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Кафедра профессионального иностранного языка для
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ENGLISH FOR GEOGRAPHERS

Учебно-методическое пособие

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Настоящее учебно-методическое пособие предназначено для студентов-бакалавров, обучающихся по направлениям 05.03.02 «География» и 05.03.03 «Картография и геоинформатика». Пособие направлено на обучение студентов работе с литературой по специальности, а также общению на профессионально-значимые темы. Задания пособия нацелены на расширение запаса лексики, связанной с изучаемой в университете специальностью.

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ОГЛАВЛЕНИЕ

Предисловие

Настоящее учебно-методическое пособие состоит из 12 тем. В каждую тему включены лексические упражнения, упражнения на понимание смысла текстов, устные и творческие задания, а также задания к видеороликам. Кроме того, многие темы предполагают подготовку студентами своего небольшого устного доклада. Данное пособие содержит лексико-грамматический материал для профессионального общения и чтения литературы по специальности в рамках программы, способствует формированию у будущих специалистов умения работать самостоятельно с текстами по данной тематике, формирует навыки перевода и коммуникативные компетенции.

Пособие в первую очередь адресовано студентам-бакалаврам, обучающимся по направлениям подготовки 05.03.02 «География» и 05.03.03 «Картография и геоинформатика».

Пособие составлено с учетом требований Федерального государственного образовательного стандарта высшего образования. Основная задача при изучении иностранного языка бакалаврами – обучение студентов умению использовать средства иностранного языка для осуществления деловой и профессиональной коммуникации.

UNIT 1. GEOGRAPHY AS A SCIENCE

Ex. 1.1. What do you associate with "geography"?

Ex. 1.2. Read the text and answer the questions:

1. What does the word "geography" mean?
2. What are main tasks of geography?
3. What are main branches of geography?
4. How does geography obtain its data?

The word '**geography**' originates from two Greek words. The first is 'geo' which means 'the earth' and the second Greek word is "graph" which means 'to write').

Geography is the spatial study of the earth's physical and cultural environments. Geographers study the earth's physical characteristics, its inhabitants and cultures, phenomena such as climate, and the earth's place within the universe. Geography also examines the spatial relationships between all physical and cultural phenomena in the world. Furthermore, geographers also look at how the earth, its climate, and its landscapes are changing due to cultural intervention. Geography is a much broader field than many people realize. Most people think of area studies as the whole of geography. In reality, geography is the study of the earth, including how human activity has changed it. Geography involves studies that are much broader than merely understanding the shape of the earth's landforms. Physical geography involves all the planet's physical

systems. Human geography incorporates studies of human culture, spatial relationships, interactions between humans and the environment, and many other research areas that involve the different subspecialties of geography. Students interested in a career in geography would be well served to learn geospatial techniques and gain skills and experience in GIS and remote sensing, as they are the areas within geography where employment opportunities have grown the most over the past few decades.

Spatial analysis includes many of the concepts tied to geospatial technology: the study and analysis between the interactions and distribution patterns of the physical and human environments using spatial technology such as geographic information systems, satellite imagery, aerial photography and drones, global positioning systems, and more. Earth science includes the study of landforms, climates, and the distribution of plants and animals. Regional studies focus on a particular region to understand the dynamics of a specific interaction between human activity and the environment. Researchers studying human-landscape interaction examine the impact of humans on their landscape and find out how different cultures have used and changed their environments. Geography provides the tools to integrate knowledge from many disciplines into a usable form by providing a sense of place to natural or human events. Geography often explains why or how something occurs in a specific location. World geography utilizes the spatial approach to help understand the components of our global community.

The discipline of geography can be broken down into three fundamental areas of focus: physical geography, human geography, and world regional geography. These branches are similar in that they use a spatial perspective, and include the study of place and the comparison of one place with another.

Geographic information systems (GIS) deal with the storage of information about the Earth for automatic retrieval by a computer, in an accurate manner appropriate to the information's purpose. In addition to all of the other subdisciplines of geography, GIS specialists must understand computer science and database systems.

GIS has revolutionized the field of cartography: nearly all mapmaking is now done with the assistance of some form of GIS software. The science of using GIS software and GIS techniques to represent, analyze, and predict the spatial relationships is called geographic information science (GISc).

Remote sensing is the science of obtaining information about Earth features from measurements made at a distance. Remotely sensed data comes in many forms, such as satellite imagery, aerial photography, and data obtained from hand-held sensors. Geographers increasingly use remotely sensed data to obtain information about the Earth's land surface, ocean, and atmosphere, because it: (a) supplies objective information at a variety of spatial scales (local to global), (b) provides a synoptic view of the area of interest, (c) allows access to distant and inaccessible sites, (d) provides spectral information outside the visible portion of the electromagnetic spectrum, and (e) facilitates studies of how features/areas change over time. Remotely sensed data may be analyzed either independently of, or in conjunction with other digital data layers (e.g., in a geographic information system) [3].

