

Учреждение образования  
«Гомельский государственный университет  
имени Франциска Скорины»

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**АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ГЕОГРАФОВ  
ТЕКСТЫ ДЛЯ ПЕРЕВОДА И РЕФЕРИРОВАНИЯ**

Практическое пособие

для студентов специальности

1-31 02 01 «География (научно-педагогическая деятельность)»

Гомель  
ГГУ им. Ф. Скорины  
2021

УДК 811.111'25(076)  
ББК 81.432.1-8я73  
К924

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Рекомендовано к изданию научно-методическим советом  
учреждения образования «Гомельский государственный  
университет имени Франциска Скорины»

**Куприянчик, Т. В.**

К924 Английский язык для географов. Тексты для перевода и реферирования : практическое пособие / Т. В. Куприянчик, О. Н. Чалова ; Гомельский гос. ун-т им. Ф. Скорины. – Гомель : ГГУ им. Ф. Скорины, 2021. – 45 с.  
ISBN 978-985-577-729-9

Практическое пособие содержит восемь текстов географического профиля для чтения на английском языке, а также комплекс упражнений, направленных на развитие у будущих специалистов навыков смысловой компрессии текстового материала.

Предназначено для студентов специальности 1 – 31 01 01 – 02 «География (научно-педагогическая деятельность)».

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## ПРЕДИСЛОВИЕ

Данное практическое пособие адресовано студентам геолого-географического факультета, проходящим курс обучения по специальности 1-31 02 01 «География (научно-педагогическая деятельность)» и владеющим английским языком в объеме школьной программы.

Необходимость использования в учебном процессе текстов по направлению специальности для обучения студентов иноязычному общению очевидна: работа с подобным материалом дает возможность продемонстрировать будущим специалистам особенности профессионального речевого поведения англоязычного мира, что положительным образом сказывается на изучении языка. Кроме того, чтение профессионально направленных текстов способствует приобретению новых знаний по географии, расширению кругозора, повышению мотивации к изучению предмета, совершенствованию стратегий понимания читаемого и, таким образом, формированию профессиональной и социокультурной компетенций.

Настоящее издание состоит из восьми разделов, каждый из которых содержит текст географического профиля, предназначенный для изучающего чтения и реферирования, а также ряд упражнений и заданий, направленных на проверку понимания прочитанного, а также на развитие умений смысловой компрессии текстового материала и совершенствование навыков монологической речи.

Изучение одного раздела рассчитано на одно практическое занятие.

Представленный в пособии материал может использоваться для организации аудиторной и внеаудиторной учебной деятельности по английскому языку в рамках учебной программы высшего образования.

Практическое пособие следует рассматривать исключительно в качестве дополнения к основным учебникам по английскому языку для неязыковых факультетов, и работа по нему должна проводиться параллельно с работой по этим учебникам.

## UNIT 1. THE SCIENCE OF GEOGRAPHY

*Ex. 1. Practise the pronunciation of the following terms.*

Geomorphology [ˌdʒi:əʊmɔ:ˈfɒlədʒi], climatology [ˌklaɪməˈtɒlədʒi], biogeography [ˌbaɪədʒiˈɒgrəfi], oceanology [ˌəʊʃjəˈnɒgrəfi], hydrography [haɪˈdrɒgrəfi], geography cartography.

*Ex. 2. Read these international words and try to guess their meaning.*

Physical, cultural, regional, geology, characteristics, analysis, analyze, systematic, phenomena, climate, mineral, political, mathematical, culture, aspects, regional, continent, state.

*Ex. 3. Enlarge your active vocabulary.*

Earth [ɜ:θ] – Земля, approach [əˈprəʊtʃ] – подход, to distinguish [disˈtɪŋwiʃ] – различать, investigation [ɪnˈvestɪˈgeɪʃn] – исследование, surface [ˈsɜ:fis] – поверхность, distribution [ˌdɪstriˈbjʊ:ʃ(ə)n] – распределение.

*Ex. 4. Geography is a discipline that integrates a wide variety of subject matters. Read the text, name them and say what they study.*

Geography, which comes from the Greek words *geo*, meaning “earth”, and *graphein*, meaning “description”, is literally a study of the planet Earth. As trained scientists, geographers describe and analyze the physical characteristics of our planet and the ways in which people interact with these physical characteristics and with each other.

Throughout history, people who went even short distances from where they lived became keenly aware of differences that distinguish one place from another and one group of people from another. Many of these travelers formed mental images of the places that they had visited and told others what they had seen. They sometimes scratched crude maps on rocks or on pieces of cloth or leather to improve the accuracy of their descriptions.

Geography, the study of the relationship between people and their physical surroundings, or environments, grew directly out of these attempts by early explorers to describe what they had seen on their travels.

Today those who study geography describe and analyze the earth to explain what is where, why it is there, and what significance it has.

The distribution of things on the face of the earth can be investigated and analyzed in either of two ways. One approach is called **topical geography**, or sometimes systematic geography. This approach involves the investigation and analysis of such phenomenon as the earth's landforms, its climate, its political divisions, or its agricultural characteristics.

Topical geography may be focused on physical or human phenomena. Analysis of the distribution of landforms, climates, water, soils, minerals, and similar factors is called **physical geography**. The principal branches of physical geography are geomorphology (which uses geology to study the form and structure of the surface), climatology (which involves meteorology and is concerned with climatic conditions), biogeography (which uses biology and deals with the distribution of plant and animal life), oceanology (which deals with the waves, tides and currents of oceans and the ocean floor), hydrography (which concerns the distribution of seas, lakes, rivers and streams in relation to their uses) and soil geography (which is concerned with the distribution of soils). Certain aspects of physical geography, in turn, are sometimes studied separately. These include the plant geography, animal geography, geography of minerals and other aspects. The speciality which treats the form, size, and movements of the earth is called mathematical geography. Human geography analyses the distribution of human phenomenon. Economic geography includes such specialities as the geography of manufacturing, transportation geography and commercial geography. Political geography deals with human social activities that are related to the locations and boundaries of cities, nations and groups of nations. A specialized field of topical geography known as urban geography is devoted to analyzing of the distribution of cities and things within them. Cartography takes a special place among geographic studies.

The other approach is called **regional geography**. It focuses attention upon a particular area or region. Within the region it investigates the distribution and association of elements which give the region its distinctive character.

In regional geography analysis is concentrated on associations which give the character to a particular area. The area may be

continental in size, or it may be subdivided into units such as continents, states and countries. Subdivisions of the world that are made on the basis of similarities of human life provide culture regions. Subdivisions on the basis of similarities of natural conditions provide physical regions. Thus, there is a geography of North America, a geography of United States, a geography of California, and a geography of Boston.

*Ex. 5. Give the Russian equivalents to the following English phrases.*

Четко осознавать, выцарапывали грубо выполненные карты, на поверхности земли, на основе, специальный раздел, социально-экономическая география, распределение, явление, отличительный, схожие факты, природные условия, производство, торговый, подчеркивать.

*Ex. 6. Find the right definition for the following concepts.*

- |                        |  |
|------------------------|--|
| a) Political geography | 1. A branch of geography that studies natural phenomena and objects of Erath's surface.  |
| b) Economic geography  | 2. A branch of geography that studies peculiarities, objects and phenomena of the Earth's surface that are related to humans and their activity. |
| c) Urban geography     | 3. A branch of geography that studies territorial distribution of production, economic structure of countries and regions.                       |
| d) Physical geography  | 4. A branch of geography that studies boundaries, administrative division and territories of the state.  |
| e) Human geography     | 5. Science that studies distribution of living organisms all over the world and reasons for its changing.  |
| f) Biogeography        | 6. A science about the place, evolution, structure and classification of cities and settlements.   |

*Ex. 7. Match the words from column A with the suitable words from column B to make word combinations.*

- | <b>A</b>          | <b>B</b>           |
|-------------------|--------------------|
| 1) physical       | a) phenomena       |
| 2) mental         | b) geography       |
| 3) human          | c) regions         |
| 4) principal      | d) geography       |
| 5) mathematical   | e) life            |
| 6) human          | f) branches        |
| 7) natural        | j) images          |
| 8) culture        | k) activities      |
| 9) transportation | l) characteristics |
| 10) social        | m) conditions      |

*Ex. 8. Find the synonyms in the text.*

Recognize; advance; examination; appearance (2 words); chief; peculiarity; investigator; report; examine.

*Ex. 9. Solve the anagrams.*

- 1) Nmnaehope; 2) Hggypoea; 3) Ahpcaopr; 4) Retah;  
5) Cerufsa; 6) Ncabrh; 7) Ndoiistibru; 8) Ninovitesagit.

*Ex. 10. Fill in the missing forms of the words (table 1).*

Table 1

<i><b>Noun</b></i>	<i><b>Verb</b></i>	<i><b>Noun</b></i>	<i><b>Adjective</b></i>
description		distinction	
	interact		significant
attempt		topic	
	relate	climate	
analysis			economic
	explore	region	
	surround	specialty	
	divide		continental
investigation		geography	
	distribute		human



*Ex.11. Finish the sentences with the correct words. Use the prompts.*

1. The... revolves around the Sun.
2. Our teachers use highly individual... to language.
3. The sea was calm, only little waves could be seen on the... of the water.
4. I could hardly... anything in the morning mist.
5. In this section we present the results of the experimental... that we have carried out to test the theory.
6. “Compared to the money that he is making for the bank, that's an unfair... “, he said.
7. The principal branch of the economy is mining, centered on the towns of Kirovsk and Apatity.
8. My father was a historian of repute. His... was the history of Germany.

