

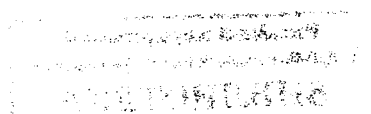
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**English
for the Students of Ecology**



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Цель учебного пособия – обучение студентов чтению и пониманию специальной литературы, а также обогащение их словарного запаса.

Учебное пособие состоит из двух разделов и двух приложений. Каждый из разделов рассчитан, соответственно, на 75–90 и 45–60 соответственно аудиторных часов.

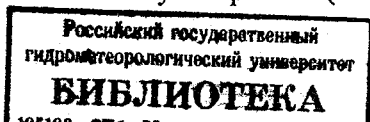
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Предисловие

Данное учебное пособие предназначено для студентов-экологов 1 и 2 курсов. Целью учебного пособия является обучение чтению и пониманию литературы по указанной специальности на английском языке. Все тексты, включенные в учебное пособие, взяты из современных британских, ирландских и американских источников. Оно состоит из двух разделов: "Экология как наука" и "Сохранение природы", а также двух приложений: "Структурно-смысловые особенности научно-технических текстов на английском языке" и "Связующие элементы предложения". Каждый из разделов рассчитан на 75-90 и 45-60 аудиторных часов соответственно.

Разделы учебного пособия состоят из нескольких блоков, объединяющих тексты определённой тематики. В свою очередь каждый блок вмещает в себя несколько уроков, содержащих предтекстовые упражнения, базовый текст, лексические, текстовые и грамматические упражнения. Блоки завершаются соответствующими текстовыми комплексами, состоящими из лексических, текстовых и грамматических тестов, обозначенных как ТЛ, ТТ и ТГ соответственно.

Предтекстовые упражнения имеют целью развитие навыков прогнозирования содержания предлагаемых текстов по его отдельным компонентам (заглавию, ключевым словам, отдельным предложениям и т.д.)

Лексические упражнения предназначены для снятия лексических трудностей при ознакомительном и изучающем чтении. Как предтекстовые, так и лексические упражнения рекомендуется выполнять в аудитории после введения соответствующего материала преподавателем.

Текстовые упражнения предназначены для развития навыков поискового и изучающего чтения, а также для совершенствования навыков перевода. Для этой цели используется ряд дополнительных текстов, совпадающих по своей тематике с содержанием базового текста.

Уроки завершаются грамматическими упражнениями, предназначенными, главным образом, для развития навыков перевода

предложений, содержащих наиболее характерные для английского языка трудности грамматического характера. Следует отметить, что учебное пособие не предполагает системного изучения грамматических структур; внимание акцентируется на тех грамматических явлениях, которые присутствуют в изучаемом тексте и наиболее часто встречаются в англоязычной литературе изучаемой специальности.

Part I
ECOLOGY
as a Science

Блок 1. Challenging Problems of Ecology

Lesson 1. Ecology Defined

Упражнение 1. (Парная работа) Быстро (не более чем за 5 минут) прочитайте приводимый ниже текст и найдите в нём ответы на следующие вопросы:

Откуда произошло слово "экология"? Что оно обозначает?

Какова история этой науки?

Какие основные проблемы составляют предмет науки экологии?

Ecology Defined

Ecology is the study of the relationships between living things and their environment. The term comes from two Greek words, *oikos* (which means "house" or "place to live") and *logos* (which means "study"). So ecology is the study of the "houses", or environments, of living organisms — all of their surroundings, including other animals and plants, climate, and soil. No one is sure when the word ecology was first coined, but German biologist Ernst Haeckel was the first to define it, in 1869.

Although the science of ecology is a new one, people have been studying ecology and applying their knowledge of it for many thousands of years. Prehistoric people had to know something about the ecology of wheat and corn before they could successfully raise crops of these plants. Theophrastus, an early Greek botanist, is sometimes called the "first true ecologist" because he was the first to write about plants in terms of their living places, or *habitats*, such as forest and marsh. The Indians of the North American plains knew a great deal about the ecology of the bison, on which their lives depended. Today we often use ecological knowledge without being aware of it; for example, when we want to have a lawn in a shady place, we plant seeds of a kind of grass that grows well in shade.

For the most part, however, people do not think ecologically. When we see a bird or wildflower, our first question is: *What is it?* Most people are content to know the names of some of the living things around them in nature. Perhaps you are the sort of person who

wonders further: *What does it do* ? You may want to know the organism's role in its environment, and how it affects and is affected by other organisms. Ecologists wonder about the same things.

Упражнение 2. (Парная работа) Прочитайте вслух приведённые ниже слова. Проверьте их произношение по словарю и найдите русские соответствия:

ecology, term, organism, climate, biologist, prehistoric, botanist, Indians, bison, ecologically, nature, person, role.

Упражнение 3. (Парная работа) Определите значения выделенных слов по контексту.

Ecology is the study of the relationships between living things and their environment.

No one is sure when the word ecology was first coined.

German biologist Ernst Haeckel was the first to define it.

Theophrastus was the first to write about plants in terms of their living places.

Lives of the Indians of the North America depended on the bison.

Упражнение 4. Вспомните, какие части речи в английском языке обозначаются в словаре следующими сокращениями:

adv., v., cj., n., num., part., prep., pron., adj.

Определите, к каким частям речи принадлежат следующие слова:

their, come, Greek, which, including, first, if, in, although, people, successfully, or, about, depend, shady, shade, for, are, environment, affect.

Упражнение 5. Приведите русские эквиваленты следующих английских связующих элементов предложения (См. Приложение 2):

between, although, before, because, such as, which, often, without, however, around, perhaps.

Упражнение 6. Выберите соответствующие русские эквиваленты приводимых ниже английских слов:

science	— учёба	marsh	— равнина
	— наука		— болото
	— предмет		— возвышенность
	— родственный		— другой
relationship	— связанный	(the) same	— такой же
	— взаимосвязь		— некоторый
	— включать		— изучать
include	— изучать	(to) study	— проводить
	— исключать		— знать
	— соль		— зависеть
soil	— почва	depend	— взаимодействовать
	— влага		— проводить
	— лес		— сотни
forest	— поле	thousands	— десятки
	— река		— тысячи

Упражнение 7. Опираясь на содержание текста, объясните значение следующих греческих слов:

oikos, logos, habitat.

Упражнение 8. Приведите русские эквиваленты следующих слов и словосочетаний:

to be aware of, to come from, to be sure, to apply one's knowledge, a great deal of; for the most part, to be content, to wonder about, further, in terms of, to raise crops.

Упражнение 9. Из приведённых ниже вариантов выберите подзаголовки для каждого из трёх абзацев текста.

1. Экология — старая и новая наука.
2. Индейцы Северной Америки — первые экологи.
3. Экология — наука об окружающей среде.
4. Что изучают экологи.
5. Взаимоотношения живых существ и окружающей среды — основной предмет экологии.

Упражнение 10. В каждом абзаце текста найдите предложение, содержащее его основную идею.

Упражнение 11. Опираясь на содержание текста, расскажите по-русски:

- о содержании предмета экологии как науки;
- об истории возникновения науки экологии;
- что такое "мыслить экологически".

Упражнение 12. Предварительно повторив грамматическую тему "Части речи и члены предложения", найдите в приведённых ниже предложениях их подлежащие и сказуемые. Определите, какими частями речи они выражены.

1. Ecology is the study of the relationships between living things and their environment.
2. The term comes from two Greek words.
3. The Indians knew a great deal about the ecology of the bison.
4. We plant seeds of a kind of grass that grows well in shade.
5. For the most part, however, people do not think ecologically.
6. You may want to know the organism's role in its environment.

Упражнение 13. Письменно переведите второй абзац текста. Контрольное время — 15 минут.

Lesson 2

Упражнение 1. (Парная работа) Постарайтесь вспомнить, что вам известно об истории развития экологии как науки. А теперь не более чем за 5 минут прочитайте текст и найдите в нём ответы на следующие вопросы.

1. В чём видели свою задачу учёные, занимавшиеся проблемами естествознания в разные века ?
2. Какие существенные изменения произошли в этой области знаний на рубеже 19-го и 20-го столетий ?
3. В чём состоит главная задача современной экологии ?

Слова, которые помогут вам понять содержание текста:

v. use — использовать

n. century — век

v. discover — открывать, e.g. Columbus discovered America

v. describe — описывать

- n. specimens — образцы
- v. investigate — исследовать
- n. humidity — влажность
- n. distribution — распределение
- n. emphasis — акцент, основное внимание
- v. realize — осознать, понять
- n. community — сообщество
- n. goal — цель
- n. challenge — вызов, основная задача

Ecology — Development and Challenges

Although ecological knowledge has been used by people for thousands of years, ecology is one of the newest of the sciences. For many centuries, scientists concentrated on naming the plants and animals they discovered and on describing the structure of the dead specimens they collected. Gradually, as the question "What is it?" was more easily answered, scientists began studying the effects of the environment on living organisms. During the 1800s, for example, scientists investigated the effects of day length on bird migration and the effects of humidity on the development of insects. Hundreds of books were published on the behavior of animals and on the distribution over the earth of plants and animals.

Still, the emphasis was on individual organisms. In the late 1800s and early 1900s, however, scientists began to study *populations* of organisms, rather than individuals. About the same time, they realized that all of the populations of plants and animals in a certain area make up a sort of *community*, with different kinds of organisms having different "jobs" in the community. Studies of nature became broader and more far reaching. In 1935, the word *ecosystem* was coined to describe all of the living communities of an area, together with the nonliving parts of their environment. The earth is one huge ecosystem. Other ecosystems within it include forests, lakes, meadows, vacant lots, your back yard.

To know more about ecosystems is the main goal of ecologists today. Even though an ecologist may still concentrate most of his studies on one kind of organism, or on one plant community, his findings help us to understand the ecosystems that include that organism

or community. The challenge of ecology is to understand how ecosystems "work" and how they change with time.

Упражнение 2. (Парная работа) В приводимой ниже таблице поставьте плюс в соответствующей колонке, предварительно определив, правильным или неправильным является то или иное утверждение.

Right	Wrong	
		1. Ecological knowledge has been used by people for thousands of years, so ecology is one of the oldest sciences.
		2. For many centuries, scientists concentrated on studying the world ecosystems.
		3. In 1935, the word ecosystem was used for the first time to describe all of the living communities of an area.
		4. The main goal of ecologists today is to name the plants and animals they discover.
		5. "Community" is the relationship between living organisms and their environment.

Упражнение 3. (Парная работа) Прочитайте вслух приведённые ниже слова. Проверьте правильность их произношения по словарю и найдите русские соответствия этих слов:

concentrate, structure, collect, effect, migration, publish, individual, organism, populations, sort, ecosystem, ecologist.

Упражнение 4. В правой колонке найдите русские соответствия следующих английских словосочетаний:

- | | |
|-------------------------|--|
| 1. ecological knowledge | 1. незанятые участки земли |
| 2. many centuries | 2. продолжительность дня |
| 3. dead specimens | 3. экологические знания |
| 4. living organisms | 4. растительное сообщество (фитоценоз) |
| 5. day length | 5. мёртвые образцы (особи) |
| 6. bird migration | 6. воздействие влажности |
| 7. effect of humidity | 7. много столетий |
| 8. behavior of animals | 8. огромные экосистемы |

- | | |
|---------------------|------------------------|
| 9. huge ecosystems | 9. живые организмы |
| 10. vacant lots | 10. поведение животных |
| 11. plant community | 11. миграция птиц |

Упражнение 5. Заполните таблицу словами из текста по приводимому образцу, принимая во внимание значение соответствующих суффиксов.

Глагол	Существительное	Прилагательное	Причастие	Наречие
concentrate	migration	individual	having published	gradually

Упражнение 6. (Парная работа) Заполните пропуски подходящими по смыслу словами из текста.

1. The study of the relationship between plants, animals, and their environment is called ...

2. The movement of living things from one place to another is ...

3. ... is a group of plants or animals living together in the same surroundings.

4. The word ... is used to describe all of the living communities of an area, together with the nonliving parts of their environment.

5. ... is everything that exists in the world independently of people, such as plants and animals, earth and rocks, and the weather.

Упражнение 7 (Парная работа) Прочитайте Приложение 2 и определите, к каким разновидностям принадлежат те связующие элементы, которые встретились вам в прочитанном тексте. Выпишите эти слова и словосочетания, запомните их значения.

Упражнение 8. (Парная работа) Прочитайте Приложение 1, после чего найдите в первом абзаце текста основную идею, главные и второстепенные детали.

Упражнение 9. Озаглавьте каждый абзац текста.

Упражнение 10. Письменно по-английски составьте план пересказа текста.

Упражнение 11. Определите исходные формы следующих слов:

newest, science, discovered, describing, more easily, began, during, studies, broader, realized, coined, naming.

Упражнение 12. Предварительно повторив список неправильных глаголов в английском языке, поставьте глаголы в приводимом ниже тексте в форму Past Indefinite.

In the 1960s – 1970s, many Americans (to become) concerned that pollution was causing health problems. Congress (to respond) by passing laws to revive polluted lakes and rivers, improve air quality and save some animal species. In the early 1980s, new environmental problems (to emerge). Scientists (to discover) that pollution in one country (can) affect neighbouring countries. Some experts (to warn) that CO₂ could cause the earth's temperature to rise. Scientists also (to discover) that some chemicals were destroying the earth's protective ozone layer.

Упражнение 13. Проведите анализ предложений 1-го и 2-го абзацев текста "Ecology-Development and Challenges". Определите, в каких из них формы на **-ed** являются формами Past Indefinite, а в каких — Participle II.

Упражнение 14. Устно переведите 1-ый и 2-ой абзацы этого текста.

Lesson 3

Упражнение 1. (Парная работа) Прочитайте про себя предлагаемый ниже текст (контрольное время — 5 минут) и определите, на какие из данных вопросов в нём можно найти ответы.

1. Почему экология как наука вызывает всё больший интерес ?

2. Каким образом проблемы экологии влияют на экономическое развитие ?

3. Каким образом рост населения Земли влияет на её экосистемы? Какова, по оценке учёных, может быть продолжительность жизни человека к концу текущего столетия ?

4. Каким образом жизнедеятельность человека оказывает влияние на окружающую среду ?

The World Ecosystem

The study of ecology reveals that nature, or any ecosystem in it, is like a complex web. One ecologist has said of the world's ecosystem: "It is not only more complex than we think. It is more complex than we can think". People are part of the world ecosystem, and have a great and growing effect on many other ecosystems. The increasing numbers of people are changing ecosystems all over the world. Some of the changes are small and local: a house is built on a vacant lot; a highway slices through a forest.

Some changes are major: long-lasting insect poisons such as DDT were spread all over the earth before scientists became aware of the deadly effects of these chemicals on eagles, ospreys, and pelicans. Lake Erie, one of the largest lakes in the world, is badly polluted and "dying" as a result of wastes produced by people. The burning of coal, oil, and other fuels has affected the entire atmosphere of the earth; and dust particles in the air have helped reduce the amount of sunlight reaching the earth's surface.

Changes like these, along with thousands of smaller ones, have alerted us to the dangers of altering ecosystems before we understand the effects of the alterations. We fancy ourselves to be rulers of the earth. But we don't know the rules. The study of ecology may help us to learn the "rules of nature" on which our survival depends.

More and more, people are turning to ecology and ecologists for advice on how to live with nature without destroying our life-giving environment. But often there are no answers, or only partial answers. Ecology is a new science and ecologists know little about most of the world, especially about the tropics and the oceans. Some of the ideas of ecology, accepted for many years, are now being challenged and changed.

Упражнение 2. (Парная работа) Прочитайте вслух следующие слова и определите, какие слова в русском языке могут помочь понять их значение:

complex, effect, local, vacant, insect, chemicals, pelican, result, produce, atmosphere, ecologist, tropics, ocean, idea.

Упражнение 3. (Парная работа) Определите значения выделенных слов и словосочетаний, исходя из контекста.

1. The study of ecology reveals that nature is like a complex web.
2. The increasing numbers of people are changing ecosystems all over the world.
3. Lake Erie is badly polluted and "dying" as a result of wastes produced by people.
4. The burning of coal, oil, and other fuels has affected the atmosphere of the earth.
5. More and more people are turning to ecology for advice.
6. Some of the ideas of ecology, accepted for many years, are now being challenged and changed.

Упражнение 4. В правой колонке найдите английские эквиваленты соответствующих русских словосочетаний:

- | | |
|-------------------------------|--------------------------|
| 1. более сложный | 1. great effect |
| 2. часть экосистемы | 2. deadly effect |
| 3. экологические исследования | 3. burning of coal |
| 4. большое влияние | 4. more complex |
| 5. растущее количество | 5. entire atmosphere |
| 6. местные изменения | 6. study of ecology |
| 7. смертоносное воздействие | 7. growing numbers |
| 8. сжигание угля | 8. part of the ecosystem |
| 9. частичные ответы | 9. local changes |
| 10. вся атмосфера | 10. partial answers |

Упражнение 5. Найдите эквиваленты следующих словосочетаний в английском языке. Обратите внимание на предлоги, используемые с соответствующими английскими глаголами. Сказать о чём-либо; воздействовать на что-либо; осознать (понять) что-либо; воздействие на что-либо; зависеть от чего-либо; обращаться к чему-либо.

Упражнение 6. Выпишите из каждого абзаца текста 3-4 ключевых слова.

Упражнение 7. Ещё раз прочитав Приложение 1, в каждом абзаце текста найдите:

- основную идею;
- главные детали;
- второстепенные детали.

Упражнение 8. Придумайте заголовки для каждого из трёх абзацев текста.

Упражнение 9. Какие из данных положений, на ваш взгляд, наиболее точно отражают основные идеи текста ?

1. The world's ecosystem is more complex than we can think.
2. Population of the Earth is increasing.
3. Houses are built on a vacant lot and highways slice through a forest.
4. People have a great effect on the world's ecosystem.
5. Lake Erie is badly polluted.
6. Big and small changes of the world's ecosystem have become dangerous for people.
7. The study of ecology may help us to learn the laws of nature on which our survival depends.
8. Ecology is a new science.
9. More and more people are turning to ecology for advice on how to live with nature without destroying our environment.
10. Insects are part of the world's ecosystem.

Упражнение 10. Выберите пять наиболее важных положений из приведённых выше и расположите их в порядке следования в тексте. Если задание выполнено вами правильно, выделенные предложения должны представлять собой основу резюме изучаемого текста. Перескажите текст по-английски, используя данное резюме в качестве плана пересказа.

Упражнение 11. Переведите следующие предложения на русский язык, обращая внимание на выделенные слова. Опреде-

лите, к каким частям речи они относятся и какую функцию выполняют в предложении.

1. People have a great and growing effect on many other ecosystems.

2. The increasing numbers of people are changing ecosystems all over the world.

3. Lake Erie is dying as a result of wastes produced by people.

4. The burning of coal and other fuels has affected the entire atmosphere of the earth.

5. Dust particles in the air have helped reduce the amount of sunlight reaching the earth's surface.

6. More and more, people are turning to ecology for advice on how to live with nature without destroying our environment.

7. Lake Erie is badly polluted as a result of wastes produced by people.

8. Some of the ideas of ecology, accepted for many years, are now being challenged and changed.

Упражнение 12. Письменно переведите последний абзац текста. Контрольное время — 7 минут.

Lesson 4. Parts of an Ecosystem

Упражнение 1. Запомните значение следующих слов и словосочетаний, которые встретятся вам в приведённом ниже тексте:

— nonliving part of an ecosystem — абиотическая компонента экосистемы

— living part of an ecosystem — биотическая компонента экосистемы

— topography — зд. поверхность, рельеф

— a desert — пустыня

— annual rainfall — годовое количество осадков

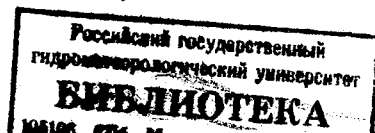
— water vapor — водяной пар

— mountain ranges — горные хребты

— seaward side — склон (горы), обращённый к морю

— rain shadow — дождевая тень

Упражнение 2. (Парная работа) Определите, какие из приведённых ниже слов и словосочетаний могут, на ваш взгляд, встре-



таться в тексте с таким названием. Если среди этих слов вам встретятся незнакомые, найдите их значения в словаре.

Biological community, soil, anemometer, lack of rain, weather centre, bachelor, tree branches, living trees, website, decay, profit, meteorology, animal life.

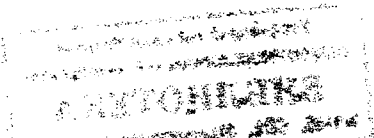
Упражнение 3. Теперь быстро, не более чем за 4 минуты, прочитайте текст и проверьте правильность своих предположений.

Any ecosystem is made up of two parts: nonliving (the physical environment) and living (the biological community). The nonliving environment usually includes energy from the sun, temperature, water, gases in the air, wind, soils, and the rocks beneath them, and the topography, or shape of the land. These nonliving parts of the ecosystem determine the kinds of life that can exist in an ecosystem, and they also affect each other.

The world's deserts, for example, occur where the annual rainfall is ten inches or less. This lack of rain is sometimes caused by topography. Along the west coast of North America, winds carry water vapor inland from the Pacific Ocean. The air is forced to rise as it hits the coastal mountain ranges. As it rises it cools and the water vapor in the air falls as rain or snow on the seaward side of the mountains. As a result, there is little rainfall on the other side. This is called the rain shadow effect.

The living parts of an ecosystem often affect the nonliving parts. When rain falls on a forest, the tree branches and leaves help break the force of the drops. Layers of dead leaves on the forest floor soak up water and prevent the drops from washing soil away. Little water runs off the land. So the living trees help maintain the soil on which they depend. In fact, the trees add to the soil, since the leaves that fall to the forest floor eventually decay and become part of the soil itself.

As ecologists study ecosystems, they often turn to the science of meteorology for information. Does the annual rainfall come mostly in one season, or is it spread evenly over the year? How much does the temperature vary between day and night, and through the year? Finding answers to such questions is important because the climate of an area has a tremendous effect on its plant and animal life.



Упражнение 4. (Парная работа) В первом и втором абзацах текста, вероятно, есть слова, значения которых вы не знаете. Выпишите их, сравните с теми, которые выписал ваш сосед, и обсудите их значение. Правильность своих предположений проверьте по словарю.

Упражнение 5. (Парная работа) Определите значения выделенных глаголов, исходя из контекста.

1. The living part an ecosystem often affect the non-living parts.
2. When rain falls on a forest, the tree branches and leaves help break the force of the drops.
3. Little water runs off the land.
4. The living trees help maintain the soil on which they depend.
5. In fact the trees add to the soil, since the leaves that fall to the forest floor eventually decay and become part of the soil itself.
6. How much does the temperature vary between day and night ?
7. Does the annual rainfall come mostly in one season, or is it spread evenly over the year ?

Упражнение 6. (Парная работа) Найдите в правой колонке русские эквиваленты следующих английских словосочетаний:

- | | |
|-------------------------|----------------------------------|
| 1. energy from the sun | 1. рельеф поверхности (суши) |
| 2. biological community | 2. лесная подстилка |
| 3. shape of the land | 3. прибрежные горы |
| 4. forest floor | 4. растительная жизнь |
| 5. lack of rain | 5. огромное воздействие |
| 6. coastal mountains | 6. пустыни мира |
| 7. tree branches | 7. солнечная энергия |
| 8. tremendous effect | 8. недостаток (нехватка) осадков |
| 9. plant life | 9. стволы деревьев |
| 10. the world's deserts | 10. биологическое сообщество |

Упражнение 7. (Парная работа). Не заглядывая в словарь, постарайтесь вспомнить русские эквиваленты следующих слов и словосочетаний:

— usually, also, any, for example, sometimes, along, or, the other, often, so, in fact, mostly, between, through.

Упражнение 8. Прочитайте текст ещё раз и найдите в нём строчки, в которых говорится о:

- 1 — влиянии биотической компоненты экосистемы на абиотическую;
- 2 — воздействию климата на жизнь растений и животных;
- 3 — сути эффекта дождевой тени;
- 4 — одном из примеров биоценоза;
- 5 — элементах абиотической компоненты экосистемы.

Упражнение 9. В двух предложениях приводимого ниже текста содержатся смысловые ошибки. Найдите эти предложения и исправьте ошибки.

Any ecosystem is made up of 2 parts: nonliving and living. The nonliving environment usually includes energy from the sun, temperature, water, gases in the air, wind, soil etc. These nonliving parts of the ecosystem are determined by the kinds of life that can exist in an ecosystem. The living parts of an ecosystem often affect the nonliving parts. Climate of an area for example, has a tremendous effect on its plant and animal life.

Упражнение 10. Следующие положения упоминаются в приведённом тексте. Определите, какие из них представляют основную идею, какие — второстепенные детали. (См. Приложение 1)

1. Any ecosystem is made up of two parts: the physical environment and biological environment.
2. The world's deserts occur where the annual rainfall is ten inches or less.
3. The air is forced to rise as it hits the coastal mountain ranges.
4. The living parts of an ecosystem often effect the nonliving parts.
5. The leaves that fall to the forest floor eventually decay.

Упражнение 11. Из каждого абзаца текста выпишите 2-3 ключевых слова. Подберите подзаголовки к каждому абзацу. По-русски составьте подробный план пересказа текста.

Упражнение 12. Переведите приведённые ниже предложения на русский язык, обращая внимание на выделенные слова.

1. The air is forced to rise as it hits the mountain ranges.
2. As the air rises it cools and the water vapour in the air falls as rain or snow.
3. As a result, there is little rainfall on the other side.
4. As ecologists study ecosystems, they often turn to the science of meteorology for information.
5. The higher the sun, the greater the amount of heat a given horizontal surface will receive; for as the rays become more oblique, they are spread out over a large area.
6. Since air absorbs only a small percentage of solar radiation, it is not much warmed by sunshine.
7. Since climate has so many far reaching, practical and direct applications to the activities of man, climatology is largely descriptive in character.

