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БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ  
КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

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**ЗДОРОВЬЕ  
И ОКРУЖАЮЩАЯ СРЕДА  
HEALTH AND ENVIRONMENT**

Учебно-методическое пособие



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П30

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Отражает современный подход к обучению иноязычному профессиональному общению. Включен аутентичный материал и комплекс упражнений, предусматривающие формирование речевых навыков и умений с учетом принципа индивидуализации обучения студентов медицинского университета.

Предназначено для студентов 1-го курса медико-профилактического факультета, соискателей и аспирантов.

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## PREFACE

Учебно-методическое пособие «Здоровье и окружающая среда» направлено на развитие и совершенствование навыков устной речи на английском языке на основе аутентичных материалов по данной теме.

В основу отбора и структурирования учебного материала, используемого в пособии, заложены принципы практикоориентированности, взаимосвязанного обучения основным видам иноязычной речевой деятельности, моделирования, вариативности и проблемности.

Издание имеет следующую структуру:

- Language focus;
- Reading and comprehension tasks;
- Follow up activities;
- Discussion;
- Role playing.

Организация материала предусматривает последовательное формирование речевых умений от первичных навыков употребления лексических единиц до ситуативных упражнений творческого характера, подготавливающих обучающихся к спонтанной диалогической и монологической речи.

Активное использование усвоенного языкового материала в различных игровых ситуациях, дискуссиях, в работе над проектами потребует от обучающихся творческого подхода, воображения, навыков аргументации своего мнения, презентации новых идей.

Надеемся, что работа над учебно-методическим пособием даст не только много полезной информации и знаний по указанной теме, но будет интересной и увлекательной.

## VOCABULARY FOCUS

### 1. Learn the meaning of the following words:

environment	[ɪn'vaɪərənmənt]	окружающая среда
resources		ресурсы
essential	[ɪ'sensəl]	существенный, важный
brehtaking	['breθteɪkɪŋ]	захватывающий, потрясающий, поразительный
breakthrough	['breɪkθru:]	прорыв
vistas	[vɪstəz]	перспективы
benefit, advantage	[əd'vɑ:ntɪdʒ]	польза, выгода, преимущество
pace		скорость, темп
mankind	[mæn'kaɪnd]	человечество
hazard/danger/risk	[hæzəd]	опасность
concern	[kən'sə:n]	озабоченность, обеспокоенность
consumption	[kən'sʌmpʃən]	потребление
consume	[kən'sju:m]	потреблять
rubbish		мусор
wastes		отходы
petrol	[petr(ə)l]	бензин
coal	[koʊl]	уголь
sewage	[sju:ɪdʒ]	сточные воды, канализация
fertilizer	['fɜ:tləɪzə]	удобрение
safety		безопасность
vehicle	[vi:ɪkl]	транспортное средство
fuel	[fju:əl]	топливо
harm		вред
damage	['dæmɪdʒ]	повреждать
exposure	[ɪks'pəʊʒə]	действие, подверженность действию
threat	[θret]	угроза
extinction	[ɪks'tɪŋkʃən]	исчезновение
species	[s'pi:ʃi:z]	вид (виды)
efforts	['efəts]	усилия
measures	['meʒəz]	меры
interaction		взаимодействие
impact		влияние
consequence	['kɒnsɪkwəns]	последствие
drought	[draʊt]	засуха
flood	[flʌd]	наводнение
estimate (n)	['estɪmət]	оценка

estimate (v)	['estimeɪt]	оценивать, производить подсчет
interfere	[ɪntə'fɪə]	вмешиваться
bring about		вызывать
cause		вызывать
increase (v)	[ɪn'kri:s]	увеличивать
increase (n)	['ɪnkri:s]	возрастание, увеличение
pollute	[pə'lu:t]	загрязнять
release		выделять
dump = throw away		сбрасывать, выбрасывать
dispose of		избавляться от
disposal site		место свалки
influence		влиять
result in		приводить к чему-либо
result from		происходить, возникать в результате чего-либо
affect	[ə'fekt]	оказывать влияние, воздействие
combustion	[kəm'bu:ʃn]	сжигание, горение
leak	[li:k]	пропускать, просачиваться
realize		осознавать, понимать
require	[rɪkwaɪə]	требовать
protect		охранять, защищать
promote		способствовать, поддерживать, продвигать
encourage	[ɪn'kʌrɪdʒ]	поощрять, поддерживать
recycle	[ri:saɪkl]	перерабатывать