*distinguish*

*surface*

*Earth*

*distribution*

*investigation*

*approach*

*principal  
branch*

*speciality*

*Make up your own sentences with these words.*

*Ex. 12. Fill in the blanks with prepositions where necessary.*

1. “Geography” comes... the Greek words.
2. People became keenly aware... differences that distinguish one place... another and one group... people... another.
3. Geography is the study... the relationship... people and their physical surroundings.
4. The distribution... things... the surface... the earth can be analyzed... either of two ways.
5. Topical geography may be focused... physical or human phenomena.
6. Regional geography focuses attention... a particular area.
7. Oceanology deals... the waves, tides and currents of oceans and the ocean floor.
8. Hydrography concerns... the distribution of seas, lakes, rivers and streams.
9. Human social activities are related... the locations and boundaries... cities, nations and groups... nations.
10. In regional geography analysis is concentrated... associations which give the character... a particular area.

*Ex. 13. Say whether the following statements are true or false. Use the following.*

*That's right*

*Nothing of the kind*

*I don't agree*

*I think that's exactly so*

*That's true*

*That's not right*

1. The word “*Geography*” comes from the Latin words *geo*, meaning “earth”, and *graphein*, meaning “description”.

2. Geographers describe and analyze the ways in which people interact with these physical characteristics and with each other.

3. Geography grew directly out of the attempts by early explorers to scratch crude maps on rocks.

4. Topical geography may be focused on physical or human phenomena.

5. Analysis of the distribution of landforms, climates, water, soils, minerals, and similar factors is called regional geography.

6. One of the geographic branches is climatology.

7. Some aspects of physical geography can be studied separately.

8. The speciality which treats the form, size and movements of the earth is called urban geography.

9. Political geography emphasizes the pattern of the earth's political sovereignties.

10. Subdivisions on the basis of similarities of natural conditions provide culture regions.

*Ex. 14. Answer the following questions.*

1. What does the word ‘geography’ mean? 2. How did the study of geography develop? 3. What branches does geography include? 4. What does topical (regional) geography investigate? 5. What is called physical geography? 6. What aspects of physical geography are studied separately? 7. What can you say about mathematical geography? 8. What does human (economic, political, urban) geography deal with? 9. How is regional geography subdivided?

## UNIT 2. THE CONTINENTS

*Ex. 1. Practice the pronunciation of the following proper names and translate them.*

Europe, Asia, Australia, Oceania, the Eurasian continent, the Mediterranean Sea, the Baltic Sea, Micronesia, Melanesia, Polynesia, the Alps, the Carpathians, the Harz, the Sahara, the Kalahari, Everest, the Atacama, the Pacific Ocean, the Andes.

[ˈjuərəp], [ˈeɪzə], [ɒsˈtreɪljə], [ˌəʊfɪˈeɪnjə], [jʊəˈreɪzjən ˈkɒntɪnənt], [ˌmedɪtəˈreɪnjən ˈsi:], [ˈbɒltɪk ˈsi:], [ˌmaɪkrəʊˈni:zjə], [ˌmeləˈni:zjə], [ˌpɒliˈni:zjə], [ælpz], [kɑ:ˈpeɪθiənz], [hɑ:ts], [səˈhɑ:rə], [kæləˈhɑ:ri], [ˈevərest], [ˌɑ:təˈkɑ:mə], [prəˌsɪfɪkˈəʊfɪn], [ˈændi:z].

*Ex. 2. Read these international words and try to guess their meaning.*  
Continent, mass, political, tropical, jungle, tundra, distance, equator.

*Ex. 3. Study the following vocabulary.*

To surround [ səˈraʊnd] – окружать	vast [vɑ:st] – обширный
island [ˈaɪlənd] – остров	desert [ˈdezət] – пустыня
to imply [ɪmˈplaɪ] – предпо- лагать	range [reɪndʒ] – ряд
to override [ˌəʊvəˈraɪd] – от- вергать, не принимать во внимание	inhospitable [ɪnˈhɒspɪtəbl] – недружелюбный, неприветли- вый.

*Ex. 4. Read the text.*

### Physical Features of the Continents

A continent is defined as a large unbroken land mass completely surrounded by water, although in some cases continents are (or were in part) connected by land bridges. The seven continents are North America, South America, Europe, Asia, Africa, Australia, and Antarctica. The island groups in the Pacific are often called Oceania but this

name does not imply that scientists consider them the remains of a continent.

Political considerations often overrode geographical facts when it came to naming continents. Geographically, Europe, including the British Isles, is a large western peninsula of the continent of Asia; and many geographers, when referring to Europe and Asia, speak of the Eurasian continent. But traditionally, Europe is counted as a separate continent, with the Ural and the Caucasus mountains forming the line of demarcation between Europe and Asia.

*Asia* occupies nearly one-third of the world's land, and contains more than half of the people. It is clearly bordered by the oceans in the north, east and south. Asia is a very hot continent in summer, but much of it is very cold in winter. It extends from the heights of Everest to below sea level in the Dead Sea, and contains tropical forests, jungles, tundra and ice caps.

*Africa* is the second largest continent, and extends an equal distance both north and south of the equator. It is a warm continent. There are forests on the equator and vast expanses of tropical grassland all around the tropical forest area. The Sahara and Kalahari deserts occupy large areas. The Sahara is much larger than the Kalahari because Africa is wider in the north and it is drier.

*North America* is the third largest continent, and is surrounded by the oceans. The southern tip contains the *Central American* republics which link North America to South America. The islands of the West Indies are east of Central America. North America contains large expanses of forest, grassland and desert.

*South America* is broadest in the tropics and therefore is a fairly warm and wet continent. It does, however, contain the Atacama Desert which is the driest area in the world. It also contains the longest range of mountains in the world, the Andes, which run from the north to the south of South America.

*Antarctica* is a large land mass almost completely covered by ice, and surrounded by the great Southern Ocean. The climate is so inhospitable that normal life would be impossible.

*Europe* is a climatically mild continent as the Mediterranean and Baltic Seas enable oceanic influences to extend far inland. It is broken

up by many mountain ranges such as the Alps, Carpathians and Harz mountains.

**Australasia** consists of Australia, New Zealand and thousands of islands in the Pacific Ocean. These islands can be divided into three main groups – Melanesia, Micronesia and Polynesia. The islands to the north represent a transitional area with Asia.

More than half of the land in the world is uninhabitable – because it is rock, desert, tundra, dense jungle, swamp or is covered with ice. Nearly one-half of the world's population lives on one-thirtieth of the total area of land. There are immense areas which are very sparsely populated – such as the Northern Territory of Australia; other areas (such as Japan and India) are very densely populated.

*Ex. 5. Find the English equivalents of the following Russian phrases.*

Полностью окруженный водой; рассматриваться как отдельный континент; не принимать во внимание географические факты; простираться на одинаковое расстояние; занимать огромные территории; иметь (включать) самые длинные горные цепи в мире; климатически умеренный; океаническое влияние; переходная зона; непригодный для жилья; мало населенный; густо населенный.

*Ex. 6. Match the words with their definitions.*

rock	tundra	desert	equator
peninsular	continent	tropical rainforest	continent

1. Biome that has plants and animals adapted to survive severe drought conditions. This area receives low precipitation.

2. Location on the Earth that has a latitude of 0°.

3. An area of land that is nearly surrounded by water.

4. A compact and consolidated mass of mineral matter.

5. A forested biome found near the equator and dominated by evergreen vegetation.

6. A high latitude biome dominated by a few species of dwarf shrubs, a few grasses, sedges, lichens, and mosses. Productivity is low in this biome because of the extreme climate.

7. A part of the Earth's surface that form one of the great dry-land masses of the world.

8. One of the very large areas of land on earth that are usually divided into several countries.

*Ex. 7. Match the continents (table 2).*

Table 2

North America	South America	Europe	Asia	Africa	Australia	Antarctica

Forest, grassland, desert, mountains, tropical forests, jungles, tundra, ice caps, tropical grassland, ice, rock, dense jungle, swamp;

Southern Ocean, the Dead Sea, the Mediterranean Sea, the Sahara desert, the Alps, the West Indies, the Atacama desert, the Kalahari desert, the Andes, the Baltic Sea, the Carpathians, the Caucasus, the Harz, Everest, the Ural.

*Ex. 8. Match the words from column A with the suitable words from column B to make word combinations.*

- | <b>A</b>         | <b>B</b>          |
|------------------|-------------------|
| 1) political     | a) level          |
| 2) separate      | b) climate        |
| 3) sea           | c) continent      |
| 4) tropical      | d) considerations |
| 5) inhospitable  | e) forests        |
| 6) oceanic       | f) land           |
| 7) mountain      | j) influence      |
| 8) transitional  | k) populated      |
| 9) uninhabitable | l) area           |
| 10) sparsely     | m) ranges         |

*Ex. 9. Find the synonyms in the text to the following words.*

To be linked; to turn down; single (independent); to be situated; stretch; enlargement; territory; include; affect; enormous.

