolerance of mechanical weed control
- Pest/disease resistance
- Early maturity (as a mechanism for avoidance of particular stresses)
- Abiotic stress tolerance (i.e. drought, salinity, etc...)

Currently, few breeding programs are directed at organic agriculture and until recently those that did address this sector have generally relied on indirect selection (i.e. selection in conventional environments for traits considered important for organic agriculture). However, because the difference between organic and conventional environments is large, a given genotype may perform very differently in each environment due to an interaction between genes and the environment (see gene-environment interaction). If this interaction is severe enough, an important trait required for the organic environment may not be revealed in the conventional environment, which can result in the selection of poorly adapted individuals. To ensure the most adapted varieties are identified, advocates of organic breeding now promote the use of direct selection (i.e. selection in the target environment) for many agronomic traits.

There are many classical and modern breeding techniques that can be utilized for crop improvement in organic agriculture despite the ban on genetically modified organisms. For instance, controlled crosses between individuals allow desirable genetic variation to be recombined and transferred to seed progeny via natural processes. Marker assisted selection can also be employed as a diagnostics tool to facilitate selection of progeny who possess the desired trait(s), greatly speeding up the breeding process. This technique has proven particularly useful for the introgression of resistance genes into new backgrounds, as well as the efficient selection of many resistance genes pyramided into a single individual. Unfortunately, molecular markers are not currently available for many important traits, especially complex ones controlled by many genes.

PLANT BREEDING OF WHEAT

In traditional agricultural systems wheat populations often consist of landraces, informal farmer-maintained populations that often maintain high levels of morphological diversity. Although landraces of wheat are no longer grown in Europe and North America, they continue to be important elsewhere. The origins of formal wheat breeding lie in the nineteenth century, when single line varieties were created through selection of seed from a single plant noted to have desired properties. Modern wheat breeding developed in the first years of the twentieth century and was closely linked to the development of Mendelian genetics. The standard method of breeding inbred wheat cultivars is by crossing two lines using hand emasculation, then selfing or inbreeding the progeny. Selections are identified (shown to have the genes responsible for the varietal differ-

ences) ten or more generations before release as a variety or cultivar. F1 hybrid wheat cultivars should not be confused with wheat cultivars deriving from standard plant breeding. Heterosis or hybrid vigor (as in the familiar F1 hybrids of maize) occurs in common (hexaploid) wheat, but it is difficult to produce seed of hybrid cultivars on a commercial scale as is done with maize because wheat flowers are complete and normally selfpollinate. Commercial hybrid wheat seed has been produced using chemical hybridizing agents, plant growth regulators that selectively interfere with pollen development, or naturally occurring cytoplasmic male sterility systems. Hybrid wheat has been a limited commercial success in Europe (particularly France), the United States and South Africa.

The major breeding objectives include high grain yield, good quality, disease and insect resistance and tolerance to abiotic stresses include mineral, moisture and heat tolerance. The major diseases in temperate environments include the following, arranged in a rough order of their significance from cooler to warmer climates: eyespot, Stagonospora nodorum blotch (also known as glume blotch), yellow or stripe rust, powdery mildew, Septoria tritici blotch (sometimes known as leaf blotch), brown or leaf rust, Fusarium head blight, tan spot and stem rust. In tropical areas, spot blotch (also known as Helminthosporium leaf blight) is also important.

CROP DEVELOPMENT

Wheat normally needs between 110 and 130 days between planting and harvest, depending upon climate, seed type, and soil conditions (winter wheat lies dormant during a winter freeze). Optimal crop management requires that the farmer have a detailed understanding of each stage of development in the growing plants. In particular, spring fertilizers, herbicides, fungicides, growth regulators are typically applied only at specific stages of plant development. For example, it is currently recommended that the second application of nitrogen is best done when the ear (not visible at this stage) is about 1 cm in size. Knowledge of stages is also important to identify periods of higher risk from the climate. For example, pollen formation from the mother cell, and the stages between anthesis and maturity are susceptible to high temperatures, and this adverse effect is made worse by water stress. Farmers also benefit from knowing when the 'flag leaf' (last leaf) appears, as this leaf represents about 75% of photosynthesis reactions during the grain filling period, and so should be preserved from disease or insect attacks to ensure a good yield.

Several systems exist to identify crop stages, with the Feekes and Zadoks scales being the most widely used. Each scale is a standard system which describes successive stages reached by the crop during the agricultural season.