## 2. Make sure you know the meaning of the following word combinations:

be aware of smth	[ə'veə]	быть осведомленным, знать
brehtaking changes	['breθteɪkɪŋ 'tʃeɪndʒɪz]	поразительные, захватывающие дух изменения
breakthrough technologies	['breɪkθru: tek'nɒlədʒɪz]	прорывные (передовые) технологии
provide smb with smth		обеспечивать кого-либо чем-либо
health hazard/danger/risk	[hæzəd]	опасность для здоровья
dump wastes		сбрасывать отходы
dispose of harmful wastes		избавляться от вредных отходов
safety rules		правила безопасности
do harm		вредить
car exhaust fumes	[ɪkzɔ:st]	автомобильные выхлопные газы

be responsible for smth		отвечать за что-либо
take care of smth		заботиться о чем-либо
make progress		делать успехи
be aimed at smth		быть нацеленным/направленным на что-либо
hold conferences		проводить конференции
attract/draw attention		привлекать внимание
contribute to smth		способствовать чему-либо
environmentally friendly life style		дружественный по отношению к окружающей среде образ жизни
waste treatment plants		заводы по переработке отходов
radiation exposure		действие радиации
life-threatening condition		жизнеугрожающее состояние
threat to health and well-being		угроза здоровью и благополучию
extinction of rare species of plants and animals		исчезновение редких видов растений и животных
make efforts		прикладывать усилия
take measures		предпринимать меры
require emergency measures	[rɪ'kwaɪə 'meʒəz]	требовать неотложных мер
the interaction of man and nature		взаимодействие человека и природы
impact on health		воздействие на здоровье
dangerous consequences		опасные последствия
result in serious consequences for health		приводить к серьезным последствиям для здоровья
result in air pollution		приводить к загрязнению воздуха
according to certain estimates		согласно/по некоторым оценкам
increase harm		увеличивать вред
encourage environmentally friendly lifestyle		поощрять дружелюбный по отношению к окружающей среде образ жизни

## ТЕХТ 1

**Read Text 1 and say what environmental problems cause people's great concern nowadays.**

### **Man's Activity, Environment and Health**

Since ancient time nature has served man giving him everything he needs: air to breathe, food to eat, water to drink, wood for building homes and fuel for heating. For thousands of years people lived in harmony with nature and were aware of its importance. It seemed to them that the natural resources had no limit.

However, with the development of science and technologies man's careless interference in nature has significantly increased. Of course, scientific knowledge and technologies make our life easier and are essential for improving the quality of life and for better living standards. The pace of scientific and technological progress is breathtaking.

There are more and more "breakthroughs" and technological innovations in various spheres of human activities. Science and engineering open new prospects/vistas for the development of modern civilization which provides mankind with many benefits.



However, every medal has its reverse. So, modern civilization can not only benefit people but can also be a source of mortal danger. Man's careless activities have adversely affected the environment and caused serious consequences. According to certain estimates about 40 % of diseases throughout the world are caused by environmental factors.

The rapid scientific progress has brought about a number of problems. Currently, the issues of people's greatest concern are:

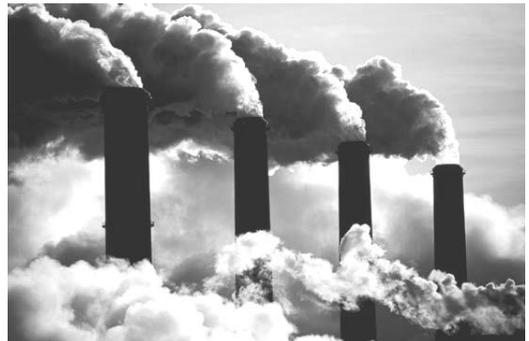
- air, water and noise pollution;
- acid rains (rain containing dangerous chemicals);
- greenhouse effect and global warming;
- the destruction of the ozone layer (a layer of gases which stop harmful radiation from the sun reaching the earth; recent research shows that there are now holes in parts of the ozone layer);
- safety of nuclear power plants.

Today the contradictions between man and nature have dramatically increased. Industrialisation and globalisation are accompanied by a dramatic increase in the consumption of energy and raw materials and in the output of pollutants and industrial wastes. There are several kinds of environmental pollution: air pollution, water pollution, soil pollution, and pollution caused by solid wastes, noise and radiation.

People cause air pollution both outdoors and indoors. Outdoor air pollution is caused by millions of chimneys, cars, buses and trucks which emit harmful substances into the atmosphere all over the world poisoning everything: air, land, water, birds and animals. In big cities the level of air pollution is especially high because of car exhaust fumes and smoke from factories. More than 100 various harmful substances may be identified in the atmosphere. Besides, the mixture of industrial dust, dangerous chemicals and gases may be carried away by the wind for hundreds of kilometers and returns back to the earth in the form of acid rains which cause great damage to the plant and animal life.

Indoor air pollution results from many of the same substances found outdoors. But indoor pollutants can present a more serious problem because they build up in a small area from which they cannot easily escape. Cigarette smoke is a familiar indoor air pollutant. Any kind of air pollution influences people's health in the most unfavourable way and decreases their resistance to different diseases.

Air pollutants can also damage the earth's upper atmosphere. From about 20 to 50 kilometres above the earth is a layer of the gas ozone (a form of oxygen). This ozone layer helps to protect people, animals and plants from the sun's harmful ultraviolet (UV) rays. Chemical pollutants known as chlorofluorocarbons (CFCs) damage this layer. CFCs are found in refrigeration fluids, are widely used in industrial processes and in some aerosol cans/sprays.



Water pollution reduces the amount of pure, fresh water that is available for drinking and cleaning, and for such activities as swimming and fishing. The pollutants that affect water come mainly from industries, farms, and sewage systems. Industries dump huge amounts of wastes and chemicals into water each year. Some of these wastes may be hazardous. Industries also dispose of hazardous waste in disposal sites on land. But improperly managed sites may leak the wastes into underground water that people use. Wastes from farms include fertilizers and pesticides. Sewage systems carry wastes from homes, offices, and industries into water. Nearly all cities have

waste treatment plants that remove some of the most harmful wastes from sewage. But even the most treated sewage contains substances that harm water.