*Ex. 10. Find the opposites in the text.*

Friendly; cold; wet; narrow; short; severe; densely.

*Ex. 11. Fill in the blanks with prepositions where necessary.*

1. Asia is bordered... the oceans... the north, east and south.

2. North America contains... large expanses... forest, grassland and desert.

3. Antarctica is a large land mass almost completely covered... ice, and surrounded... the great Southern Ocean.

4. South America contains the longest range of mountains... the world, the Andes, which run... the north... the south.

5. These islands can be divided... three main groups.

*Ex. 12. Say if the statement is true or false. If the statement is false, you are to correct it. Use the introductory phrases.*

*That's right. Quite Ok.*

*Quite the contrary.*

*Exactly. Quite so.*

*It's unlikely.*

*It's correct to say.*

*Not quite so.*

1. A continent is defined as a large unbroken land mass partially surrounded by water. 2. Many geographers, when referring to Europe and Asia, speak of the Eurasian continent. 3. Asia is a very hot continent in summer and very cold in winter. 4. Africa is the largest continent, and extends an equal distance both north and south of the equator. 5. The Sahara is much smaller than the Kalahari because Africa is wider in the south. 6. The climate in Antarctica is so inhospitable that normal life would be impossible. 7. The longest range of mountains in the world, the Andes, run from the west to the east of North America. 8. Australasia consists of Australia, New Zealand and thousands of islands in the Pacific Ocean. 9. One third of the land in the world is uninhabitable. 10. The Sahara and Kalahari deserts occupy large areas of Asia.

*Ex. 13. Answer the following questions.*

1. What is a continent?
2. What are seven continents?
3. Is there any difference between traditional and geographical ways in which Europe is viewed?
4. What are some of the characteristic features of Asia?
5. What is characteristic of Africa?
6. What is the third largest continent? What features are characteristic of it?
7. Why is Southern America considered to be fairly warm and wet continent?
8. What climate is characteristic of Antarctica?
9. What factors influence the climate of Europe?
10. Australasia includes Australia, New Zealand and thousands of island in the Pacific Ocean, doesn't it?
11. Why is more than half of the land in the world counted as uninhabitable?
12. What factors influence the density of population of an areas?

*Ex. 14. Complete the sentences with the information from the text.*

1. This text is concerned with...
2. A continent is defined as...
3. There are seven continents:...
4. Traditionally Europe is considered to be... though geographically it is...
5. Asia is... in the world.
6. The climate of Asia is...
7. It contains...
8. Africa is...
9. It is covered by...
10. Large areas are occupied by... and...
11. In comparison with the Sahara and the Kalahari is...
12. North America is considered to be...
13. It contains...
14. South America is warm and wet because...
15. However, it contains... which is believed to be...
16. ...run from the north to the south of South America.
17. Antarctica is described as a...
18. Normal life is impossible there because...
19. The climate of Europe is... because...
20. It contains...
21. Australasia is divided into several parts:... , ...and...
22. The land that is counted as uninhabitable is..., ..., ..., ..., or...

*Ex. 15. Retell the text, using set expressions and phrases below.*

The text is on...; It is important to point out...; As far as I understand...; What I mean to say...



## UNIT 3. THE EARTH AND ITS STRUCTURE

*Ex. 1. Mind the words/word combinations from the text.*

Vast – ширь	molten – жидкий, расплавленный
towering – возвышающиеся	core – конус (вулкана), ядро
plateaus – плато	crust – земная кора
devised – разработали	mantle – (земная) мантия
diversity – разнообразие	Laurasia [lɔ:'reɪʃə] – Лавразия
spinning – заполняющие, охватывать, включать	Gondwanaland [gɒnd'wɔ:nələnd] – Гондвана.
interior – внутреннее пространство	

*Ex. 2. Read these international words and try to guess their meaning.*

Theory, gas, center, vibration [vai'breɪʃ(ə)n], structure, material, basalt ['bæʊ:lɪt], granitic, kilometers, continent, arguments.

*Ex. 3. Read the text.*

The features of the earth's surface range from vast plains to towering mountain peaks, from table-like plateaus to deep ocean floors. For centuries scientists have devised theories to help explain the diversity of the earth's surface features and the forces that change those features.

**The Earth's origin.** Scientists have only theories, or scientific guesses, about how the earth appeared. According to one theory, a hot, spinning cloud of dust and gas formed in space. Parts of this dust and gas cloud separated, forming the sun, the earth, and other planets. The part of the dust and gas cloud that became the earth slowly cooled. As it cooled, it gradually became a solid mass. There are scientists who believe the earth became a solid mass about 5.5 billion years ago.

**The Earth's interior.** Scientists have studied the surface of the earth for centuries. Yet each year brings new information about the earth's surface that is added to the data already known. Direct observation of the earth's deep interior, however, remains impossible. Currently scientists can gather information about the center of the earth only through indirect evidence.

Vibrations of the earth caused by earthquakes, or seismic waves, tell what the earth's inner structure is like. These waves change speeds as they move through different kinds of rocks: faster through solid material, slower through molten material.

By studying the wave patterns, scientists can learn a great deal about the earth's interior. From such studies they have concluded that the three major layers of the earth's interior are the core (which is approximately 7,000 km in diameter), the mantle (which surrounds the core and is 2,900 km in thickness), and the crust (which floats on top of the mantle and is composed of basalt rich oceanic crust and granitic rich continental crust).

***Drifting continents.*** The earth today is very different from the earth of millions of years ago. The texture of the land, the locations of the landmasses and the climate have undergone tremendous changes – changes that scientists even now can only begin to understand. Most scientists are convinced that the earth's continents are slowly moving, or drifting. One of the first proponents of this idea was Francis Bacon, a seventeenth-century British scientist. After studying the latest maps of the earth and trying to piece together the shapes of the continents, Bacon concluded that the continents once were joined, forming one huge landmass.

In 1912 a German geographer named Alfred Wegener proposed the theory of continental drift. Wegener believed that there was once a single supercontinent that he called Pangaea, from the Greek words *pan*, meaning “all”, and *ge*, meaning “the earth”. According to Wegener, Pangaea split apart millions of years ago to form two huge continents – Laurasia in the Northern Hemisphere and Gondwanaland in the Southern Hemisphere which later broke up to form continents. Wegener believed that the landmasses drifted for millions of years to their present locations. He also claimed that the continents are still drifting.

Wegener's theory caused a storm of controversy. Despite fossil and geological evidence, most scientists could not accept the idea. They argued that it was scientifically impossible for the continents to move across the solid seafloor. At the time Wegener and his supporters could not conclusively prove their arguments. New studies of the seafloor, however, have given more scientific evidence to support the theory of continental drift.

*Ex. 4. Find the English equivalents in the text.*

Поверхность земли, возвышающиеся горы, широкие равнины, дно океана, происхождение Земли, научные предположения, твердая масса, уже известная информация, остается невозможным, косвенные доказательства, из чего состоит внутренняя структура Земли, расплавленная порода, характеристики волны, океаническая кора, горизонтальное перемещение континентов, новейшие карты земли, массу разногласий, северное полушарие, научные доказательства.

*Ex. 5. Solve the anagrams.*

1) Ivrisdyet; 2) Temanl; 3) Sutrc; 4) Ssttienc; 5) Gifrditn.

*Ex. 6. Match the words from column A with the suitable words from column B to make word combinations and translate them.*

<b>A</b>	<b>B</b>
1) towering	a) plateaus
2) table-like	b) guesses
3) deep	c) changes
4) scientific	d) mountain peaks
5) indirect	e) drift
6) molten	f) evidence
7) tremendous	j) ocean floors
8) continental	k) supercontinent
9) single	l) seafloor
10) solid	m) material

*Ex. 7. Match the definitions of the words.*

<i>Continental crust</i>	<i>Continental drift</i>	<i>Continental plate</i>	<i>Ocean floor</i>	<i>Molten</i>
<i>core</i>	<i>crust</i>	<i>Gas</i>	<i>mantel</i>	<i>plateau</i>

1. The ground at the bottom of the ocean. 2. The central part of a planet. 3. The part of the outer shell of the earth that includes the land masses and the solid rocks underneath them. It is about 35 km thick

in most areas and has sedimentary rocks near the surface and metamorphic rocks lower down. 4. The outer layer of rock on the Earth or on another planet. 5. A substance such as air that is neither solid nor liquid. 6. The very gradual movement of continents across the Earth's surface as a result of the movement of the plates that they lie on. 7. Rock, metal or glass becomes liquid because it is very hot. 8. One of the large pieces into which the surface of the earth is divided. They can move and volcanoes and earthquakes are found at the places where they meet. 9. The part of the Earth that is deep below the surface and surrounds the core. 10. A large flat area of land that is higher than the land around it.