Ex. 1.3. Find synonyms:

to determine	method
significance	form
approach	to treat
environment	border
interrelationship	purchase
shape	decide
location	arrangement
to deal with	commerce
acquisition	to try
boundary	surrounding
pattern	to collect
community	to need
trade	increase

subdivision	to supply
to attempt	to represent
to require	importance
to provide	branch
growth	group
to depict	position
to gather	interconnection

Ex. 1.4. Translate into Russian:

1. Geographers study the earth to determine what is where, why it is there, and what significance it has.
2. Different approaches to the study of geography have led to the development of other fields of study.
3. Physical geography is the study of the natural environment and the interrelationships of all the living things in that environment. It examines the shapes of the land and bodies of water, or topography, of a given location, along with its climate, soil, plants, and animals.
4. Political geography focuses on the political organization of areas. It deals with the administration of areas, territorial acquisitions, political boundaries, and patterns of government. Political geography is closely tied to social geography, the study of the interrelationships of groups and communities. This field includes the study of human movements within and between communities.
5. Economic geography focuses on resources and resource use, agriculture and land use, and global trade interactions. It also examines such diverse geographic ideas as factory locations, transportation networking, and market distribution. Economic geography forms one of the broadest subdivisions of cultural geography and relies heavily on information from other fields.
6. Historical geography examines the ways in which the relationship between people and their environments has changed over time. This field attempts to bring time and space together. Because understanding the present requires knowledge of the past,

geographers place a great deal of emphasis on the study of historical geography.
7. Urban geography focuses on the locations of cities, the services cities provide, and the movements of goods and people to and from cities. The rapid growth of cities in the modern world has made this field an increasingly important for study.
8. Cartography is the art and science of mapmaking. Recent developments in mathematics, computers, and electronics have expanded cartography to include the study and analysis of aerial photographs and remotely sensed images.
9. Remotely sensed images, including aerial photographs and satellite images, have greatly improved the making of maps. Their "bird's eye view" permits mapmakers to depict terrain changes far more accurately than it could be done from surveys made at ground level.
10. Geographers use a wide variety of graphics to present the information they have gathered [2].

Ex. 1.5. Check how well you know geography. Explain what these terms really mean:

You Need to Study More Geography If You Think...

1. Andes is an after-dinner mint.
2. The Balkans are alien people on Star Trek.
3. The English Channel is a TV sitcom about Charles and Di.
4. The United Kingdom is a cultural theme park.
5. The Tropic of Cancer is a sunscreen lotion.
6. The Gaza Strip is a Middle Eastern folk dance.
7. The Ring of Fire is the center ring of Barnum and Bailey's Circus.
8. The Bermuda Triangle is a percussion instrument in a reggae band.
9. The Cumberland Gap gives out a pair of clogs with every set of jeans sold.
10. The International Dateline is a new cable TV network.
11. The Equator is a cartoon action figure.

12. The Continental Shelf is a specialty section of the supermarket.
13. An archipelago is a food stabilizer.
14. The Dust Bowl is Granny's old favorite dish.
15. A fault is what you find in other people.
16. A fjord is a Norwegian car.
17. A mantle is what goes over your fireplace.
18. Tide is a laundry detergent.
19. You can do a research paper to find out who killed the Dead Sea.

Ex. 1.6. Answer the following questions:

1) Do you like studying at the Institute of Earth Sciences? Why? Why not?
2) Why did you choose to study at the Institute?
3) What geosciences do you know? What do they study?
4) What particular areas of geosciences are you interested in?
5) Are geosciences important nowadays? Why?

Ex. 1.7. Read the text and answer the following questions [3]**:**

The geosciences embrace a wide variety of well-defined scientific disciplines – specially developed avenues of precise inquiry into the nature of the Earth. They are geography, geology, seismology, volcanology, oceanography, tectonics, geomagnetism and others. Geography is one of the most ancient sciences on the earth. It's a science about the earth's surface, physical features, divisions, climate, products, population, etc. Nowadays geography becomes more and more important in the human activities. Modern geography is represented by "the system of interconnected sciences which have their own objects and methods of research. It takes a lot from physics and chemistry, biology and geology, sociology and other sciences. The most important task for geography is

understanding the relationships between nature and sociology". Geography is a long-established academic discipline with its own unique field of interest, philosophy, methodology and continually expanding research frontier. Students may choose an area of concentration from the following: physical geography, biogeography, economic geography, political geography, historical geography, population distribution, ecological geography, general geography.

Physical geography deals with the problems of the earth's crust, water basins (lakes, rivers, seas, and oceans), soils and natural resources. This branch also studies coastal areas and the impact that human beings have on them. Biogeography includes geography of microorganisms, plants and animals. Economic geography "focuses on the study of population distribution, change and migration. It also investigates the problem of domestic and foreign economics and the prudent use of natural resources". Recreational geography is concerned with tourism, its history and recreational resources. Ecological geography researches problems of air, water, soil pollution, climatic change, hazardous wastes, sedimentology in seas and oceans. General geography studies the earth's surface and how it has been changed by human activity, climate and global factors. We can hardly imagine a progress in the world without geosciences. Human Geography is the study of the distribution of networks of people and cultures on Earth's surface. Geographers explore both the physical properties of Earth's surface and the human societies spread across it. They also examine how human culture interacts with the natural environment and the way those locations and places can have an impact on people. History's great explorers led challenging expeditions to the farthest reaches of the globe – to new continents, the poles, the tops of mountains, and the bottoms of the oceans. Today, "modern technologies such as satellite imaging, remote sensing, GIS and radars have extended our ability to explore how earth and human systems work." All the above-mentioned geosciences are offered within the Institute of Earth Sciences. Specialized techniques and approaches include problem-oriented