The greenhouse effect is another topical problem. Normally, heat from the sun warms the earth and then escapes back into space. But carbon dioxide and other gases accumulated in the atmosphere trap the sun's heat and act like the glass in a greenhouse: they allow heat to get in, but they don't allow much heat to get out. Thus, the atmosphere becomes warmer because less heat can escape. Human activities lead to the enhancement of the greenhouse effect. An enhanced greenhouse effect is expected to bring about the effect of global warming which may result in ecological problems and disasters. Scientists say the temperature of the earth could rise by 3 °C over the next 50 years. This may cause droughts in some parts of the world and floods in others.

It is absolutely evident that the pollution of the environment, the destruction of ecosystems as well as the extinction of many species of plants and animals have now reached threatening proportions. We now agree that scientific and technological progress is not always beneficial. The power man derives from such progress should be used wisely otherwise it will cause irreparable damage.

Today many scientists and world leaders realize that the Earth is in danger. All the problems concerning the interaction of man and nature are of international importance. They can and must be solved by the efforts of all the countries and communities. Effective measures require global efforts and participation. Nature protection is everyone's concern and we are all responsible for taking care of our environment to save it for the sake of the future generations. Some progress has already been made. The ecological movement has gained support worldwide for international cooperation in this field serves the interests of the whole mankind.

The 5<sup>th</sup> of June is proclaimed the World Environmental Day by the United Nations Organization and celebrated every year. The activities of many public organizations and "green" parties are aimed at nature protection (conservation). They hold conferences attracting public attention to ecological problems, broaden ecological education of the population, open environmental research centers, promote recycling,



declare a war on waste. Each of us must also contribute to the protection of the environment. The best way to do it is not to leave rubbish behind when we have picnics, to save energy and paper, recycle different objects, encourage and develop environmentally friendly lifestyle and business practices.



## 1. LANGUAGE FOCUS

### 1.1. Fill in the gaps with the proper words:

1.	... layer	6.	... effect
2.	... rain	7.	natural or human ...
3.	... wastes	8.	... movement
4.	global ...	9.	nuclear ...
5.	... fumes	10.	air ...

### 1.2. Complete these word-building tables:

Noun	Verb	Noun	Adjective
.....	to waste	hazard	.....
.....	protect	environment	.....
.....	destroy	harm	.....
pollution	.....	danger	.....
damage	.....	.....	safe
threat	.....	disaster	.....

### 1.3. Match the following words with their definitions:

1.	to cause	a)	to make impure or unfit for use
2.	to release	b)	to influence
3.	to pollute	c)	to bring about
4.	to affect	d)	to discharge, to free, to emit
5.	to improve	e)	a material that is used for producing heat or power by burning
6.	benefit	f)	a matter of importance to someone
7.	to dump	g)	to make better
8.	damage	h)	advantage
9.	fuel	i)	to throw away
10.	concern	j)	harm

### 1.4. Complete the definitions:

1. Conservation is the protection of natural things, e.g. .... and .....
2. The ozone layer is a layer of gases that protect .....
3. Global warming is an increase in world temperature caused by an increase in .....
4. CFCs are chemicals which .....
5. Acid rain is rain that contains .....

**1.5. Match the words in A with appropriate ending from B:**

A		B	
1.	include	a)	health
2.	damage	b)	the layer
3.	harm	c)	a serious problem
4.	cause	d)	pollution
5.	present	e)	plants and animals
6.	protect	f)	dangerous chemicals
7.	power	g)	water
8.	remove	h)	harmful wastes
9.	result from	i)	fertilizers and pesticides
10.	affect	j)	motor vehicles

**1.6. Complete the paragraph using appropriate derivatives of the words given on the right:**

The ..... of fuel and other polluting ..... are increasing the amount of heat in the atmosphere. This ..... may intensify the greenhouse effect, ..... average temperatures to rise. The increased ..... of greenhouse gases in the atmosphere may lead to ..... warming with ..... consequences.

burn  
active  
develop  
cause  
concentrate  
globe  
disaster

**1.7. Fill in the necessary prepositions:**

1. People are aware ..... the threat of the ozone layer destruction.
2. Outdoor air pollution results ..... car exhaust fumes and smoke from factories.
3. The growing concentration of carbon dioxide in the atmosphere results ..... the greenhouse effect.
4. The change of the temperature balance of our planet may bring ..... serious consequences.
5. Scientists draw our attention ..... the problem of growing noise.
6. This project is aimed ..... saving energy.

**1.8. Fill in the correct word from the box:**

weather	exhaust	on	greenhouse	recycling	fuel
resources	environmental	atmosphere	energy		

## Save it!

In recent years, the number of 1) ..... problems has increased dangerously. One of the most serious problems is changes to the 2) ..... which has led to the 3) ‘..... effect’; this is making most climates warmer. It is already affecting several areas of the world with unusual 4) ..... causing droughts or heavy storms. Cutting down on 5) ..... fumes from vehicles would help solve the problem. Natural 6) ..... such as oil and coal are not endless, so using other forms of 7) ..... such as wind, sun, water and even sea waves would help preserve our planet. Very soon we will be able to drive cars in cities and towns that run 8) ..... electricity — a much cleaner 9) ..... than petrol. And we can also help to preserve finite resources by 10) ..... things made of glass, aluminium, plastic and paper.