*Ex. 8. Read the sentences and sort them into the correct section.*

1. It can be as thin as 3 km under the oceans. 2. It is the hottest part of the Earth. 3. It may be 70 km in thickness under the continents. 4. It moves about as fast as fingernails grow. 5. It travels in currents, called convection currents. 6. Temperatures are greater than 4,000 °C. 7. The outer part of this layer consists of solid rock, mostly basalt and granite. 8. The rock here is so hot that it is in a plastic state. 9. This jelly-like rock is called magma. 10. This part is made up of iron and nickel.

*Mantle*

*Crust*

*Core*

*Ex. 9. Find the synonyms in the text to the following words.*

High; variety; immense; rolling; to persuade; to drift; proposer; to debate; to burst; local position; liquid; to connect.

*Ex. 10. Say if the statement is true or false. If the statement is false, you are to correct it. Use the introductory phrases.*

*That's right*

*Quite the contrary*

*Quite so*

*Not quite*

*Absolutely correct*

*Just the reverse*

1. Scientists have devised theories to explain the diversity of the earth's surface features and the forces that change those features. 2. Scientists know for sure how the earth appeared. 3. Scientists

believe the earth became a solid mass about 9.5 billion years ago. 4. Scientists gather information about the center of the earth by direct observation. 5. Seismic waves help scientists to tell what the earth's inner structure is like. 6. Waves move faster through solid material. 7. There are three major layers of the earth's interior. 8. The earth today is not much different from the earth of millions of years ago. 9. Francis Bacon was convinced that the earth's continents were slowly moving. 10. All the scientists agree that the earth is still drifting.

*Ex. 11. Answer the questions.*

1. What are the features of the earth? 2. How did the earth appear? 3. How can scientists obtain information about the deep interior of the earth? 4. Why have scientists concluded that the interior of the earth consists of different layers of solid and molten materials? 5. What are the three major layers of the earth? 6. What are most scientists convinced? 7. What does the theory of continental drift state? 8. Who was the first proponent of the idea that the earth is drifting? 9. How did the work of Alfred Wegener support Francis Bacon's theory? 10. Why did Wegener's theory cause controversy?

*Ex. 12. Complete the sentences with the information from the text.*

1. For centuries scientists... 2. According to one theory... 3. There are scientists who... 4. Vibrations of the earth tell... 5. These waves change... 6. By studying the wave patterns... 7. Most scientists are convinced... 8. After studying the latest maps... 9. Alfred Wegener proposed... 10. According to Wegener, Pangaea... 11. They argued that... 12. New studies of the seafloor...

*Ex. 13. Make a written summary of the text using the following phrases.*

This text deals with...

The thing is that...

It should be mentioned that...

To sum up...

## UNIT 4. WEATHER AND CLIMATE

*Ex.1. Study words and word combinations to the text.*

Prevailing – преобладающий	to surround – окружать
atmosphere – атмосфера	insular (climate) – остров-
average – обычный, сред-	ной (климат)
няя величина	moist – влажный, сырой
condition – состояние,	equable – равный, равно-
условие	мерный
humidity – влажность	current – течение
cloudiness – облачность	moderate – умеренный
grassland – район лугов и	abundance – изобилие, бо-
пастбищ	гатство
semiarid region – засушли-	lack – недостаток
вый район	to hinder – препятствовать
desert – пустыня	cultivation – разведение
tundra – тундра	species – вид, род.

*Ex. 2. Read and translate the text*

### Weather and Climate

Climatology is concerned with the prevailing state of the atmosphere, including average climatic values, the frequency of values within stated ranges, weather types and their characteristics, and the explanation and distribution of both climatic elements and general climatic types. Of particular geographic interest are the interrelationships of climatic elements and types with other physical and biologic features and with human activity.

The conditions of the atmosphere which determine an area's weather or climate are temperature, precipitation (rain and snow), atmospheric pressure, winds, humidity and percentage of cloudiness and sunshine. So the factors that influence the world climatic regions include latitude and its influence on solar radiation received, air mass influences, location of global high and low pressure zones, heat exchange from ocean currents, distribution of mountain barriers, pattern of prevailing winds, distribution of land and sea, altitude. The average

of these conditions over a period of many years make up an area's climate. Tropical climate reigns over 36.2 per cent of the earth's surface, moderate – over 37.2 per cent, cold – over 18.8 per cent, dry – over 10.5 per cent, snow-bound climate – 7.3 per cent.

Simple summary of climatic zones: polar (very cold and dry all year), temperate (cold winters and mild summers), arid (dry, hot all year), tropical (hot and wet all year), mediterranean (mild winters, dry hot summers), mountains (tundra) (very cold all year). Because the combination of climatic conditions differs from place to place, geography is concerned with the classification of areas according to climate. *Forests* are commonly found where the climate is humid and not too cold for trees to grow. *Grasslands* generally develop in subhumid or semiarid regions where the rainfall is less than that necessary for trees. *Deserts* occur in places where there is so little rainfall that even grass has difficulty for growing. *Tundras* are found where the climate is cool to cold throughout the year.

### *The climate of the British Isles*

The British Isles which are surrounded by the ocean have an insular climate. The climate is moister and more equable than of Central Europe. The three things that chiefly determine the climate of Britain are: 1) the position of the island in the temperate belt; 2) the fact that the prevailing winds blow from the west and southwest; 3) the warm current – the Gulf Stream that flows from the Gulf of Mexico along the western shores of England.

The British Isles are situated in the parallels on which Moscow and Kiev are situated. The climate is mild and strong frosts are rare. Due to the moderating influences of the sea and the Gulf Stream, the January temperature is higher and the July temperature lower than in any other country of the same latitude.

It's hard to say that Britain has typical weather because of the sudden changes that occur: showers from what was only a few hours before the clear sky; sunshine that makes you want to leave off most of your clothes followed by winds that set your wishing for two other coats. There is an abundance of rainfall in the west. As a result, there are thick fogs, which last for days and weeks at a time during the autumn and winter. The lack of sunshine hinders the cultivation of many species of plants, especially grain crops. However, grasses grow all the year round, providing fodder for cattle.

*Ex. 3. Find English equivalents from the text.*

Западные берега, виды растений, умеренное влияние, теплое течение, преобладающие ветра, зерновые культуры, умеренный пояс, сильные морозы, недостаток солнечного света, избыток дождей.

*Ex. 4. Match the words from column A with the suitable words from column B to make word combinations.*

<b>A</b>	<b>B</b>
1) Prevailing	a) belt
2) Temperate	b) plants
3) Grain	c) winds
4) Moderating	d) current
5) Species of	e) sunshine
6) Strong	f) rainfall
7) Abundance of	j) crops
8) Lack of	k) frosts
9) Western	l) influence
10) Warm	m) shores

*Ex. 5. Match the words with their definitions.*

Air mass	climate	precipitation
altitude	evaporation	pressure
Solar radiation	Mid-latitude cyclone	

1. Vertical distance above sea-level;
2. The process by which liquid water is converted into a gaseous state;
3. A body of air whose temperature and humidity characteristics remain relatively constant over a horizontal distance of hundreds to thousands of kilometers;
4. General pattern of weather conditions for a region over a long period time (at least 30 years);
5. Any aqueous deposit, in liquid or solid form, that develops in the atmosphere and falls to the ground generally from clouds;



6. The force acting on a surface from another mass per unit area:
7. Electromagnetic radiation that originates from the Sun;
8. Cyclonic storm that forms primarily in the middle latitudes.

*Ex. 6. Solve the anagrams:*

- 1) Udatnr;
- 2) Enitrvpvaooa;
- 3) Tmlciae;
- 4) Eedstr;
- 5) Sslaangrd;
- 6) Peiessc;
- 7) Crrutne;
- 8) Inlrafal.

*Ex. 7. Say whether the following statements are true or false.*

1. Weather is the conditions of the atmosphere over a period of some years.
2. Deserts are commonly found where the climate is humid and not cold.
3. The position of the island in the temperate belt is one of the facts that determine the climate of Britain.
4. Temperate zones mean cold winters and mild summers.
5. Grasslands are commonly found where the climate is humid and not too cold for trees to grow.
6. Tundras are found where the climate is cool to cold throughout the year.
7. The British Isles are situated on the parallels on which Moscow and Minsk are situated.
8. Weather in Britain is characterized by sudden changes.
9. There is an abundance of sunshine in the west.
10. Typical British weather is very stable.

*Ex. 8. Translate the words and word combinations given in brackets.*

1. Geography is concerned with the classification of areas (в соответствии с климатом).
2. What is (средняя температура) here in spring?
3. (Атмосферное давление) was very high last week.
4. The climate of this region is (влажный).
5. The climate is moister and (более равномерный) than of Central Europe.
6. Tropical climate (преобладает) over 36.2 per cent of the earth's surface.
7. The weather map shows how (температура, осадки, ветры и давление) are related in space.
8. The British Isles (окружены) by the ocean.
9. The British Isles have (островной климат).
10. (Суровые морозы) are not rare in this part of the country.

*Ex. 9. Answer the following questions.*

1. Why is climatology of particular interest to the geographers?
2. What are the conditions of the atmosphere which determine the area's weather and climate?
3. What is weather? What is climate?