MASS AND INDIVIDUAL IN SEED BREEDING

In seed production, as well as in the selection, use two types of selection: mass and individual. But depending on the circuit, there are many seed varieties and their combinations. Distinguish between single, multiple and continuous mass selection. Single selection of limited use, but combined with his personal use of seed. Often used multiple selection, but most of all common continuous mass selection.

With typical superelite plants selected from the initial population, the seeds were collected together. When a sufficient amount of seeded elite field. If the multiplication factor is not high culture, with a super-elite seeds of plants come in the breeding nursery where they grow one to two years.

The next round of selection - tough cleaning impurities - is carried out on site or at an elite breeding nurseries. Since the beginning of growth before flowering remove impurities color leaves and stem, plant height, from the beginning of flowering to mass - color and shape of a flower and buds. Throughout the growing season and remove diseased plants affected by pests. In cross-pollinating plants to reduce biological clogging impurities are removed daily at flowering. When seed under this scheme elite seeds get through one or two years. In addition, to ensure that sufficient quantities of seeds collected a large number of super-elite pl Individual selection is recommended for work with the following varieties: insufficient aligned requiring improvement of individual traits ; deteriorating from year to year, or not good enough to separate features (lack of doubleness, not uniformity of plant maturity flowering, disease susceptibility, etc.).

Most schemes for cross-pollinated seed primary cultures based on continuous individual selection. Seeds collected individually typical of healthy plants for next year sowed families in nursery progeny evaluation of the first year, where families learn the complex features that characterize the brand. Primarily entirely removed from the nursery with a large percentage of families impurities (spontaneous hybrids, mutants). In the next step discarded family with a low number of typical plants, that is not aligned on the main varietal characteristics (flowering period, doubleness, flower color). In addition, patients were removed, underdeveloped and abnormal plants. Ripe seeds from each of the remaining families are collected separately. The following year the family were sown in nursery progeny evaluation of the second year, in which they study and marriage as well as the previous year.

BIOTECHNOLOGY

Agronomists use biotechnology to extend and expedite the development of desired characteristics listed in the Plant Breeding section. Biotechnology is often a lab activity requiring field testing of the new crop varieties that are developed.

In addition to increasing crop yields agronomic biotechnology is increasingly being applied for novel uses other than food. For example, oilseed is at present used mainly for margarine and other food oils, but it can be modified to produce fatty acids for detergents, substitute fuels and petrochemicals.

AGRICULTURAL SOIL SCIENCE

Agronomists study sustainable ways to make soils more productive and profitable. They classify soils and reproduce them to determine whether they contain substances vital to plant growth such as compounds of nitrogen, phosphorus, and potassium. If a certain soil is deficient in these substances, fertilizers may provide them. Soil science also involves investigation of the movement of nutrients through the soil, the amount of nutrients absorbed by a plant's roots, and the development of roots and their relation to the soil.

SOIL CONSERVATION

In addition, agronomists develop methods to preserve the soil and to decrease the effects of erosion by wind and water. For example, a technique called contour plowing may be used to prevent soil erosion and conserve rainfall. Researchers in agronomy also seek ways to use the soil more effectively in solving other problems. Such problems include the disposal of human and animal wastes; water pollution; and the build-up in the soil of pesticides. No-tilling crops is a technique now used to help prevent erosion.

Planting of soil binding grasses along contours can be tried in steep slopes. For better effect, contour drains of depths up to 1 meter may help retain the soil and prevent permanent wash off.

CAREER OUTLOOK

Due to the continued growth of the global population—and the consequent expanding need for study of food crops and agriculture in general—the outlook for agronomy and agronomists is excellent. Past agricultural research has created higher yielding crops, crops with better resistance to pests and plant pathogens, and more effective fertilizers and pesticides. Research is still necessary, however, particularly as insects and diseases continue to adapt to pesticides and as soil fertility and water quality continue to need improvement.

Emerging biotechnologies will play an ever larger role in agricultural research. Scientists will be needed to apply these technologies to the creation of new food prod-

ucts and other advances. Moreover, increasing demand is expected for biofuels and other agricultural products used in industrial processes.

Agricultural scientists will be needed to find ways to increase the output of crops used in these products. Agronomists will also be needed to balance increased agricultural output with protection and preservation of soil, water, and ecosystems. They increasingly encourage the practice of sustainable agriculture by developing and implementing plans to manage pests, crops, soil fertility and erosion, and animal waste in ways that reduce the use of harmful chemicals and do little damage to farms and the natural environment.

Most agronomists are consultants, researchers, or teachers. Many work for agricultural experiment stations, federal or state government agencies, industrial firms, or universities. Agronomists also serve in such international organizations as the Agency for International Development, The United States Department of Agriculture, and the Food and Agriculture Organization of the United Nations.