### 1.9. Translate the Russian fragments into English:

1. What can we do to reduce the (загрязнение) of the atmosphere?
2. The change in the climate has produced (разрушающие) effects.
3. Many rare species are threatened with (исчезновение).
4. Many of the gases produced by factories are (вредны) to our health.
5. Protecting the environment is essential to our (выживание).
6. The (охрана) of the environment is everyone’s responsibility.
7. Car exhaust fumes have (повреждающий) effects on the environment.

## 2. READING COMPREHENSION TASKS

### 2.1. Mark the statements below as true (T) or false (F). Correct the false statements, using the following phrases:

To my mind	I totally agree	In my opinion (view)
It seems to me that	I can’t agree	As far as I know

1. Air pollution harms people’s health, kills plants and damages property.
2. Most air pollution results from combustion processes.
3. Air pollutants improve the earth’s upper atmosphere.
4. The ozone layer does not help to protect animals and plants.
5. People cause air pollution only indoors.
6. Chlorofluorocarbons protect the ozone layer.
7. Air pollutants affect the climate.
8. Some gases, including carbon dioxide, reduce the greenhouse effect.
9. Industries dump small amounts of wastes into water each year.
10. Sewage systems carry wastes from homes, offices and industries into water.
11. Cutting down tropical rainforests increases the amount of carbon dioxide in the atmosphere.
12. “Greens” believe in conservation.

**2.2. Answer the following questions:**

1. Why do ecologists say the Earth is in danger?
2. Environmental changes are the consequences of civilization development, aren't they?
3. What are the benefits of technology development?
4. What are its disadvantages?
5. What are the most topical ecological problems nowadays?
6. What kinds of environmental pollution do you know?
7. Is air pollution dangerous? Why?
8. What is the most common form of outdoor air pollution?
9. What role do motor vehicles and factories play in air pollution?
10. What is the ozone layer? What is it for?
11. What can cause changes in the average temperatures of an area?
12. What is the greenhouse effect?
13. Where do water pollutants come from?
14. What do wastes from farms include?
15. What are waste treatment plants intended for?
16. What do "green" parties and organizations do for environmental protection.
17. What can you personally do to improve the environment?

**2.3. Fill in the gaps with the appropriate word from the list:**

damage reduce acid rain conservation	car exhaust fumes threat polluting electricity
---	---

1. New laws have been introduced to stop factories ... the atmosphere.
2. Harmful chemicals are released into the air and mix with the water in clouds to produce ... .
3. Acid rain causes great ... to the plant and animal life.
4. Governments force power stations to ... the amount of poisonous fumes that they release into the atmosphere.
5. We can help by using less ... .
6. If we used public transport more often, the atmosphere wouldn't be so polluted by ... .
7. If we all make an effort, we can help to decrease the ... of acid rain.
8. ... groups try to protect animals and the places where they live.

**2.4. Read the descriptions and match them with the problems listed:**

*Problems: litter, urban development, deforestation, acid rain, water contamination, destruction of the ozone layer.*

A. Animals are losing their habitats as growing cities cause the countryside to disappear.	
B. Factories and cars release poisonous chemicals into the air. The chemicals mix with the water in the clouds, and the polluted rain which later falls damages trees, lakes and buildings.	
C. Chemicals from aerosol sprays and fridges are going up into the atmosphere. More and more people are getting skin cancer.	
D. Forests are disappearing as trees are burnt or cut down. Less and less oxygen is being produced.	
E. Our society is producing too much packaging and food waste which are dropped in the streets or end up on the rubbish tip; diseases spread more easily.	
F. Dangerous chemicals from factories are poured into oceans, rivers and streams, killing fish.	

## 2.5. Read the text and say:

- *what hazardous pollutants may be found inside our homes;*
- *why they are dangerous;*
- *what contributes to increasing indoor air pollution;*
- *why indoor pollutants may reach life-threatening levels;*
- *what medical authorities recommend to improve the situation.*

### **Can your house be dangerous?**

Exposure to air pollution may be ten times greater inside your home than outdoors, according to an American survey. In a study of the air in 40 average households, it found many hazardous pollutants such as formaldehyde, carbon monoxide, carbon dioxide, sulphur dioxide, chloroform, smoke and others. Potential medical problems associated with inhaling some of these substances over a long period include allergic reactions, cancer, and birth defects.

Indoor air pollution has significantly increased with the changes in building materials and construction methods, and also with the growing use of house-cleaning and beauty-care products. Contributors to pollution include aerosols, and even emissions from recently dry-cleaned fabrics.

Aggravating the problem are tightly built, super-insulated houses. So little fresh air enters some houses and so little stale air escapes that indoor pollutants accumulate and sometimes can reach health-threatening levels. Many medical

authorities now recommend that people living in well-sealed houses install controlled ventilation systems that can monitor and upgrade indoor air.