Упражнение 13. Устно переведите два последних абзаца текста.

Lesson 5

Запомните значения следующих слов, которые встретятся вам в приводимом ниже тексте:

- producers — продуценты (растительные источники питания, создающие из неорганических веществ органические)
- consumers — консументы (потребители)
- decomposers — деструкторы, редуценты (микроорганизмы, разлагающие органические остатки)
- plantfeeders — растительноядные (травоядные) животные, фитофаги
- carnivores — плотоядные (животные) / насекомоядные растения
- herbivores — травоядные (животные)
- omnivores — всеядные животные

Найдите в словаре произношение этих слов. В случае затруднений спросите у своего преподавателя, как правильно произносятся по-английски данные термины.

Упражнение 1. (Парная работа) Ниже приводятся предложения из каждого абзаца предлагаемого ниже текста. Этого должно быть достаточно для того, чтобы вы могли сделать выводы о содержании текста и его заглавии. В 7-8 предложениях расскажите по-русски о предполагаемом содержании текста. Придумайте заглавие к нему.

1. A pond ecosystem usually contains all of the nonliving factors mentioned above.

2. Producers are green plants which capture radiant energy from the sun and convert it into food energy.

3. Consumers are animals that depend on green plants for food.

4. Decomposers are the third major group of organisms. They use dead plant and animal material as food

Теперь быстро, не более чем за 5 минут, прочитайте текст и проверьте правильность своих предположений.

To learn more about the living parts of an ecosystem, you might visit a small pond. A pond ecosystem usually contains all of the nonliving factors mentioned above. The sun provides the energy of life. The climate determines how much rain falls in the area, the length of the growing season for plants, and whether the pond is covered with ice in winter. These factors can have a great effect on the life that the pond supports. The underlying rocks and soils affect the chemistry of the water, which in turn helps determine what kinds of plants and animals live in the water. And the life of the pond affects the nonliving environment: when plants and animals die, their remains settle to the bottom and decay there, adding to the bottom muck and making the pond more shallow.

The living parts of the pond ecosystem (and of any ecosystem) can be divided into three groups:

PRODUCERS are green plants which capture radiant energy from the sun and convert it into food energy. They also take substances such as carbon dioxide, water, oxygen, nitrogen, and sulfur from the environment and convert it into plant material that is used as food by other organisms. In fact, green plants might better be called converters than producers. Regardless, all other life in the pond eco-

system depends on green plants. The same is true of forests, prairies, tundra, and oceans.

CONSUMERS are animals that depend on green plants for food. Some feed directly on the plants while others eat animals that have eaten plants. The plantfeeders include tiny animals called zooplankton, which eat phytoplankton, and larger organisms, such as pollywogs, insects, and snails, which eat larger plants. The planteaters, or herbivores, get their energy directly from the green plants. The other consumers are either carnivores (which usually eat herbivores) or omnivores (which eat both plants and animals). The carnivores in a pond ecosystem include fish, herons, and insects such as giant water beetles. Raccoons and people are omnivores.

DECOMPOSERS are the third major group of organisms. They use dead plant and animal material as food. The decomposers break down this material, getting the energy they need to live and releasing minerals and other nutrients back into the environment. Most decomposers are simple plants such as bacteria and fungi. These microscopic organisms can be found everywhere in a pond, but are especially abundant at the bottom, where the dead parts of plants and animals settle. On land, decomposers are most abundant at or near the surface of the soil.

Упражнение 6. Вспомните или найдите в тексте эквиваленты следующих слов и словосочетаний:

скалы, почва, получать энергию, основные группы, возвращать в окружающую среду, лучистая энергия, упомянутый выше, период роста (вегетационный период), сера, мельчайшие животные, двуокись углерода, всеядные, азот.

Упражнение 7. Не заглядывая в текст, заполните пропуски подходящими со смыслу терминами. Предложения переведите на русский язык.

1. ... break down plant and animal material, getting the energy they need to live.
2. ... take substances such as carbon dioxide, water, oxygen, nitrogen and sulfur from the environment and convert it into plant material.

3. Some ... feed directly on the plants while others eat animals that have eaten plants.

4. Animals called ... eat phytoplankton and larger organisms.

5. The other consumers are either ... which usually eat herbivores or ... which eat both plants and animals.

Упражнение 8. Заполните таблицу по образцу:

Adjective	Noun
shallow	shallowness
deep	
long	
wide	
high	
narrow	

Упражнение 9. Переведите следующие предложения на русский язык, обращая внимание на выделенные слова.

1. The climate determines whether the pond is covered with ice in winter.

2. The underlying rocks and soils affect the chemistry of the water, which in turn helps determine what kinds of plants and animals live in the water.

3. In fact, green plants might better be called converters than producers.

4. Regardless, all other life in the pond ecosystem depends on green plants.

5. The carnivores in a pond ecosystem include fish, herons, and insects such as giant water beetles.

Упражнение 10. Следующие положения упоминаются в тексте, подлинное название которого "Living Parts of an Ecosystem". Определите, какие из них представляют основную идею, а какие — второстепенные детали.

1. The living parts of any ecosystem can be divided into three groups: producers, consumers and decomposers.

2. The sun provides the energy of life.

3. When plants and animals die their remains settle to the bottom.
4. Producers are green plants which capture radiant energy from the sun and convert it into food energy.
5. The planteaters get their energy directly from the green plants.
6. Bacteria and fungi can be found everywhere in a pond.

Упражнение 11. Подготовьте краткое описание биотической структуры экосистемы на английском языке.

Упражнение 12. Заполните графы приводимой ниже таблицы.

Личные местоимения	Притяжательные местоимения	Объектные местоимения
I	my	me
	your	
		him
	her	
it		
		us
you		
	their	

Упражнение 13. Вспомните как можно больше вопросительных слов в английском языке, продолжив следующий ряд слов:
– when, which, how much ...

Упражнение 14. Письменно переведите первый абзац текста.

Lesson 6

Запомните значения следующих слов, которые встретятся вам в приводимом ниже тексте:

- predator — хищник
- parasite — паразит
- host — организм-носитель, хозяин (паразита)
- to prey — охотиться, ловить
- flatworm — гельминт, плоский червь

- mite — клещ
- pest — вредитель, паразит
- biological control — биологический контроль (борьба)
- symbiosis — симбиоз
- commensalism — комменсализм (взаимоотношения двух популяций, полезные для одной и безразличные для другой)
- mutualism — мутуализм (симбиоз на взаимовыгодной основе)

Упражнение 1. (Парная работа) Найдите в приведённом ниже тексте ответы на следующие вопросы. Контрольное время — 5 минут.

1. Каково численное соотношение хищников и паразитов в природе?
2. Почему биологи считают, что большинство живущих сейчас организмов — паразиты?
3. Что такое "биологический контроль"?
4. Что обозначает термин "симбиоз"?

The living things in an ecosystem affect each other in many ways. The consumers that kill other animals for food are called predators. The word predator usually brings to mind pictures of lions and wolves, but such creatures as robins, frogs, and humans are also predators. Some predators, carnivores such as lions, depend entirely on animals they kill, while many others, such as foxes and humans, eat plant food too.

Some people think of predators as "bad", though humans themselves are the greatest predators the world has known. Sometimes individual predators do prey upon farm animals, and these individuals have to be controlled. Too often, however, people try to wipe out entire populations of predators, with the mistaken idea that they are doing good.

Predators are usually bigger and fewer in number than the animals they prey upon. The reverse is true of parasites. These organisms live on or in other living things — their hosts, often spending an entire lifetime with them. In parasitism the parasite gets food and sometimes shelter, while the host gains nothing and may even suffer in some way from the relationship.

Very few living things are free of parasites, which are usually smaller and more numerous than their hosts. Indeed, many parasites have parasites of their own.

Some biologists believe that most of the individual organisms now living are parasites, since there are so many parasitic fungi, bacteria, flatworms, insects, and mites. Parasites are an important part of all communities and, like predators, often affect the numbers of other organisms in a community. Man has tried to use this ecological knowledge by deliberately bringing parasites or predators into an area where they might control the numbers of some pest. Sometimes this works well; often it does not.

This method of limiting the numbers of pests is called biological control, and there is hope that it will someday eliminate the need for many of the insect poisons used today.

The close association between parasite and host is an example of symbiosis, which means "living together". There are a number of other examples of symbiosis in nature. In some relationships, one organism benefits and the other is not affected at all. This is called commensalism. Fish called remoras attach themselves to sharks. They get a free ride and eat fragments of the shark's food. There are many other commensal relationships in the sea.

In some symbiotic relationships, both organisms benefit. This is called mutualism.

Упражнение 2. (Парная работа) Найдите в словаре произношение следующих слов. В случае затруднений обратитесь за помощью к своему преподавателю.

Predators, creature, control, wipe, reverse, parasite, frost, parasitism, numerous, biologist, fungi, bacteria, flatworm, knowledge, eliminate, association, symbiosis, benefit, commensalism, fragment, mutualism.

Упражнение 3. (Парная работа) Найдите в правой колонке русские соответствия следующих существительных:

- | | |
|----------|------------------|
| 1. lion | 1. гриб |
| 2. wolf | 2. плоский червь |
| 3. fox | 3. клещ |
| 4. human | 4. волк |

- | | |
|-------------|----------------------|
| 5. fungus | 5. акула |
| 6. flatworm | 6. лев |
| 7. shark | 7. дрозд (малиновка) |
| 8. mite | 8. лисица |
| 9. robin | 9. человек |
| 10. frog | 10. лягушка |

Упражнение 4. Прочитайте текст ещё раз и найдите в нём определения:

- хищников;
- паразитов;
- симбиоза;
- биологического контроля;
- комменсализма;
- мутуализма.

Упражнение 5. Заполните таблицу по образцу.

Predators	Parasites
lions	fungi

Упражнение 6. Напишите формы множественного числа следующих английских существительных. Прочитайте вслух обе формы.

Consumer, predator, wolf, lion, human, carnivore, fox, parasite, organism, fungus, bacterium, insect, relationship.

Упражнение 7. (Парная работа) Выберите правильный вариант ответа на поставленные вопросы.

1. Why do some people think of predators as "bad" ?
 - a) Because they kill another animals.
 - b) Because they depend entirely on animals they kill.
 - c) Because they eat plant food too.
2. Who are the greatest predators the world has known ?
 - a) Lions

- b) Foxes
 - c) Humans
3. Why do biologists believe that most of the individual organisms now living are parasites ?
- a) Because predators are usually bigger and fewer in number than the animals they prey upon.
 - b) Because parasites are an important part of all communities.
 - c) Because there are so many parasitic fungi, bacteria, flatworms and insects.
4. What does the term "symbiosis" mean ?
- a) Killing each other.
 - b) Living together.
 - c) Preying together.
5. Parasites are usually bigger and fewer than predators, aren't they ?
- a) Yes, they are.
 - b) No, they are not.
 - c) Another variant.

Упражнение 8. (Парная работа) Выберите один из абзацев текста, придумайте 3-5 вопросов к нему. Попросите ответить на них другую пару студентов. Обменяйтесь вопросами. Задание выполняется на английском языке.

Упражнение 9. В данной таблице поставьте плюс в соответствующей колонке, предварительно определив, правильным или неправильным является то или иное утверждение.

Right	Wrong	
		1. Parasites affect the numbers of other organisms in a community.
		2. Hosts are organisms that live on or in other living things.
		3. Predators are neither "good" or "bad".
		4. A lot of living things are free of parasites.
		5. Predators preying upon farm animals do not have to be controlled.

		6. Symbiosis is a good example of biological control. 7. Relationships beneficial for both organisms are called mutualism.
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Упражнение 10. Найдите в тексте как можно большее количество примеров, иллюстрирующих какое-либо утверждение.

Упражнение 11. (Парная работа) Если бы перед вами стояла задача выбрать одно предложение из каждого абзаца в качестве ключевого, какие предложения вы бы выбрали? Выпишите эти предложения из текста.

Упражнение 12. Поставьте максимальное количество вопросов к каждому из приведённых ниже предложений.

1. The living things in an ecosystem affect each other in many ways.
2. Parasites are an important part of all communities.
3. Fish called remoras attach themselves to sharks.
4. There are many other commensal relationships in the sea.
5. Some predators depend entirely on animals they kill.

Упражнение 13. Поставьте приведённые ниже предложения в отрицательную форму.

1. Some people think of predators as "bad".
2. Parasites are usually bigger than the animals they prey upon.
3. Sometimes this method works well.
4. Darwin was the first to write about plants in terms of their living places.
5. Lives of the Indians of the North America depended on the trees they planted.
6. The consumers that kill other animals for food are called parasites.
7. In the 20th century studies of nature ended.

Упражнение 14. Выберите правильный перевод подчёркнутых форм.

1. The consumers that kill other animals for food are called predators.

- a) что b) те c) которые

2. People often try to wipe out entire populations of predators, with the mistaken idea that they are doing good.

- a) который b) что c) тот

3. Parasites live on or in other living things — their hosts.

- a) там b) своих c) имеется

4. Some biologists believe that most of the individual organisms now living are parasites, since there are so many parasite fungi, bacteria, flatworms, etc.

- a) которые b) те c) что

5. There is hope that this method will someday eliminate the need for many of insect poisons used now.

- a) что b) которая c) та

6. There are a number of other examples of symbiosis in nature.

- a) там имеется b) существует c) не переводится

Упражнение 15. Письменно переведите последний абзац текста. Контрольное время — 10 минут.

Тесты к блоку 1

ТЛ

1 Заполните пропуски подходящими по смыслу словами.

1. Theophrastus was the first to write about plants in terms of their living places or ... such as forest and marsh.

- a) biomes b) habitats

2. Scientists realized that all of the populations of plants and animals in a certain area make up a sort of ...

- a) community b) nature

3. More and more, people are turning to ... for advice on how to live with nature without destroying our life-giving environment.

- a) meteorology b) ecology

4. As ecologists study ecosystems, they often turn to the science of... for information.

- a) meteorology b) ecology
 5. ... are animals that depend on green plants for food.
 a) producers b) consumers
 6. The plant-feeders include tiny animals called ...
 a) phytoplankton b) zooplankton
 7. The consumers that kill other animals for food are called ...
 a) parasites b) predators

II Укажите цифрами слова, которые по своему значению не соответствуют данной тематической группе:

- | | | | |
|--|----|----|----|
| 1 | 2 | 3 | 4 |
| 1. energy, temperature, insect, soil; | | | |
| 5 | 6 | 7 | 8 |
| 2. meteorology, psychology, biology, ecology; | | | |
| 9 | 10 | 11 | 12 |
| 3. decay, affect, maintain, effect; | | | |
| 13 | 14 | 15 | 16 |
| 4. predators, producers, consumers, decomposers; | | | |
| 17 | 18 | 19 | 20 |
| 5. they, we, she, our. | | | |

III В данном тексте заполните пропуски подходящими по смыслу словами. В своих работах укажите только последовательность цифр, обозначающих эти слова. Например, 2, 6, 3, 5 и т.д.

The study ... where plants and animals live throughout the world is called biogeography. Biogeographers, then, are interested ... ecology, ... the study of the relationship ... plants, animals and their environment.

What types of animals live in an area depends largely ... what plants grow there. Plant life, ... , is determined mainly ... climate. Trees, ... , grow tall and thick where it is warm and rainy.

1	2	3	4	5	6	7	8
between, in turn, for example, of, or, on, in, by.							

III

IV Определите принадлежность приведённых форм к той или иной части речи:

- | | | | |
|-----------------|----------|----------|----------|
| 1. are changing | a) v. | b) adv. | c) adj. |
| 2. through | a) prep. | b) adv. | c) v. |
| 3. vapor | a) adv. | b) prep. | c) n. |
| 4. mostly | a) n. | b) pron. | c) adv. |
| 5. this | a) adv. | b) pron. | c) adj. |
| 6. vary | a) n. | b) adv. | c) v. |
| 7. science | a) n. | b) v. | c) prep. |
| 8. tremendous | a) pron. | b) adv. | c) adj. |

V Выберите правильный вариант перевода выделенных форм.

1. some changes are ...
a) изменения b) изменяются c) изменяется
2. will develop
a) будут развиваться b) развивается c) развивалось
3. Does the rainfall come ... ?
a) делает b) делают c) не переводится
4. The trees add to the soil, since the leaves decay and become part of the soil itself.
a) с тех пор, как b) когда c) т.к.
5. The burning of coal and other fuels has affected the atmosphere of the earth.
a) оказывать влияние b) окажет влияние c) оказывает влияние
6. When rain falls on a forest, ...
a) выпал b) осадки c) выпадает
7. There are many other commensal relationships in the sea.
a) там есть b) не переводится c) имеется
8. living things
a) живые b) живущие c) жизнь
9. People are turning to ecology ...
a) обратились b) обратятся c) обращаются
10. People living there are ...
a) имеются b) там c) существуют

ТТ

VI В данном тексте два предложения не соответствуют, с точки зрения смысла, его общему содержанию. Укажите номера этих предложений.

(1) Keep in mind the three major groups of living things in ecosystems — producers, consumers, and decomposers. (2) No matter what ecosystem you visit, you will find signs of all three. (3) Soils offer the best example of how nonliving and living parts of an ecosystem affect each other. (4) Even in a city lot, you can find weeds (producers) fed upon by insects (consumers), while the bacteria and fungi (decomposers) are invisibly at work among the rubbish and dead leaves on the ground. (5) The biomes themselves don't begin and end sharply.

VII Письменно переведите следующий текст. Контрольное время — 7 минут.

As man unravels nature's complicated relationships, it becomes clear that he still knows very little about them. Ecology is the study of living organisms in their surroundings. It is the study of survival because if man fails to learn its lessons, he risks the destruction of the world on which he depends.

Блок 2. Biomes

Lesson 7

Упражнение 1. (Парная работа) Переведите заглавие приведённого ниже текста и подумайте, о чём может идти речь в тексте с таким заглавием. Теперь напишите 10-15 слов, которые, с вашей точки зрения, должны встретиться в тексте. После того как вы прочитаете текст, проверьте правильность своих предположений. Контрольное время — 5 минут.

Types of Biomes

A biome is a major land ecosystem, a large land area that has a distinct kind of plant life. It may include ecosystems of many kinds, but the whole area is distinguished by a particular kind of plant life such as grassland, rain forest, or whatever characterizes the biome.

The location of biomes over the earth is determined mostly by climate, especially by rainfall and temperature. And climate itself is determined by many factors including latitude (distance from the equator), ocean currents, topography, and the prevailing winds.

The biomes themselves don't begin and end sharply. They blend together at their borders, sometimes over a span of many miles. This zone between two biomes or between two ecosystems is called an ecotone. There are ecotones all around us — the shore of a pond, the bank of a stream, the edge between a forest and a meadow. Usually there is a great variety of life in ecotones because animals living there have the best of two worlds, getting food, shelter, and other necessities from two different ecosystems.

Within the boundaries of biomes you may find areas with plant life quite different from that of the whole biome. Often this is an effect of topography. The climate at the top of a mountain ridge is cooler than that of the surrounding land, so plants usually found in a more northern biome may grow on the ridge.

Even though the word "biome" may be new to you, you often think in terms of these major ecosystems. The words "desert" or "prairie" bring to mind pictures of these areas, with their characteristic plants and animals.

Упражнение 2. (Парная работа) Прочитайте вслух приведённые ниже слова, определите их соответствия в русском языке.

Biome, characterize, location, climate, temperature, determine, factor, distance, equator, ocean, topography, mile, zone, variety, term, prairie, characteristic, prevail.

Проверьте правильность произношения этих слов по словарю.

Упражнение 3. (Парная работа) В правой колонке найдите русские эквиваленты следующих глаголов:

- | | |
|----------------|------------------|
| 1. include | 1. отличать |
| 2. distinguish | 2. преобладать |
| 3. determine | 3. заканчиваться |
| 4. find | 4. смешивать |
| 5. prevail | 5. думать |
| 6. begin | 6. определять |

- | | |
|--------------|-----------------------|
| 7. end | 7. расти |
| 8. blend | 8. получать |
| 9. get | 9. находить |
| 10. think | 10. начинаться |
| 11. surround | 11. включать (в себя) |
| 12. grow | 12. окружать |

Упражнение 4. В правой колонке найдите русские эквиваленты следующих слов и словосочетаний:

- | | |
|-----------------------|------------------------------|
| 1. plant life | 1. луг, степь |
| 2. grassland | 2. океанические течения |
| 3. rain forest | 3. берег водоёма (пруда) |
| 4. latitude | 4. растительная жизнь |
| 5. ocean current | 5. граница |
| 6. prevailing winds | 6. влажный (тропический) лес |
| 7. a shore of a pond | 7. укрытие |
| 8. a bank of a stream | 8. берег потока (реки) |
| 9. border | 9. преобладающие ветра |
| 10. shelter | 10. широта |

Упражнение 5. Найдите в тексте примеры:

- экотона,
- биома,
- климатических факторов,
- характеристик рельефа.

Упражнение 6. Не заглядывая в текст, найдите правильное продолжение предложений.

1. A biome is characterized by a particular kind of ...
a) human life b) animal life c) plant
2. Location of biomes is determined by ...
a) people b) climate c) industry
3. Zones between two biomes or between two ecosystems are called ...
a) shelters b) ecogeography c) ecotones
4. Topography can effect ...

a) distance from the equator b) types of plant life c) gravitational forces

5. Ecotones are ...

a) zones between two biomes or two ecosystems b) areas with a distinct kind of plant life c) places of equal pressure

Упражнение 7. В приведённом ниже тексте имеются две смысловые ошибки. Не заглядывая в текст "Types of Biomes", попытайтесь найти их. Приведите правильные варианты.

Within the boundaries of biomes you may find areas with plant life quite similar to that of the whole biome. Often this is an effect of topography. The climate at the top of a mountain ridge is warmer than that of the surrounding land, so plants usually found in a more northern biome may grow on the ridge.

Упражнение 8. В правой колонке найдите часть предложения, которая больше всего подходит по смыслу к части предложения, расположенного в левой колонке. Обратите внимание на значение выделенных связующих элементов.

- | | |
|---|---|
| 1. There is a great variety of life in ecotones ... | 1. <u>but</u> the whole area is distinguished by a particular kind of plant life. |
| 2. A biome may include ecosystems of many | 2. <u>because</u> animals living there have the kinds ...best of two worlds. |
| 3. The climate at the top of a mountain ridge is | 3. <u>by</u> climate, especially by rainfall and cooler ... temperature. |
| 4. The location of biomes is determined mostly | 4. <u>than</u> that of the surrounding land. |

Упражнение 9. Выпишите по одному ключевому предложению из первых трёх абзацев текста. Опираясь на эти предложения, подготовьте краткий пересказ текста "Types of Biomes" на английский язык.

Упражнение 10. Выберите правильный вариант перевода сочетаний модели "существительное + существительное".

- | | |
|----------------------------------|--|
| 1. plant life | а) растения живут
в) растительная жизнь |
| 2. rain forest | а) тропический лес
в) лесной дождь |
| 3. summer rains | а) дождливое лето
в) летние дожди |
| 4. surface water characteristics | а) характеристики приповерхностных вод
в) характерные приповерхностные воды |
| 5. marine climate | а) климат моря
в) морской климат |

Упражнение 11. Устно переведите на русский язык три первых абзаца текста.

Lesson 8

Упражнение 1. (Парная работа) Определите, какие из приведённых ниже слов и словосочетаний могут, на ваш взгляд, встретиться в тексте с таким заглавием. Если среди этих слов окажутся незнакомые, найдите их значения в словаре.

Bog, moss, birch tree, cactus, arctic hare, polar bear, orchid, pepper, lemming, reindeer, duck, fox, owl, grass, tiger, lichen, farmland, zooplankton, turtle, caribou.

А теперь прочитайте текст и проверьте правильность своих предположений. Контрольное время — 5 минут.

Tundra

TUNDRA, one of the major biomes of the world means "marshy plain" in Russian. It is a vast treeless land, dotted with lakes, ponds, and bogs. It totals about five million acres and encircles the top of the world, stretching southward from the north polar seas and ending where it meets the northern evergreen forests. Even though the tundra seems like a water-rich land, especially during its brief summer, it is a sort of arctic desert. The annual precipitation is low and the water is

frozen and not available to living things during the nine- to ten-month winter.

Only the top layer of soil thaws in the summer. Beneath that, sometimes reaching many feet below the surface of the ground, is permanently frozen ground, called permafrost. A thick mat of grasses, mosses, lichens, dwarf willow, and birch trees covers the soil. At the same time, hordes of ducks, geese, and shorebirds raise their young there, then fly south as the long, dark arctic winter approaches.

Some birds and mammals live year-round in the arctic tundra. They include polar bears, musk oxen, arctic hares, arctic foxes, lemmings, and ptarmigan. Caribou and reindeer travel south to the shelter of forests in wintertime.

Humans have barely affected the arctic tundra, though Eskimos, Indians, and Lapps have been a part of this biome for thousands of years. Now the growing human population and its demand for resources threaten great change. The discovery of oil in northern Alaska raised questions about how the oil industry could operate without harming tundra ecosystems. Ecologists had no quick answers because so little is known about the tundra. They warned, however, that a huge oil spill might be a long-lasting disaster. Because of permafrost, oil might just lie on top of the land and not drain away. Because of the cold temperatures, wastes of all kinds decay slowly in the Arctic. If people don't treat the tundra with great care, the wounds could be massive and would take many years to heal.