4. Give the classification of areas according to climate. 5. Where are forests commonly found? 6. Where do grasslands generally develop? 7. What climatic zone occurs in places where there is little rainfall and grass has difficulty for growing? 8. What can be found where the climate is cool to cold throughout the year? 9. What climate do the British Isles have? 10. What things determine the climate of the British Isles? 11. The weather in Britain changes very quickly, doesn't it? 12. Why are there thick fogs, which last for days and weeks at a time during the autumn and winter in Britain? 13. What hinders the cultivation of many species of plants? 14. Why is sheep-breeding developed in Britain?

*Ex. 10. Complete the following sentences with the information from the text.*

1. Climatology is concerned...
2. Of particular geographic interest are...
3. The conditions of the atmosphere are...
4. The factors that influence the world climatic regions are...
5. Moderate climate reigns...
6. Simple summary of climatic zones...
7. Forests are commonly found...
8. The climate of the British Isles is...
9. The three things that chiefly determine the climate of Britain are...
10. The British Isles are situated...
11. There is... As a result...

## **UNIT 5. THE NATURAL SPHERES**

*Ex. 1. Read these words and try to guess their meaning.*

Physical Geography, lithosphere ['lɪθəsfiə], atmosphere ['ætməsfiə], chemical and biochemical reactions, troposphere ['trɒpəsfiə], stratosphere ['strætəsfiə], biosphere ['baɪəsfiə], mesosphere ['mesə(ʊ)sfiə], thermosphere ['θɜ:məsfiə], phenomenon, temperature, the total mass, molecules, ultraviolet [ʌltrə'vaɪələt], concentration, ozone layer, radiation, oxygen, hydrosphere ['haɪdrəsfiə], condensation, infiltration,

zone, metabolic reactions, abiotic chemical reactions [eɪbaɪ'ɒtɪk], absorb, components.

*Ex. 2. Study the following vocabulary.*

alteration [ɔ:l'tə'reɪʃn] – изменение пород по составу

altitude ['æltɪtju:d] – высота

boundaries ['baʊndrɪz] – границы

compression [kəm'preʃn] – давление, сжатие/уплотнение

cycling of matter ['saɪklɪŋ] – круговорот веществ

evaporation [ɪvæpə'reɪʃn] – испарение

fluid [fluɪd] – жидкость

glacier ['glæsiə] – ледник

groundwater ['graʊndwɔ:tə] – грунтовые воды, подземные воды

groundwater flow – грунтовый сток, подземный сток

Igneous rocks ['ɪgniəs] – вулканические породы

molten magma – расплавленная магма

precipitation [prɪsɪpɪ'teɪʃn] – осадки (в виде дождя, снега)

pressure ['preʃə] – давление

rock debris ['debri:] – обломки пород

runoff ['rʌnɒf] – поверхностный сток

sedimentary [sedɪ'mentəri] – осадочный

sediments ['sedɪmənt] – осадки (осадочные породы, наносы)

surround [surround] – окружать

suspended particles [sə'spendɪd 'pɑ:tɪklz] – взвешенные частицы

the Lapse Rate – вертикальный температурный градиент.

*Ex. 3. Read the text and be ready to check your understanding.*

From the standpoint of Physical Geography, the Earth is composed of four principal components: lithosphere, atmosphere, hydrosphere, and biosphere.

1. **Lithosphere** is the outer surface and interior of the solid Earth (the solid inorganic portion of the Earth which is composed of rocks, minerals and elements). On the surface of the Earth, the lithosphere is composed of three main types of rocks: igneous (rocks formed by solidification of molten magma), sedimentary (rocks formed by the alteration and compression of old rock debris or organic sediments), metamorphic (rocks formed by alteration of existing rocks by intense heat or pressure).

2. **Atmosphere** is the vast gaseous envelope of air that surrounds the Earth. Its boundaries are not easily defined. The atmosphere contains

a complex system of gases and suspended particles that behave in many ways like fluids. Many of its constituents are derived from the Earth by way of chemical and biochemical reactions.

According to temperature, the atmosphere contains *four different layers* (from about 8 to 16 kilometers): troposphere, stratosphere, mesosphere, and thermosphere.

*Troposphere* contains about 80% of the total mass of the atmosphere. It is also the layer where the majority of our weather occurs. With increasing height, air temperature drops uniformly with altitude at a rate of approximately 6.5° Celsius per 1000 meters. This phenomenon is commonly called the Environmental Lapse Rate. At an average temperature of -56.5° Celsius, the top of the troposphere is reached.

Above the troposphere is the *stratosphere* (11 to 50 kilometers above the Earth's surface). This stratosphere contains about 19.9% of the total mass found in the atmosphere. Very little weather occurs in the stratosphere. The ozone gas molecules found in this region of the stratosphere (at an altitude of 20 to 50 km) absorb ultraviolet sunlight creating heat energy that warms the stratosphere. Ozone is primarily found in the atmosphere at varying concentrations between the altitudes of 10 to 50 kilometers. This layer of ozone is also called the ozone layer.

In the *mesosphere*, the atmosphere reaches its coldest temperatures (about -90° Celsius) at a height of approximately 80 kilometers.

The last atmospheric layer has an altitude greater than 80 kilometers and is called the *thermosphere*. Temperatures in this layer can be greater than 1200° C. These high temperatures are generated from the absorption of intense solar radiation by oxygen molecules (O<sub>2</sub>).

3. **Hydrosphere** is the waters of the Earth. Water exists on the Earth in various stores, including the atmosphere, oceans, lakes, rivers, soils, glaciers, and groundwater. Water moves from one store to another by way of: evaporation, condensation, runoff, precipitation, infiltration and groundwater flow.

4. **Biosphere** consists of all living things, plant and animal. This zone is characterized by life in profusion, diversity, and ingenious complexity. Cycling of matter in this sphere involves not only metabolic reactions in organisms, but also many abiotic chemical reactions.

All of these spheres are interrelated to each other by dynamic interactions, like biogeochemical cycling, that move and exchange both matter and energy between the four components.

*Ex. 4. Give the English equivalent.*

Литосфера, гидросфера, атмосфера, биосфера, мезосфера, стратосфера, термосфера, тропосфера, испарение, конденсация, инфильтрация, ультрафиолет.

*Ex. 5. Translate into English.*

Взвешенные частицы, жидкость, ледник, испарение, грунтовые воды, расплавленная магма, поверхностный сток, грунтовый сток, круговорот веществ, изменение пород по составу, вулканические породы, осадочные породы, метаморфические породы, обломки пород, давление, осадки (в виде дождя, снега).

*Ex. 6. Match the words from column A with the suitable words from column B to make word combinations.*

A: molten, suspended, chemical, ozone, total, igneous ultraviolet.

B: magma, rock, sunlight, reaction, particles, layer, mass.

*Ex. 7. Match the synonyms.*

A: igneous, fluid, altitude, contain, element.

B: liquid, to be composed of, magmatic, height, constituent.

*Ex. 8. Match the opposites.*

A: organic, solid, surface waters, runoff, biotic.

B: abiotic, groundwater flow, inorganic, molten, groundwater.

*Ex. 9. Form the nouns from the following words (for example: solidify – solidification, alter – alteration).*

Solidify – ..., absorb – ..., complex – ..., alter – ..., evaporate – ..., interact – ..., alter – ... .

*Ex. 10. Answer the following questions.*

1. What is Lithosphere? 2. What are the layers of the atmosphere? 3. What is the environmental Lapse Rate? 4. Where is the ozone layer? 5. What is special about mesosphere? 6. What is special about thermosphere? 7. By way of what does water move from one store to another? 8. What is Biosphere?

*Ex. 11. Say if the statement is true or false. If the statement is false, you are to correct it.*

1. Thermosphere is the coldest level of the atmosphere. 2. The biggest level of the atmosphere is stratosphere. 3. Sedimentary rocks are formed by solidification of magma. 4. Hydrosphere is the water of the Earth. 5. Cycling of matter in the biosphere involves only metabolic reactions.

*Ex. 12. Finish the sentences.*

1. The Earth is composed of four principal parts:... 2. Lithosphere is composed of three main types of rocks:... 3. The atmosphere contains four different levels... 4. The ozone layer is... 5. Water bodies that exist on the earth include... 6. Biosphere is... 7. The coldest sphere of the Earth is... 8. The hottest sphere of the Earth is...

## UNIT 6. CRUSTAL FORMATION PROCESSES

*Ex. 1. Read these words and try to guess their meaning.*

Seismic ['saɪzmɪk], basalt ['bæsoʊlt], oceanic [əʊʃɪ'ænik], continental [kɒntɪ'nentl], granite ['grænit], gneiss [naɪs], tectonic, volcanic, intrusive [m'tru:sɪv], extrusive, dyke [daɪk], batholith ['bɑ:θəliθ], plume [plu:m], volcano [vɒl'keɪnəʊ], mantle [mæntl], subduction [sʌb'dʌkʃ(ə)n], vein.