**2.6. If we want to look after the environment, there are certain things we should and shouldn't do. Complete these two lists in suitable ways:**

<u>We should</u>	<u>We shouldn't</u>
..... paper, bottles and clothes	..... paper, bottles and clothes
..... more trees	..... the ozone layer
..... water and energy	..... tropical rainforests
..... environmentally friendly life style	..... raw materials

### 3. FOLLOW UP ACTIVITIES

**3.1. Read the text and give answers to the questions that follow:**

In the world today the rubbish is piling up. In Britain alone, 16–20 million tons of rubbish are thrown away every year. However, space is running out and in some cases so are many natural resources. In this case governments and environmentalists worldwide have to turn to the option of recycling.

Unfortunately not all rubbish can rot\* away to nothing. Natural material such as food and most paper products will break down over a period of time, but other products such as glass, metals and plastics may never break down. So reusing these things in a different form becomes essential. This is possible due to recycling which means the system of treatment\* of the products that have already been used so that they are fit to use again.

#### **Paper**

Nearly a third of all our household rubbish is paper. And this paper that is thrown away is surprisingly difficult to break down; even in a warm damp environment it can take three months. In a dry environment the breakdown process of paper will take much longer. Newspapers thrown away can take years to break down.

#### **Metals**

Some metals, such as tin may eventually rust away, but this is a long process taking up to ten years or more. Drinks cans are made of aluminium which will never rust\* or decay. Every year 135.000 tons of drinks cans are thrown away in England. Around half of all soft drinks and beer cans are recycled, the main reason being that it is cheaper to recycle aluminium than it is to make it.

#### **Food Waste**

Food remains can normally be broken down quite quickly. However, the environmental conditions have to be favourable for this breakdown. Perhaps

the best way of recycling food waste is to form a compost heap with it, allowing the remains to decompose and later using it as a natural fertilizer for the garden.

### **Plastics**

Plastics are popular as they last a long time. This fact alone makes them difficult to break down. Hundreds of millions of tons of many different types of plastics are produced worldwide each year. Even though new types of recyclable plastic are being produced, plastic cannot break down completely. However, advancements are being made into recycling plastics to be used for building materials.

### **Glass**

Glass does not break down. Archaeologists have found glass dating back to 2000 BC. The only way to get rid of glass is to recycle it. Making glass from sand uses a little more energy than recycling does.

### **Notes:**

*rot* — ГНИТЬ;

*treatment* — putting (a substance) through a chemical or industrial action in order to change in some way;

*rust* — рЖАВЕТЬ.

1. What is recycling?
2. Why is recycling important today?
3. How long does paper take to break down?
4. Why do people recycle aluminium?
5. How long does it take for metals to break down?
6. Is food waste easy to recycle?
7. What is the best way of recycling food waste?
8. Why is plastic difficult to recycle?
9. Why is it necessary to recycle glass?

### **3.2. Fill in the gaps with one of the words from the list below:**

throw	recycled	rain	protect	recycling
natural	compost heap	waste	industry	fertilizer

### **How people can help with recycling?**

As inhabitants of the earth we all have a duty to 1) ..... the environment. Together we can save endangered species and the 2) ..... forests. We should contribute to environmental protection by finding new ways of using products we 3) ..... away. Nowadays recycling is an 4) ..... . As the world's 5) ..... resources run out, manufacturers must find ways of reusing products.

What can we do to help our environment?

- a) We can sort our 6) ..... by separating it and then taking it to the appropriate 7) ..... bins.
- b) We can reuse things such as jars and envelopes.
- c) We can buy 8) ..... products like stationery.
- d) We can transform our waste food into a 9) ..... which we may use as 10) ..... for our gardens later.

**3.3. Read the text about recycling and fill in the topic sentences given below:**

- a. *Many people argue that the actual process of collecting and recycling materials is expensive and unnecessary.*
- b. *To start with, it is very important for people to realise the damage that our rubbish is doing to the environment.*
- c. *Another important reason is that many forests are being destroyed due to paper being wasted.*

**Recycling — How Important Is It?**

Saving certain recyclable materials and taking them to recycling centres has become part of the daily routine in many homes. In my opinion, this should be encouraged for a number of reasons.

	1	Our towns, rivers and seas are becoming more and more polluted with household waste. This could easily be prevented if people took the time to sort, save and recycle their rubbish.
	2	Hundreds of thousands of trees are cut down to make paper products. Again, by recycling the paper we could reduce this wastage.
	3	They say that special machinery is required and that many people have to be employed to operate it, thus making recycling more expensive than simple waste disposal. They forget, however, that recycling both creates jobs and is beneficial to the environment.

All points considered, I strongly believe that people should be made aware of the benefits recycling can bring, and should be encouraged to participate in programmes that will help create a cleaner world for everyone in the future.

**3.4. Speak about:**

- 1. The problems caused by the rapid scientific progress.
- 2. The consequences of the greenhouse effect.
- 3. We live in community, so we can solve our ecological problems only working together.

**3.5. Work in pairs. Think about your place. What could you do to make it more environmentally friendly? Add your ideas to this list:**

1. Switch off the lights when leaving the room.
2. Use fewer photocopies.
3. ....
4. ....

**TEXT 2**

**Read the text and find out what problems are discussed.**

**Harmful Environmental Factors**

Soil pollution damages the thin layer of fertile soil that is essential for growing food. Through careless treatment people greatly destroy soil.