Упражнение 2. (Парная работа) В правой колонке найдите русские эквиваленты следующих словосочетаний:

- | | |
|-------------------------|-------------------------------|
| 1. vast land | 1. верхний слой |
| 2. evergreen forest | 2. арктическая пустыня |
| 3. annual precipitation | 3. обширная территория |
| 4. top layer | 4. овцебык |
| 5. arctic desert | 5. полярный заяц |
| 6. polar bear | 6. годовое количество осадков |
| 7. musk ox | 7. травяной покров |
| 8. arctic hare | 8. вечнозелёный лес |
| 9. mat of grasses | 9. разлив нефти |
| 10. oil spill | 10. полярный медведь |
| 11. dwarf willow | 11. карликовая ива |

Упражнение 3. (Парная работа) Прочитайте вслух следующие слова и определите их соответствия в русском языке. В случае необходимости проверьте правильность произношения слов по словарю.

Total (v.), acre, polar, sort, arctic, permanent, period, human (n.), population, resource, industry, operate, temperature, massive.

Упражнение 4. (Парная работа) Определите значения выделенных слов по контексту.

1. Tundra is a vast treeless land.
2. Tundra stretches southward from the north polar seas and ending where it meets the northern evergreen forests.
3. The water is frozen and not available to living things during the nine- to ten-month winter.
4. Only the top layer of soil thaws in the summer.
5. A thick mat of grasses, mosses, lichens, dwarf willow and birch trees covers the soil.
6. Hordes of ducks, geese, and shorebirds raise their young there, than fly south as the long, dark arctic winter approaches.
7. Some birds and mammals live year-round in the arctic tundra.
8. Humans have barely affected the arctic tundra.

Упражнение 5. Используя слова из двух колонок, составьте как можно большее количество словосочетаний.

include

living

permanently

raise

affect

birch

arctic

treat

question

frozen

animals

trees

young (n.)

Упражнение 6. (Парная работа) Прочитайте текст ещё раз и заполните графы следующей таблицы.

Biome	Climate	Common Plants	Common animals
Tundra			

Упражнение 7. Найдите в тексте ответы на следующие вопросы.

1. What does the word tundra mean in Russian ?
2. What is the total area of tundra ?
3. Why is tundra considered to be a sort of desert ?
4. What does the tundra climate look like ?
5. What is permafrost ?
6. What kind of animals live year-round in the arctic tundra ?
7. How have humans affected the arctic tundra?

Упражнение 8. Найдите в тексте предложения, в которых говорится о:

- почве тундры;
- возможных последствиях разлива нефти в тундре;
- растительном мире тундры;
- о народах, населяющих эту территорию.

Упражнение 9. В приводимом ниже тексте два предложения не соответствуют его общему содержанию. Найдите эти предложения.

(1) Among the most common tundra plants are lichens. (2) They cover rocks and bare ground like a carpet. (3) Lichens are a main food of caribou, a type of reindeer. (4) By day they often escape the heat in underground burrows. (5) The days are long and sunny in summer but on some nights it is frosty. (6) Between 25 to 75 centimeters of rain fall yearly in a grassland biome. (7) The frost is a hint that the tundra winter is never far off.

Упражнение 10. (Парная работа) Подготовьте как можно более подробное сообщение на английском языке о животном и растительном мире тундры.

Упражнение 11. Предварительно повторив грамматическую тему "Причастие", выберите правильный вариант перевода выделенных форм:

frozen water

- а) вода замёрзла
- в) замерзающая вода
- с) замёрзшая вода

- growing population а) население выросло
 в) растущее население
 с) население растёт
- the discovery of oil raised questions about...
 а) поставленные вопросы
 в) поставило вопросы
 с) вопросы были поставлены
- animals living there ... а) живущие
 в) живые
 с) живут
- plants found there are ... а) растения, обнаруженные ...
 в) растения были обнаружены ...
 с) растения обнаружили
- The pond is covered with ice.
 а) покрывает
 в) покрыт
 с) покрывающий
- little is known about ... а) известный
 в) известно
 с) было известно

Упражнение 12. Найдите и переведите на русский язык подлежащие и сказуемые первого абзаца текста.

Упражнение 13. Письменно переведите на русский язык следующий ниже текст. Контрольное время — 15 минут.

The climate of the tundra is very cold and dry. It is, in fact, like a cold desert. The temperature rarely rises above freezing. And during most years, less than 25 centimetres of rain and snow fall on the tundra. Most water on the tundra is locked in ice within the soil. Even in spring and summer the soil stays permanently frozen up to about a finger's length of the surface. The frozen soil is called permafrost. Permafrost, along with fierce tundra winds, prevents large trees from rooting. The few trees that do grow are dwarf birches and willows less than knee high.

Lesson 9

Упражнение 1. (Парная работа) По приведённым ниже словам и словосочетаниям определите, о каких биомах пойдёт речь в приводимом ниже тексте.

Spruce; fir; snowfall; needlelike leaves; evergreen trees; forest floor; willow; aspen; squirrel; Great Britain; eastern Asia; oak; maple; beech; wildflower; farming.

Теперь быстро, не более чем за 5 минут, прочитайте текст и определите, насколько правильными оказались ваши предположения.

TAIGA, or northern coniferous forest, is made up almost completely of spruce and fir trees. It lies south of the tundra and covers a broad zone across North America, Europe, and Asia. Taiga forests reach southward along mountain ranges such as the Rockies and Appalachians.

Since taiga lies closer to the equator than tundra, it receives more energy from the sun. Snowfall is greater and the snow insulates the soil, preventing permafrost in most areas. The needlelike leaves of the evergreen trees have a waxy coating that protects them from the cold and reduces the loss of water to the air. Little sunlight slips through the evergreens to the forest floor, so few plants grow there.

Even though most of the taiga is made up of evergreens, there are other trees, such as birches, willows, and aspens, which are favored foods of moose and beavers. The evergreens are the main habitat of red squirrels, and martens. Taiga winters are long and cold, but the insulating snow cover, and the food and shelter of trees make it possible for a greater variety of animals to survive there than in the tundra to the north.

The climate of the taiga has kept people from living there in great numbers. So far, people have used taiga mostly as a source of lumber and paper pulp. Explorers are searching for fuel and mineral treasures under the taiga. The demand for all of these resources will increase with population growth.

TEMPERATE DECIDUOUS FOREST covers most of the eastern United States, Great Britain, eastern Asia, and almost all of central Europe. The growing season is warm and long, and there are forty inches or more of rainfall spread evenly through the year. A greater

variety of plants and animals lives in this biome than in the taiga and tundra.

Most of the trees are deciduous, dropping their leaves in the autumn. They include oak, maple, beech, elm, birch, and ash. Enough of the sun's energy gets through the upper leafy crowns, the canopy, of tall trees to support another layer of trees, the understory, and abundant shrubs, ferns, and wildflowers.

The climate of the temperate deciduous forest appeals to humans, and man has left his mark on this biome. Vast areas have been cleared for farming and for the building of homes, highways, and industries. Chicago, Boston, Philadelphia, and New York City stand where deciduous forests once grew.

Упражнение 2. (Парная работа) Разместите приводимые ниже слова и словосочетания по следующим тематическим группам:

Связующие элементы предложения	Термины	Общенаучная лексика

Coniferous forest; zone; permafrost; evergreens; shelter; for; source; paper pulp; which; since; habitat; inch; and; area; as; that; protection; of; through; though; at; increase.

Упражнение 3. (Парная работа) В правой колонке найдите русские эквиваленты следующих слов:

- | | |
|----------------|-----------------|
| 1. aspen / asp | 1. берёза |
| 2. willow | 2. белка |
| 3. birch | 3. лось (амер.) |
| 4. moose | 4. куница |
| 5. beaver | 5. бук |
| 6. squirrel | 6. осина |
| 7. marten | 7. дуб |
| 8. oak | 8. бобр |
| 9. maple | 9. ива |
| 10. elm | 10. клён |
| 11. beech | 11. вяз |

Упражнение 4. (Парная работа) Прочитайте текст, подлинное название которого "Taiga and Temperate Deciduous Forest", ещё раз и заполните графы следующей таблицы.

Biome	Climate	Common Plants	Common Animals
Taiga			
Temperate Deciduous Forest			

Упражнение 5. Определите значения выделенных слов, исходя из контекста. Предложения переведите на русский язык.

1. Taiga forests reach southward along mountain ranges ...
2. Since taiga lies closer to the equator than tundra, it receives more energy from the sun.
3. The needlelike leaves of the evergreen trees have a waxy coating that protects them from the cold and reduces the loss of water to the air.
4. Explorers are searching for fuel and mineral treasures under the taiga.
5. The demand for all of these resources will increase with population growth.

Упражнение 6. Прочитайте приведённый ниже отрывок текста и определите, где заканчивается одно предложение и начинается другое. Текст состоит из 6 предложений.

Coniferous Forest

Sometimes called the "great north woods", the coniferous forest has fewer types of trees than those in warmer regions not many kinds of trees can stand the cold northern winters as well as firs, spruces, pines and other conifers their needles, for instance, have a waxy covering that protects them from freezing because of the cold, fallen branches, needles, and dead animals do not decay as fast as in warmer regions since the decay of plant and animal remains is one of the main

factors in producing fertile soil, the soil of the coniferous forest is not particularly rich poor soil is another reason that many kinds of trees are unable to grow there.

Упражнение 7. Используя как можно большее количество выученных слов из текста "Taiga and Temperate Deciduous Forest", напишите по-английски короткие сообщения на одну из следующих тем:

- climate of taiga and temperate deciduous forest;
- plant life of taiga and temperate deciduous forest;
- animal life of taiga and temperate deciduous forest.

Упражнение 8. Используя приведённые выше темы, подготовьте устные сообщения об особенностях рассматриваемых биом.

Упражнение 9. Найдите подлежащие и сказуемые во всех предложениях 4 и 5 абзацев текста.

Упражнение 10. Среди приведённых ниже словосочетаний и предложений найдите формы страдательного залога и прилагательных в сравнительной степени. Предложения переведите на русский язык, обращая внимание на выделенные формы. При выполнении задания следует помнить, что формант **—er** не всегда является показателем сравнительной степени прилагательного или наречия, а сочетание глагола **to be** + форма на **ed** / **3 форма неправильного глагола** не всегда указывает на страдательный залог.

1. Taiga is made up almost completely of spruce and fir trees.
2. Since taiga lies closer to equator than tundra, it receives more energy from the sun.
3. Snowfall is greater and the snow insulates the soil.
4. There are other trees such as birches, willows and aspens, which are favored foods of moose and beavers.
5. Taiga winter is long and cold but the food and shelter of trees make it possible for a greater variety of animals to survive there than in the tundra to the north.

6. These areas are often called taiga, a Russian word meaning "swamp forest".

7. The lake was formed behind a dam of sticks and logs.

8. The explorer is searching for fuel and mineral resources under the taiga.

9. A greater variety of plants and animals lives in this biome than in the taiga and tundra.

10. Vast areas have been cleared for farming.

11. Animal life of the forest is also marvelously varied.

12. As a rule, at least six land biomes are accepted by most scientists.

Упражнение 11. Из приведённых ниже предложений переведите на русский язык только те, в которых глаголы-сказуемые выражены формой страдательного залога.

1. People have been studying ecology for thousands of years.

2. Although ecological knowledge has been used by people for thousands of years, ecology is one of the newest of the sciences.

3. Hundreds of books were published on the behavior of animals.

4. During the 1800s scientists investigated the effects of day length on bird migration.

5. Lake Erie is badly polluted and "dying" as a result of wastes produced by people.

6. The burning of coal and other fuels has affected the entire atmosphere of the earth.

7. Some of the ideas of ecology, accepted for many years, are now being challenged and changed.

8. The lack of rain is sometimes caused by topography.

9. The climate of an area has a tremendous effect on its plant and animal life.

10. The living parts of any ecosystem can be divided into three groups: producers, consumers and decomposers.

Упражнение 12. Переведите приведённый ниже текст на русский язык. Контрольное время — 20 минут.

The northernmost forest, the coniferous forest, is a belt across Canada, northern Asia, and northern Europe. Fingers of this forest reach south along the high slopes of mountains such as the Rockies, where the climate is colder than in the lands below. Coniferous forests contain trees called conifers, or evergreens, which produce their seeds in cones.

Unlike permafrost, soil in the coniferous forest thaws completely in spring making some parts of it like a swamp. Indeed, these areas are often called taiga, a Russian word meaning "swamp forest". The taiga not only includes these areas but also the entire north-most region of the forest.

Lesson 10

Упражнение 1. (Парная работа) Быстро, не более чем за 3 минуты, прочитайте приведённый ниже текст и найдите в нём ответы на следующие вопросы.

1. Какие сельскохозяйственные культуры выращиваются в зоне влажных тропических лесов?
2. Почему в зоне влажных тропических лесов хозяйственная деятельность человека часто приводит к катастрофическим последствиям?
3. Какие географические районы принадлежат к зоне влажных тропических лесов?
4. Почему листья, упавшие на землю в указанной зоне, разлагаются очень быстро?
5. Какое минимальное количество годовых осадков выпадает в районах влажных тропических лесов?

Tropical Rain Forest

Tropical rain forest is incredibly rich with plant and animal life. It covers vast low-lying areas near the equator, in the Amazon Basin, Central America, central and western Africa, and the New Guinea region. Rain falls almost every day, with at least eighty inches during the year. There is plenty of sun energy, and little change in temperature from day to night or month to month.

This warm, wet (rain forests get at least 200 cm of rain yearly) climate produces a great abundance and variety of plants, including

thousands of species of tall evergreen trees. The trees support many climbing vines, and a variety of epiphytes, which cling to the trees but which, unlike vines, have no connection with the ground. (The trees and epiphytes have a commensal relationship.) Epiphytes catch rainwater in special roots that dangle in the air, or in the hollows of specially shaped leaves. Tropical epiphytes include orchids, peppers, ferns, and even cacti.

The ever-warm, ever-moist conditions of the tropics are ideal for decomposers, and leaves that fall to the forest floor decay very quickly. In fact, you may travel on bare soil while hiking through the rain forest. The interior of a rain forest is usually open and uncluttered, though dark. It is not the tangled jungle that many people picture. Only along roads, rivers, and on formerly cleared land — the places people see most often — does enough sunlight reach the ground to produce a thick "jungle" of plants.

Scientists are still mostly in the "what is it?" stage in the tropical rain forest, trying to identify the life that exists there. Since the complex rain forest ecosystems are so poorly understood, it is not surprising that changes made there by man sometimes have had disastrous results. When trees are felled and the land is cleared for farming, the soil quickly loses its fertility. In rain forests nearly all of the minerals are tied up in living plants and animals. At any one time the amount of minerals in the soil is very small. When trees are cleared from the land, rainwater soon carries the vital minerals deeper into the soil, beyond the roots of man's crops.

Although people are successfully raising coffee, rubber, sugar cane, cocoa, and other crops where rain forests once grew, many other farming efforts have ended with ruined soil that had to be abandoned. If rain forest is destroyed over a large area, it doesn't grow back but is replaced by a junglelike growth or grassland dotted with trees.

Упражнение 2. Вспомните значения следующих слов, встречающихся в предыдущих текстах:

to cover; soil, species; decomposer; leaf; jungle; living plants; effect; stage; growth; rainfall; commensal; identify; mostly; to fall; include; to raise.

Упражнение 3. (Парная работа) а) Прочитайте вслух приведённые ниже слова и определите их соответствия в русском языке. Произношение слов проверьте по словарю.

Equator, basin, central, region, energy, temperature, climate, specially, orchid, cactus (cacti), ideal, interior, jungle, complex, result, to farm, mineral, coffee, cocoa, to ruin.

в) Прочитайте вслух и найдите русские соответствия следующих географических названий:

Amazon Basin; Central America; western Africa; New Guinea.

Упражнение 4. (Парная работа) Определите значения подчёркнутых слов, исходя из контекста.

1. Tropical rain forest is incredibly rich with plant and animal life.

2. This warm, wet climate produces a great abundance and variety of plants.

3. The ever-warm, ever-moist conditions of the tropics are ideal for decomposers, and leaves that fall to the forest floor and decay very quickly.

4. Scientists are still mostly in the "what is it" stage in the tropical rain forest. Since the complex rain forest ecosystems are so poorly understood, it is not surprising that changes made there by man sometimes have had disastrous results.

5. When trees are felled and the land is cleared for farming the soil quickly loses its fertility.

Упражнение 5. Выпишите приводимые ниже слова в их начальной форме и определите, если это необходимо, их значения по словарю.

Produces, climbing, vines, roots, hollows, shaped, peppers, ferns, cacti, hiking, trying, exists, made, loses, uncluttered, carries, deeper, crops, successfully, raising, ended, ruined, replaced, dotted, epiphytes.

Упражнение 6. (Парная работа) Выберите из текста 10-12 ключевых слов.

Упражнение 7. (Парная работа) Найдите ключевые предложения в каждом абзаце текста.

Упражнение 8. (Парная работа) Придумайте подзаголовки для 1-го, 2-го и 4-го абзацев текста.

Упражнение 9. Найдите в тексте предложения, содержащие противопоставления, уточнения, иллюстрации каких-либо идей или положений. Определите, какими лексическими средствами осуществляются эти приёмы.

Упражнение 10. Найдите в тексте предложения, в которых говорилось бы о:

- а) сельскохозяйственной деятельности человека в зоне влажных тропических лесов;
- б) климатических характеристиках рассматриваемого биома;
- с) разновидностях эпифитов.

Упражнение 11. Определите, какие из приведённых ниже утверждений являются правильными, а какие — ложными.

- 1. Tropical rain forest is found in the far north of Europe.
- 2. Rain forests get less than 200 cm of rain yearly.
- 3. The climate here is like summer year round so plants can grow for all 12 months.
- 4. Rain forests have less varied plant life than any other land biome.
- 5. Scientists know everything about tropical rain forest.
- 6. If rain forest is destroyed over a land area, it quickly grows back.

Упражнение 12. Не заглядывая в текст, заполните пропуски в предложениях подходящими по смыслу наречиями из следующего списка:

- quickly, specially, formerly, poorly, incredibly.
- 1. The complex rain forest ecosystems are ... understood.
 - 2. When the land is cleared for farming, the soil ... loses its fertility.
 - 3. Epiphytes catch rainwater in the hollows of ... shaped leaves.

4. Tropical rain forest is ... rich with plant and animal life.
5. Only along roads, rivers and on ... cleared land does enough sunlight reach the ground.

Упражнение 13. Письменно переведите 4-ый абзац текста.
Контрольное время — 10 минут.

Lesson 11. Deserts

Упражнение 1. (Парная работа) Быстро, не более чем за 3 минуты, прочитайте приведённый ниже текст и найдите в нём ответы на следующие вопросы.

1. Какими особенностями обладают растения пустыни ?
2. Какое количество осадков выпадает в пустыне ?
3. Каким образом животные пустыни спасаются от нехватки воды ?
4. Каковы особенности климата пустыни ?

Deserts cover about 14 per cent of the earth's land surface and occur on all continents. Only ten inches of rain or less falls each year, and much of this evaporates quickly because of the high temperatures, frequent strong winds, and bright, cloudless days. Desert climates do vary however. The more northern deserts are often bitter cold in winter, with some snowfall. The Sahara Desert of northern Africa is the hottest and biggest; the Gobi of Mongolia is the coldest.

As in all biomes, the desert is home for plants and animals that are specially adapted for life in that environment. Many desert plants have small leaves or no leaves; this helps them conserve water. Cactus plants store water and swell up during the rainy season, then shrink as the dry months pass and most of the water is used. Some plants avoid the problem of water supply entirely. During the brief rainy season they sprout, grow, and flower. For a few days the desert is a colorful carpet of flowers. Then the plants die. Their seeds have tough coats which protect them until the next rainfall.

Most desert mammals drink little or no water. They get the water they need from their food, and stay in burrows or in shade during the

heat of the day. Some even go into a deep sleep during the driest months of the year.

Compared to the deciduous forests and grasslands, deserts have not been changed much by man. But people are turning to deserts more and more for farmland and home sites. Desert soils are often fertile and produce abundant crops if irrigation water is brought to them. To get this water, people sometimes tap supplies that have been stored for centuries deep beneath the desert floor. Once this "mined" water is gone, the farms have to be abandoned unless another source is found.

Other biomes include grassland, the tropical deciduous forest, the savanna, and the Mediterranean scrub forest. The last kind occurs where there are mild, wet winters and long, dry summers.

Упражнение 2. (Парная работа) Прочитайте текст ещё раз и постарайтесь наиболее полно воспроизвести его содержание на русском языке. Контрольное время — 7 минут.

Упражнение 3. В правой колонке найдите русские эквиваленты следующих английских слов и словосочетаний:

- | | |
|-----------------------|------------------------------|
| 1. scrub forest | 1. лиственный лес |
| 2. abundant crops | 2. водоснабжение |
| 3. deciduous forest | 3. климат пустыни |
| 4. water supply | 4. пастбище, степь |
| 5. desert climate | 5. сохранение воды |
| 6. grassland | 6. безоблачные дни |
| 7. water conservation | 7. богатые урожаи |
| 8. rainy season | 8. почвы пустыни |
| 9. cloudless days | 9. сезон дождей |
| 10. desert soils | 10. кустарниковое редколесье |

Упражнение 4. (Парная работа) Не заглядывая в текст, заполните пропуски в предложениях подходящими по смыслу словами. В случае необходимости воспользуйтесь словарём.

1. Desert plants have small leaves or no leaves; this helps them (evaporate; repel; conserve) water.

2. Some plants (decide; protect; avoid) the problem of water supply entirely.

3. Much of the rain (condenses; evaporates; precipitates) quickly because of high temperature and frequent strong winds.

4. Plant seeds have tough coats which (cover; protect; grow) them until the next rainfall.

5. Some desert plants (shrink; flower; sprout) as the dry months pass and most of the water is used.

6. Some desert mammals (come; go; have) into a deep sleep during the driest months of the year.

7. People are (changing; turning; getting) to deserts more and more for farmland and home sites.

Упражнение 5. (Парная работа) Постарайтесь определить значения подчёркнутых слов, исходя из контекста.

1. Deserts occur on all continents.

2. Deserts plants and animals are specially adapted for life in that environment.

3. Cactus plants store water during the raining season.

4. For a few days, during the brief rainy season, the desert is a colorful carpet of flowers.

5. Most desert mammals stay in burrows or in shade during the heat of the day.

Упражнение 6. Прочитайте вслух приведённые ниже интернациональные слова и найдите их соответствия в русском языке. В случае необходимости проверьте произношение этих слов по словарю.

Per cent; temperature; climate; very; specially; adapt; conserve; cactus; season; problem; protest; farm; irrigation; savanna.

Упражнение 7. Выберите подходящие по смыслу связующие элементы предложения.

A desert biome is an area (who, where, that) receives less than 25 centimeters of rainfall a year. Other desert biomes are (in, over, on) western North America, western Asia, the centre (at, of, as) Australia and (in, along, under) the west coast of South America.

A desert can be hot (or, as, but) cold. The Sahara is a hot desert, scorching (in, by, at) day, chilly (in, before, at) night. In a cool desert

such (that, as, also) the Gobi desert there is also a great difference (among, between, across) daytime and night time temperatures. (Also, Or, But) in a cool desert, winter temperatures may drop (below, above, at) freezing.

Упражнение 8. (Парная работа) В 1-ом, 2-ом и 4-ом абзацах текста найдите предложения, отражающие:

- основную идею;
- главные детали;
- второстепенные детали.

Упражнение 9. (Парная работа) Придумайте по 3-5 вопросов на английском языке ко 2-му и 3-му абзацам текста. Предложите ответить на них другой паре студентов. Затем, в свою очередь, ответьте на их вопросы.

Упражнение 10. (Парная работа) Определите, какие из приведённых ниже положений наиболее полно отражают содержание текста.

1. Some desert mammals go into a deep sleep during the driest months of the year.
2. The desert is home for plants and animals that are specially adapted for life in that environment.
3. Cactus plants store water and swell up during the rainy season.
4. Deserts cover about 14 per cent of the earth's land surface and occur on all continents.
5. Desert climate is characterized by high temperatures, frequent strong winds and bright, cloudless days.
6. Deserts have not been changed much by man.
7. Seeds of some desert plants have tough coats which protect them until next rainfall.
8. Scrub forest occurs where there are mild, wet winters and long, dry summers.

Упражнение 11. В данной таблице поставьте плюс в соответствующей колонке, предварительно определив, правильным или неправильным является то или иное утверждение.

Right	Wrong	
		<p>Many desert plants have small leaves or no leaves; this helps them conserve water.</p> <p>Some plants and animals can live without water.</p> <p>During the brief dry season the desert is a colorful carpet of flowers.</p> <p>Once the water is gone, the farms have to be abandoned unless another source of water is found.</p> <p>Many desert plants have small leaves or no leaves; this helps them to evaporate water.</p> <p>Deserts are incredibly rich with plant and animal life.</p> <p>Like the plants, desert animals must live on as little water as possible.</p>

Упражнение 12. Письменно переведите 4-ый абзац текста.
Контрольное время — 10 минут.

Упражнение 13. На английском языке составьте краткий план пересказа текста.

Упражнение 14. Напишите резюме текста, состоящее не более чем из 50-70 слов.

Упражнение 15. (Парная работа) В приводимом ниже тексте в каждой строке найдите ту позицию, которую должно занимать слово из правой колонки.

As you walk the desert you notice that the plants in the desert adapted to the lack of rainfall. Many have roots near the surface. This enables to absorb water quickly before the water evaporates. Plants such cactus, have thick fleshy stalks that them store water, you can only few animals in Sahara. Even so, they are there. By day creatures such as lizards rodents often escape the heat in burrows. Night brings to the surface searching for food.

through
are
wide-spread
them
as
help
see
and
underground
them

Упражнение 16. Выберите правильный вариант перевода выделенных слов.