*Ex. 2. Study the following vocabulary.*

Accretion [ə'kri:ʃ(ə)n] – нанос, нанос смытой породы, наращение суши наносами, отложение смытой породы

basement rock – порода основания, порода фундамента

collision [kə'liʒ(ə)n] – столкновение, удар, коллизия

compression [kəm'preʃ(ə)n] – сжатие, давление, конденсация

mountain range [reɪndʒ] – горная цепь

plate – плита (тектоническая)

plume [plu:m] – плюм, мантийная струя, твердый восходящий поток в мантии

pluton ['plu:tən] – интрузия изверженных горных пород, плутон, магматические образования

continental margins – границы материка, материковая окраина, подводная окраина континента

conveyor belt [kən'veiə] – конвейерная лента, ленточный транспортер

craton ['kreɪtɒn] – кратон, кратоген, щит, платформа

density – плотность

deposits – отложения

dyke – дайка

faulting ['fɔ:ltɪŋ] – сбросовая деятельность, образование разрывов или сбросов

folding ['fəʊldɪŋ] – складкообразование, перемещение пластов без разрыва сплошности

foundation – основа, основание

fracture – трещина разлома, разрыв

horizontal plane ['hɒrɪ'zɒntl] – горизонтальная плоскость, плоскость горизонта

igneous activity ['ɪgniəs] – вулканическая деятельность, магматическая деятельность

mid-oceanic ridge [[rɪdʒ]] – срединно-океанический хребет

rift zone – рифтовая зона, зона крупных разломов

schist [ʃɪst] – аспидный сланец, глинистый сланец, кристаллический сланец

sedimentary rocks – осадочные породы

shallow seas ['ʃæləʊ] – мелководье, мелководное море

shield – щит

sill – сечь, пластообразный интрузив

slab – край литосферной плиты, пласт, зависший слой породы, плита

solidification – затвердевание

subducted [sʌb'dʌktɪd] – пододвинутый (под тектоническую плиту)

subduction [sʌb'dʌkʃ(ə)n] – субдукция, пододвигание (одной тектонической плиты под другую)

volcanic pipe [paɪp] – вулканическая трубка, канал вулкана.

*Ex. 3. Read the text and be ready to check your understanding.*

The Earth's crust consists of two basic types – *oceanic crust* (a crust that is on average 7 km thick and composed mainly of basalt, it has a density of about 3.0 grams per cubic centimeter) and *continental crust* (is composed of mainly granitic rock whose thickness varies between 10 and 70 km, it has a density of about 2.7 grams per cubic centimeter). Oceanic and continental rocks also differ from each other in terms of age. Continental crust contains some very old rocks that were formed during the Precambrian between 3 and 4 billion years ago.

Oceanic rocks are normally quite young deposits created less than 180 million years ago.

### ***Continental Crust***

All of the Earth's continents have a core foundation that is made of mixtures of very old granite, gneiss, schist, sedimentary, and volcanic rocks. This core foundation is often referred to as *a shield* or *basement rock*. Rocks found in the shields were formed during the Precambrian and are some of the oldest rocks found on the Earth. Geologists believe that the major continental cores were formed by the early solidification of the lighter components of magma between 3.9 and 3.8 billion years ago. The continental shields are generally covered by younger sedimentary deposits. These sedimentary rocks constitute the interior platforms of the continents. The oldest platform rocks were laid down in shallow seas about 600 million years ago. Together the shield and platform form a *craton*.

Around the edge of the continental cratons are the continental margins that are mainly composed of sedimentary rocks. These sedimentary rocks were originally laid down in the oceans. Tectonic collisions and plate subduction caused the accretion of these deposits at the edges of the continental cratons. In some cases, this accretion is modified by the processes of tectonic compression, folding, and faulting to produce mountain ranges.

### ***Igneous Activity and the Continents***

Materials are also added to continental crust through intrusive and extrusive igneous activity. *Plumes* of magma rise upward into continental crust to form granitic plutons or a variety of volcanic features on the Earth's surface. A *pluton* can be defined as any igneous intrusion of rock that forms a kilometer or more below the Earth's surface. Some of the major features of plutons include:

- dyke: thin vertical veins of igneous rock that form in the fractures found within the crust;

- sill: horizontal planes of solidified magma that run parallel to the grain of the original rock deposit;

- batholith: large plutonic masses of intrusive rock with more than 100 square kilometers of surface area;

- volcanic pipe: if a dyke reaches the surface of the Earth, it is called a volcanic pipe, igneous deposits produced by this feature are extrusive.



Plumes that are able to reach the Earth's surface produce volcanoes. Most of the continental volcanoes on our planet are located along the edge of the continents where oceanic crust is being actively subducted.

### *Oceanic Crust*

Unlike continental crust, oceanic crust is actively being created at the various mid-oceanic ridges. At the mid-ocean ridges, magma erupts onto the ocean floor in centrally located rift zones. The newly added rock then horizontally pushes previously created ocean crust away from the rift in a conveyor belt fashion. When the oceanic crust encounters a slab of continental crust it becomes subducted because of its greater density. This process causes the oceanic crust to return to the mantle where it is re-melted into magma. The process also causes the movement of continental crust across the surface of the Earth.

*Ex. 4. Give the English equivalent.*

Горная цепь, вулканическая деятельность, складкообразование, сбросовая деятельность, нанос, субдукция, границы материка, кратон, мелководное море, затвердевание, порода фундамента, аспидный сланец, отложения, пластообразный интрузив, трещина разлома, срединно-океанический хребет, интрузия изверженных горных пород.

*Ex. 5. Match the words from column A with the suitable words from column B to make word combinations.*

A: continental, volcanic, igneous, conveyor, shallow, solidification of, mountain.

B: sea, magma, belt, ridge, crust, range, rock pie.

*Ex. 6. Match the words with their definitions.*

1. A dyke that reaches the surface of the Earth.
2. A thin vertical vein of igneous rock that forms in the fractures found within the crust.
3. A combination of the shield and platform of the continents.
4. Any igneous intrusion of rock that forms a kilometer or more below the Earth's surface.
5. A horizontal plane of solidified magma that runs parallel to the grain of the original rock deposit.

6. Large plutonic masses of intrusive rock with more than 100 square kilometers of surface area.

*Dyke, sill, volcanic pipe, batholiths, a craton, a pluton.*

*Ex. 7. Match the synonyms.*

A: igneous, shield, edge, sedimentary rocks, mixture, was created.

B: sediments, combination, volcanic, slab, was formed, basement rock.

*Ex. 8. Match the opposites.*

A: vertical, oceanic, old, intrusive, early.

B: extrusive, horizontal, inorganic, young, late.

*Ex. 9. Form the nouns from the following words.*

Solidify – ..., found – ..., compress – ..., subduct – ..., accrete – ..., collide – ... .

*Ex. 10. Answer the following questions.*

1. What two basic types does the Earth's crust consist of?
2. What components is the core foundation of the Earth's continents made of?
3. What do we call the core foundation?
4. Where are the continental margins?
5. What is pluton?
6. What are the major features of plutons?
7. What plumes produce volcanoes?
8. What process causes the movement of continental crust across the surface of the Earth?

*Ex. 11. Say if the statement is true or false. If the statement is false, you are to correct it.*

1. Oceanic rocks are older than continental rocks.
2. Oceanic crust is denser than continental crust.
3. Oceanic crust is thicker than continental crust.
4. Rocks found in the shields were formed during the Precambrian and are some of the youngest rocks on the Earth.
5. Continental margins are mainly composed of sedimentary rocks.
6. Most of the continental volcanoes are located along the edge of the continents.

7. When the oceanic crust encounters a slab of continental crust it becomes subducted because of its smaller density.

*Ex. 12. Finish the sentences.*

1. The Earth's crust consists of 2 basic types:...
2. Continental crust contains...
3. Oceanic rocks were formed...
4. The core foundation is often referred to as...
5. The shield and platform form...
6. A pluton is...
7. The features of plutons are...
8. Most of the continental volcanoes are located...
9. When the oceanic crust encounters a slab of continental crust it becomes subducted because of...

## UNIT 7. INTRODUCTION TO THE OCEANS

*Ex. 1. Make sure you pronounce the following geographical names properly.*

1. The Atlantic Ocean [ət'læntɪk əʊʃn], the Arctic Ocean ['ɑ:ktɪk əʊʃn], the Indian Ocean ['ɪndiən əʊʃn], the Pacific Ocean [pə'sɪfɪk əʊʃn], the Southern Ocean ['sʌðən əʊʃn].

2. The Gulf of Mexico [gʌlf əv 'meksɪkəʊ], the Bering Strait ['beərɪŋ streɪt].

3. Asia ['eɪzə], Australia [ɔ:'streɪliə].

4. The Java Trench ['dʒɑ:və trenʃ], the Mariana Trench [meə'ri:ənɪ trenʃ], the Puerto Rico Trench ['pʊɜ:tə(ʊ)'ri:kəʊ trenʃ].

5. The Amazon ['æməzən], the Mississippi [mɪsɪ'sɪpɪ], the Congo ['kɒŋgəʊ], the Zambezi [zæm'bi:zi], the Colorado River [kɒlə'reɪ:dəʊ], the Columbia River [kə'lʌmbɪə], the Mekong ['meɪkɒŋ], the Yukon ['ju:kɒn], the Indus ['ɪndəs], Ganges ['gændʒi:z].