They use fertilizers and pesticides to grow more and better crops. Fertilizers add extra nutrients to the soil and increase the amount of a crop that can be grown on an area of land. Pesticides destroy weeds and insects that harm crops. But pesticides may also harm helpful organisms in the soil. Humans and animals that come in direct contact with the pesticide take it into their bodies when they eat organisms that contain the material.

Solid wastes are probably the most visible form of pollution. People throw away billions of tons of solid material each year. Examples of solid wastes include abandoned tyres, refrigerators, cookers, cans and other packaging materials; and scraps of metal, paper, and plastic. Such solid pollutants are most common in the heavily populated areas in and near cities.



Solid wastes present a serious problem because most of the methods used to



dispose of them result in some type of damage to the environment. When the wastes are put into open dumps, they ruin the attractiveness of the surrounding areas. Dumps also provide homes for disease-carrying animals, such as cockroaches and rats. Some solid wastes can be destroyed by burning them. But burning produces smoke that causes air pollution. When

wastes are dumped into water, they contribute to various forms of water pollution.

Some things that pollute the environment cannot be classified as air, water, or soil pollutants, or as solid wastes. They travel through and affect various parts of the environment. These pollutants include noise, radiation, acid rain, pesticides, and such metals as mercury and lead.

Noise is an especially troublesome pollutant in urban areas. People in and near cities are exposed to loud noise much of the time. The noise comes from airplanes, buses, cars, motorcycles, trains, trucks, construction projects, and industries. The noise causes much discomfort to people. According to certain data even a brief exposure to intense noise can cause temporary loss of hearing acuity. Permanent loss of hearing may follow chronic exposure to high noise levels. Studies show that 37 % of rock musicians and 52 % of classical musicians have measurable hearing loss. Noise may be a factor in many stress-related diseases as well. In any case noise pollution is clearly a growing threat to our health and happiness.



Radiation is an invisible pollutant that can be highly dangerous. Nuclear radiation comes from radioactive substances, including waste from nuclear weapons testing and from nuclear power plants. Small amounts of electromagnetic radiation are produced by a variety of electronic devices, including computers, lasers, microwave ovens, televisions, and X-ray machines. Scientists have not determined exactly what effects small amounts of radiation have on people.

The Chernobyl accident which happened in April 1986 seriously aggravated\* the ecological situation in our country. Over 70 % of the radiation fell on the territory of Belarus.

A great damage was done to the country's agriculture, nature and people's health. The people in the affected areas received the highest known exposure to radiation in the history of the atomic age.

The Government carried out examination and mass screening of the affected population to identify the medical conditions promptly which played an important role in prevention, early diagnosis and successful treatment of Chernobyl-related diseases. According to the findings of several studies Chernobyl's health effects included poorer general health of the population from the affected areas compared with the rest of the population, children's weak immunity, increased incidence of thyroid cancer and hematological diseases in the younger population.

**Note:**

*to aggravate = to worsen* — ухудшать, усугублять

## 1. LANGUAGE FOCUS

### 1.1. Match the following words with their definitions:

1.	fertilizer	a)	unusable or unwanted solid products that result from human activity
2.	radiation	b)	a substance added to soil to make plants grow more successfully
3.	solid waste	c)	energy that travels through space in the form of waves or particles
4.	mercury	d)	a sound which is disagreeable or loud
5.	noise	e)	a silver, metallic, liquid element used in thermometers and barometers, symbolized by Hg.

### 1.2. Match synonyms:

1.	to increase	a)	to harm
2.	to damage	b)	to raise
3.	to decrease	c)	diversity
4.	variety	d)	to diminish
5.	attractiveness	e)	important
6.	essential	f)	contaminant
7.	pollutant	g)	dangerous
8.	heavily populated	h)	beauty
9.	harmful	i)	garbage
10.	waste	j)	densely populated

### 1.3. Complete the sentences with the necessary derivatives given on the right:

Acid rain has become an ..... serious problem.  
 This ..... forms when moisture in the air combines with nitrogen oxide and sulphur dioxide. The ..... between ..... and the chemicals produces acids. This ..... returns to the earth in the form of acid rain, mist or snow. The acids pollute lakes and streams, resulting in the death of fish and the ..... of drinking water. They also can harm crops and reduce the ..... of soil.  
 It may even damage ..... . Acid rain is killing forests in Canada, the USA and ..... Europe.  
 ..... every species of trees is affected.  
 In ....., acid rain pollutants may travel long distances and fall to the ground far from its point of origin.

increase  
 pollute  
 react  
 moist  
 mix  
  
 contaminate  
 fertile  
 build  
 north  
 near  
 add

#### 1.4. Complete the following text with the English equivalents from the box:

contaminate, reduce, mercury, prevent, environment, source, accumulate,  
cause, poisonous, harmful, hazardous, eliminate, release, purposes

(Ртуть), lead are examples of heavy metals that are (опасные). They (загрязняют) the land, air and water. When released into the (окружающую среду) they enter the food chain and become concentrated. They can (накапливаться) in the environment.