Agronomists' career options are expanding rapidly with possible ties with golf landscaping including topsoil analysis and drainage conditions. They often work in conjunction with landscape architects and engineers to determine the best soil qualities/conditions to suit the site specifications.

EXERCISES

1. Answer the questions:

1. What is your field of science/research?
2. What is your particular area of research? What are you specializing in?
3. What are the latest achievements in this field of science?
4. What fundamental discoveries have been made in your field of science/ research?
5. Can you name some outstanding researchers in your field of science? What contribution have they made?
6. Do achievements in your branch of science/ research influence everyday life? In what way?
7. What further developments can you predict in your field of science/ research?

Active vocabulary

- to do/to carry out/ to carry on/ to conduct research
- to contribute/ to make a contribution to
- to influence/ to affect
- to study/ to investigate/ to explore
- to put forward an idea
- to suggest an idea/ a theory/a hypothesis
- to advance/ to develop/ to modify a theory

- to predict/ to forecast/ to foresee
- to accumulate knowledge
- field of science/ research
- latest/recent achievements/developments/advances
- an outstanding/prominent/world-known scientists/researcher

2. Complete the following sentences. Speak about your field of science/ research.

1. I do/ carry out research in the field of…
2. It is the branch of science that studies…
3. Major developments include advances in …
4. Remarkable advances have been made …
5. My current field of science/research is …
6. It is difficult/ not difficult to foresee/predict … .

Active vocabulary

- to deal with/ to consider the problem
- to be the subject of special/particular interest
- to be interested in
- to be of great/little/no interest/importance/significance/value/use
- to take up the problem
- to work on the problem
- a lot of/little/no literature is available on the problem

3. Answer the questions:

1. What is your research problem?
2. What is the subject of your research?
3. What is of special interest in the problem of your research?
4. Why has the interest in this problem increased considerably in recent years?
5. What concept is your research based on?
6. Is there much literature available on your research problem?
7. What are the main aspects of the problem that have been considered?

Active vocabulary

- purpose/aim/objective/goal/target
- a method/a technique/ a procedure
- detection/identification/observation
- measurement/calculation/computation/approximation
- consideration/generalization/deduction/assumption
- modeling/simulation

- advantages/merits
- disadvantages/shortcomings/limitations
- accurate/precise
- accuracy/precision
- reliable/valid/conventional/effective/useful/valuable
- data/results/method
- to make an experiment/analysis
- to reveal/to find/to confirm/to prove evidence
- to study/to examine
- to collect data
- to create
- to improve
- to work out/to develop/to design
- to verify/to check
- to approve/ to disapprove an assumption
- to use/to employ/to apply
- to allow/to permit/to provide
- to come into use
- results/findings/data/observations/evidence
- comprehensive/extensive
- detailed
- remarkable/encouraging/convincing
- preliminary
- sufficient/insufficient
- to collect/to get/to receive/to obtain data
- to treat the problem
- to succeed in/to make progress in/to be a success
- to fail in
- to be similar to/ to be the same as
- to coincide/ to be consistent with
- to agree with/to fit the assumption
- to support/in support of
- to conclude/to come to/to bring to a conclusion/to make conclusions

4. Answer the questions:

1. What is the subject of your current research?
2. What is the purpose of your research?
3. What method do you employ? Why?
4. What are the advantages of the method used over other methods or techniques?

5. What does the method consist in?
6. Do you find the method reliable/precise? Why?
7. How much time will it take you to complete your research successfully?
8. Have you already obtained any research results?
9. Has your research been successful?
10.Do your results coincide with those obtained by other researchers?
11.Are your results of theoretical or practical interest?
12.Do the data/results/observations/findings allow you to come to any definite conclusion(s)?
13.What conclusions have you come to?
14.How long will it take you to finish your research?
15.Are you going to publish the results obtained?

5. Complete the sentences with the words from the Active vocabulary section. Speak about the purpose of your current research, the method used and the results obtained.

1.Currently I …
2. I make the experiments/analyses in order to …
3. The purpose of my experiments/analyses is to …
4. In our current research we … the method of ….
5. The method/technique allows/permits … to ….
6. The method/ technique makes it possible to …
7. The method proves to be …
8. At present a lot of work is being done to …
9. The results we have … so far cannot be used to ….
10. The evidence appears to …
11. As a result of numerous experiments performed we have obtained sufficient data to ….
12. We have come to the conclusion that … .

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