thinking, data collection theory, field experience, gathering, map analysis and design, report production and presentation making. The skills you develop during your degree will equip you for a range of jobs. If you're unsure which career path to follow, try doing some work shadowing to find out what interests you. A geography degree enables you to embark on a career in a range of fields, including those in the education, commerce, industry, transport, tourism and public sectors. You'll also have many transferable skills, attracting employers from the business, law and finance sectors.

1. What kind of science is geography?
2. What other sciences are closely connected with geography?
3. What branches of geography do you know?
4. What does physical geography deal with?
5. What does economic geography investigate?
6. What is recreational geography connected with?
7. What does general geography study?
8. What skills do students develop?
9. How can new technologies help geographers?
10. Where do geographers work?

Ex. 1.8. Give English equivalents to the following Russian words and word combinations:

древняя наука; земная поверхность; физические черты рельефа; население; методы исследования; взаимоотношения между природой и обществом; уникальная сфера; водный бассейн; почва; природные ресурсы; отрасль; прибрежные области; граница исследования; поиск и измерение; методы и подходы; проблемное мышление; данные и статистика; навыки; позволять; начинать дело.

Ex. 1.9. Match the following branches with their subject:

1	Regional Geography	A	the physical problems and the issues of lithosphere, hydrosphere, atmosphere, pedosphere, and global flora and fauna patterns (biosphere).

2	Cartography	B	the location and extent of cities, towns and municipalities and their patterns.
3	Physical Geography	C	the description of the unique characteristics of a particular region such as its natural or human elements. The main aim is to understand, or define the uniqueness, or character of a particular region.
4	Geomatics	D	the study of patterns and processes that shape the human society. It encompasses the human, political, cultural, social, and economic aspects.
5	Human Geography	E	the application of computers to the traditional spatial techniques used in cartography and topography.
6	Urban Geography	F	the representation of the Earth's surface with abstract symbols (map making).

Ex. 1.10. Complete the sentences with your own ideas:

1. Geography is one of the ……. sciences on the earth.
2. Students can choose the ……. from the following geosciences: geography, geology, oceanography and others.
3. Ecological geography …… with environmental problems.
4. Geology is the study of our planet, …… and interior of the earth.
5. Oil and gas geology studies …… of gas and oil regions.
6. Geology is …… important to …… in many ways.
7. The geologists have a great role in …… of natural resources.
8. Many of the ……. are found in the rocks within the earth.

9. Oceanography …… the whole science of the oceans and their underlying basins.

Ex. 1.11. Read, translate the words and prepare a definition for one of the terms without naming it:
1) to embrace 2) inquiry 3) surface 4) features 5) research frontier 6) crust 7) impact 8) hazardous 9) to investigate 10) prudent 11) properties 12) remote sensing 13) GIS 14) skills 15) reports

Ex. 1.12. Please complete the sentences with the things which are true for you. Then take turns reading the sentences and give yourself a point each time it is true for you:
1. I ……. to be a geographer.
2. I read ……. yesterday.
3. I am going to ……. at the weekend.
4. I have a ……. in my bag.
5. I ……... at least once a week.
6. I had a holiday in …… last year.
7. I usually listen to ……... at home.
8. I played …… yesterday.
9. I have been to ……. several times.
10. I ……. last night.
11. I bought…… yesterday.
12. I …… a friend yesterday evening.
13. I …… for breakfast today.
14. I ……. before I left home this morning.
15. I usually …… before I go to sleep.

Ex. 1.13. Describe a typical geographer. How does he/she look like, what does he/she do, where does he/she live?

Ex. 1.14. Answer the following questions:

1) Do you work? Where do you work?
2) Do you like your job? Why? Why not?
3) What are your duties and responsibilities?
4) What are the 3 things to keep in mind when choosing a job?
5) What is your ideal job?

Ex. 1.15. Read and answer the following questions [3]:

Geographers study the Earth and the distribution of its land, features, and inhabitants. They also examine political or cultural structures and study the physical and human geographic characteristics of regions ranging in scale from local to global. Many geographers pursue rewarding careers in education; business; local, state, or federal government agencies; and nonprofit organizations. These sectors can be described as follows:

• Education – The education sector includes institutions, colleges and universities that award at least a two-year degree, continuing education and informal education organizations, and higher education institutions. Educators may also work in educational administration and academic research positions.

• Business – The business, or private, sector refers to the segment of the economy composed of enterprises owned by individuals or groups. Corporations are accountable to their shareholders and operate at national or international scales. Independent businesses are privately owned by an individual or small group and usually operate at a local or regional scale.