6. The Caribbean Sea [kæri'biən si:], the Mediterranean Sea [mɛdɪtə'reɪniən si:], the Greenland Sea ['grɪ:nlənd si:], the Tasman Sea ['tæzmən si:], the Coral Sea ['kɒrəl si:], the Ross Sea, the Scotia Sea ['skəʊʃə si:].

7. The Mid-Atlantic Ridge [rɪdʒ].

*Ex. 2. Read the text and be ready to check your understanding.*

**Oceans** cover about 70.8% or 361 million square kilometers (139 million square miles) of Earth's surface with a volume of about 1370 million cubic kilometers (329 million cubic miles). The oceans contain 97% of our planet's available water.

**The Atlantic Ocean** is a relatively narrow body of water that lies between nearly parallel continental masses covering about 21% of the Earth's total surface area. This ocean body contains most of our planet's shallow seas, but it has relatively few islands. Some of the shallow seas found in the Atlantic Ocean include the Caribbean, Mediterranean, Baltic, Black, North, and the Gulf of Mexico. The average depth of the Atlantic Ocean (including its adjacent seas) is about 3300 meters (10,800 feet). The deepest point, 8605 meters (28,232 feet), occurs in the Puerto Rico Trench. The **Mid - Atlantic Ridge**, running roughly down the center of this ocean region, separates the Atlantic Ocean into two large basins.

The Atlantic Ocean drains some of the Earth's largest rivers including the Amazon, Mississippi, St. Lawrence, and Congo.

**The Arctic Ocean** is the smallest of the world's five ocean regions, covering about 3% of the Earth's total surface area. Most of this nearly landlocked ocean region is located north of the Arctic Circle. The Arctic Ocean is connected to the Atlantic Ocean by the Greenland Sea, and the Pacific Ocean via the Bering Strait. The Arctic Ocean is also the shallowest ocean region with an average depth of 1050 meters (3450 feet). The center of the Arctic Ocean is covered by a drifting persistent icepack that has an average thickness of about 3 meters (10 feet).

**The Indian Ocean** covers about 14% of the Earth's surface area. This ocean region is enclosed on three sides by the landmasses of Africa, Asia, and Australia. The Indian Ocean's southern border is open to water exchange with the much colder Southern Ocean. Average depth of the Indian Ocean is 3900 meters (12,800 feet). The deepest point in this ocean region occurs in the Java Trench with a depth of 7258 meters (23,812 feet) below sea level. The Indian Ocean region has relatively few islands. Some of the major rivers flowing into the Indian Ocean include the Zambezi, Arvandrud/Shatt-al-Arab, Indus, Ganges, Brahmaputra, and the Irrawaddy. Because much of the Indian Ocean lies within the tropics, this basin has the warmest surface ocean temperatures.

***The Pacific Ocean*** is the largest ocean region covering about 30% of the Earth's surface area (about 15 times the size of the United States). The ocean is the deepest ocean region. The deepest point in the Mariana Trench lies some 10,911 meters (35,840 feet) below sea level. About 25,000 islands can be found in the Pacific Ocean region. This is more than the number for the other four ocean regions combined. Many of these islands are actually the tops of volcanic mountains created by the release of molten rock from beneath the ocean floor.

Some of the major rivers flowing into this ocean region include the Colorado, Columbia, Fraser, Mekong, Río Grande de Santiago, San Joaquin, Shinano, Skeena, Stikine, Xi Jiang, and Yukon. Some of larger adjacent seas connected to the Pacific are Celebes, Tasman, Coral, East China, Sulu, South China, Yellow, and the Sea of Japan.

***The Southern Ocean*** surrounds Antarctica. This ocean region occupies about 4% of the Earth's surface or about 20,327,000 square kilometers (7,846,000 square miles). Relative to the other ocean regions, the floor of the Southern Ocean is quite deep ranging from 4000 to 5000 meters (13,100 to 16,400 feet) below sea level over most of the area it occupies. The Southern Ocean's deepest point is in the South Sandwich Trench at 7235 meters (23,737 feet) sea level. Seas adjacent to this ocean region include the Amundsen Sea, Bellingshausen Sea, Ross Sea, Scotia Sea, and the Weddell Sea. By about September of each year, a mobile icepack situated around Antarctic reaches its greatest seasonal extent covering about 19 million square kilometers (7 million square miles). This icepack shrinks by around 85% six months later in March.

*Ex. 3. Match the oceans with their rivers, seas, and trenches.*

*Oceans: the Atlantic Ocean, the Pacific Ocean, the Indian Ocean, the Arctic Ocean, the Southern Ocean.*

*Rivers: the Yukon, the Amazon, the Río Grande de Santiago, the Mississippi, the Congo, the Columbia River, the Mekong, the Zambezi, the Colorado River, the Indus, the Ganges.*

*Seas: the Caribbean Sea, the Coral Sea, the Ross Sea, the Mediterranean Sea, the Greenland Sea, the Tasman Sea, the Scotia Sea, the Sea of Japan, the Yellow Sea.*

*Trenches: the Puerto Rico Trench, the Java Trench, the Mariana Trench, the South Sandwich Trench.*

*Ex. 4. Make sure that you know the meaning of the following words and word combinations.*

Relatively few islands, shallow seas, the average depth, adjacent seas, the Mid-Atlantic Ridge, a landlocked ocean region, a drifting icepack, an average thickness, the southern border, the deepest point, molten rock.

*Ex. 5. Find the English equivalents below.*

Впадина/котлован, поверхность Земли, узкое водное пространство, мало островов, Северный полярный круг, замкнутое (окруженное сушей) океаническое пространство, разделяет океан на два больших бассейна, Зондский жёлоб (Яванский жёлоб), покрывающий около 30 % поверхности Земли, выброс расплавленной породы, дрейфующий паковый лёд, океаническое дно, ниже уровня моря, Среднеатлантическая гряда/Срединно-Атлантический хребет.

*Below sea level, release of molten rock, trench, the surface of the Earth (the Earth's surface), separates the Atlantic Ocean into two large basins, the Java Trench, covering about 21% of the Earth's surface, drifting icepack, the Mid-Atlantic Ridge, narrow body of water, few islands, the Arctic Circle, enclosed ocean region, the ocean floor.*

*Ex. 6. Solve the anagrams.*

Индас, чхтнре, наоес, оскр, педхт.

*Ex. 7. Match the synonyms.*

A: mobile, covers, landlocked, area, contain, is located, beneath.

B: lies, drifting, have, below, region, occupies, enclosed.

*Ex. 8. Match the opposites.*

A: deep, few, land masses, the smallest.

B: many, shallow, the largest, ocean bodies.

*Ex. 9. Fill in the gaps with the words below.*

1. We walked down the... streets of this wonderful city. 2. Our farm land was... to the river. 3. Forest... much of the country. 4. Switzerland is completely..., i.e. surrounded by land. 5. These fish are found only in... waters around the coast. 6. He was just an... sort

of student. 7. Many of the islands were created by the release of... rock. 8. The test was... easy.

*Relatively, adjacent, narrow, molten, covers, average, landlocked, shallow.*

*Ex. 10. Match the words with their definitions.*

1. A piece of land that is completely surrounded by water.
2. The top layer of something.
3. An area of deep water.
4. Any area of sea ice that is mobile (not attached to the shoreline or something else).
5. Width (the size of something between opposite surfaces or sides).
6. The distance from the top to the bottom.
7. The hard solid material that forms part of the surface of the earth and some other planets.
8. A long deep narrow hole in the ocean floor.
9. The bottom of the ocean.

*Trench, ocean floor, surface, island, icepack, basin, rock, depth, thickness.*

*Ex. 11. Read out the following numbers properly.*

1. 70.8 %; 97 %; 21 %; 3 %; 14 %; 4 %; 85 %.
2. 361 mln km<sup>2</sup> (139 mln miles<sup>2</sup>); 1370 mln km<sup>3</sup> (329 mln miles<sup>3</sup>); 19 mln km<sup>2</sup> (7 mln miles<sup>2</sup>); 20,327,000 km<sup>2</sup> (7,846,000 miles<sup>2</sup>).
3. 3300 meters (10,800 feet); 8605 meters (28,232 feet); 1050 meters (3450 feet); 3900 meters (12,800 feet); 7258 meters (23,812 feet); 10,911 meters (35,840 feet).
4. 25,000 islands.

*Ex. 12. Say if the statement is true or false. If the statement is false, you are to correct it.*

1. Oceans cover about 30 % of the Earth's surface.
2. The Atlantic Ocean has relatively few islands.
3. The largest Ocean is the Atlantic Ocean.
4. The deepest Ocean Region is the Arctic Ocean.
5. The Indian Ocean is the coldest of the world's five ocean regions.
6. The Pacific Ocean is the shallowest ocean region.