1. The desert is home for plants and animals that are specially adapted for life in that environment.

а) адаптированы б) были адаптированы в) другой вариант
2. Once this water is gone, the farms have to be abandoned.

А) как только вода заканчивается

б) однажды вода закончилась

в) вода закончилась

3. Cactus plants store water, then shrink as the dry months pass and most of the water is used.

а) вода использовалась

б) используется

в) использованная вода

4. In a cool desert, winter temperatures may drop below freezing.

а) замерзает

б) точки замерзания

в) замерзающая

5. The Sahara desert is the world's largest desert, covering over 9 million km² of North Africa.

а) покрывающая

б) покрывает

в) покрывала

6. The Sahara desert expanded by 7% between 1980 and 1995.

а) увеличивается

б) увеличилась

в) увеличенная

7. Because of the warmer temperatures, more annual species grow, resulting in higher productivity.

а) приведённые к

б) приводящие к

в) приводя к

Упражнение 17. Заполните пропуски в приводимой ниже таблице.

Положительная степень	Сравнительная степень	Превосходная степень
colourful		

		hottest
		driest
		best
	less	
	worse	
brief		
high		

Упражнение 18. Устно переведите приводимый ниже текст.
Контрольное время — 5 минут.

At latitudes further north and south of the savannas, precipitation decreases, and savannas are replaced by semi-arid grasslands and deserts. Deserts are located primarily between 15⁰ and 30⁰ north and south latitude and cover about 26-35% of the Earth's land surface. This is an area where high-pressure systems and warm, dry air masses dominate the climate. However, deserts can also form on the side of mountains opposite that of prevailing winds. These are called rain deserts* and include the high elevation (3500- 4500 m) Puna desert in Australia.

*rain desert

пустыня с осадками

Lesson 12

Упражнение 1. (Работа в небольших группах) Прочитайте заголовки текста. Обсудите с другими студентами, о чём в нём будет идти речь. Вспомните, что Вы знаете по существу данного вопроса.

Упражнение 2. (Парная работа) Быстро, не более чем за 5 минут, прочитайте текст и найдите в нём ответы на следующие вопросы.

Почему неорганические вещества, попадающие в океаны, не оседают на дне?

В чём состоит трудность классификации природных систем?

Какова средняя глубина океана?

Water Environments. Oceans.

The distribution of biomes, determined mostly by climate, applies only to the pattern of life on land. That leaves the other 70 per cent of the world — the oceans — as well as freshwater streams, ponds, and lakes. Climate has some effect on these ecosystems, but the effect is not as great as on land. The water environments of the world are not divided into biomes, but ecologists classify them in other ways, for example, fresh water and salt water. Of course, nature often doesn't fit easily into the classification systems used by man. Fresh and salt water mix where rivers enter oceans. Such places are called estuaries, but it is difficult to tell exactly where an estuary ends and the ocean begins.

Oceans are easily the biggest and least understood of all ecosystems on earth. The nonliving parts of the ocean environment include waves, tides, currents, temperatures, pressures, and the amounts of light and salts. Although there are some large sea plants, such as kelp, the most important producers by far are the tiny, drifting plants called phytoplankton, especially diatoms.

Living things can be found anywhere in the ocean, even miles below the surface, but vast stretches of the sea have little life. The phytoplankton can manufacture food only where sunlight reaches, so most of these tiny plants don't live below two hundred feet. The average depth of the ocean is about 13,000 feet. This means that no food at all is produced in most of the ocean's waters.

The sea is rich in minerals. Rivers constantly carry them from the land and bacteria release them from dead material on the ocean floor. The minerals would stay on the bottom, however, if it weren't for currents that carry them to the surface zone of light in some areas. In these areas of upwelling currents, the waters are rich with phytoplankton which are fed upon by zooplankton, which in turn become food for large animals such as fish, whales, and sea birds.

Since the ocean environment is so different from that on land, life there is also very different. It begins with the smallest known plants and ends with the largest animals, the whales. The most varied and abundant life is found in and around coral reefs, which occur near shore or in other shallow waters of warm seas. They are like oases in an underwater desert.

Упражнение 3. (Парная работа) Прочитайте и переведите на русский язык словарные дефиниции некоторых терминов, с которыми вы встретились в тексте.

estuary — (эстуарий, дельта, устье реки) A coastal body of water which has a free connection with the sea and where fresh water is mixed with sea water.

kelp — (бурая водоросль, ламинария) Brown sea weeds that grow below the low-tide level.

phytoplankton — (фитопланктон, растительный планктон) The plant plankton and primary producers of aquatic ecosystems.

diatoms — (диатомовые водоросли) A microscopic alga in which the cell wall is composed of silica (двуокись кремния) and consists of two halves.

upwelling — (апвеллинг) A process of vertical water motion in the sea whereby subsurface water moves toward the surface.

zooplankton — (зоопланктон) Animals that inhabit the water column of oceans and lakes.

Упражнение 4. Укажите английские эквиваленты приведённых русских слов:

распределение	1. environment	определять	1. mean
	2. classification		2. divide
	3. distribution		3. enter
	4. effect		4. determine
вписываться	1. to depend on	включать в себя	1. to include
	2. to find in		2. to exclude
	3. to stay on		3. to switch on
	4. to differ from		4. to find
обнаруживаться	1. to be fed upon	пространство	1. drift
	2. to be produced		2. stretch
	3. to be carried		3. kelp

достигать	4. to be found	оставаться	4. average
	1. rich		1. to stand
	2. reach		2. to stay
	3. find		3. to carry
обильный	4. find	кит	4. to become
	1. varied		1. whale
	2. shallow		2. shark
	3. different		3. fish
	4. abundant		4. seafood

Упражнение 5. Разместите приведённые ниже слова в соответствующие тематические группы: термины, связующие элементы, общенаучная лексика.

Distribution, although, classification, system, but, estuary, kelp, diatoms, if, upwelling, in turn, since, average, environment, by far, tide, temperature, pressure, as.

Упражнение 6. Заполните пропуски подходящими по смыслу связующими элементами предложения.

Oceans cover ... 70 % of the Earth's surface. The distribution of organisms ... the oceans is controlled ... the interaction of water depth, latitude and distance ... shore. Most species are found in shallow water ... continents, ... this represents only about 8% of the total ocean area.

although, from, about, by, near, in.

Упражнение 7. Закончите на английском языке следующие предложения, используя информацию, содержащуюся в тексте.

Например. Распределение биом, определяемое, главным образом, климатом ... **applies only to the pattern of life on land.**

1. Наиболее важными продуцентами в водной среде являются

2., так что большинство этих крошечных растений не живут глубже 200 футов.

3. Живые вещества можно обнаружить в любой точке океана, даже

4. Если бы не течения, которые переносят минеральные вещества к поверхности,

5. Поскольку условия жизни в океане значительно отличаются от условий жизни на суше,

6. Пресная и солёная вода перемешиваются там, где

Упражнение 8. Исходя из содержания прочитанного текста, выберите правильный вариант предлагаемых слов.

1. The distribution of biomes is determined mostly by (climate / weather).

2. The minerals would stay on the (bottom / surface), if it weren't for currents that carry them to the surface zone.

3. The ocean environment is different from that on land (since / so) life there is also very different.

4. Although there are some large sea plants, the most important producers by far are the tiny, drifting plants called (zooplankton / phytoplankton).

5. Coral reefs occur near shore or in other (shallow / deep) waters of warm seas.

Упражнение 9. Составьте как можно большее количество английских предложений, которые содержали бы следующие слова и словосочетания:

is / are determined by; has / have some effects on ... ; is / are divided into; ecologists classify smth ... ; is / are called; include; can be found; is / are produced; is / are rich with; occur.

Предложения, составленные вами, должны отличаться от предложений анализируемого текста.

Упражнение 10. Используя как можно большее количество выученных слов из текста, подготовьте на английском языке короткие устные сообщения на одну из следующих тем.

1. Океаны как экосистема.

2. Фито- и зоопланктон.

3. Различия жизни в морской среде и на суше.

Упражнение 11. Найдите и переведите на русский язык подлежащие и сказуемые каждого предложения первого абзаца.

Упражнение 12. Письменно переведите предлагаемый ниже текст. Контрольное время — 20 минут.

Oceans cover about 70% of the Earth's surface. The distribution of organisms in the oceans is controlled by the interaction of water depth, latitude and distance from shore. Most species are found in shallow water near continents, although this represents only 8% of the total ocean area. There are three major ocean habitats, each with sub-habitats.

The neritic (прибрежная) zone is made up of the shallow ocean waters along coasts. It is inhabited by a comparatively large number of species. The neritic zone encompasses depths from 0 m to 200 m, and is characterized by the interaction of land and sea. This zone is influenced by wave action, and receives high amounts of nutrients from land surfaces.

Lesson 13

Упражнение 1. (Парная работа) Ниже приводятся несколько предложений из каждого абзаца текста. Этого должно быть достаточно, чтобы вы смогли сделать выводы о содержании текста и его названии.

1. Estuaries are places where fresh water from a river meets the salt water of the ocean.

2. The great value of estuaries as nurseries for sea life and as sources of food is unknown for many people.

3. Lakes and ponds share some characteristics with oceans.

4. One big difference between lakes and oceans is that the oceans are so vast that the land environment has little effect on them.

5. Life is most abundant in the lake and pond waters where sunlight reaches the bottom and rooted plants provide food and hiding places.

Estuaries are sometimes called bays, tidal marshes, or sounds. They are places where fresh water from a river meets the salt water of the ocean. The saltiness of an estuary varies; there is usually less fresh water flowing into the estuary in the summer. The mixing of the lighter fresh water with the heavier salt water tends to keep the minerals and other nutrients circulating in the estuary, instead of being im-

mediately swept out to sea. Because of this "nutrient trap", estuaries are rich with food, including blue crabs, lobsters, oysters, scallops, and many kinds of fish.

Estuaries have been called the "cradles of the sea". Ocean fish and shad lay their eggs in estuaries and the young spend part of their lives there. The great value of estuaries as nurseries for sea life and as sources of food is unknown or ignored by many people. As a result, estuaries are being rapidly destroyed — filled in, poisoned, polluted. There is no better example of man's ignorance of the web of nature on which his survival depends.

Lakes and ponds share some characteristics with oceans. Big lakes have depths where sunlight never reaches. The bigger and deeper the lake, the more important are the phytoplankton as food producers in the ecosystem.

One big difference between lakes and oceans, besides the amount of salts dissolved in the water, is that the oceans are so vast that the land environment has little effect on them. Lakes and ponds can be greatly affected by changes that occur in the surrounding land. Although these standing bodies of water often have outlet streams, they are mostly closed ecosystems. Most of the material that enters a lake or pond stays there. The basin of a lake or pond gradually fills up, first becoming a marsh and eventually dry land.

Life is most abundant in the lake and pond waters where sunlight reaches the bottom and rooted plants provide food and hiding places. Aquatic insects and fish make up the bulk of the animal life. The edges (ecotones) of ponds and lakes are especially good places to see wildlife. Frogs, turtles, and snakes often come ashore or near it in their quest for foods; land animals such as raccoons and deer also feed along the edges.

Упражнение 2. (Парная работа) Проверьте, помните ли вы значения следующих слов и словосочетаний из приведённого выше текста, которые встречались вам ранее. В случае необходимости воспользуйтесь словарём.

Fresh water; salt water; mixing; nutrient; food; value; include; source; depth; sunlight; producers; land environment; effect; affect; occur; body of water; closed ecosystem; to stay; abundant; to reach; insect.

Упражнение 3. (Парная работа) В правой колонке найдите русские эквиваленты следующих глаголов. В случае необходимости воспользуйтесь словарём.

- | | |
|------------------|--------------------------------|
| 1. to vary | 1. откладывать (напр. личинки) |
| 2. to circulate | 2. отравлять |
| 3. to lay | 3. изменяться |
| 4. to destroy | 4. (зд.) попадать куда-либо |
| 5. to fill in | 5. зарастать, заполнять(ся) |
| 6. to poison | 6. прятать |
| 7. to dissolve | 7. циркулировать |
| 8. to enter | 8. растворять(ся) |
| 9. to hide | 9. составлять |
| 10. to make up | 10. выливать; выносить |
| 11. to sweep out | 11. разрушать; уничтожать |

Упражнение 4. (Парная работа) Найдите русские эквиваленты следующих словосочетаний. В случае необходимости воспользуйтесь словарём.

Water saltness; "cradle of the sea"; to lay eggs; to spend life; a source of food; man's ignorance; to share characteristics; food producers; amount of salts; to be dissolved in water; to have effect on; to be affected by; surrounding land; standing bodies of water; a basin of a lake; hiding place; aquatic insects; an edge of a pond.

Упражнение 5. (Парная работа) В правой колонке найдите русские эквиваленты следующих существительных:

- | | |
|--------------|-----------------------------|
| 1. a bay | 1. марш (прибрежное болото) |
| 2. a marsh | 2. краб |
| 3. a sound | 3. залив, бухта |
| 4. a crab | 4. енот |
| 5. a lobster | 5. олень |
| 6. an oyster | 6. пролив |
| 7. a scallop | 7. гребешок |
| 8. a frog | 8. устрица |
| 9. a turtle | 9. черепаха |
| 10. a snake | 10. лягушка |
| 11. a racoon | 11. змея |
| 12. a deer | 12. омар |

Упражнение 6. Определите значения подчеркнутых слов и словосочетаний, исходя из контекста.

1. Ocean fish and shad lay their eggs in estuaries and the young spend part of their lives there.

2. The great value of estuaries as nurseries for sea life and as sources of food is unknown or ignored by many people.

3. There is no better example of man's ignorance of the web of nature on which his survival depends.

4. Although these standing bodies of water (lakes and ponds) have outlet streams, they are mostly closed ecosystems.

5. Aquatic insects and fish make up the bulk of the animal life.

Упражнение 7. Определите русские эквиваленты выделенных связующих элементов предложения.

1. The mixing of the lighter fresh water with the heavier salt water tends to keep the minerals circulating in the estuary, instead of being immediately swept out to sea.

а) несмотря на б) вместо того, чтобы в) при условии, что

2. Because of this "nutrient trap", estuaries are rich with food.

а) потому, что б) в зависимости от в) благодаря

3. One big difference between lakes and oceans, besides the amount of salts dissolved in the water, is that the oceans are so vast, that the land environment has little effect on them.

а) вместе с б) несмотря на в) помимо

4. Although these standing bodies of water often have outlet streams, they are mostly closed ecosystems.

а) хотя б) также в) следовательно

5. The great value of estuaries as sources of food is unknown or ignored by many people.

а) когда б) по мере того, как в) в качестве

Упражнение 8. Заполните пропуски подходящими по смыслу связующими элементами предложения. Запомните значения следующих терминов, которые встретятся вам в предлагаемом тексте:

littoral zone — литоральная зона (зд. береговая зона озера);

pelagic zone — пелагическая зона (толща водяного бассейна);

photic zone — световая зона (толща воды);

aphotic zone — афотическая зона; зона, лишённая света.

Freshwater lakes are limited to about 2% ... the Earth's surface. They are strongly influenced ... the surrounding land, with marshes ... swamps representing intermediate zones. We can divide lakes ... zones similar to those of the sea ocean. There is a littoral zone of open water close ... shore; a pelagic zone of open water; a surface photic zone ... the pelagic ... light penetrates; and a deep aphotic zone in the pelagic ... little light penetration.

into, where, of, with, to, by, and.

Упражнение 9. В приведённой ниже таблице поставьте плюс в соответствующей колонке, предварительно определив, правильными или неправильными являются следующие утверждения.

Right	Wrong	
		<ol style="list-style-type: none">1. Life is most abundant in aphotic zones.2. Lakes and oceans have the same amount of salts dissolved in the water.3. Changes occurring in the surrounding land greatly affect lakes and ponds.4. Due to the mixing of the fresh water with salt water minerals and other nutrients circulating in the estuary are swept out to sea.5. Crabs, lobsters, oysters, scallops are various kinds of fish.6. The smaller and the shallower the lakes, the more important are phytoplankton as food producers in the ecosystem.

Упражнение 10. Найдите в тексте, подлинное название которого "Estuaries, Ponds and Lakes", доказательства справедливости следующих утверждений.

1. The saltiness of an estuary varies.
2. The great value of estuaries as sources of food is ignored by many people.
3. The ecotones of ponds and lakes are especially good places to see wildlife.

Упражнение 11. В приводимом ниже тексте имеются два предложения, которые не соответствуют его общему содержанию. Найдите эти предложения.

During the summer, surface waters in high and mid latitude lakes warm up. The climate of temperate deciduous forests is characterized by mild winters, with warm wet summers. A temperature gradient then develops between surface and deep layers. Density differences due to differences in temperature prevent surface waters from mixing with deeper waters. The distinct seasons create a marked change in the ability of sunlight to penetrate throughout the forest. Deeper waters, where decomposition of dead plant and animal material is taking place, may therefore become depleted in oxygen, which can lead to fish mortality.

Упражнение 12. В тексте "Estuaries, Ponds and Lakes" найдите пример, который иллюстрирует какое-либо положение, выдвинутое автором.

Упражнение 13. В приведённых ниже предложениях найдите те, сказуемые которых выражены формой страдательного залога. Переведите эти предложения. Не забудьте, что формула **to be + Part. II** не всегда свидетельствует о наличии страдательного залога.

1. Estuaries have been called "the cradle of sea".
2. The great value of estuaries as nurseries for sea life and as sources of food is unknown to many people.
3. Estuaries are being rapidly destroyed.
4. Land environment has little effect on lakes and ponds.
5. Lake and ponds can be greatly affected by changes that occur in the surrounding land.
6. These standing bodies of water are mostly closed ecosystems.
7. Aquatic insects and fish make up the bulk of the animal life.
8. Land animals also feed along the edges of ponds and lakes.

Упражнение 14. Письменно переведите предложенный ниже текст. Контрольное время — 15 минут.

Eutrophic lakes, with higher nutrients and greater phytoplankton production are especially sensitive to this oxygen depletion. In the

spring and autumn, as temperatures cool, density differences are eliminated, and mixing occurs, accelerated by surface winds. Thus, most temperate lakes experience a mixing of deep and surface waters twice a year. In tropical lakes, the thermocline remains unless strong winds or cooler conditions occur that can cause mixing.

Lesson 14

Упражнение 1. (Парная работа) Переведите заглавие приводимого ниже текста. Обсудите между собой его предполагаемое содержание. Вспомните, что вы знаете по существу данного вопроса.

Упражнение 2. (Парная работа) Прочитайте текст и найдите в нём ответ на следующий вопрос.

Сколько времени требуется для очистки реки от загрязняющих веществ при условии, что их последующий доступ в реку будет прекращён?

Rivers and Streams

Rivers and streams make up a very small part of the total surface of the earth but of all the ecosystems they are perhaps the most intensely used by people. Throughout the history of man they have been used for water, power, food, recreation, transportation, and waste disposal. Today the sickest rivers are in the nations considered to be the richest and most advanced. Unlike lakes and ponds, rivers and streams are open ecosystems. Minerals and other nutrients enter them from watersheds and are carried steadily downstream. They don't accumulate as they would in the basin of a lake.

As a river or stream nears an ocean or lake, it flows slowly and drops more and more fine particles of soil (silt) on its bottom. Dead plant material builds up on the bottom, attracting many more decomposers and bottom-dwelling fish. Plankton populations are never great in rivers and streams, but they do add to the food production of sluggish streams.

Few streams exist that haven't been affected by humans through pollution by silt, sewage, or industrial wastes. Given a chance, a

stream can rid itself of many pollutants. But nowadays the load of wastes in streams is sometimes so great that the decomposers cannot cope with it. Even if no more pollutants were added, it would take years for many rivers to cleanse themselves.

When ecologists study biomes and ecosystems, they try to understand nature as it existed before humans made great changes. This is increasingly difficult because all of the web of nature has been affected by man and some ecosystems have been greatly modified. Man's effects on nature can't be ignored. This doesn't mean that ecologists will stop investigating nature in those wild areas that have been little touched by man. It does mean, however, that ecologists will devote more effort to understanding "man-made" ecosystems. Take, for example, the "big city" or "suburban sprawl" ecosystems. You won't find them listed in any *Textbook* on ecology. Yet these are the ecosystems where many people live and work, and surprisingly little is known about them.

Упражнение 3. (Парная работа) В правой колонке найдите русские эквиваленты следующих глаголов:

- | | |
|-----------------|------------------------|
| 1. to make up | 1. существовать |
| 2. to near | 2. поступать, попадать |
| 3. to enter | 3. избавиться от |
| 4. to build up | 4. зд. накапливать(ся) |
| 5. to exist | 5. пытаться, стараться |
| 6. to rid of | 6. справиться с |
| 7. to cope with | 7. составлять |
| 8. to try | 8. посвящать, уделять |
| 9. to devote | 9. перечислять |
| 10. to list | 10. приближаться |

Упражнение 4. (Парная работа) Определите исходную форму выделенных слов. Найдите их эквиваленты в русском языке.

1. Today the sickest rivers are in the nations considered to be the richest and most advanced.

2. Dead plant material builds up on the bottom attracting many more decomposers and bottom-dwelling fish.

3. Few streams exist that haven't been affected by humans through pollution.

4. This doesn't mean that ecologist will stop investigating nature.

5. Man's effects on nature can't be ignored.

Упражнение 5. (Парная работа) Найдите русские соответствия следующих интернациональных слов:

recreation, transformation, nation, accumulate, basin, total, attraction, population, production, nature, modify.

Упражнение 6. В левой колонке приведены английские термины, в центральной — их словарные дефиниции, в правой — русские эквиваленты английских терминов. Сопоставьте соответствующие элементы каждой колонки.

1. Ecosystem	1. In geology, according to the most widely used scales, particles between 4 microns and 62 microns.	1. Площадь водосбора, водораздел
2. Watershed	2. In an ecosystem, decomposer organisms enable nutrient recycling by breaking down the complex organic molecules of dead protoplasm and cell walls into simpler organic and inorganic molecules.	2. Биом
3. Silt	3. The area from which a surface watercourse or a groundwater system derives its water.	3. Загрязняющее вещество
4. Decomposer	4. A by-product of human activities which enters or becomes concentrated in the environment where it may cause injury to humans or desirable species.	4. Экосистема
5. Pollutant	5. A term used to describe a discrete unit that consists of living and non-living part, interacting to form a stable system.	5. Ил
6. Biome	6. A biological subdivision that relates the ecological and physiognomic character of the vegetation.	6. Деструктор, редуцент

Упражнение 7. В приведённых ниже предложениях заполните пропуски подходящими по смыслу наречиями.

1. ... little is known about the ecosystems where many people live and work.

2. It is ... difficult to understand nature before humans made great changes because all of the web nature has been affected by man.

3. Of all the ecosystems rivers and streams are perhaps the most ... used by people.

4. Minerals and other nutrients enter rivers and streams and are carried ... downstream.

5. Freshwater lakes are ... influenced by the surrounding land.

strongly, increasingly, intensely, surprisingly, steadily.

Упражнение 8. Выберите из текста по 2-3 ключевых слова из каждого абзаца.

Упражнение 9. К каждому абзацу составьте 1-2 английских предложения, которые бы наиболее полно отражали его содержание.

Упражнение 10. Используя составленные предложения (см. *Упражнение 9*), составьте краткий пересказ текста на английском языке.

Упражнение 11. В каждом из приведённых ниже предложений найдите глагол-сказуемое, определите его видо-временную форму и переведите на русский язык.

1. Rivers and streams have been used for water, power, food, recreation, transportation and waste disposal.

2. Minerals enter rivers and streams from watersheds and are carried downstream.

3. As a river nears an ocean or lake, it flows slowly and drops more and more fine particles of soil on its bottom.

4. Few streams exist that haven't been affected by humans through pollution by silt, sewage, or industrial wastes.

5. Given a chance, a stream can rid itself of many pollutants.

6. Even if no more pollutants were added, it would take years for many rivers to cleanse themselves.

7. All of the web of nature has been affected by man and some ecosystems have been greatly modified.

8. Man's effects on nature can't be ignored.

9. This doesn't mean that ecologists will stop investigating nature in those wild areas that have been little touched by man.

10. In the spring and autumn density differences are eliminated and mixing occurs, accelerated by surface winds.

Упражнение 12. Письменно переведите предлагаемый ниже текст. Контрольное время — 20 минут.

There are few rivers in the UK, especially in England, that have not been altered in some way by human activity. To improve drainage, river beds may be dredged. Some rivers with winding paths have been straightened in order to make more use of the land around them.

These changes can have enormous effects on many abiotic factors associated with the river and therefore on the organisms that live in it. For example, straightening results in the loss of the natural variety of habitats that previously existed.

The taking of water for human use has also had enormous effects on some rivers. Water companies may take water directly from a river, or from other sources nearby that can eventually result in less water flowing in the river. This can result in a river completely drying up, especially in periods of drought. This happened to the river Kennet in southern England.

Упражнение 13. Ещё раз просмотрите тексты раздела "Биомы" и заполните графы следующей таблицы.

Biome	Geographical Position	Climate	Common Plants	Common Animals
Tundra				
Taiga				
Tropical Rain Forest				
Deserts				

Упражнение 14. Подготовьте краткое сообщение на английском языке, в котором говорилось бы о характерных особенностях каждого из перечисленных в упражнении 13 биома.

Тесты к блоку 2

ТЛ

I Заполните пропуски в предложениях подходящими по смыслу словами. В своих работах укажите только цифры (номера предложений) и буквы (выбранное слово). Например: 1-а, 2-с и т.д.