• Government – Applicants new to the public sector, which includes federal, state, and local government, may find the broad, integrative perspective offered by academic training in geography to be an asset. Nearly 2 million civilians — 1.8 percent of the U.S. work force — are employed by the federal government, while state and local governments employ 19.8 million workers. Geography's emphasis on addressing real-world problems and issues is excellent preparation for public sector employment, particularly at the local

and state levels where much policy innovation, implementation, and bottom-line responsibility reside.

• Nonprofit – Roughly nine percent of the U.S. workforce (12 million individuals) is employed by an estimated 1.4 million nonprofit organizations, whose causes and values span the entire political spectrum. Because nonprofits typically strive to create a better world (as defined by their mission statements), they offer great opportunities for job seekers hoping to make a difference. Employers include: the armed forces, charities, the Civil Service, environmental consultancies, environmental protection agencies, information systems organizations, local government, Ministry of Defense, police service, private companies, utility companies; schools, colleges and Universities.

Geographers typically do the following: gather geographic data through field observations, maps, photographs, satellite imagery, and censuses; conduct research via surveys, interviews, and focus groups; create and modify maps or other visual representations of geographic data; analyze the geographic distribution of physical and cultural characteristics and occurrences; collect, analyze, and display geographic data with Geographic Information Systems (GIS); write reports and present research findings; assist, advise, or lead others in using GIS and geographic data; link geographic data with data pertaining to a particular specialty, such as economics, the environment, health, or politics. Geographers use several technologies in their work, such as GIS, remote sensing, and global positioning systems (GPS). Geographers use GIS to find relationships and trends in geographic data. These systems allow geographers to present data visually as maps, reports, and charts. For example, geographers can overlay aerial or satellite images with GIS data, such as population density in a given region, and create digital maps. They then use the maps to inform governments, businesses, and the general public on a variety of issues, such as developing marketing strategies; planning homes, roads, and landfills; and responding to disasters.

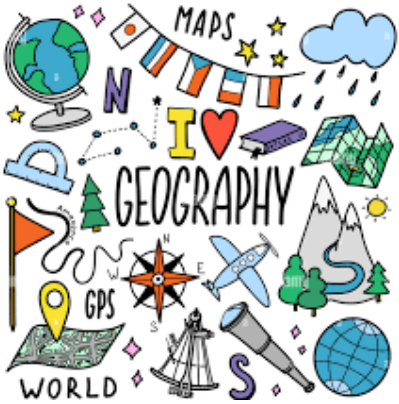
1) What do geographers do?
2) Where do many geographers pursue rewarding careers?
3) What does the education sector include?
4) What does business sector refer to?
5) How many people are employed by the federal government?
6) What are the potential employers?
7) How do geographers gather geographic data?
8) What technologies do geographers use in their work?
9) How useful are the GIS?
10) Why do they use maps?

Ex. 1.16. Translate the following into English:
физические черты рельефа, жители, масштаб, продолжать карьеру, некоммерческие организации, владеть бизнесом, кандидат, благотворительность, перепись, спутниковые снимки, проводить исследования, создавать карты, анализировать месторождения, писать отчеты, дистанционное зондирование, позволять, наложение аэроснимков, плотность населения, свалки, катаклизмы.

Ex. 1.17. Have you already thought about your future career? Do you already have ideas where you are going to work after graduation?

Ex. 1.18. Video 1 "Geographers careers". (https://disk.yandex.ru/i/-YlXU9h6dCDlJw**) 1:45:**
1. What careers are possible with a geography degree?
2. What tasks do geographers perform?
3. What qualifications do they need for different jobs?

Ex. 1.19. Make an advert of geography, convince other people, that geography is awesome! Explain, why you love this science, be creative!



UNIT 2. TOOLS OF GEOGRAPHERS. VISUALS

Ex. 2.1. Read the text. Answer the questions and fill in the table:

	Advantages (+)	Disadvantages (-)
Maps		
Globes		

1. How do you read a map or globe?
2. What are latitude and longitude?
3. What is a map projection?
4. What symbols are used in maps?
5. What types of maps do you know?

Maps and globes

A map is a graphical representation, usually in two dimensions, of Earth's surface, an ocean floor, a night sky, or another large area. Because world maps are drawn on a flat surface, they cannot show Earth's curved surface without significant distortions. Globes help to counter that problem. A globe is a spherical representation of a planet's surface or another large area. It is usually mounted on an axle that allows for rotation. A globe can show a planet without distortion because of its rounded shape, although Earth — as well as most other planets — is not a perfect sphere but bulges a bit at

the Equator. However, people use globes less often than maps because of their bulk and greater cost.

Maps can be misleading, however; their crisp lines, bright colors, and labels may not always represent the truth. In reality, all maps and globes have some distortions, deletions, and simplifications associated with the intended use of the map, the makers' biases, political influences, and economic factors.

Cartography, the study of maps and the art and science of making them, is a subdiscipline of geography, but many other disciplines, especially in the social sciences, also have mapmakers. In addition, amateurs draw maps every day, from driving directions on napkins to imaginary landscapes in sandboxes.