7. The deepest point of the Pacific Ocean is the Mariana Trench.
8. The Southern Ocean is bigger than the Arctic Ocean.

*Ex. 13. Finish the sentences.*

1. The total volume of ocean water is about...
2. The five ocean regions of the world are...
3. The Atlantic Ocean covers 21 %...
4. Some of the seas in the Atlantic Ocean include...
5. The average depth of the Atlantic Ocean is...
6. The deepest point of the Atlantic Ocean is...
7. The rivers that flow into the Atlantic Ocean are...
8. The Arctic Ocean covers about...
9. The Atlantic Ocean is connected to...
10. The Indian Ocean covers...
11. The average depth of the Indian Ocean is...
12. The deepest point of the Indian Ocean is...
13. The rivers which flow into the Indian Ocean are...
14. The Pacific Ocean covers...
15. The deepest point of the Pacific Ocean is...
16. The rivers that flow into the Pacific Ocean are...
17. The Southern Ocean covers...
18. The deepest point of the Southern Ocean is...
19. Seas adjacent to the Southern Ocean region are...

*Ex. 14. Check yourself (give English equivalents for the following words).*

Прилежащее море, поверхность Земли, акватория (водная масса/водное пространство), относительно узкий, мелководное море, мало островов, Карибское море, Средиземное море, Балтийское море, Черное море, Северное море, Мексиканский залив, р. Амазонка, р. Миссисипи, р. Конго, замкнутое океаническое пространство, Северный полярный круг, Берингов пролив, Азия, южная граница, средняя глубина, средняя ширина (толщина/мощность), самая глубокая точка, р. Инд, р. Ганг, Североатлантический хребет, р. Замбези, бассейн, ниже уровня моря, выброс расплавленной породы, гора, океаническое дно, р. Колорадо, р. Меконг, Тасманово море, Коралловое море, Южно-Сандвичев жёлоб, паковый лёд.



## UNIT 8. THE HYDROLOGIC CYCLE

*Ex. 1. Read these words and try to guess their meaning.*

Hydrologic cycle [haɪdrə'lədʒɪk saɪkl], conceptual model [kən'septʃʊəl mɒdl], lithosphere ['lɪθəsfiə], atmosphere ['ætməsfɪə], biosphere ['baɪəsfiə], hydrosphere ['haɪdrəsfiə], ocean [əʊʃn], reservoir ['rezəvwa:], process ['prəʊsəs], processes ['prəʊsesɪz], infiltration, transpiration, basin [beɪsn], climatological factors [klaɪ'mætələdʒɪkl], imbalance [ɪm'bæləns], the planetary water ['plænɪ(ə)rɪ], condensation, deposition, resource [rɪ'zɔ:s] [rɪ'sɔ:s], human ['hju:mən], effectively [ɪ'fektɪvli].

*Ex. 2. Study the following vocabulary.*

Approximately – около, приблизительно	renewal time – время возобновления
evaporation – испарение	runoff – поверхностный сток
exceed – превышать	snowfield – снежное поле, снежная равнина, скопление многолетнего снега и льда
glacier – ледник	soil – почва
groundwater – грунтовые воды	storage – хранение, хранилище
groundwater flow – грунтовый сток, подземный сток	store – хранить, накапливать
icescap – ледяная шапка, ледниковый купол	sublimation – сублимация (переход из газообразного состояния в твердое, минуя жидкое, и наоборот)
melting – таяние	water supply – водные запасы, водоснабжение.
movement – движение	
nonrenewable – невозобновляемый (ресурс), невозполнимый	
on average – в среднем	
precipitation – осадки (атмосферные)	
rate – скорость, темп	

*Ex. 3. Read the text and be ready to check your understanding.*

The hydrologic cycle is a conceptual model that describes the storage and movement of water between the biosphere, atmosphere, lithosphere, and the hydrosphere. Water on this planet can be stored in any

one of the following reservoirs: atmosphere, oceans, lakes, rivers, soils, glaciers, snowfields, and groundwater.

Water moves from one reservoir to another by way of processes like evaporation, condensation, precipitation, deposition, runoff, infiltration, sublimation, transpiration, melting, and groundwater flow. The oceans supply most of the evaporated water found in the atmosphere. Of this evaporated water, only 91 % of it is returned to the ocean basins by way of precipitation. The remaining 9 % is transported to areas over landmasses where climatological factors induce the formation of precipitation. The resulting imbalance between rates of evaporation and precipitation over land and ocean is corrected by runoff and groundwater flow to the oceans.

The planetary water supply is dominated by the oceans. Approximately 97 % of all the water on the Earth is in the oceans. The other 3 % is held as freshwater in glaciers and icecaps, groundwater, lakes, soil, the atmosphere, and within life.

Water is continually cycled between its various reservoirs. This cycling occurs through the processes of evaporation, condensation, precipitation, deposition, runoff, infiltration, sublimation, transpiration, melting, and groundwater flow. On average, water is renewed in rivers once every 16 days. Water in the atmosphere is completely replaced once every 8 days. Slower rates of replacement occur in large lakes, glaciers, ocean bodies and groundwater. Replacement in these reservoirs can take from hundreds to thousands of years. Some of these resources (especially groundwater) are being used by humans at rates that far exceed their renewal times. This type of resource use is making this type of water effectively 'ис-тинно' nonrenewable.

*Ex. 4. Give the English equivalent.*

Круговорот воды, ледник, испарение, грунтовые воды, ледяная шапка, подземный сток, поверхностный сток, в среднем, осадки (атмосферные), невозобновляемый (ресурс), почва, сублимация, водные запасы, дисбаланс, резервуар.

*Ex. 5. Insert an appropriate preposition, if necessary.*

1. Water moves from one reservoir... another. 2. 91 % of it is re- turned... the ocean basins. 3. ...average, water is renewed in rivers

once every 16 days. 4. Water in the atmosphere is completely replaced once... every 8 days. 5. Some of these resources (especially groundwater) are being used... humans.

*Ex. 6. Match the words with their definitions.*

1. Transformation of liquid into gas, especially steam.
  2. Rain, snow, etc. that falls.
  3. Drops of water that form on a cold surface when warm water vapour becomes cool.
  4. Evaporation of water from plants.
  5. Transformation of gas into a solid state, and vice versa.
  6. The process by which water on the ground surface enters the soil.
- Precipitation, evaporation, infiltration, sublimation, transpiration, condensation.*

*Ex. 7. Match the synonyms.*

A: speed, reservoir, liquid, on average, various, various, basin.

B: storage, typically, volcanic, different, fluid, reservoir.

*Ex. 8. Match the opposites.*

A: balance, liquid, runoff, renewable, land.

B: gas, non-renewable, groundwater flow, water, imbalance.

*Ex. 9. Say if the statement is true or false. If the statement is false, you are to correct it.*

1. The hydrologic cycle occurs through the processes of evaporation, condensation, precipitation, deposition, runoff, infiltration, sublimation, transpiration, melting, and groundwater flow.

2. It is the oceans that supply most of the evaporated water found in the atmosphere.

3. The planetary water supply is dominated by the atmosphere.

4. Water in large water bodies renews very quickly.

5. Water in the atmosphere is completely replaced once every 16 days.

*Ex. 10. Answer the following questions.*

1. In what reservoirs can water on our planet be stored?

2. What processes help water move from one reservoir to another?

3. What supplies most of the evaporated water found in the atmosphere?

4. What percentage of the evaporated water returns to the ocean basins by way of precipitation?

5. What is the largest reservoir of water on the Earth?

6. How often is water renewed in rivers?

7. How many days does it take for the water in the atmosphere to be completely replaced?

8. How long does it take for the groundwater and water in large reservoirs to renew?

*Ex. 11. Finish the sentences.*

1. Water on this planet can be stored in any one of the following reservoirs:...

2. Water moves from one reservoir to another by way of processes like...

3. The resulting imbalance between rates of evaporation and precipitation over land and ocean is corrected by...

4. The planetary water supply is dominated by...

5. Approximately 97% of all the water on the Earth is...

6. The other 3% is held as freshwater in...

7. On average, water is renewed in rivers...

8. Water in the atmosphere is completely replaced...

9. Slower rates of replacement occur in...

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РЕПОЗИТОРИЙ ГГУ ИМЕНИ Ф. СКОРИНЫ

Производственно-практическое издание

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**АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ГЕОГРАФОВ  
ТЕКСТЫ ДЛЯ ПЕРЕВОДА И РЕФЕРИРОВАНИЯ**

Практическое пособие

В авторской редакции

Подписано в печать 19.03.2021. Формат 60x84 1/16.

Бумага офсетная. Ризография.

Усл. печ. л. 2,8. Уч.-изд. л. 3,1.

Тираж 25 экз. Заказ 165.

Издатель и полиграфическое исполнение:

учреждение образования

«Гомельский государственный университет имени Франциска Скорины».

Свидетельство о государственной регистрации издателя, изготовителя,  
распространителя печатных изданий № 3/1452 от 17.04.2017 .

Специальное разрешение (лицензия) № 02330 / 450 от 18.12.2013.

Ул. Советская, 104, 246028, Гомель

РЕПОЗИТОРИЙ ГГУ ИМЕНИ Ф. СКОРИНЫ

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И РЕФЕРИРОВАНИЯ**

Гомель  
2021