1. To bring some order to the variety of landscapes scientists have grouped landscapes with similar climates, plants and animals into divisions called ...

- a) ecosystems b) biomes c) ecotones

2. The frozen soil is called ...

- a) rock b) thaw c) permafrost

3. The northernmost forest is the ... forest.

- a) coniferous b) rain tropical c) deciduous

4. ... trees, such as oaks and maples, shed their leaves in the autumn.

- a) coniferous b) deciduous c) rain tropical

5. A ... biome is an area that receives less than 25 cm of rainfall a year.

- a) tundra b) rain tropical c) desert

6. ..., or northern coniferous forest, is made up almost completely of spruce and fir trees.

- a) desert b) taiga c) diatoms

7. ... cover about 70% of the Earth's surface.

- a) ponds b) oceans c) estuaries

II Укажите цифрой слова, которые по своему значению не соответствуют данной тематической группе. Например: а-1, б-2 и т.д.

1 2 3 4 5
a) prevail, include, surround, grow, current;

1 2 3 4 5
b) have, permafrost, jungle, moss, birch;

1 2 3 4 5
c) stream, pond, oil, lake, estuary;

1 2 3 4 5
d) kelp, epiphyte, phytoplankton, zooplankton, diatoms;

- 1 2 3 4 5
e) bear, oyster, scallop, crab, lobster.

III В правой колонке найдите русские соответствия приведённых английских слов и словосочетаний, обозначив их в своих работах соответственно буквами и цифрами.

- | | |
|-------------------------|--------------------------------|
| a. determine | 1. разлив нефти |
| b. annual precipitation | 2. почвы пустыни |
| c. oil spill | 3. распределение |
| d. beech | 4. бурая водоросль |
| e. abundance | 5. испарять(ся) |
| f. desert soils | 6. определять |
| g. evaporate | 7. залив, бухта |
| h. store (v.) | 8. отравлять |
| i. distribution | 9. накапливать |
| j. kelp | 10. годовое количество осадков |
| k. poison (v.) | 11. берёза |
| l. bay | 12. изобилие |

TT

I В приводимом ниже тексте заполните пропуски подходящими по смыслу словами. В своих работах укажите только последовательность цифр, обозначающих эти слова.

Biome divisions are merely a system to help scientists ... the natural world. As you might expect not all scientists divide the world ... the same kinds and number ... biomes. However, as a rule, ... six land biomes are accepted ... most scientists. The six major land biomes ... tundra, coniferous forest, deciduous forest, tropical rain forest ... and desert.

- | | | | | |
|--------------|-------------|--------|-------|-------|
| 1. at least | 2. describe | 3. are | 4. by | 5. of |
| 6. grassland | 7. into | | | |

II В приведённом ниже тексте определите, где заканчивается одно и начинается другое предложение. В своих работах

укажите лишь слова, после которых начинается новое предложение.

The system of classifying the world's ecological systems into biomes is used to categorize similar communities on a broad, regional scale classifying biomes relies upon the outward appearance of the dominant vegetation types in an area biomes differ in their productivity and biodiversity equatorial regions have the highest productivity and biodiversity, and both tend to decrease at higher latitudes as with terrestrial systems, we can divide marine and freshwater systems into broad categories that differ in biodiversity and productivity.

ТГ

I Укажите буквой правильный перевод выделенных форм.

1. The climate of the tundra is, in fact, like a cold desert.
а) нравится б) похож в) другой вариант перевода
2. Even in spring and summer the soil stays permanently frozen up to about a finger's length of the surface.
а) замерзает б) замерзшей в) замёрзла
3. Lichens cover rocks and bare ground like a carpet.
а) покрывают б) покров в) другой вариант перевода
4. In the Rockies the climate is colder than in the lands below.
а) холодный б) самый холодный в) холоднее
5. Sometimes called the "great north woods", the coniferous forest has fewer types of trees than those in warmer regions.
а) был назван б) называемый в) назвал
6. The lake has been formed behind a dam of sticks and logs.
а) образовалось б) образуется в) имеет форму
7. Rain forests have more varied plant life than any other land biome.
а) имеют более разнообразную растительную жизнь б) изменили более разнообразную растительную жизнь в) имели более разнообразную растительную жизнь
8. At the same time, in some parts of Africa there had been no rain for more than seven years.
а) там не было дождя б) дождя не было в) там был дождь
9. As time goes on more and more water on the earth is becoming unusable.

- а) станет непригодной б) стала непригодной с) становится непригодной

10. Ground water is water found below the surface of the earth.

- а) находится б) была найдена с) вода, которая находится

II *Письменно переведите приводимый ниже текст. Контрольное время — 10 минут.*

Savanna biomes

Savannas cover 60% of the land area in Africa, and are found in India, Australia and South America, especially Brazil. Savannas represent a transition between tropical forests and deserts. There are several subtypes of savanna, distinguished by the amount of rain they receive.

Fire plays a major role in the formation and maintenance of savanna biomes. Repetitive fires have occurred in the African savanna over the last 50 000 years. The most common fires are fast-moving surface fires. The soil provides a good insulator, so most plant seeds and underground plant parts are protected from damage.

Part II

CONSERVATTON
of NATURE

Lesson 15. The Greatest Task for Humankind

Упражнение 1. (Парная работа) Прочитайте текст и по-русски ответьте на приведённые ниже вопросы. Запомните значения следующих слов и словосочетаний, которые встретятся вам в тексте:

— an impact on the environment — воздействие, нагрузка на окружающую среду

— enormously — зд. в огромной степени

— to clear forests — вырубать леса

— to drain wetlands — осушать заболоченные территории

— habitat — среда (место) обитания

— acidification — подкисление, превращение в кислоту

— global warming — глобальное потепление

— harm — вред, ущерб

— agreement — соглашение

— ozone layer — озоновый слой

Вопросы к тексту.

1. Почему воздействие на окружающую среду постоянно возрастает?

2. С какой целью происходит рубка лесов и осушение заболоченной местности?

3. Каковы последствия этих действий для окружающей среды?

4. Кто и каким образом пытается решить проблемы окружающей среды?

5. Что означает английский термин "conservation"?

Principles of Conservation

The impact of humans on the environment has increased enormously over the last few centuries. This has happened because of human population growth, and our ever-increasing exploitation of resources in the environment. We have cleared forests and drained wetlands to provide land for agriculture, buildings and transport links. Intensive farming has transformed habitats. Increases in demands for energy have meant that more and more fossil fuels have been burnt,

releasing into the atmosphere gases that have resulted in acidification of rain, and that may result in global warming.

As these problems have grown, so has people's awareness of the damage we are doing. Increasingly, many people want to do something to prevent further harm. Non-governmental environmental groups are increasing in number, size and effectiveness. And international agreements between governments of many countries have attempted to solve some of the major global problems such as the damage to the ozone layer and global warming.

All of these efforts to prevent further harm to the environment and efforts to try to reverse the harm we have already done, come under the broad heading of "conservation".

Упражнение 2. Письменно переведите текст на русский язык. В случае необходимости воспользуйтесь словарём. Контрольное время — 20 минут.

The Greatest Task for Humankind

The greatest task for humankind over the coming century will be to reconcile the needs of a growing population with the requirement to behave in ways that are environmentally sustainable. As the human species appropriates more and more natural resources for our own purposes, it will be increasingly important for us to understand the processes that drive the natural environment.

If we fail, the consequences will be literally unimaginable. To succeed, people in all walks of life will need an ever-deeper understanding of how the human species fits into the wider ecology of the planet; this will involve a detailed comprehension of the effects that our own-species continues to have on the physical environment and on other life forms, and an equally detailed comprehension of their effects on us. This understanding will only come through a full appreciation of the fundamental principles of ecology.

Блок 3. Water Pollution

Lesson 16. Water Pollution Defined

Упражнение 1. (Парная работа) Прочитайте заглавие текста. Обсудите между собой: а) о чём пойдёт речь в тексте; б) что вы знаете по существу данного вопроса.

Упражнение 2. (Парная работа) Выпишите 10-15 русских терминов, английские эквиваленты которых могут, с вашей точки зрения, встретиться в тексте с таким названием.

Упражнение 3. Быстро прочитайте текст и постарайтесь наиболее полно воспроизвести его содержание на русском языке. Контрольное время — 7 минут.

Данные слова и словосочетания помогут вам понять содержание текста:

- beneficial water use — рациональное использование воды, использование воды для потребностей человека;
- pure water — (химически) чистая вода
- suitable for — пригодная для чего-либо
- dissolved oxygen — растворённый кислород
- depletion — уменьшение, истощение
- to treat — обрабатывать
- turbid — мутный
- discharge of waste — сброс сточных вод, удаление отходов
- foreign matter — примесь, инородное вещество

Water Pollution Defined

The simplest definition of water pollution is "the loss of any of the actual or potential beneficial uses of water caused by any change in its composition due to human activity". The beneficial uses of water are varied and include its use for drinking and for domestic purposes, for watering livestock and the irrigation of crops, for fisheries, for industry and for food production, for bathing and for recreational use.

Pure water — H_2O , water absolutely free from any substances dissolved in it — does not exist outside the laboratory, as natural water

contains dissolved gases and salts. These substances are often the very factors which make the water suitable for particular beneficial uses.

Water must have an adequate level of dissolved oxygen if fish are to thrive — without it they will die. (As explained later, the great majority of pollution instances on our rivers are attributable to the depletion of the dissolved oxygen.)

It cannot be expected that natural waters will be immediately suitable for the whole range of beneficial uses. Nobody should expect to be able to drink the water in any river, for instance, without its being treated before use. In its natural state, depending on local usage, the weather and other factors, the water may be turbid or very highly coloured, and hence unattractive to the user. More importantly, river water is most unlikely to be microbiologically pure, that is, free of those minute organisms (bacteria and the like), some of which can cause disease in humans.

In these cases, water pollution means that, because of some human activity the water is no longer suitable for some potential use, such as drinking water, even after treatment. To illustrate, if a river from which water is taken for treatment for drinking receives a discharge of chemical or possibly toxic waste, the water may be made completely unsuitable for eventual distribution. The local authority treatment works will usually have been designed to remove the natural contaminants — colouring matter, particles causing turbidity, micro-organisms, etc. — and therefore may be unable to cope with a heavy load of completely foreign matter such as a chemical waste.

Упражнение 4. (Парная работа) В правой колонке найдите русские эквиваленты следующих английских слов и словосочетаний:

- | | |
|----------------|---------------------------------------|
| a. heavy load | 1. удалять |
| b. remove | 2. сброс |
| c. livestock | 3. состав |
| d. discharge | 4. ряд, диапазон |
| e. oxygen | 5. скот |
| f. composition | 6. рыболовство |
| g. fishery | 7. (зд.) высокое содержание чего-либо |
| h. eventual | 8. больше не |
| i. range | 9. загрязняющее вещество |

- | | |
|--------------------|--------------------|
| j. no longer | 10. кислород |
| k. local authority | 11. конечный |
| l. contaminant | 12. местные власти |

Упражнение 5. Определите значения подчёркнутых слов, исходя из контекста.

1. The beneficial uses of water include its use for domestic purposes, for watering livestock and irrigation of crops.

2. Pure water — water absolutely free from any substances dissolved in it — does not exist outside the laboratory.

3. These substances are often the very factors which make the water suitable for particular beneficial uses.

4. In its natural state, the water may be turbid or very highly coloured and hence unattractive for the user.

5. River water is most unlikely to be free of those minute organisms, some of which can cause disease in humans.

6. In these cases the water is no longer suitable for some potential use even after treatment.

7. The local authority treatment works may be unable to cope with a heavy load of completely foreign matter such as a chemical waste.

Упражнение 6. Выберите подходящие по смыслу связующие элементы предложений. В случае необходимости воспользуйтесь словарём.

1. Natural waters are not suitable (at, in, for) the whole range of beneficial uses.

2. The local authority treatment works will usually have been designed to remove the natural contaminants and (therefore, for, as) may be unable to cope with a heavy load of foreign matter.

3. In some cases, water pollution means that (because, because of, so) some human activity the water is no longer suitable for some potential use.

4. Drinking water (with, without, within) dissolved oxygen is not very palatable.

5. In its natural state water may be turbid or very highly coloured, and (hence, because, as) unattractive to the user.

6. Pure water does not exist (inside, outside, in) the laboratory.

diversity indices — показатели разнообразия (видового состава)

Some sources of water pollution may contain organic substances that act as nutrients for bacteria that live in rivers or the sea. Such pollutants include untreated (raw) sewage and run-off from food-processing factories. When such substances enter the water, the population sizes of the bacteria that feed on them are able to increase rapidly. These bacteria are aerobic — that is, they respire using oxygen. As their numbers increase, they use up more and more oxygen from the water. The concentration of dissolved oxygen therefore decreases, making it difficult or impossible for many organisms to survive there.

Упражнение 14. Выберите правильный вариант перевода подчёркнутых форм.

1. Water must have an adequate level of dissolved oxygen.
а) должна иметь б) может иметь в) имеет

2. Nobody should expect to be able to drink the water in any river.
а) не может ожидать б) не следует ожидать в) можно было бы ожидать

3. In its natural state, the water may be turbid or very highly coloured.
а) может быть б) должна быть в) могла бы быть

4. River water is most unlikely to be free of those minute organisms, some of which can cause disease in humans.
а) должны вызвать б) могут вызвать в) вероятно вызывают

5. Nobody should expect to be able to drink the water in any river,
а) нужно пить воду б) можно пить воду в) воду можно было пить

6. The beneficial uses of water include its use for drinking, irrigation of crops, for fisheries, etc.
а) питьевой б) пьющий в) питья

7. Pure water — H_2O , water absolutely free from any substances dissolved in it — does not exist outside the laboratory.

а) растворённых б) растворяющих в) были растворены

8. Except in the driest of seasons river water is constantly flowing.
а) текущая б) течёт в) течение

9. The residual waste will be diluted by clean water flowing down stream.

- а) течёт б) течение в) текущей

10. The key to the resolution of water problems is control by water quality management planning, by licensing of discharges, etc.

- а) планирующий б) планы в) планирование

11. The careful control of discharges to rivers and lakes will go a long way towards restoring and preserving the good quality of water.

- а) сохранение б) сохраняющий в) другой вариант перевода

12. The concentration of dissolved oxygen decreases, making it difficult for many other organisms to survive.

- а) затрудняющий б) затрудняя в) затруднения

Lesson 17. How Pollution Takes Effect

Упражнение 1. (Парная работа) Прежде чем прочитать текст, постарайтесь вспомнить, какие физические и химические процессы участвуют в механизме загрязнения водных объектов. А теперь найдите в тексте ответы на следующие вопросы.

а) Каковы последствия загрязнения токсикантами водных объектов ?

б) Как увеличение массы бактерий влияет на количество растворённого кислорода в воде ?

в) Каковы основные принципы загрязнения водных объектов?

г) Что такое "анаэробное состояние" водного тела?

How Pollution Takes Effect

The majority of pollution instances are caused by the sudden or continuing, accidental or deliberate, discharge of polluting material which, on first consideration, might not seem harmful or offensive at all. Such pollution events are caused by the discharge of non-toxic organic matter — waste from creameries, sewage (treated or untreated), manure slurry, food production waste and silage effluent — to waterbodies.

When there is an uncontrolled discharge of organic material (sewage, milk, etc.) the constraining factor on the growth of the bacterial pollution is removed at a stroke. There is an immediate abundance of

food and, initially, a corresponding plenitude of dissolved oxygen. Bacterial growth is promptly stimulated and the population increases rapidly, consuming the available oxygen as it does so.

The growth of bacteria tends, therefore, to reduce the amount of oxygen dissolved in the water. The extent of oxygen depletion which occurs depends on the rapidity with which the stream takes up oxygen from the atmosphere, i.e., its re-aeration capacity. This capacity is greatest in fast-flowing, turbulent streams and least in deep, slow-flowing rivers. In addition, the loss of oxygen may be counteracted by the photosynthesis of green plants which produce oxygen during daylight.

Where the degree of pollution is severe these compensating factors may be insufficient to prevent the oxygen content of the water decreasing to very low levels, or, in the worst case, to anaerobic conditions, where there is a complete absence of free oxygen.

When toxic pollution occurs the effects are often direct and immediately apparent — fish are killed, the flora and fauna of the water receiving the pollution may be wiped out, different visible effects will be noticeable, and there may be noxious smells. The principal effects are those of direct poisoning by the hazardous pollutants discharged. The careless or, even worse, premeditated dumping of toxic wastes such as waste metal solutions is most reprehensible, particularly as its consequences can be far-reaching.

Упражнение 2. Проверьте, помните ли вы значения следующих слов и словосочетаний, встретившихся вам в предыдущих текстах:

— toxic waste; sewage; to treat waste; to be available; abundance of food; depletion; capacity; poisoning; discharge; dissolved oxygen; population; to increase; therefore; to depend on; a stream; to occur.

Упражнение 3. (Парная работа) Прочитайте вслух приводимые ниже слова, найдите их соответствия в русском языке. Правильность произношения проверьте по словарю.

Material, organic, control, factor, stimulate, aeration, turbulent, photosynthesis, flora, fauna, visible, effect, metal.

Упражнение 4. В правой колонке найдите русские эквиваленты следующих английских терминов:

- | | |
|----------------------------------|---|
| a. untreated sewage | 1. преднамеренный слив (сброс) |
| b. waterbody | 2. биологическое (бактериальное) загрязнение |
| c. pollution event | 3. загрязнение токсикантами |
| d. uncontrolled discharge | 4. анаэробное состояние |
| e. bacterial pollution | 5. опасные загрязняющие вещества |
| f. toxic pollution | 6. водный объект |
| g. hazardous pollutants | 7. бесконтрольный сброс (сточных вод) |
| h. premeditated dumping of waste | 8. случай загрязнения; авария с загрязнением окружающей среды |
| i. anaerobic condition | 9. неочищенные сточные воды |
| j. oxygen content | 10. содержание кислорода |

Упражнение 5. В правой колонке найдите английские эквиваленты следующих слов и словосочетаний:

- | | |
|-----------------------------|---------------------|
| a. вредный | 1. take effect |
| b. противодействовать | 2. accidental |
| c. недостаточный | 3. deliberate |
| d. случайный | 4. harmful |
| e. предотвращать, мешать | 5. to counteract |
| f. иметься в наличии | 6. at a stroke |
| g. преднамеренный | 7. prevent |
| h. прямой | 8. creamery |
| i. происходить, действовать | 9. direct |
| j. сразу же, одновременно | 10. insufficient |
| k. маслобойня | 11. to be available |

Упражнение 6. Заполните пропуски в предложениях подходящими по смыслу английскими глаголами.

1. The extent of oxygen depletion ... on the re-aeration capacity.
2. When toxic pollution ... the effects are often direct and immediately apparent.

3. Abundance of food and, initially, a corresponding plentitude of dissolved oxygen ... bacterial growth.
 4. Green plants ... oxygen during daylight.
 5. Photosynthesis may ... the loss of oxygen.
 6. In anaerobic condition there ... a complete absence of free oxygen.
- produce; is; stimulates; occurs; counteract; depends.

Упражнение 7. В правой колонке найдите подходящее по смыслу продолжение для начала предложения из левой колонки.

- | | |
|---|--|
| 1. When toxic pollution occurs | 1. ... re-aeration capacity of a stream and photosynthesis of green plants may be insufficient to prevent the oxygen content of the water decreasing to very low levels. |
| 2. The growth of bacteria tends therefore ... | 2. ... on the rapidity with which the stream takes up oxygen for the atmosphere. |
| 3. The extent of oxygen depletion depends | 3. ... — fish are killed, the flora and fauna of the water may be wiped up. |
| 4. Where the degree of pollution is severe | 4. ... the effects are often direct and immediately apparent. |
| 5. The direct effects of toxic pollution are | 5. ... to reduce the amount of oxygen dissolved in the water. |

Упражнение 8. Заполните пропуски подходящими по смыслу связующими элементами предложения.

Deoxygenation is the most important potential effect ... organic waste discharges. However, toxic compounds such ... ammonia may be present in such wastes, particularly where they have been stored ... some time and have become septic. This can happen ... farm wastes, in which the presence of compounds such as ammonia ... hydrogen sulphide probably contribute as much as the deoxygenating capacity of these wastes to the devastating effect ... fish stocks ... pollution incidents.

on, and, in, for, of, with, as.

Упражнение 9. В данном тексте имеются 2 предложения, которые не соответствуют его общему содержанию. Найдите эти предложения. Контрольное время — 3 минуты.

(1) In contrast to a lake a river is a highly dynamic system. (2) While the discharge of a waste at a given point may have catastrophic effects on the flora and fauna, the river — however much it has been damaged — has not been "killed". (3) The population size of red grouse tends to swing up and down, oscillating widely over a period of about four or five years. (4) Several theories have been put forward to try to explain what is causing the fluctuations.

(5) One of the reasons is that, once the discharge has been stopped for good, a recovery process will begin. (6) The residual waste will be diluted by clean water flowing downstream and carried away, the flora will recover, the fauna will recolonise, and the fish will return in time. (7) This is not to excuse the uncontrolled discharge of effluents to rivercourses.

Упражнение 10. Из приведённых ниже вариантов выберите те два, которые можно было бы использовать в качестве подзаголовков к первому и последнему абзацам текста.

1. Токсичные органические вещества — основная причина загрязнения водных объектов.

2. Виды токсикантов.

3. Основные причины случаев загрязнения окружающей среды.

4. Последствия загрязнения токсикантами водных объектов.

5. Бактериальное загрязнение водных объектов.

Упражнение 11. Выберите в тексте "How Pollution Takes Effect" 5-6 предложений, которые наиболее полно отражают его содержание.

Упражнение 12. Составьте по-русски, а затем и по-английски краткий пересказ текста.

Упражнение 13. Письменно переведите на русский язык предлагаемый ниже текст. Контрольное время — 20 минут.

Pollution

Pollution is the introduction by man of materials at a harmful level. All aspects of pollution of the environment are directly or indirectly related to man's health.

Recently pollution has become a problem of major significance. Pollution is connected with density of population and technical development. The Earth can absorb a certain amount of polluting materials thus acting as a protecting and buffering agent. This mechanism was adequate until recently. But rapidly increasing population and its advancing technologies are giving rise to increasing amounts of pollution, much of which has a residual or persistent effect.

Упражнение 14. Переведите приведённые ниже предложения на русский язык, обращая внимание на подчёркнутые формы.

1. The majority of pollution instances are caused by discharge of polluting material which, on first consideration, might not seem harmful at all.

2. In addition, the loss of oxygen may be counteracted by the photosynthesis of green plants.

3. Where the degree of pollution is severe these compensating factors may be insufficient to prevent the oxygen content of the water decreasing to very low levels.

4. Toxic components may be present in such wastes, particularly where they have been stored.

5. When toxic pollution occurs, the flora and fauna of the water receiving the pollution may be wiped out and there may be noxious smells.

6. The careless or premeditated dumping of toxic wastes is most reprehensible, particularly as its consequences can be far-reaching.

7. This level is more usually referred to as the 100 % saturation value at the actual temperature (which must be specified if saturation values are used).

8. In many lakes the bulk of the material brought in may be trapped permanently in the bottom sediments.

9. Much of the phosphorus entering a lake may be retained in the sediments.

10. Relatively few organisms are able to survive where oxygen concentration is very low.

Lesson 18. Sewage Treatment

Упражнение 1. (Парная работа) Приводимые ниже слова и словосочетания являются ключевыми к данному тексту. Если некоторые из них оказались для вас незнакомыми, найдите их значения в словаре. На основании приведённых ключевых слов сделайте предположение о содержании текста.

Sewage treatment; sewerage; wastewater; human wastes; industrial waste; domestic sewage; biological treatment; preliminary treatment; primary treatment; secondary treatment; organic matter; microorganisms; tertiary treatment; nutrient removal.

Прочитайте текст (контрольное время — 7 минут) и определите, совпали ли ваши предположения с содержанием текста.

At the outset it is important to clarify two terms, sewerage and sewage, because they are often used incorrectly. Sewerage is a system of pipes used to collect and carry sewage which is the wastewater discharged from domestic premises. Domestic sewage consists of human wastes, paper, vegetable matter. This type of waste is organic because it consists of compounds of carbon and can be broken down by microorganisms into simpler compounds which are stable and not liable to cause a nuisance. Sewage can consist of 99.9 % water and 0.1 % solids.

Besides domestic sewage there is industrial waste. Many industrial wastes are also organic in composition and can be treated by microorganisms in the same way as domestic sewage. This type of treatment is called biological treatment and the strength of the sewage is measured in terms of B.O.D. or biochemical oxygen demand. This is a measure of the amount of oxygen used by the microorganisms in breaking down the sewage into stable compounds.

Thus in a town the sewerage system will collect the sewage from domestic, commercial, and industrial premises and carry it to the nearest river or to the sea. The dilutions available in the receiving water has traditionally determined the extent of treatment necessary.

Sewage Treatment Processes

In modern treatment works sewage goes through several stages of treatment. Preliminary treatment to deal with large solids which are removed by screening or are macerated and returned to the sewage flow. At this stage grit is removed in special tanks. The sewage then receives primary treatment which consists of allowing the sewage into sedimentation tanks where solids settle out in the form of sludge. The next stage is secondary treatment or biological treatment in which microorganisms are used to take organic matter out of solution so as to form a sludge which can be settled out in a final settling tank. Tertiary treatment can reduce the organic matter content still further if this is necessary. Nutrient removal consists of reducing the phosphorus and nitrogen in the sewage so as to prevent plant growth in the receiving waters.

Упражнение 2. (Парная работа) Найдите русские соответствия приводимых ниже слов. Проверьте правильность их произношения по словарю.