Lead and mercury are naturally present in the environment and have been a (источник) of pollution for centuries. Today, regulations (сокращают) the release of mercury into the environment. But it is impossible to (уничтожить) the large amount of mercury already present in the environment, and it is difficult to (предотвратить) the (выброс) of mercury in all cases. For example, burning coal releases mercury into the earth's atmosphere and it is often used for various industrial (целях).

All heavy metals are (вредны) to human health. They are long lasting and can spread over large areas. Most heavy metals are highly (ядовитые). In large amounts they can affect the human nervous system, (вызывают) blindness, and lead to death.

## 2. READING COMPREHENSION TASKS

### 2.1. Answer the following questions:

1. What are the primary soil pollutants?
2. Why are pesticides commonly used in agriculture?
3. Are agricultural products produced on polluted soils a real hazard to the consumer?
4. Why do solid wastes present a serious problem?
5. Where are solid pollutants most common?
6. What invisible pollutant is highly dangerous?
7. How can solid wastes be destroyed? What does burning cause?
8. When do wastes contribute to various forms of water pollution?
9. Why is noise an especially troublesome pollutant in urban areas?
10. What ecologically safe solution to the problem of waste disposal can you suggest?
11. What causes acid rain? List 3 possible harmful consequences of acid rain.
12. What heavy metals are hazardous?
13. What were the consequences of the Chernobyl disaster?
14. What were the main Chernobyl-related health problems?

## 2.2. Read the text and say what effects deforestation may cause:

### Deforestation

All over the world, the forests are disappearing. This is not just because of acid rain or other type of pollution. People are cutting the trees down to clear land for growing crops and keeping cattle. Sometimes they want the timber for building houses and making furniture. Sometimes they simply need it for fuel.

People have always cut down trees to use their wood. But in the past, there weren't so many people. Now the trees are being used faster than new trees can be grown. Forests the size of Belgium are destroyed every year in the less-developed countries of the world. In 1987 alone, Brazil lost 20 million acres of forest. Even if new trees are planted, a hardwood tree, for example, takes many years to mature.

Trees give off oxygen and absorb carbon dioxide — fewer trees mean less carbon dioxide is absorbed. The burning of trees to clear forests also releases more carbon dioxide into the atmosphere, increasing greenhouse gases. Deforestation has other effects as well. The tropical rain forests in central and South America, central Africa and south-east Asia are a particular cause for concern. Many species of animals and plants live in them, and if their natural habitats die, so will they. Many of our modern drugs have been developed from plants found in the forest. Friends of the Earth estimate that as many as one quarter of our purchases from chemists use substances that come from rain forest species. Many of the rainforest plants are being used in research for drugs to help fight against cancer.

#### Notes:

*cattle* — крупнорогатый скот;

*timber* — древесина.

	<i>Effects of deforestation</i>
1.	
2.	
3.	

## 3. FOLLOW UP ACTIVITIES

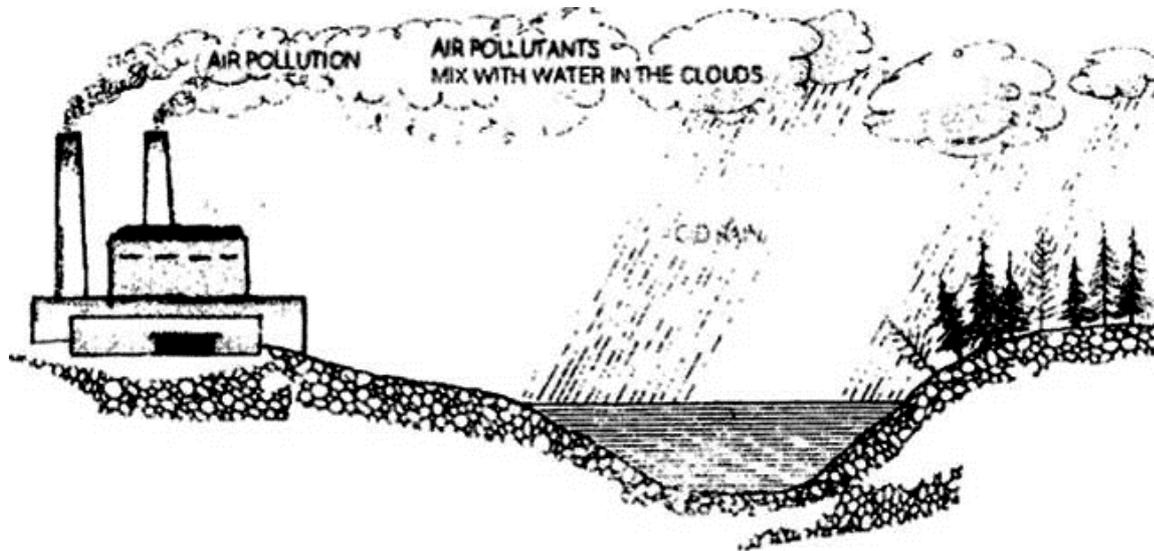
**3.1. Acid rain is a very serious problem. The picture below shows some of the sources and the effects of acid rains. Look at it and answer the following questions:**

1. *What causes acid rains?*
2. *How are they formed?*
3. *What is affected by acid rains?*