READING A MAP OR GLOBE

Map styles and symbols vary across cultures, but most published maps share details in common. Maps should show a date of compilation or publication to give the user a frame of reference. They may include place names (labels), a scale (to compare sizes), a grid (to find locations), a guide to symbols, and an arrow pointing north or a compass rose (showing the four cardinal directions).

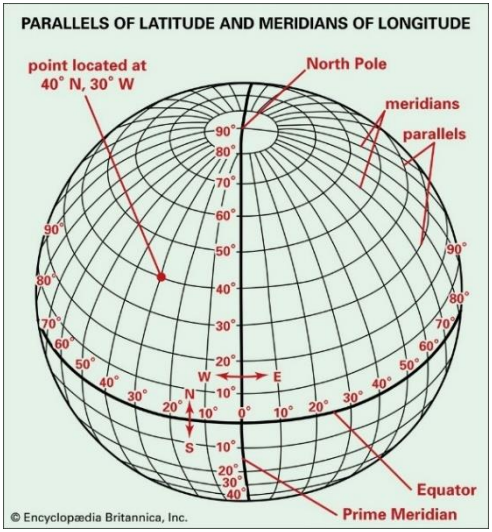
Basic map grids place letters across the top (A, B, C, etc.) and numbers on the side (1, 2, 3, etc.), or vice versa. If an index lists a site as B4, for example, a person can trace down from the B and across from the 4 to find the sought-after destination. Most tourist maps and road maps use this kind of basic grid.

LATITUDE AND LONGITUDE

World maps show the latitude and longitude coordinates of Earth. Lines of longitude, or meridians, are drawn from the North Pole to

the South Pole and show distances east or west from the prime meridian (0 degrees longitude, running through Greenwich, England). Lines of latitude, which intersect meridians at right angles, are called parallels because they parallel the Equator (0 degrees latitude), from which they measure north or south.

There are 360 degrees in a circle, and longitude measures to 180 degrees east or west (180 + 180 = 360) until arriving at a point in the mid-Pacific Ocean, on or near the International Date Line (the imaginary line running between the North Pole and the South Pole and distinguishing each calendar day from the next). Likewise, latitude runs to the North Pole (90 degrees north) and the South Pole (90 degrees south) — adding up to 360 degrees if we see a globe in cross section (90 + 90 on one side, 90 + 90 on the other). Each degree is divided into 60 minutes, each minute 60 seconds. Computers can show these as decimals: for example, 21 degrees and 45 minutes is 21.75 degrees, because 45 minutes is three-fourths of a degree, or 0.75 as a decimal.



SCALE

A scale is a mathematical relationship, or ratio, between actual sizes and the sizes shown on a map. If one centimeter on the map equals 10 actual kilometers, the ratio can be written 1:1,000,000 (there are 1 million centimeters in 10 kilometers) or it may be shown as a line marked with distances. There is no ideal map scale. It is a compromise between two conflicting aims — the desire to show details while covering as much area as possible.

MAP SYMBOLS

Some map symbols are readily understood, but others require a legend (key or index of symbols) because they vary by culture, mapping custom, and individual choice.

On conventional maps, black lines usually symbolize roads, tick-marked lines are railroads, circles or stars are cities, and shading or dark lines are contours (lines that indicate elevations). Green and brown may shade real-world features (green forests, brown deserts), but colors sometimes indicate elevations. This coloring may cause confusion where, for example, green shading (indicating low elevation) covers a hot, dry, brown desert.

ADVANTAGES OF GLOBES AND ATLASES

Although globes are unwieldy and more expensive than maps, they show how Earth is tilted (about 23.5 degrees) and how this relates to day lengths and the seasons. For example, when in a dark room, a person can shine a flashlight (representing the Sun) on one side of a globe to demonstrate how sunlight reaches half the tilted Earth while leaving the rest in shadow, according to the season. Globes also show shapes, sizes, and lines without distortions.

Globes can help people plan long-distance travel routes. If a person pulls a string between two cities on its curved surface, the string will follow the shortest path, called a great circle route. On such a route, airplanes from the United States to Europe fly north-northeast rather than straight east, though on a map it is easy to plot — mistakenly — the eastern route.

TYPES OF TERRESTRIAL MAPS

The most popular maps are road maps, political maps (showing countries, states, or counties), physical maps (of mountains, rivers, etc.), and thematic maps (focusing on one or two themes, such as income, livestock, or health insurance). General reference maps include a mixture of information, as do many road, political, and physical maps.

MAP PROJECTIONS: NECESSARY DISTORTIONS

All maps make selective omissions and distortions, beginning when an image is transferred from a globe. If Earth were flat, it could easily be displayed; however, its spherical shape cannot be flattened without distorting distances (areas), shapes, or directions. Experts now use mathematical formulae to help make maps; such renderings are called map projections because they were originally made by shining a lamp inside a transparent globe to trace projected images on a screen. The image shifted according to the placement of the lamp and screen. Every projection has pros and cons and may be disputed for political, academic, and aesthetic motives [8].