Collect, human, matter, type, organic, microorganisms, industrial, biological, to measure, stable (adj.), commercial, traditionally, modern, to form, final (adj.).

Упражнение 3. (Парная работа) Найдите в правой колонке русские соответствия приводимых ниже английских глаголов:

- | | |
|-----------------|----------------------------------|
| 1. clarify | 1. выбрасывать (сбрасывать) |
| 2. discharge | 2. (зд.) расщеплять, дробить |
| 3. break down | 3. (зд.) производить очистку |
| 4. cause | 4. удалять |
| 5. treat | 5. внести ясность |
| 6. determine | 6. иметь дело с чем-либо |
| 7. deal with | 7. осаждать (ся) |
| 8. remove | 8. препятствовать, предотвратить |
| 9. settle (out) | 9. определять |
| 10. prevent | 10. вызывать, быть причиной |

Упражнение 4. (Парная работа) В правой колонке найдите русские эквиваленты следующих английских терминов. В случае необходимости воспользуйтесь словарём.

- | | |
|----------------------------------|--|
| 1. sewerage | 1. биохимическая
(биологическая) очистка |
| 2. sewage | 2. БПК (биологическая
потребность в кислороде) |
| 3. biological treatment | 3. станция очистки
сточных вод |
| 4. strength of sewage | 4. твёрдая частица; песчинка |
| 5. biochemical oxygen demand | 5. удаление биогенных
элементов |
| 6. dilution | 6. концентрация
сточных вод |
| 7. treatment works | 7. отстойник сточных вод |
| 8. screening | 8. канализация
(очистная система) |
| 9. sedimentation (settling) tank | 9. осадок
(сточной жидкости) |
| 10. sludge | 10. разжижение сточных вод |
| 11. grit | 11. сточные воды |
| 12. nutrient removal | 12. процеживание;
улавливание загрязнений
на решетке |

Упражнение 5. (Парная работа) Определите значения подчеркнутых слов, исходя из контекста.

1. Besides domestic sewage there is industrial waste.
2. Many industrial wastes are organic in composition.
3. BOD is a measure of the amount of oxygen used by the microorganisms in breaking down the sewage into stable compounds.
4. Thus in a town the sewage system will collect the sewage from domestic, commercial and industrial premises and carry it to the nearest river or to the sea.
5. The dilutions available in the receiving water have traditionally determined the extent of treatment necessary.

Упражнение 6. Используя лексику текста, составьте как можно большее количество словосочетаний, в состав которых входили бы слова **waste, sewage, treatment** (например, *sewage treatment, industrial waste*). Проверьте, помните ли вы русские эквиваленты этих словосочетаний.

Упражнение 7. Продолжите (по-русски) приведённые ниже предложения, исходя из содержания текста.

1. Во время предварительной очистки сточных вод (preliminary treatment) происходит ...

2. Первичная очистка сточных вод (primary treatment) заключается в ...

3. Во время вторичной очистки (secondary treatment) ...

4. Доочистка или третичная очистка (tertiary treatment) может ...

5. Удаление питательных веществ или биогенных элементов (nutrient removal) состоит в ...

Упражнение 8. Найдите в тексте "Sewage Treatment" ответы на следующие вопросы:

1. В чём состоит суть различия терминов "sewage" и "sewerage"?

2. Перечислите основные разновидности сточных вод.

3. Каковы основные принципы биохимической очистки сточных вод?

4. В каких единицах измеряется концентрация сточных вод?

5. Перечислите основные стадии очистки сточных вод.

Упражнение 9. Определите, правильными или неправильными являются следующие утверждения.

	Right	Wrong
Domestic sewage is organic because it consists of compounds of carbon.		
Microorganisms can not be used in industrial waste treatment.		
B.O.D. is a measure of the amount of carbon in industrial waste.		

The extent of treatment necessary has traditionally been determined by the dilutions available in the receiving water.		
In a town the sewage system will collect the sewerage from domestic, commercial and industrial premises.		

Упражнение 10. Письменно переведите на русский язык приводимый ниже текст. Контрольное время — 15 минут.

Historical Development of Sewage Treatment

Early attempts at treating sewage in the U.K. consisted in spreading the sewage over the land where it decayed under the action of microorganisms. It was soon found that the land became "sick" and that it was necessary to treat the sewage. At first this was done by settling the sewage in concrete tanks in which the solid sewage settled out and was removed for further treatment. The partially clarified liquid sewage was then passed on to the land. Subsequently, chemicals such as lime were added to the settling tanks to increase the amount of solids being settled out.

Упражнение 11. Предложения данного текста напечатаны без знаков препинания. Найдите, где заканчивается одно, и начинается другое предложение.

A Royal Commission report of 1912 set a standard for the quality of treated sewage effluent before it could be discharged to rivers the standard set was that the BOD should not exceed 20 mg/l and that the suspended solids should not exceed 30 mg/l these figures were recommended as a general standard and were related to the situations where the receiving waters would dilute the treated effluent 8 times the standards were designed so that the BOD in the receiving waters would not exceed 4 mg/l and thus fish could survive the limitation on suspended solids was to ensure that banks of sludge would not build up on the bed of the receiving waters.

Упражнение 12. Из приведённых ниже предложений выберите те, которые наиболее полно отражают содержание текста.

1. Sewage can consist of 99.9 % water and 0.1 % solids.

2. In a town the sewage system will collect the sewage from domestic, commercial and industrial premises and carry it to the nearest river or to the sea.

3. Paper is one of the elements of domestic sewage.

4. In modern treatment works sewage goes through several stages of treatment: preliminary, primary, secondary and tertiary treatment.

5. It is important to clarify two terms, sewerage and sewage, because they are often used incorrectly.

6. In biological treatment microorganisms are used to take organic matter out of solution.

7. One of the stages of waste treatment is called secondary or biological treatment.

Упражнение 13. В 10-12 английских предложениях передайте общее содержание текста "Sewage Treatment".

Упражнение 14. Переведите следующие предложения на русский язык, обращая внимание на функции и формы инфинитива.

1. It is important to clarify two terms, sewerage and sewage, because they are often used incorrectly.

2. Sewerage is a system of pipes used to collect and carry sewage.

3. This type of waste can be broken down by micro-organisms into simpler compounds which are stable and not liable to cause a nuisance.

4. Preliminary treatment is to deal with large solids which are removed by screening.

5. In secondary treatment microorganisms are used to take organic matter out of solutions so as to form a sludge which can be settled out in a final settling tank.

6. It is necessary to control the amount of phosphorus discharged with the effluent.

7. This has the effect of causing the phosphorus to settle out of the effluent and into the sludge.

8. When plants serve populations greater than 20,000 it is unusual to reduce power costs by providing sedimentation and biological treatment.

9. When the tanks are heated the methane gas which is formed can in turn be used to fuel burners which keep the tanks heated.

10. These restrictions are difficult to meet in the case of small plants.

Lesson 19. Eutrophication

Упражнение 1. (Парная работа) Первая часть приводимого ниже текста называется "Eutrophication". Прежде чем прочесть его, подумайте, о чём в нём может идти речь. Приведите 8-10 терминов, которые могут в нём встретиться.

Eutrophication

The phenomenon of over-enrichment of waters by so-called nutrients, principally nitrate and phosphate, is known as eutrophication. Although eutrophication is of primary concern in lake waters, its effects are becoming more pronounced in rivers. These include greatly increased weed growth, leading to blockage of channels, siltation, and in some cases, to deoxygenation.

The effect of the nutrients is one of fertilisation, where the growth of attached plants below the waterline in rivers and of planktonic algae in lakes is stimulated, often to a marked extent. The increase in the incidence of algal "blooms" and scums in lakes in recent years has attracted considerable public attention and concern.

In inland surface waters, the presence of excess levels of phosphate is the primary factor governing the extent of eutrophication, while in estuarine and coastal waters nitrate is more likely to be the controlling factor. Both nutrients are present in abundance in many wastes — notably sewage, even when it is treated. An obvious means of control is to restrict the volumes of nutrient-bearing wastes reaching receiving waters, another being the provision of so-called "tertiary treatment" of wastes to remove the nutrients.

Control — the Solution to Pollution

The key to the resolution of water problems is control — by water quality management planning, by the enforcement of national and EC standards, by the licensing and policing of discharges, by following

approved procedures in agriculture, and by good environmental awareness on the part of the public.

Control, not prohibition, is the keyword: it is unrealistic to prohibit all discharges to our water bodies. Instead, the careful, diligent control of discharges to rivers and lakes will go a long way towards restoring and preserving the good quality of many water bodies.

Упражнение 2. (Парная работа) Прочитайте вслух следующие слова и найдите их соответствия в русском языке. В случае необходимости воспользуйтесь словарём.

Eutrophication, phenomenon, nitrate, phosphate, effect, blockage, channel, public, control, standard, licensing, procedure.

Упражнение 3. (Парная работа) Найдите в тексте английские эквиваленты следующих словосочетаний:

перенасыщение питательными веществами; рост (развитие) водорослей; засорение водотоков; цветение воды; избыточное количество (уровень); внутренние воды; прибрежные воды; регулирующий фактор; средство контроля; третичная очистка (доочистка); обеспечение качества воды; лицензирование сбросов; водный объект.

Упражнение 4. (Парная работа) В правой колонке найдите русские эквиваленты следующих слов и словосочетаний:

- | | |
|------------------------------|---|
| 1. primary concern | 1. основной фактор |
| 2. pronounced effect | 2. отчётливо выраженное
воздействие |
| 3. following procedures | 3. быть в изобилие |
| 4. public attention | 4. водоприёмник |
| 5. primary factor | 5. первостепенная важность |
| 6. to be in abundance | 6. очищенные (обработанные)
воды |
| 7. treated sewage | 7. требование о соблюдении
стандарта |
| 8. a means of control | 8. следующие меры (процедуры) |
| 9. receiving water | 9. средство контроля |
| 10. enforcement of standards | 10. внимание общественности |

Упражнение 5. Разместите приводимые ниже слова и словосочетания по соответствующим тематическим группам.

Термины	Общенаучная лексика	Связующие элементы

Phenomenon, nitrate, phosphate, although, concern, effect, of, siltation, deoxygenation, fertilisation, below, extent, n. increase, scum, attention, level, factor, while, n. control, volume, by, resolution, enforcement, instead, towards, quality.

Упражнение 6. Из приведённых ниже предложений выберите те, которые наиболее полно отражают содержание текста.

1. Weed growth leads to blockage of channels.
2. The process of nutrient enrichment in aquatic ecosystems, usually by nitrates and phosphates, is called eutrophication.
3. Eutrophication effects are becoming more pronounced in rivers than in lake waters.
4. Sewage must be treated.
5. An obvious means of eutrophication control is to restrict the volumes of nutrient-bearing wastes reaching receiving waters.
6. The key to the resolution of water problems is control not prohibition.

Упражнение 7. В приведённом ниже отрывке текста содержатся 2 смысловые ошибки. Найдите эти ошибки и приведите правильные варианты.

The key to the resolution of water problem is control — by following approved procedures in agriculture, by water quality management, by the development of new national and ES standards, by licensing of discharges and by good environmental awareness on the part of political parties and governments.

Упражнение 8. Заполните пропуски в тексте приводимыми ниже словами.

Eutrophication tends to result ... decreased biodiversity in the water, because only organisms ... are adapted to live in relatively low oxygen concentrations can survive. Organisms that require good oxygen supplies ... as fish, mayfly larvae and many other invertebrates — either die ... move to a less polluted place. One way of detecting ... these processes are happening is to measure the oxygen concentration in the water.

or, that, such, in, whether.

Упражнение 9. Найдите в тексте "Eutrophication" ответы на следующие вопросы.

1. Какие основные компоненты входят в состав питательных веществ, лежащих в основе эвтрофикации ?
2. Какой процесс является основной причиной засорения водотоков ?
3. Присутствуют ли нитраты и фосфаты в очищенных сточных водах ?
4. Для чего нужна дополнительная, третичная очистка сточных вод ?
5. Какими методами можно решить проблемы, связанные с качеством воды ?

Упражнение 10. Составьте краткий пересказ текста "Eutrophication" на английском языке.

Упражнение 11. Письменно переведите приводимый ниже текст. Контрольное время — 20 минут.

Biochemical Oxygen Demand

Some sources of water pollution may contain organic substances that act as nutrients for bacteria that live in rivers or the sea. Such pollutants include untreated sewage and run-off from food-processing factories. When such substances enter the water, the population sizes of the bacteria that feed on them are able to increase rapidly. These bacteria are aerobic — that is, they respire using oxygen. As their numbers increase, they use up more and more oxygen from the water. The con-

centration of dissolved oxygen therefore decreases, making it difficult or impossible for many other organisms to survive there.

Упражнение 12. Найдите подлежащее и сказуемое в каждом предложении первых двух абзацев текста "Eutrophication".

Упражнение 13. Переведите приведённые ниже предложения, обращая внимание на выделенные формы. Повторите следующие разделы грамматики: "Существительные в функции определения", "Слова-заместители", "Конверсия", "Причастные обороты".

1. Although eutrophication is of primary concern in lake waters, its effects are becoming more pronounced in rivers.

2. The investigations concern the problem of eutrophication.

3. The increase in the incidence of algal "blooms" and scums in lakes in recent years has attracted considerable attention and concern.

4. As the number of bacteria increase, they use up more and more oxygen from the water.

5. An algal bloom may result, in which the population of algae becomes so large that it completely covers large areas of the water surface.

6. As a result, these algae block the light from plants growing deeper.

7. The effect of the nutrients is one of fertilisation.

8. One of the reasons is that, once the discharge has been stopped for good, a recovery process will begin.

9. In inland surface waters, the presence of excess levels of phosphate is the primary factor governing the extent of eutrophication.

10. The key resolution of water problems is control — by water quality management planning.

11. The effects of eutrophication include greatly increased weed growth, leading to blockage of channels, siltation and deoxygenation.

12. An obvious means of control is to restrict the volumes of nutrient — bearing wastes reaching receiving waters, another being the provision of tertiary treatment of wastes.

Тесты к блоку 3

ТЛ

I Заполните пропуски в предложениях подходящими по смыслу словами. В своих работах укажите только цифры (номер предложения) и буквы (выбранные слова).

1. Pollution means that the water is no longer suitable for ...
a) navigation b) potential use c) recreation
2. Pollution is the introduction by man of ... at a harmful level.
a) materials b) waste water c) organic matter
3. B.O.P. is a measure of the amount of ... used by microorganisms in breaking down the sewage into stable compounds.
a) nitrogen b) oxygen c) carbon dioxide
4. Sewerage is a system of ... used to collect and carry sewage.
a) human wastes b) pipes c) plants
5. The phenomenon of over-enrichment of waters by so called nutrients is known as ...
a) eutrophication b) sewage c) preliminary treatment

II Укажите цифрой слова, которые по своему значению не соответствуют данной тематической группе. Например: а-1, в-2, с-3 и т.д.

- | | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| a) prevent, treat, remove, break down, dilution | | | | |
| 1 | 2 | 3 | 4 | 5 |
| b) crops, livestock, fisheries, contaminants, food | | | | |
| 1 | 2 | 3 | 4 | 5 |
| c) therefore, moreover, even, upon, so | | | | |
| 1 | 2 | 3 | 4 | 5 |
| d) discharge, removal, clarification, treatment, protection | | | | |
| 1 | 2 | 3 | 4 | 5 |
| e) found, removed, added, settled, passed | | | | |

III В правой колонке найдите русские соответствия приведённых английских слов и словосочетаний, обозначив их в своих работах соответственно буквами и цифрами. Например: а-1, в-2 и т.д.

- | | | | |
|--------------|------------------|-------------|------------|
| a. hazardous | 1. вредный | 2. полезный | 3. опасный |
| b. harmful | 1. нежелательный | 2. вредный | 3. опасный |

c. dumping	1. поступление	2. сброс	3. очистка
d. counteract	1. противодействовать	2. взаимодействовать	3. принять меры
e. prevent	1. подвергать опасности	2. предотвращать	3. отрицать
f. accidental	1. преднамеренный	2. случайный	3. запланированный
g. strength of sewage	1. концентрация сточных вод	2. выброс сточных вод	3. очистка сточных вод
h. treatment works	1. станции очистки сточных вод	2. работы по очистке сточных вод	3. выброс сточных вод
i. nutrient removal	1. удаление азота	2. удаление нитритов	3. удаление биогенных элементов
j. treated sewage	1. неочищенные воды	2. очищенные воды	3. очистка сточных вод
k. a means of control	1. значение контроля	2. степень контроля	3. средство контроля
l. weed growth	1. увеличение скорости	2. рост водорослей	3. рост ракушек

ТТ

I В приведённом ниже тексте заполните пропуски подходящими по смыслу словами. В своих работах укажите только последовательность цифр, обозначающих эти слова. Например: 2, 3, 6 и т.д.

Deoxygenation

Deoxygenation is the most important potential effect of organic waste However, toxic compounds such as ... may be present in such wastes, particularly where they have been ... for some time and have become septic. This can ... with farm wastes, in which the presence of compounds such as ammonia and hydrogen sulphide probably ... as much as the deoxygenating ... of these wastes to the devastating effect on fish stocks in ... incidents.

1 2 3 4 5 6 7
pollution, stored, discharges, capacity, contribute, ammonia, hap-
pen

II В приводимом ниже тексте определите, где заканчивается одно и начинается другое предложение. В своих работах укажите лишь слова, после которых начинается новое предложение.

Non-Toxic Pollutants

The question immediately arises — if the pollutants are non-toxic, how can they have such serious consequences for waters receiving them it is an irony that it is the very easily digestible nature of the constituents of most such pollutants that makes them such a danger to water quality an unpolluted river water in summer, with an oxygen level of around 9 ppm — 100 % saturation — will have a healthy flora and fauna which will include a population of bacteria which abound in nature the latter will be mainly aerobic — used to an oxygen-containing habitat — and their numbers (which if not constrained can increase extremely rapidly) are limited by the absence of suitable food, that is, digestible organic matter.

III Письменно переведите текст на русский язык. Контрольное время — 10 минут

Water Pollution Control Policy

Water is biologically necessary for life, but, beyond this, water resources play a vital and pervasive role in the health and welfare of a modern economy. Water for direct human consumption is a small but critical part of the domestic system; which also includes water used in food preparation, cleaning, and sewage disposal. Water is an essential element in many industrial and commercial production processes, again both as an input and as a medium of waste disposal.

Блок 4. Global Warming and Greenhouse Effect

Lesson 20. The Greenhouse Effect

Упражнение 1. Прочитайте предлагаемый ниже текст (контрольное время — 5 минут) и определите, на какие из данных вопросов можно найти в нём ответы.

1. К каким последствиям привело быстрое развитие промышленного общества ?
2. Какие изменения в биоразнообразии могут произойти в результате парникового эффекта?
3. Какое влияние оказывает парниковый эффект на демографические проблемы наиболее развитых стран мира ?
4. Почему знание законов природы становится особенно актуальным на современном этапе развития общества?
5. Какие изменения происходят сейчас в составе атмосферы ?
6. Каковы экономические последствия проявления парникового эффекта?

Industrialized society and the environment

People use the Earth's resources to try to improve their lives — that is development. They need to look after the Earth to make sure it continues to provide the resources — that is conservation. Finding the right balance between development and conservation is a major issue facing people today.

The growth of industrialized societies has brought huge changes to the lives of people living in them, mainly for the better and the standard of living has improved. All these changes have contributed to improvements in quality of life.

These improvements have been made possible by progress in science, which finds out about the forces of nature and technology, which attempts to harness these forces. Agriculture and industry have then applied this knowledge to their activities. In doing this the environment is changed and sometimes damaged. If the world is to be productive and pleasant to live in, we need to know more about how the world works and what effects our activities are likely to have on the natural

processes on which we depend for food, air, water and countless other resources essential for our survival.

Greenhouse gases

Life can exist only as long as the Earth remains habitable. One of the requirements is to maintain temperatures at the surface so that plants and animals can flourish. The heat that warms the Earth originates from the Sun but it is the greenhouse gases in the atmosphere that regulate the temperature.

There are about 30 known greenhouse gases in the atmosphere including carbon dioxide (CO₂), water vapour, methane and ozone. These have existed naturally for millions of years but to these have now been added new gases such as chlorofluorocarbons (CFCs), made by humans.

The Greenhouse Effect

Human activities now take place on such a vast scale that the composition of the atmosphere is being changed. Greenhouse gases are increasing and causing the Earth to become warmer, a process generally known as "The Greenhouse Effect". The increase of greenhouse gases is mainly a result of humans changing the natural patterns of vegetation and polluting the atmosphere.

Упражнение 2. (Парная работа) Проверьте, знаете ли вы значения следующих слов и словосочетаний из приведённого ниже текста. В случае необходимости воспользуйтесь словарём.

Resources, to improve, to provide, development, conservation, to harness, to damage, survival, to exist, to maintain, to add to, issue (n.), to face, increase (n.)

Упражнение 3. (Парная работа) В правой колонке найдите русские эквиваленты следующих словосочетаний:

- | | |
|-----------------------|------------------------------|
| 1. to bring changes | a) быть важным для чего-либо |
| 2. standard of living | b) силы природы |
| 3. to contribute to | c) промышленное общество |

- | | |
|----------------------------------|--------------------------------------|
| 4. quality of life | d) зд. изучать, узнавать
о чём-то |
| 5. to find out about something | e) вызывать изменения |
| 6. forces of nature | f) деятельность человека |
| 7. countless reasons | g) бесчисленное количество
причин |
| 8. to be essential for something | h) уровень жизни |
| 9. greenhouse gases | i) делать вклад во что-либо |
| 10. human activities | j) парниковые газы |
| 11. industrial society | k) качество жизни |

Упражнение 4. (Парная работа) Определите значения подчеркнутых слов, исходя из контекста.

- The growth of industrialized societies has brought huge changes to the lives of people living in them mainly for the better.
- The heat that warms the Earth originates from the Sun.
- Agriculture and industry have applied their knowledge to their activities.
- The increase of greenhouse gases is mainly a result of humans changing the natural patterns of vegetation.
- Life can exist only as long as the Earth remains habitable.

Упражнение 5. (Парная работа) Заполните пропуски в предложениях подходящими по смыслу связующими элементами.

The greenhouse effect is now accepted ... a world threat ... many scientists. Carbon dioxide is the most important greenhouse gas. It is released ... the atmosphere ... the burning ... fossil fuels. Other gases contribute ... the problem, such as nitrous oxides ... car exhausts, methane, ozone and chlorofluorocarbons which are used ... aerosols, refrigeration and plastic foams.

by (2), to, from, in, as, of, into.

Упражнение 6. Придумайте 5-6 предложений на английском языке, в которые входили бы следующие словосочетания (ваши предложения не должны совпадать с предложениями из приведённого выше текста и упражнений к нему):

major issue; to provide reasons; to damage the environment; to affect somebody's activities; to depend for food; to regulate temperature; to be essential for survival.

Упражнение 7. В приводимой ниже таблице поставьте плюс в соответствующей колонке, предварительно определив, правильными или неправильными являются следующие утверждения.

Right	Wrong	
		<ol style="list-style-type: none"> 1. The developed nations are thought of as the originators of most industrial pollution. 2. The experts agree that the greenhouse effect will bring significant changes to the Earth's climate. 3. The improvements in quality of life have been made possible by the greenhouse effect. 4. Life on the Earth can exist only as long as people look after the planet. 5. Nitrogen is the most important greenhouse gas. 6. The experts agree that greenhouse effect will bring significant changes to the Earth's climate.

Упражнение 8. Не заглядывая в текст, найдите продолжение следующих предложений.

1. If the world is to be productive and pleasant to live in, we need ...
2. The growth of industrialized societies has brought huge changes to ...
3. These improvements in quality of life have been made possible by ...
4. The heat that warms the Earth originates from ...
5. There are about 30 known greenhouse gases in the atmosphere including ...
6. The increase of greenhouse gases is making a result of ...

Упражнение 9. Прочитайте текст "The Greenhouse Effect" ещё раз и выберите из него те предложения, которые наиболее полно отражают его содержание.

Упражнение 10. Составьте план пересказа текста сначала на русском, а затем на английском языках.

Упражнение 11. Перескажите текст сначала по-русски, а затем по-английски не более, чем в 8-10 предложениях.

Упражнение 12. Письменно переведите приведённый ниже текст на русский язык. Контрольное время — 25 минут.

As sunlight enters the Earth's atmosphere, the surface of the Earth is warmed. Some of this heat escapes back into space, but the rest is trapped by CO₂, which acts like the glass in a greenhouse, allowing sunshine and heat to pass in but not out again. Consequently the temperature rises.

According to Dr. Manabe of Princeton University, the polar ice-caps will start to melt and the oceans will expand as more snow and ice melt. Because the exposed ground, formerly covered in snow, won't reflect the heat so well it will absorb more sunlight and this will lead to even more snow melting.

The experts agree that the greenhouse effect will bring significant changes to the Earth's climate. The inhabitants of this planet will have to get used to living in a hotter world.

Упражнение 13. Переведите приводимые ниже предложения на русский язык, обращая внимание на выделенные формы. Перед тем как выполнить задание, повторите следующие разделы грамматики: "Инфинитив: формы и функции", "Инфинитивные обороты", "Герундий: формы и функции".

1. Finding the right balance between development and conservation is a major issue facing people today.

2. People use the Earth's resources to try to improve their lives.

3. In doing this the environment is changed and sometimes damaged.

4. If the world is to be producing and pleasant to live in, we need to know more about how the world works and what effects our activities are likely to have on the natural processes on which we depend.

5. Greenhouse gases are increasing and causing the Earth to become warmer.

6. Rainfall is likely to increase in some areas but decrease in others as the climatic belts move to new positions.

7. The scientists warn, it is already time to begin planning how to cope with greenhouse effects.

8. Levels of carbon dioxide in the atmosphere have already increased and are expected to rise by a further 30 % the next 50 years.