4. What becomes polluted by them?

5. What sources and effects of acid rains are not shown in the picture?

Acid rain formation



### 3.2. Learn the meaning of the following words:

to be determined	[di 'tɜ:mi:n]	быть обусловленным
environmental health hazards	[ 'hæzəd]	опасность для здоровья со стороны окружающей среды
impact on health and wellbeing	[ 'impækt]	влияние на здоровье и благополучие
to depend on		зависеть от
threshold level	[ 'θrefəʊld]	пороговый уровень
to pose a risk		представлять угрозу
response to environmental factors		реакция на факторы окружающей среды
susceptibility		чувствительность, восприимчивость
to influence the response		влиять на реакцию
to increase the risk of disease development		повышать риск развития болезней

### 3.3. Read Text 3 and give answers to the following questions:

1. What factors determine human health?

2. Is our knowledge of the effects of environmental agents on health complete?

3. What does the environmental impact on health usually depend on?

4. What agents cause a risk at all levels?

5. Why is human response to environmental factors not homogeneous?

6. What may increase the risk of disease development?

## TEXT 3

### Impact of Environmental Exposure on Health

Human health is determined by a number of factors including genetics, lifestyle, nutrition, socioeconomic status, access to adequate health care, and the environment. Environmental conditions are not always optimal, however, and populations may be exposed to a variety of environmental factors that may have a negative impact on their wellbeing. These environmental health hazards may result from natural causes and/or human activities.

Knowledge of the impact of various environmental factors on human health based on epidemiological and toxicological studies, is far from complete. In general, the severity of the impact on health is assumed to depend on the extent of the exposure and the corresponding dose of the environmental agent, but the precise dose-response relationship is often not known. For some environmental agents, doses below a certain threshold level are not harmful. Others, such as allergens, ionizing radiation and chemical carcinogens, are believed to have no threshold dose and to pose a risk at all levels of exposure.

Human response to environmental factors is not homogeneous in the population, since some subjects are more susceptible than others. This is obvious in the case of allergies, but a variation in response to carcinogens is observed as well. The source of the increased susceptibility may be genetic predisposition, but coexisting environmental or lifestyle factors are also known to influence the response.

In many situations a combination of factors may have a different or worse effect on health than exposure to each factor separately. Further, unfavourable environmental, social and lifestyle conditions coexist in some parts of society. People may have a poorly balanced or inadequate diet, be exposed to occupational hazards, adopt a harmful lifestyle (by excessive alcohol consumption or tobacco smoking, for example) and, at the same time, be exposed to one or more environmental hazards. This combination may increase the risk of disease development. For example, asbestos or radon appear to cause ten times more lung cancers in smokers than in non-smokers.

#### **3.4. Give a summary of the text using the following expressions:**

The text deals with ...

According to the text ...

It has been estimated that environmental conditions ...

There is evidence that the severity of the impact depends on ...

It is emphasized that ...

In conclusion ...

## DISCUSSION

1. **We must accept the dangers of nuclear energy as the price of progress, mustn't we?**
2. **If you were to make laws against pollution, what laws would you propose and why?**
3. **What do you think are the responsibilities of nature conservation authorities and voluntary organizations in our country? And what should they be?**
4. **Why are many people concerned about ecology today? Why do we say that every man should be environment-conscious and environment-educated?**
5. **Give examples of how our environment has been improved by man and how it has been disturbed.**
6. **“The worst enemy of man is man himself”. Give arguments for and against this statement.**
7. **A member of the public movement “Ecology Project International” wants to know about the ecological movement in Belarus. Explain:**
  - a) what environmental problems we pay particular attention to;
  - b) why it is necessary to take measures to protect the environment from industrial pollution;
  - c) why people have become more sensitive towards the environment in recent years;
  - d) how Belarus is cooperating in the field of environmental protection with other countries.
8. **You are invited to work in the commission on environmental protection. Suggest your own projects: What do you think should be done:**
  - to lower the concentration of harmful substances in the air of towns and cities?
  - to protect the environment from industrial pollution?
  - to stop the danger of environmental disaster?
  - to attract more public attention to environmental problems?
  - to keep the streets of towns tidy and clean?
  - to prevent the adverse effect of power plants on the environment?
  - to ensure nature conservation?
  - to solve the problem of municipal wastes in urban areas?
  - to develop international cooperation in the field of environmental protection?

**9. Read this call to be a green visitor. Think of the points you would like to add to this list and give comments on them:**

***BE A GREEN VISITOR***

- 1. Don't disturb wild animals, birds or flowers.*
- 2. Take your litter home and recycle if possible.*
- 3. Keep your dog under close control and don't take it out of the leash.*
- 4. Buy locally produced goods, including souvenirs.*
- 5. ....*

**10. Have you visited a beach in Belarus and seen it littered with plastic bottles, sanitary towels and food packets? It's not just ugly; it kills wildlife, poses a health risk and threatens tourism. What nationwide events would you organise to stop it?**

**PROJECT**

**1. Look at an anti-litter poster. Project your own nature protection poster. Defend your project and give arguments in favour of it:**



**2. Think over and suggest ideas which can be used by ecologists for improving the environment. Work in groups.**

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Учебное издание

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# **ЗДОРОВЬЕ И ОКРУЖАЮЩАЯ СРЕДА**

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