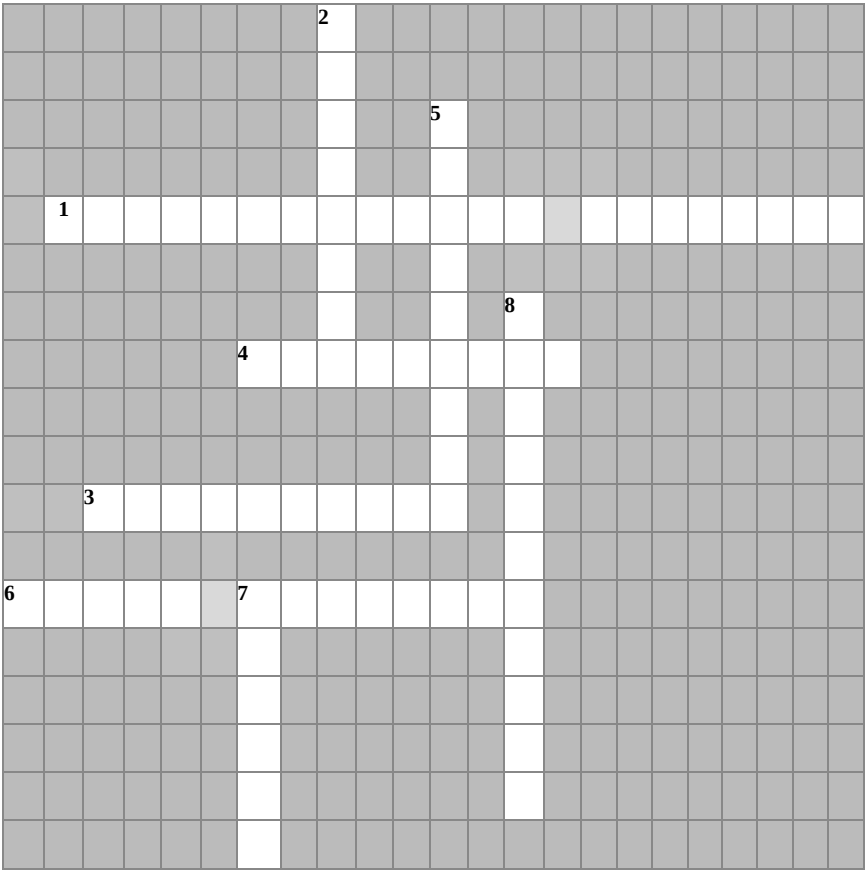
Ex. 2.2. Video 2 "Maps": (https://disk.yandex.ru/i/dxG3nemabcOavg) **10:29:**

1. What examples of maps are mentioned in the video?
2. What are thematic maps?
3. What examples of thematic maps are shown?
4. What projections are mentioned?
5. Why may some maps have differences?
6. Why was color "red" chosen to represent the Soviet Union?

Ex. 2.3. Crossword [9]:

1. imaginary line that marks that place on earth where each new day begins
2. distance, measured in degrees north or south of the equator
3. half a sphere

4. the height of something on maps
5. distance, measured in degrees east or west of prime meridian
6. 0 degrees longitude, the longitude lines that run through Greenwich England
7. a table or chart that helps you decode a map, the key is usually found on the corners of the maps
8. a set of numbers that help identify a specific place on a globe or map



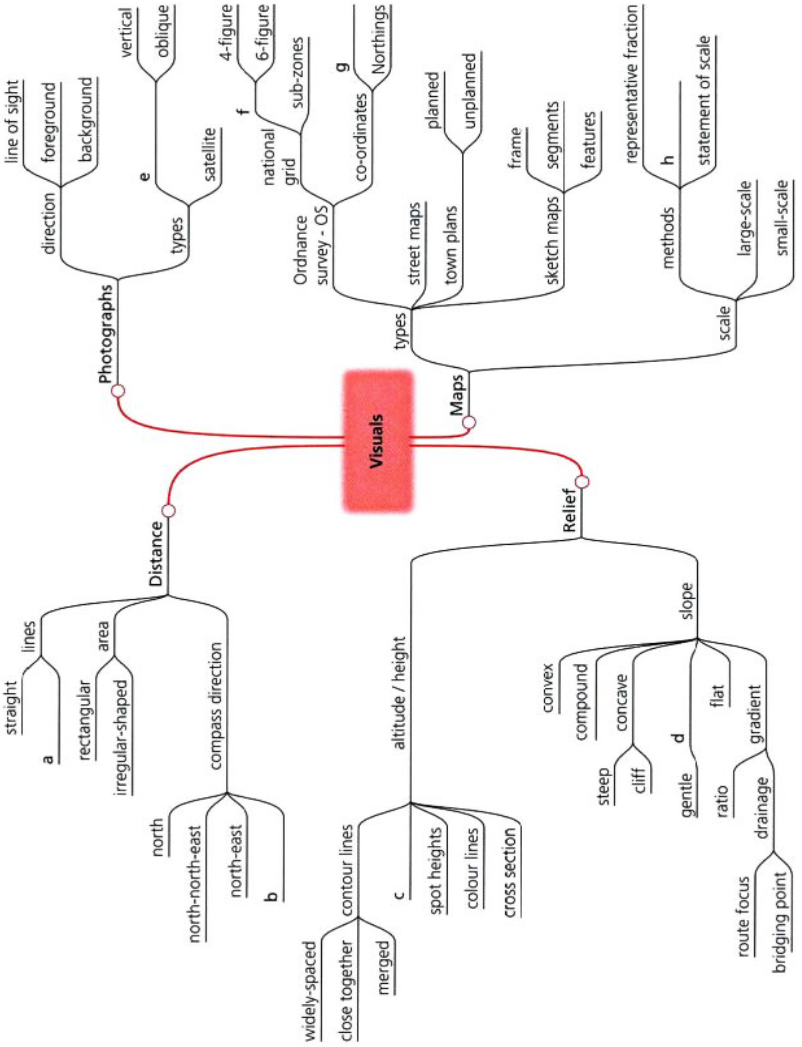
Ex. 2.4. What are common map features?