9. The main concern over CFS is the effect they are believed to have on depletion of ozone layer.

10. Because the exposed ground won't reflect the heat so well it will absorb more sunlight and this will lead to even more snow melting.

Lesson 21. Global Warming

Упражнение 1. (Парная работа) Исходя из заглавия текста, приведите 8-10 ключевых слов, которые, с вашей точки зрения, должны в нём встретиться. После этого быстро прочитайте текст и проверьте свои предположения. Контрольное время — 5 минут.

The amount of many greenhouse gases in the atmosphere is increasing. CO₂ is the most common greenhouse gas and is responsible for almost half of the extra warming that is taking place. However, some of the other gases are more effective. For example, some CFCs are up to 10 000 times more effective than CO₂.

Rising global temperatures

It is generally accepted that greenhouse gases have already raised the temperature of the Earth by between 0.3° C and 0.7° C. By 2020, this is likely to have grown to between 1.5° C and 4.5° C, a rate of increase unprecedented in the history of the Earth.

The Effect of Global Warming

a) *Rise in sea level:* Higher temperatures will cause sea level to rise because the water in the oceans will expand and the polar ice sheets will get smaller, releasing more water into the oceans. It has been calculated that levels will rise by about 1.5 metres in the next 40 years. While developed countries may be wealthy enough to afford sea de-

fences, poorer countries will not. About 15 million people in Bangladesh are likely to lose their agricultural land and be made homeless.

b) *Climatic changes*: The world is already getting warmer. 1980, 1981, 1983, 1987 and 1988 have been the warmest years since reliable records began. Rainfall is likely to increase in some areas but decrease in others as the climatic belts move to new positions. More extreme weather conditions are being experienced and the climate is becoming less predictable. Planners of dams and irrigation schemes are finding their task is becoming very difficult because the climatic data from the past is no longer a reliable guide to what will happen in the future.

c) *Agriculture*: CO₂ is a natural fertilizer and most plants will grow larger and faster but weeds will also grow better. Pests too could be more of a problem. Climatic changes may more than counteract any benefits, for example, in Canada, rainfall increases of around 18 % could lower wheat yields by 25 %, while the drought in the mid-West of the USA in 1988 was almost certainly due to the greenhouse effect.

Feedback mechanisms

The shininess of the Earth's surface is called its albedo. Light coloured areas reflect more of the Sun's energy and have a high albedo. Dark coloured areas have a low albedo. Some changes caused by the greenhouse effect are likely to decrease the Earth's albedo and increase global warming still further. For example as the ice-caps become smaller, more land and sea will be exposed. Instead of the Sun's radiation being reflected back through the atmosphere from the ice, the exposed areas will absorb the heat and radiate it back as long-wave radiation.

Упражнение 2. (Парная работа) Прочитайте вслух следующие слова и найдите их соответствия в русском языке. Определите, к каким частям речи они относятся.

Global, gases, unprecedented, expand, polar, calculate, climatic, position, extreme conditions, planners, dam, irrigation, scheme, a guide, mechanism, cap, radiation, reflect, absorb, radiate.

Упражнение 3. (Парная работа) Найдите в тексте английские эквиваленты следующих словосочетаний:

быть ответственным за; иметь место; величина роста; беспрецедентный в истории; уровень моря; ледяной покров; развитые страны; сельскохозяйственные земли; менее предсказуемый; план (схема) ирригации; урожай пшеницы; светлые поверхности; поглощать тепло.

Упражнение 4. (Парная работа) Используя две колонки слов, составьте как можно большее количество словосочетаний:

wealthy	sea level
global	warming
extra	increase
developed	temperature
poor	changes
climatic	
to rise	

Упражнение 5. Прочитайте вслух по-английски следующие числовые значения:

5; 15; 50; 500; 1500; 15000; 0.5; 0.05; 0.0056; $\frac{1}{2}$; $\frac{1}{3}$; $\frac{1}{10}$; 10.000; 0.3°C ; 0.7°C ; 1.5°C ; 20%; 50%. Даты: 1980; 1981; 1703; 2000; 2008.

Упражнение 6. Выберите английские эквиваленты приведённых глаголов:

повышаться	a) low	отражать	a) attract
	b) rise		b) reflect
	c) decrease		c) expose
расти	a) grow	поглощать	a) absorb
	b) fall		b) record
	c) counteract		c) reflect
расширяться	a) experience	вызывать	a) lose
	b) expand		b) develop
	c) extend		c) cause
предсказывать	a) predict	испытывать	a) experience
	b) guide		b) counteract
	c) happen		c) become

Упражнение 7. (Парная работа) Не заглядывая в текст, попытайтесь найти подходящие по смыслу продолжения предложений.

1. The shiness of the Earth's surface is called its ...
2. The most common greenhouse gas is ...
3. Planners of dams and irrigation schemes are finding their task is becoming very difficult because ...
4. Dark coloured areas have ...
5. Higher temperature will cause sea level to rise because ...
6. CO₂ is responsible for ...

Упражнение 8. Из приведённых предложений выберите те, которые наиболее полно отражают содержание текста "Global Warming".

1. About 15 million people in Bangladesh are likely to lose their agricultural land.
2. The amount of greenhouse gases in the atmosphere is increasing.
3. The level of methane in the atmosphere is now 1.7 ppm.
4. It is generally accepted that greenhouse gases have already raised the temperature of the Earth by between 0.3° C and 0.7° C.
5. Higher temperatures will cause sea level to rise.
6. Some changes caused by the greenhouse effect are likely to decrease the Earth's albedo and increase global warming still further.
7. The drought in the USA in 1988 was almost certainly due to the greenhouse effect.

Упражнение 9. (Парная работа) В приведённом ниже отрывке текста содержится 3 смысловые ошибки. Найдите их и приведите правильные ответы.

The world is already getting warmer. Rainfall is likely to increase everywhere as the climatic belts move to new positions. More extreme weather conditions are being experienced and the climate is becoming more predictable. Planners of dams and irrigation schemes are finding their task is becoming very difficult because the climatic data from the past are still very reliable to make predictions of the future climate changes.

Упражнение 10. В приведённом ниже тексте пропущено 2 предложения, которые приводятся после текста. Прочитайте текст и определите место этих предложений в тексте.

(1) When living creatures breathe out or when things are burned, CO₂ enters the atmosphere. (2) Until recently all of this was absorbed by plants, which converted it back into oxygen. (3) However, the balance of nature has been disturbed. (4) In power stations, in factories and in our cars, we are burning more and more fossil fuels and this produces huge quantities of CO₂.

I) Added to this, the destruction of forests means that less CO₂ can be converted into oxygen by plants.

II) So the amount of CO₂ in the atmosphere is increasing every year.

Упражнение 11. Заполните пропуски подходящими по смыслу словами.

The developed nations — Europe, United States, Japan ... other Pacific Basin countries — are thought as the originators of most industrial But less-developed countries, notably China, are ... great users of fossil fuels. Acid ... has been one of the most ... forms of pollution. Factories and power ... using fossil fuels emit sulphur oxides ... nitrogen oxides which return to the earth ... sulphuric and nitric acids.

stations, of, and (2), rain, pollution, also, damaging, as.

Упражнение 12. Письменно переведите приводимый ниже текст. Контрольное время — 20 минут.

During the last 100 years, the level of carbon dioxide in the atmosphere has risen dramatically, causing what some scientists call a greenhouse effect. Carbon dioxide traps the sun's heat, thereby raising the temperature of the earth's atmosphere.

The greenhouse effect could lead to serious environmental problems. According to scientists at NASA, temperatures just a few degrees higher than normal would partially melt polar ice caps and flood coastal areas, turn productive farmland into desert, and alter weather patterns around the world. Some scientists predict that world temperatures could increase 3 to 8 degrees Fahrenheit by the middle of the next century.

Упражнение 13. Найдите в тексте "Global Warming" и переведите на русский язык предложения, содержащие: а) инфинитивные конструкции; в) прилагательные и наречия в сравнительной и превосходной степени; с) модальные глаголы.

Lesson 22. Finding Solutions

Упражнение 1. (Парная работа) Быстро прочитайте предлагаемый ниже текст и не более чем в 8-10 русских предложениях расскажите о способах решения проблемы парникового эффекта. Контрольное время — 10 минут.

Finding Solutions

a) *Removing the greenhouse gases:* Some of the greenhouse gases such as CFCs need not be used. There is already an international agreement to cut the consumption by 20 % by 1993 and 50 % by 1999.

b) *Using cleaner fuels:* Although natural gas is a fossil fuel, when burnt it produces only 50 % of the CO₂ of other fossil fuels to do the same amount of work.

c) *Energy efficiency:* The best way of reducing the output of CO₂ is to reduce the amount of fuel burnt. Making engines, washing machines, refrigerators and other machines more efficient is one way. Some new washing machines for example consume only one third of the power of model made 15 years ago.

There is still a lot that can be done, even by the individual, to reduce energy consumption, for example by installing energy efficient central heating boilers, better insulation of homes, using low energy light bulbs, taking a shower instead of a bath, using public transport more, avoiding the use of products using CFCs and buying locally produced goods thus saving on transport costs.

d) *Developing alternative forms of energy:* Renewable sources of energy such as wind, water and solar power give off no CO₂.

Those who favour nuclear power maintain that expanding the nuclear programme is the answer since it does not produce any of the pollution which causes global warming. Opponents say this is irrelevant because electricity generation accounts for a very small proportion of the greenhouse gases being added to the atmosphere.

e) *Biotechnology*: One promising development is biotechnology. Bacteria manufactured in the laboratory can do work that normally uses heat. For example bacteria can be used to smelt copper or break down toxic waste which normally has to be burnt at 1200°C . However, they are not widely used outside the laboratory because scientists are not sure what would happen if the bacteria were released into the environment. They could multiply out of control and create even greater problems.

f) *Planting more trees*: Since trees take in CO_2 , if more trees were planted some of the excess CO_2 could be absorbed by them. One American power company has agreed to plant 52 million trees in Guatemala to absorb the CO_2 from a new power station it is building. One scientist suggests that an area the size of the USA planted with trees would absorb the excess CO_2 in the world. Reducing the destruction of the tropical rainforests would also alleviate the problem.

The outlook

Creating the will to solve the problems is hard when the effects of today's pollution may not become apparent for ten or more years. Scientists still disagree about the seriousness of the problem and some even say that the increased levels of CO_2 are well within natural limits of fluctuation but waiting-to-see is a risk that most people prefer not to take.

Упражнение 2. Проверьте, помните ли вы значения приведённых ниже слов, которые уже встречались вам раньше. В случае необходимости воспользуйтесь словарём.

Fuel, reduce, amount (n., v), power, develop, maintain, solar, nuclear, manufacture, waste (n.), happen, absorb, level (n.).

Упражнение 3. Найдите русские эквиваленты следующих английских словосочетаний:

natural gas; washing machine; central heating; transport costs; alternative form; public transport; locally produced goods; to expand nuclear programme; to create problems; seriousness of the problem; natural limits.

Упражнение 4. В правой колонке найдите русские эквиваленты следующих словосочетаний:

- | | |
|--------------------------------|-----------------------------------|
| 1. international agreement | a) потребление энергии |
| 2. to reduce amount | b) разрушать, разлагать, изменять |
| 3. energy consumption | c) электрическая лампочка |
| 4. light bulb | d) уничтожение влажных лесов |
| 5. renewable sources | e) международное соглашение |
| 6. to break down | j) попадать в окружающую среду |
| 7. toxic waste | g) сокращать количество |
| 8. to release into environment | h) поглощать CO ₂ |
| 9. to take in CO ₂ | i) снижать остроту проблем |
| 10. destruction of rainforest | k) возобновляемые источники |
| 11. alleviate the problem | l) токсичные отходы |
| 12. to become apparent | m) становиться очевидным |

Упражнение 5. Разместите приведённые ниже слова и словосочетания по следующим тематическим группам:

Связующие элементы	Термины	Общенаучная лексика

level, greenhouse gases, consumption, although, fuel, amount, output, of, insulation, instead of, source, pollution, global warming, bacterium, toxic waste, that, if, into, control, power station, tropical rainforest.

Упражнение 6. (Парная работа) Выпишите данные слова в их исходной форме. Если вы не знаете значения какого-либо слова, найдите его в словаре.

Removing, burnt, engines, more efficient, opponents, installing, boilers, avoiding, saving, bacteria, planted, suggests.

Упражнение 7. (Парная работа) Выберите один из абзацев текста и придумайте 3-5 вопросов к его содержанию. Попросите ответить на них другую пару студентов. Обменяйтесь вопросами.

Упражнение 8. Поставьте плюс в соответствующей колонке приводимой ниже таблицы.

Yes	No	No evidence	
			1. Planting trees helps to absorb the excess CO ₂ . 2. Wind, water, solar power are examples of renewable sources of energy. 3. Bacteria can be used to break down toxic waste. 4. Nuclear power is safer than the other forms of energy. 5. The best way to reduce the output of CO ₂ is to reduce fuel consumption. 6. Alternative forms of energy will be invented in the near future. 7. The more trees are planted the more excess CO ₂ is absorbed by them. 8. Some scientists say that the increased levels of CO ₂ are within natural limits of fluctuation.

Упражнение 9. Найдите в тексте ответы на следующие вопросы.

1. Зачем одна из американских компаний намеревается посадить, согласно договорённости, 52 миллиона деревьев в Гватемале?

2. Почему использование природного газа менее опасно для окружающей среды, чем использование других природных ископаемых?

3. Почему биотехнологические методы не находят широкого применения в борьбе с последствиями глобального потепления?

4. Какие способы могут быть использованы для индивидуального сокращения потребления энергии?

5. Назовите несколько видов альтернативных видов энергии.

Упражнение 10. (Парная работа) Определите, о каком из перечисленных ниже газов идёт речь в каждом из абзацев данного текста.

Global Warming Culprits

According to a United Nations report, five main gases cause global warming:

..... — produced by deforestation, cement production, and burning of fossil fuels is responsible for approximately half of global warming.

..... — used in refrigeration, air conditioning and aerosols — account for approximately 20 % of global warming and are the main cause of ozone layer depletion.

..... — produced by decomposition in irrigated fields, and fossil fuel production (coal mines, oil and gas wells, gas pipelines) — comprises 16 % of the warming effect.

..... — produced in car exhausts — accounts for 8 % of the warming.

..... — emitted by fertilizers, fossil fuel combustion, and deforestation — accounts for approximately 6 % of global warming.

Chlorfluorocarbons, carbon dioxide, nitrous oxide, methane, low-level ozone.

Упражнение 11. Найдите в тексте данные, с помощью которых можно было бы заполнить графы следующей таблицы.

who	when	what	why

Упражнение 12. (Парная работа) Заполните графы следующей таблицы, исходя из содержания абзацев с, f текста "Finding Solutions".

1. Основная идея —

2. Второстепенная идея —

3. Пример —

Упражнение 13. Не более чем в 10-12 предложениях расскажите по-английски об основных способах борьбы с глобальным потеплением.

Упражнение 14. Письменно переведите предлагаемый ниже текст. Контрольное время — 20 минут.

No-one wants global warming to happen; it is likely to cause a multitude of major changes to climate in different parts of the world, though exactly what these will be is impossible to predict. Probably, some areas that currently have plenty of rainfall will become drier. Sea levels are likely to rise as ice caps melt, putting low-lying land such as Bangladesh and some islands in the Caribbean, Pacific Ocean and Indian Ocean at great risk of being at least partly submerged. Weather patterns may become more extreme, with a greater incidence of flooding or very high winds.

Упражнение 15. Переведите на русский язык приведённые ниже предложения, предварительно повторив следующие разделы грамматики: "Сослагательное наклонение", "Условные придаточные предложения разных типов", "Эквиваленты модальных глаголов".

1. If we had no greenhouse gases in the atmosphere, then the long wavelength radiation would simply pass back out into space.

2. The Earth would be much cooler than it is today — so cold, in fact, that there would be no liquid water.

3. The greenhouse effect is a natural phenomenon and without it there would be no humans living on Earth.

4. Methane emissions were to be reduced from the 1990 level by 10 % and CFC emissions would be halted completely.

5. This, of course, would change the methane into carbon dioxide.

6. We still have a long way to go if we are to halt global warming.

7. Another problem is the idea that developing countries could sell their allowed carbon dioxide emission to other countries, which would then be allowed to emit more carbon dioxide.

8. We are still not able to state with scientific certainty that leaving a certain area of forest undamaged could make up for a particular amount of CO₂ emissions.

9. If humankind is to minimize the effects of global climate change on natural systems, ecologists will need to understand how the extra carbon dioxide might affect ecological communities.

10. Plants absorb CO₂ as they grow but they are not able to absorb it at the rate at which it is now entering the atmosphere.

11. By 2020, if present trends continue, the amount of CO₂ in the atmosphere will be double its natural level.

12. Cuts in CO₂ emission could be achieved by measures that would be desirable even without a global warming problem.

Lesson 23. Acid Rain

Упражнение 1. (Парная работа) Ниже приводятся первые предложения каждого из 5 абзацев текста. Этого должно быть достаточно для того, чтобы вы смогли сделать выводы о содержании текста. Расскажите по-русски в 8-10 предложениях о его предполагаемом содержании.

1. The atmosphere is a thin film of gases which envelops our planet and makes it habitable.

2. Acid rain is the popular term used to describe acid precipitation.

3. Rainfall is naturally acid because it absorbs carbon dioxide in the atmosphere and becomes a weak carbonic acid.

4. Coal fired power stations are the major producers of sulphur dioxide.

5. Vehicles, especially cars, are responsible for most of the nitrogen oxides in the atmosphere.

Упражнение 2. Теперь быстро, не более чем за 5 минут, прочитайте текст и проверьте правильность своих предположений.

The atmosphere is a thin film of gases which envelops our planet and makes it habitable. Without this layer, there would be no life on earth. We know that the health of plants and animals including humans depends upon an unpolluted atmosphere yet we are putting all kinds of poisonous waste into it. Gases produced when fossil fuels are burnt cause acid rain which can damage forests, lakes, rivers, the land and the

plants and animals living there. Developed countries which are dependent on fossil fuels to maintain their high standards of living are the main culprits.

Acid rain is the popular term used to describe acid precipitation. As well as rain, it includes mist, snow and dry deposition. Dry deposition refers to pollutants which are deposited on the environment before they have a chance to be absorbed by the moisture in the atmosphere.

Rainfall is naturally acid because it absorbs carbon dioxide in the atmosphere and becomes a weak carbonic acid with a pH between 5 and 6. The major causes of acid rain are the sulphur dioxide and nitrogen oxides produced when fossil fuels such as coal, oil and gas are burned. Sulphur dioxide and nitrogen oxides are released into the atmosphere where they can be absorbed by the moisture and become weak sulphuric and nitric acids, sometimes with a pH of around 3. Most natural gas contains little or no sulphur and causes less pollution.

Coal fired power stations are the major producers of sulphur dioxide, although all processes that burn coal and oil contribute. Every year about 45 million tonnes of sulphur are put into the atmosphere in Europe. After a drop in the 1980, amounts are now increasing again.

Vehicles, especially cars, are responsible for most of the nitrogen oxides in the atmosphere. Some come from the vehicle exhaust itself, but others form when the exhaust gases react with the air. Exhaust gases also react with strong sunlight to produce poisonous ozone gas which damages plant growth and in some cases, human health.

Упражнение 3. (Парная работа) Прочитайте вслух следующие слова и словосочетания; определите их эквиваленты в русском языке. В случае необходимости воспользуйтесь словарём.

Film of gases; unpolluted atmosphere; poisonous waste; to maintain standards of living; popular term; to be absorbed by moisture; poisonous ozone; plant growth; human health.

Упражнение 4. (Парная работа) В правой колонке найдите русские эквиваленты следующих словосочетаний:

- | | |
|-----------------------|---------------------|
| 1. acid precipitation | a) окись серы |
| 2. nitrogen oxide | b) угольная кислота |
| 3. sulphur oxide | c) двуокись серы |
| 4. carbonic acid | d) окись азота |

5. sulphur dioxide
6. natural gas
7. power station
8. exhaust gases

- е) природный газ, метан
- ф) кислотные осадки
- г) выхлопные газы
- h) силовая станция, электростанция

Упражнение 5. (Парная работа) Определите значение подчеркнутых слов, исходя из контекста.

1. The atmosphere is a thin film of gases which envelops our planet.
2. Gases produced when fossil fuels are burnt cause acid rain which can damage forests, lakes, rivers and plants.
3. Developed countries are the main culprits of acid rains.
4. Rainfall is naturally acid because it absorbs carbon dioxide in the atmosphere and becomes a weak carbonic acid.
5. Coal fired power stations are the major producers of sulphur dioxide.
6. Vehicles, such as cars, are responsible for most of the nitrogen oxides in the atmosphere.

Упражнение 6. Напишите 3 основные формы следующих глаголов:

know, include, make, depend, put, maintain, refer, become, burn, can, contain, contribute, drop, come.

Упражнение 7. (Парная работа) В тексте, вероятно, остались слова, значения которых вы не знаете. Выпишите их, сравните с теми, которые выписал ваш сосед, и обсудите их предполагаемые значения. Проверьте правильность своих предположений по словарю.

Упражнение 8. В данных предложениях заполните пропуски подходящими по смыслу словами.

1. all the processes that burn coal and oil contribute, the main producers of sulphur dioxide in the atmosphere are coal fired power stations.

2. Acid precipitation includes rain mist, snow and dry depositions.

3. Rainfall is naturally acid it absorbs carbon dioxide in the atmosphere and becomes a weak carbonic acid.

4. Amounts of sulphur are now increasing again a drop in the 1980-s.

5. Exhaust gases react with strong sunlight to produce poisonous ozone gas.

6. In the world as a whole, 50% of the sulphur dioxide in the air comes from natural sources of sulphur.

7. In Europe, only 15 % comes from natural sources.

Also, although, as much as, as well as, however, because, after.

Упражнение 9. Ниже приводится несколько утверждений, не соответствующих действительности. Прочитав текст ещё раз, сравните его с данными утверждениями, исправьте их и объясните, почему они неверны.

1. Acid rain is the popular term to describe an increase in the average global temperatures on the Earth.

2. Dry deposition refers to pollutants which are absorbed by the moisture in the atmosphere.

3. Power stations are the major producers of nitrogen oxides in the atmosphere.

4. Sulphur dioxide is the gaseous product of the oxidation of nitrogen which is released into the atmosphere when fuels containing nitrogen compounds are burned.

5. The health of plants and animals including humans depends upon atmospheric moisture.

Упражнение 10. Придумайте подзаголовки к каждому абзацу текста.

Упражнение 11. Найдите в каждом абзаце 3-5 ключевых слова; 1-2 ключевых предложения.

Упражнение 12. Составьте план пересказа текста. Перескажите его на английском языке не более чем в 10-12 предложениях.

Упражнение 13. Письменно переведите приводимый ниже текст на русский язык. Контрольное время — 15 минут.

Acid Rain is an International Problem

It was once thought that pollution caused only local problems but we know that air pollution can be dispersed by the wind causing environmental problems far from the source of the pollution. The building of tall chimneys, which was supposed to prevent problems by dispersing pollutants over a wider area, has made the problem worse for distant areas lying downwind. Norway and Sweden, for example, receive far more pollutants than they produce, much of them from Britain.

Упражнение 14. В третьем абзаце текста определите тип каждого предложения (сложное / простое). В каждом из них найдите подлежащее и сказуемое, переведите главные члены предложения на русский язык.

Lesson 24. Environmental Damage Caused by Acid Rain. Finding Solutions

Упражнение 1. (Парная работа) Определите, какие из перечисленных ниже слов и словосочетаний могут, на ваш взгляд, встретиться в тексте с приведённым выше заглавием. Если среди этих слов вы встретите незнакомые, найдите их значения в словаре.

Corrode, threat, ozone depletion, damage, ultraviolet radiation, sulphur dioxide, flood, suffer, affect, nuclear waste, acidity, prevent, solid waste, to safeguard the environment, poisonous minerals, settle on the bottom, international agreement, economic disadvantage, to get into the atmosphere, spotted owl, remove, slurry of lime.

Теперь прочитайте текст и проверьте правильность своих предположений.

Environmental Damage Caused by Acid Rain

The built environment: Acid rain corrodes metal and stone work making the maintenance of buildings more costly. The major threats are to older historic buildings.

Farming: As the land becomes more acid, it is less suitable for growing crops and yields can be reduced. The crops themselves can be damaged.

Trees and forests: Sulphur dioxide interferes with the process of photosynthesis. Coniferous trees seem to be most at risk from acid rain because they do not shed their needles at the end of each year. When the soil becomes acid, toxic minerals like aluminium and cadmium are washed out by water passing through the soil. These minerals are taken in by the trees causing their growth to suffer.

Water courses and lakes: Water courses and lakes are affected by the acid rain which falls directly into them and from water which runs into them. As a lake becomes more acidified, the fish population declines and the birds which feed on the fish, also decline.

Finding Solutions

The only satisfactory way to prevent damage to the environment from acid rain is to reduce the amount of pollution from burning fossil fuels. However, this will take a long time and immediate measures are needed to safeguard the environment.

Immediate actions: Many lakes are limed. Crushed limestone is put into the lakes from boats or helicopters where the lakes are difficult to reach. This is very effective and life in the lakes recovers quite quickly although the poisonous minerals settle on the bottom where they can continue to damage the plants and animals that live there.

Long Term Actions:

International agreements

Countries are reluctant to act independently because they think it puts them at an economic disadvantage compared with other countries. International action to reduce pollution is now being agreed. Countries are now working on agreements that will reduce the amount of nitrogen

oxides in the atmosphere, mainly through controlling pollution from vehicle exhausts.

Technological solutions

There are ways to reduce the amount of sulphur dioxide getting into the atmosphere:

- sources of coal and oil naturally low in sulphur can be used;
- sulphur can be removed before the fuel is burnt;
- smoke can be washed with a slurry of lime.

More efficient use of energy reduces the amount of fuel used and hence the amount of pollution produced.

Personal Action

Everyone can do something to reduce pollution. We can save energy by not wasting hot water, turning off lights when they are not needed, reducing central heating thermostat by a couple of degrees, using cars only when it is really necessary, taking cans, paper and bottles for recycling, making sure washing machines are used only when there is a full load, etc.

Упражнение 2. (Парная работа) Опираясь на содержание текста, выберите русские эквиваленты следующих слов и словосочетаний (в тексте данные словосочетания подчёркнуты):

наносить ущерб

prevent damage

разрушать окружающую среду
предотвращать ущерб

maintenance of buildings

строительство зданий
эксплуатация зданий
снос зданий

stone work

каменная постройка
обработка камня
каменоломня

to be suitable for something

быть пригодным для чего-либо
нехватка чего-либо
быть довольным чем-либо

growing crops	увеличение урожайности выращивание урожая сбор урожая
satisfactory way	приемлемый способ правильное направление идти по пути
water courses	водные поверхности водотоки водоносный слой
immediate measures	срочные меры совместные усилия вынужденные меры
shed needles	собирать иголки сбрасывать иголки прикреплять иголки

Упражнение 3. Определите, к каким частям речи принадлежат приведённые ниже слова:

major, threaten, older, historic, themselves, toxic, by, through, interfere, out, feed, seem, these, into, quickly, settle, they, continue, independently, low, remove, compare.

Глагол	Причастие	Наречие	Местоимение	Предлог

Упражнение 4. (Парная работа) Не заглядывая в текст, заполните пропуски в предложениях приводимыми ниже предлогами. Предложения переведите на русский язык.

1. Coniferous trees do not shed their needles ... the end of each year.

2. When the soil becomes acid, toxic minerals are washed ... by water passing ... the soil.

3. These minerals are taken ... by the trees causing their growth to suffer.

4. Water courses and lakes are affected ... the acid rain which fall directly ... them.

5. As a lake becomes more acidified the fish population declines and the birds which feed ... the fish, also decline.

6. The only way to prevent damage ... the environment ... acid rain is to reduce the amount of pollution ... burning fossil fuels.

Through, into, in, to, at, on, by, from (2), out.

Упражнение 5. Найдите в тексте доказательства справедливости или ошибочности следующих утверждений.

1. Acid rain results in decline of bird population.
2. Coniferous trees seem to be most at risk from acid rain.
3. Water courses and lakes are not affected by acid rain.
4. Liming is the only satisfactory way to protect crops from acid rain.
5. Personal actions can contribute to pollution reduction.

Упражнение 6. (Парная работа) Подберите подходящие по смыслу продолжение следующих предложений.

1. When combined with moisture in the air, sulfates and nitrates ...
2. Acid rain increases the acidity of ...
3. Sulphur emissions in one country can travel across international borders causing acid rain ...
4. The most reliable way to protect the environment from acid rain is to ...
5. Sulphur dioxide is emitted when ...

Упражнение 7. В этом отрывке текста определите, где заканчивается одно предложение и начинается другое.

In the northeastern region of the United States and in Canada, air pollution has resulted in highly acidic rainfall although the causes of acid rain are in dispute, most scientists believe that it results from the

transformation of sulphur dioxide and nitrogen oxide (released by coal-burning power plants, factories, and automobiles) into sulfates and nitrates when combined with moisture in the air, sulfates and nitrates become acids and fall to earth as acid rain acid rain increases the acidity of soil, streams, and lakes, making them less habitable for plants and animals.

Упражнение 8. Из приведённых ниже предложений выберите те, которые наиболее полно отражают содержание текста "Environmental Damage Caused by Acid Rain".

1. The major threats from acid rain are to older historic buildings.
2. Coniferous trees do not shed their needles at the end of each year.
3. Water courses and lakes are affected by the acid rain which falls directly into them.
4. The only satisfactory way to prevent damage to the environment from acid rain is to reduce the amount of pollution from burning fossil fuels.
5. Countries are now working on agreements that will reduce the amount of nitrogen oxides in the atmosphere.
6. You can save energy by not wasting hot water.
7. Sulphur dioxide interferes with the process of photosynthesis.
8. Countries are now working on agreements that will reduce the amount of nitrogen oxides in the atmosphere.

Упражнение 9. Письменно составьте план пересказа текста на английском языке.

Упражнение 10. Перескажите текст "Environment Damage ..." по-английски не более чем в 10-12 предложениях.

Упражнение 11. Письменно переведите предлагаемый ниже текст на русский язык. Контрольное время — 20 минут.

Effects of Acid Rain

Acid rain falling onto plants can be harmful to them. It weakens trees and other plants, making them more susceptible to other stresses,

such as drought. However, the effects of acid rain can spread far more widely than the immediate area where it falls. It percolates into the soil, and then eventually flows into waterways.

The severity of the effects of acid rain varies considerably between areas with different kinds of underlying rock. In limestone areas, the calcium carbonate in the soil reacts with and neutralises the acids in the rain falling onto them. In regions where the underlying rocks do not contain calcium carbonate, there is nothing to neutralise the acidity of the rain, and effects in these areas are much greater.

Упражнение 12. Переведите предложения на русский язык, обращая внимание на выделенные формы.

1. At the UN Conference on Environment and Development (UNCED) in Rio US delegates refused to sign the Convention of Biological Diversity because they feared it would hurt the US biotechnology industry.

2. Acid rain has become an international issue.

3. If liquid nuclear waste is buried in cans, the cans might some day leak radioactive material into soil.

4. Coal and oil companies would have to pay for changes needed to reduce emissions. These extra costs would ultimately be passed on to consumers.

5. Some experts argue that the USA should not force businesses to adopt costly measures to reduce emissions.

6. In deciding whether to support new environmental laws or international agreements, US Congress must balance the monetary costs against the benefits of a clean environment.

7. The acidic level of rain can be influenced by the effect of naturally occurring chemicals and processes.

8. In non-limestone areas, as the acid rain water spreads through the soil, various ions dissolve in it that would not do so if the water had a higher pH.

9. Low pH can also cause phosphate ions to precipitate out of water.

10. In Western Europe and in North America, the problem of acid rain is being tackled very successfully.

11. Even when acid rain is no longer falling, it can take a very long time for aquatic ecosystems to recover from its effects.

12. It will take many years for the effects of acid rain on the soil to be reversed.

Lesson 25

Упражнение 1. (Парная работа) Следующие слова и словосочетания вы встретите в приводимом ниже тексте. Прежде чем прочитать его, ознакомьтесь с этими словами. Обсудите его предполагаемое содержание и выберите для него заглавие.

Gas, pollutant gases, respiratory system, Earth's atmosphere, absorb ultraviolet light, skin cancers, harmful effect, high level ozone, CFS, coolants, refrigeration, international action, develop alternatives, to solve a problem.

Теперь прочитайте текст и проверьте правильность своих предположений. Контрольное время — 7 минут.

Ozone is a gas with the formula O_3 . At ground level, it is produced from pollutant gases such as nitrogen dioxide (which can be emitted from vehicle exhausts) reacting with sunlight. Here it is harmful, adversely affecting plant growth and the respiratory systems of animals, including humans. However, high in the Earth's atmosphere, about 20-35 km above the surface, there is a layer in which relatively large amounts of ozone are found.

The ozone layer is of great importance to all living things on Earth, because it absorbs a high proportion of the ultraviolet light from the sun. Ultraviolet light can increase the risk of skin cancers, or melanomas. It can also cause cataracts to develop, and appears to have harmful effects on the growth of many types of plant.

It was realised that loss of high-level ozone was caused by the release of CFCs into the atmosphere. (Do not confuse the role of CFCs here with their role as greenhouse gases.) CFCs were widely used as aerosol propellants and as coolants in refrigerators. No-one thought that they might have any harmful effects, because they are extremely unreactive.

However, we now know that their unreactivity is one of the major factors that contributes to their damaging effects in the high atmosphere. CFCs released at ground level slowly move throughout the atmosphere, eventually reaching the ozone layer. They remain unchanged

throughout this time, lasting as much as 100 years without breaking down. However, when they reach the ozone layer, the chlorine atoms that they contain begin to react with ozone molecules, breaking them down into oxygen.

Most developed countries have now completely phased out the use of CFCs. Alternatives have been developed that do not — so far as we know — have such harmful effects. And it looks very much as though the problem is close to being solved. But it is going to take a while before the ozone layer is back to normal, because we cannot remove the CFCs that are already there. Still, this does look like a success story, and gives encouragement that it is possible for international action to be taken to reverse damage done to our environment.

Упражнение 2. (Парная работа) Прочитайте вслух приведённые ниже слова и словосочетания. Найдите их соответствия в русском языке.

Formula, emit, react, respiratory system, a human, ozone, absorb, proportion, ultraviolet, risk, melanoma, cataract, type, aerosol, factor, chlorine, molecule, an alternative, normal.

Упражнение 3. Определите исходные формы приведённых ниже слов. При необходимости воспользуйтесь словарём.

Emitted, reacting, affecting, influencing, found, humans, melanomas, appears, realised, caused, propellants, coolants, thought, might, unreactive, contributes, released, breaking down, phased out, to be taken, done.

Упражнение 4. В правой колонке найдите русские эквиваленты следующих словосочетаний:

- | | |
|--------------------|---|
| 1. at ground level | a. развитие (рост) растений |
| 2. pollutant gases | b. неблагоприятные воздействия |
| 3. plant growth | c. газообразные загрязняющие вещества |
| 4. harmful effects | d. выхлопные газы |
| 5. living things | e. основной фактор |
| 6. major factor | f. поэтапно отказываться от использования |
| 7. high atmosphere | g. решить проблему |

- | | |
|---------------------------|---------------------------|
| 8. to phase out (the use) | h. на уровне земли |
| 9. to solve a problem | i. верхние слои атмосферы |
| 10. vehicle exhaust | j. живые существа |

Упражнение 5. (Парная работа) Определите значения подчёркнутых слов, исходя из контекста.

1. Ozone at the ground level adversely affects plant growth and the respiratory system of animals, including human.
2. It was realised that loss of high-level ozone was caused by the release of CFCs into the atmosphere.
3. CFS were widely used as coolants in refrigerators.
4. CFS are extremely unreactive.
5. It is going to take a while before the ozone layer is back to normal.
6. We cannot remove the CFC that are already in the atmosphere.
7. This does not look like a success story.
8. It is possible for international action to be taken to reverse damage done to our environment.

Упражнение 6. (Парная работа) В приведённом ниже тексте в каждой строке найдите ту позицию, которую должно занимать слово из правой колонки.

Ozone is a form the oxygen we breathe and need stay alive. The oxygen we breathe is found the atmosphere and contains two oxygen atoms ozone contains three. It is this extra atom makes it poisonous and any animal breathing more than a tiny amount would die the ozone was all collected the Earth's surface it would make a layer only 3 mm thick. It is dispersed the atmosphere but is more concentrated the stratosphere between 10 and 50 km the surface, hence the name "ozone layer".

of
to
through
but
which
in
If
at
throughout
in
above

Упражнение 7. (Парная работа) Выберите один из абзацев текста и придумайте 5-6 вопросов к нему. Попросите ответить на

них другую пару студентов. В свою очередь, ответьте на их вопросы.

Упражнение 8. Подлинное название текста — "The Ozone Layer". Прочитайте его ещё раз и найдите в нём ответы на следующие вопросы.

1. Почему озоновый слой имеет большое значение для всех живых организмов ?
2. Что такое меланома?
3. Каким образом можно удалить CFCs (хлор и фторзамещённые углеороды), попавшие в атмосферу?
4. Каким образом решается проблема восстановления озонового слоя в атмосфере Земли?
5. Какова химическая формула озона?

Упражнение 9. (Парная работа) Данный отрывок текста приводится без деления на предложения. Прочитайте его и определите, где заканчивается одно и начинается другое предложение.

The Culprits

A number of human-made chemical compounds released into the atmosphere are responsible for the destruction of the ozone layer over 200 different destruction processes have been identified but the worst compounds are chlorofluorocarbons (CFCs), carbon tetrachloride, methyl chloroform and halons there are many types of CFCs but CFC12 is one of the most used and now makes up 384 parts per trillion of the atmosphere in the lower atmosphere CFCs remain inert and do not break down at the surface this means that when they drift up into the stratosphere, a journey that can take up to twenty years, they are still intact.

Упражнение 10. Перескажите текст "The Ozone Layer" на английском языке не более чем в 10-12 предложениях.

Упражнение 11. Письменно переведите приведённый ниже текст на русский язык. Контрольное время — 15 минут.

Climate and Weather

By absorbing ultraviolet radiation, ozone warms the stratosphere which becomes warmer than the top of the troposphere. The stratosphere acts as a lid to rising air currents in the troposphere which are the origin of the Earth's weather systems. The ozone layer is therefore important in determining the climatic and weather patterns of the world. Some scientists are worried about what will happen to the climate if the greenhouse effect continues to warm the lower atmosphere while the upper atmosphere becomes cooler with the depletion of ozone.

Упражнение 12. Переведите предложения на русский язык, обращая внимание на выделенные формы.

1. To verify the information, data from a weather satellite was analysed.

2. The computer processing the information had been programmed to ignore low ozone values.

3. Humans have long thought that the atmosphere, oceans, rivers etc. could absorb human-made pollution without any threat to the environment.

4. It is the layer in which plants and animals live and where the weather takes place.

5. If the ozone was all collected at the Earth's surface it would make a layer only 3 mm thick.

6. Ozone is constantly being produced and broken down in the stratosphere by the action of the sun.

7. Ultraviolet radiation causes plastics, paints and many other materials to decay quickly.

8. Satellites monitoring ozone concentrations carry the Total Ozone Mapping Spectrometer.

9. There is little plant and animal life on the continent itself to be damaged.

10. Fortunately we have been given an early warning of what might happen if the ozone layer continues to be damaged.

11. The chlorine in the chemicals is converted to a form which is much more sensitive to sunlight.

12. While CFCs and other chemicals are being phased out we can all help reduce the damage to the ozone layer.

Тесты к блоку 4

ТЛ

I Укажите буквой русские эквиваленты приведённых слов и словосочетаний. В своей работе укажите только цифры и буквы. Например, 1-а, 2-в, 3-с и т.д.

1. contribute

- а) устранять б) делать вклад с) нарушать

2. predict

- а) вызывать б) происходить с) предсказывать

3. reduce amount

- а) увеличивать количество б) сокращать количество с) сохранять количество

4. carbon acid

- а) азотная кислота б) соляная кислота с) угольная кислота

5. water courses

- а) курс гидрологии б) водотоки с) водные поверхности

6. vehicle exhaust

- а) токсичные отходы б) твёрдые отходы с) выхлопные газы

7. ozone depletion

- а) концентрация озона б) разрушение озона с) формирование озона

8. power station

- а) мощная станция б) силовая станция с) атомная станция

9. acid precipitation

- а) кислотные осадки б) обильные осадки с) выпадение осадков

10. energy consumption

- а) сокращение расходов энергии б) вырабатывание энергии
с) потребление энергии

II Заполните пропуски в предложениях подходящими по смыслу терминами. В своих работах укажите только цифры и термины. Например, 1- global warming и т.д.

1. ... is the effect of heat retention in the lower atmosphere as a result of absorption of long-wave radiation by clouds and gases.

2. ... is the modification of climates that would result from the retention of an increased proportion of terrestrial radiation by certain atmospheric gases emitted mainly as by-products of human activities.

3. ... is precipitation that has a pH lower than about 5.0, which is the value produced when naturally occurring carbon dioxide, sulphate and nitrogen oxides dissolve into water droplets in clouds.

4. ... is the atmospheric layer at 15-30 km altitude in which ozone is concentrated at 1-10 parts per million.

5. ... is the product of the complete oxidation of carbon and the compound most involved in the transport of carbon through the carbon cycle.

Ozone layer, greenhouse effect, carbon dioxide, acid rain, global warming.

TT

I В приведённом ниже тексте два предложения не соответствуют его содержанию. Укажите цифрами эти предложения.

Solid Waste

(1) Each year, Americans discard 180 million tons of trash. (2) Three quarters of this waste is buried in landfills. (3) While the amount of garbage is increasing, landfill space is decreasing. (4) Since 1980 more than 3,000 landfills have been closed because they were contaminating water supplies or did not meet government standards. (5) The extra costs would ultimately be passed on to consumers. (6) Thus some communities must find alternative to burying their trash. (7) Some have already run out of landfill space and are forced to ship their solid waste to other communities. (8) Unlike nuclear wastes, some toxic wastes can be broken down into relatively safe substances through burning or chemical treatment.

II В этом тексте определите, где заканчивается одно предложение и начинается другое. В своей работе укажите только слова, после которых начинается новое предложение.

Ozone Depletion

Some gases called chlorofluorocarbons (CFCs) destroy the earth's ozone layer ozone is distributed in a thin layer in the earth's atmosphere and shields the earth from the sun's dangerous ultraviolet rays increased

exposure to ultraviolet radiation weakens the human body's immune system, causes skin cancer and eye damage, and destroys crops and microorganisms CFCs are a family of chemicals that are often used in cleaning solvents and aerosol spray cans and as coolants in refrigerators and air conditioners.

III *Письменно переведите текст на русский язык. Контрольное время — 25 минут.*

Effects of Acid Rain

Acid rain falling onto plants can be harmful to them. It weakens trees and other plants making them more susceptible to other stresses, such as drought. However, the effects of acid rain can spread far more widely than the immediate area where it falls. It percolates into the soil, and then eventually flows into waterways.

The severity of the effects of acid rain varies considerably between areas with different kinds of underlying rock. In limestone areas, the calcium carbonate in the soil reacts with and neutralises the acids in the rain falling onto them. In regions where the underlying rocks do not contain calcium carbonate, there is nothing to neutralise the acidity of the rain, and effects in these areas are much greater.

ТГ

I *Укажите буквой правильный вариант перевода подчёркнутых форм. Например, 1-с., 2-в и т.д.*

1. In the early 1970-s, Sweden complained that the acidity of rain falling in southern Scandinavia had greatly increased since 1950.

а) выпадение осадков в) выпадающие осадки с) осадки выпадают

2. The acidic level of rain can be influenced by the effect of naturally occurring chemicals and processes.

а) может находиться под воздействием в) может оказать воздействие с) может быть, оказывает воздействие

3. In non-limestone areas as the acid rain water spreads through the soil various ions dissolve in it.

а) так как в) по мере того, как с) в качестве

4. Coal-burning utilities will have to spend 3 million dollars a year to burn low-sulphur fuel or install scrubbers.

а) придётся потратить в) имеют затраты с) потратят

5. A 50 % cut in CO₂ emissions would roughly stabilize the amount of the gas in the atmosphere.

а) стабилизирует в) стабилизировало бы с) стабилизировало

6. The forests of the Amazon absorb huge amounts of the atmospheric CO₂ that would otherwise exert a big heating effect on the earth's climate.

а) окажут воздействие в) оказали бы воздействие с) оказывают воздействие

7. If we don't address the issue of global ecology, we won't have to worry about the other issues.

а) если мы не обращаемся в) если мы не обратимся с) если бы мы не обратились

8. Scientists said the increase in radiation could have serious health and ecological effects.

а) могли бы иметь в) могут иметь с) могли иметь

9. The law is expected to cost the economy as much as 25 billion dollars a year.

а) как ожидается, закон обойдётся экономике ...

в) как ожидалось, закон обошёлся экономике ...

с) как можно ожидать, закон обойдётся экономике ...

10. Carbon dioxide is the most important greenhouse gas.

а) наименее важный в) наиболее важный с) важный

ПРИЛОЖЕНИЕ 1

Структурно-смысловые особенности английских научно-технических текстов

Важнейшей задачей при изучении иностранного языка является овладение навыками извлечения информации из текста. В зависимости от поставленной задачи чтение может быть ориентировано на определение основного содержания текста, на поиск каких-либо конкретных фактов, данных и т. д. или на извлечение полной информации текста. В любом из указанных случаев следует знать структурно-смысловые особенности английских текстов научно-технического характера. Остановимся на некоторых из них.

Одним из внешних признаков, характерных для структурной организации английского научно-технического текста, является порядок изложения информации, в котором прослеживается достаточно чёткая последовательность: текст имеет **вводную часть**, где приводится основное содержание данного сообщения, **основную часть**, в которой происходит раскрытие этого содержания, и **заключение**.

При работе над научно-техническим текстом особое внимание следует обратить на его заголовок. В смысловой структуре текста заголовку принадлежит важнейшая роль, поскольку он в сжатой форме передаёт его основное содержание. Таким образом заголовок является первым смысловым ориентиром при работе над текстом.

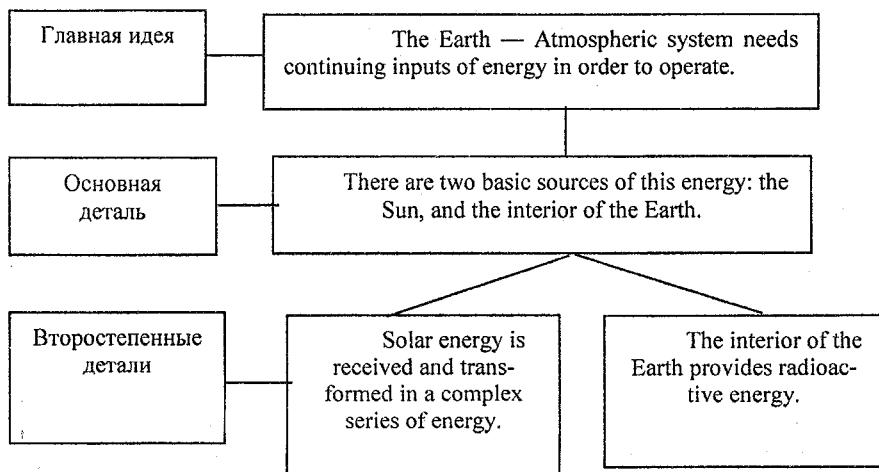
Важной структурной единицей текста является абзац — группа связанных между собой предложений, развивающих какую-либо идею. Почти всегда в каждом абзаце одна идея является более важной, чем другие. В ней содержится **основная идея** данного отрывка текста. Такая идея называется основной идеей абзаца, обычно она содержится в его начале.

В качестве примера проанализируем первый абзац текста "Energy Sources and Transfers".

1. The Earth — Atmosphere system needs continuing inputs of energy in order to operate, since without energy the world would have

no motion or life. 2. There are two basic sources of this energy: the sun, and the interior of the Earth. 3. Solar energy is received and transformed in a complex series of energy transfers, especially in the atmosphere. 4. The interior of the Earth provides radioactive energy, derived from the time of the formation of the planet.

Основная идея приведённого абзаца содержится в первом предложении, в котором говорится о необходимости источников энергии для функционирования системы "Земля — атмосфера". Далее в тексте раскрывается содержание этой основной идеи, примером чего может послужить 2-е предложение, сообщающее о том, что существует два основных источника энергии, одним из которых является Солнце, а другой находится в недрах Земли. В предложениях 3 и 4 в свою очередь, происходит дальнейшая детализация этой информации: в них содержится указание источников энергии. Такие уровни детализации можно обозначить как соответственно **главные** (предложение 2) и **второстепенные** (предложения 3, 4) **детали**. Таким образом, иерархическая структура приведённого абзаца может быть представлена следующим образом:



ПРИЛОЖЕНИЕ 2

Связующие элементы предложения и текста *

В любом тексте важное значение имеют слова и словосочетания, служащие для выражения связей и отношений, существующих как между отдельными элементами предложения, так и между самими предложениями. К этим словам и словосочетаниям, которые в дальнейшем будут называться "связующими элементами", можно, например, отнести следующие: **then** — затем; **firstly** — во-первых; **in conclusion** — в заключение; **moreover** — более того; **yet** — тем не менее; **in front of** — перед чем-либо и т. д. Связующие элементы могут быть использованы в предложении для выполнения различных логико-семантических функций, главными из которых являются следующие:

- выражение временных, пространственных, причинно-следственных, условных отношений, например: **since** — с, так как; **during** — в течение; **on** — на; **behind** — позади; **so** — таким образом; **hence** — следовательно; **for this reason** — по этой причине; **on account of** — из-за; **because** — потому что; **as a result** — в результате; **to this end** — с этой целью; **unless** — если не;

- выражение уточнения, например: **namely** — а именно; **that is to say** — так сказать;

- выражение соотнесённости чего-либо с чем-либо, например: **in this respect** — в этом отношении; **in that connection** — в этой связи; **apart from** — помимо чего-либо;

- обозначение сравнения, например: **likewise** — схожим образом; **similarly** — подобно чему-либо;

- обозначение дополнительной информации, например: **and** — и; **moreover** — более того; **furthermore** — кроме того;

- выражение противоположности, например: **yet** — тем не менее; **though** — хотя; **however** — однако; **nevertheless** — тем не менее; **instead** — вместо; **on the contrary** — напротив; **on the other hand** — с другой стороны;

- выражение подведения итогов, например: **in short** — вкратце; **in conclusion** — в заключение; **to sum up** — подводя итоги;

- обозначение иллюстрации какого-либо положения, факта и т. д., например: **thus** — таким образом; **for example** — например.

*Следует особо подчеркнуть, что данная группа слов и словосочетаний выделяется исключительно для практических целей.

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