Ex. 2.5. Match the words close in meaning [2]:

1) A. distortion, environment, impact, branch, significance, location, elevation, spread
B. diffusion, surroundings, influence, field, importance, altitude, inaccuracy, place
2) A. to come from, to occur, to carry out, to include, to attempt, to circle, to focus (on), to preserve, to provide, to acquire, to distinguish
B. to differentiate (between), to derive, to revolve, to try, to involve, to keep, to concentrate (on), to give, to get, to perform, to happen

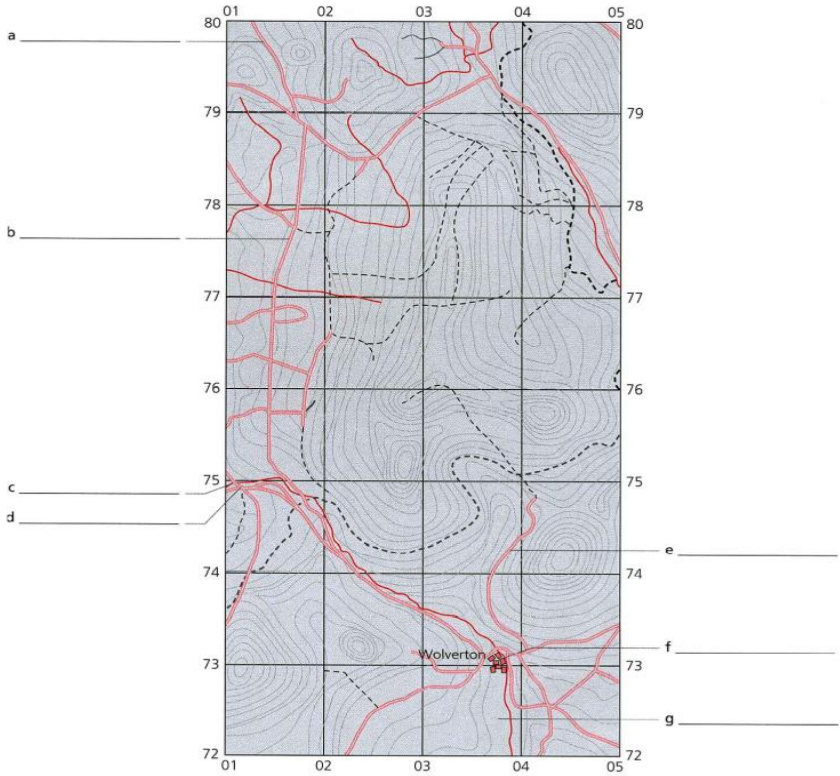
Ex. 2.6. Write these words in the correct place on the word map [4]:

grid reference, even, east-north-east, linear scale, triangulation pillars, aerial, Eastings, curved

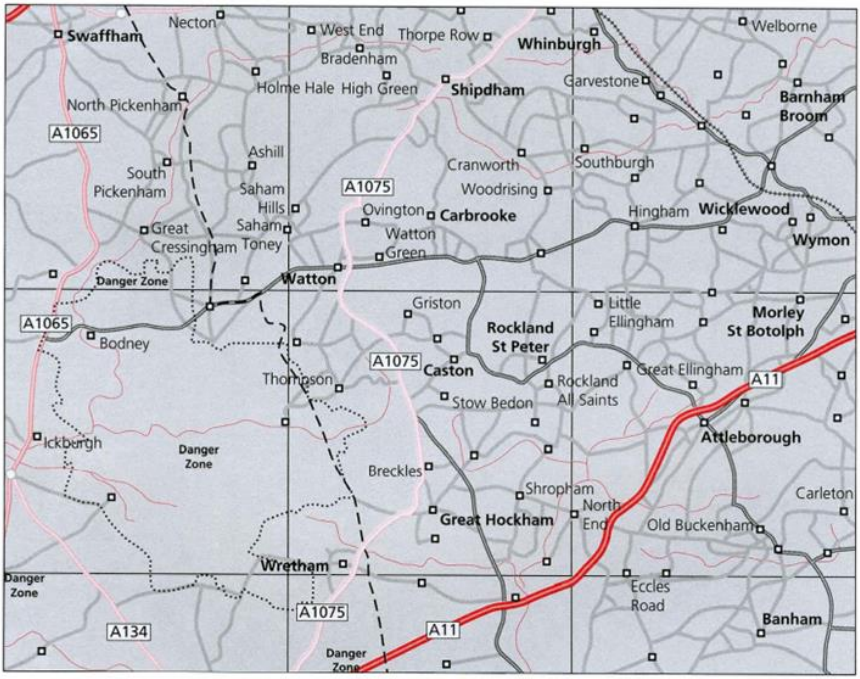


Ex. 2.7. Read the sentences and put them in the correct place on the map [4]:

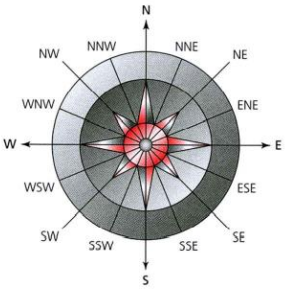
1. villages often develop at bridging points
2. road travels along contour to keep level
3. roads avoid flood plain of river
4. roads travel between two hills
5. focus of routes at bridging point
6. roads meet and cross river at a bridging point
7. road goes around and avoids steep hills



Ex. 2.8. Look at the map. Decide which sentences are true and which are false [4]:



1. Carbrooke is east-north-east of Watton.
2. Shipdham is north-north-east of Watton.
3. Swaffham is north-east of Watton.
4. Barnham Broom is due north of Morley St Botolph.
5. Swaffham is west-south-west of Banham.
6. Rockland St Peter is east of Caston.
7. Great Hockham is east-south-east of Wicklewood.
8. Whinburgh is south-south-west of Wretham.



Ex. 2.9. Read the text and make notes in the frame provided:

Relief, rivers and roads

Roads by and large avoid steep mountain slopes and steep hill slopes. They travel around the base of these areas winding and twisting their way to find the easiest and shortest route possible, as road building in such terrain is very expensive and difficult. Roads do take advantage, however, of gaps through mountain areas by using river valleys or low points between hills (called saddles). On the whole though, few roads are built in mountainous areas. Roads also travel along contours as much as possible, rather than across them, to keep the slope of the road as gentle as possible, and many are built across large regions of level lowland called plains.

Roads are also built on slightly higher land away from rivers in river valleys to avoid flooding. They cross rivers where bridges have been built and these spots are called bridging points. In some situations, many roads may lead to a bridging point. If this happens, then the bridging point is called a route focus. If roads cross a river at the last bridge just before the river enters the sea, it is called the lowest bridging point of that river. Generally speaking, roads go around lakes because lakes are too wide to cross with bridges, and they avoid bogland because it is too soft and they would sink into the peat.

How does relief affect roads? (5 sentences)	**How do rivers and lakes affect roads? (6 sentences)**

Ex. 2.10. Place the sentences in the correct order in the table [4]:

Comparing maps and photographs

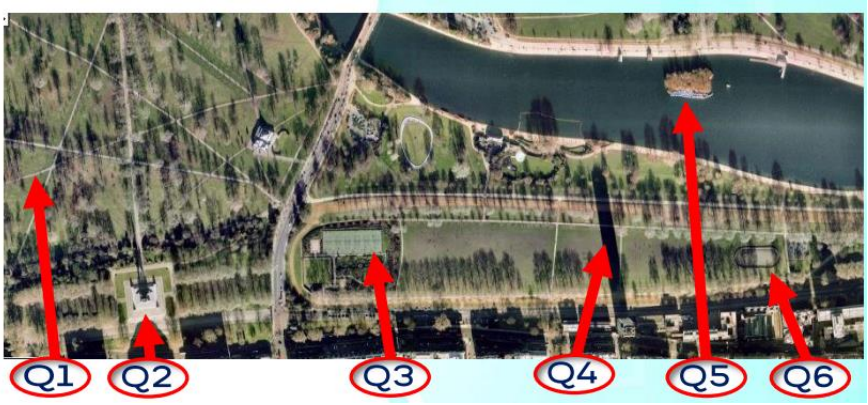
a. Background features often appear unclear and small in oblique photographs.
b. Maps show landscape features by means of symbols only.
c. Maps show some details which photographs cannot. Such details include place names, exact heights, etc.

d. Photographs show some details that maps cannot. Such details include land use, details of buildings, etc.
e. Photographs can give more complete and realistic-looking views of landscape features, such as rivers, cliffs, etc.
f. Only vertical photographs have single scales. Oblique photographs are not drawn to single scales.
g. We can calculate distances from maps, because each map is drawn to a single scale.
h. All parts of a map can be seen with equal clarity.

	Maps	**Photographs**
scale		
realism		
clarity		
detail		

Ex. 2.11. Identifying features on aerial photographs [10]:

1. What do you think these long white lines in the park are?
2. What do you think is in the center of this square?
3. What sport can you play here?
4. There is a long shadow here. What do you think can create it?
5. What do you think this is in the middle of the lake?
6. There is a shape with round edges here. What do you think it is?



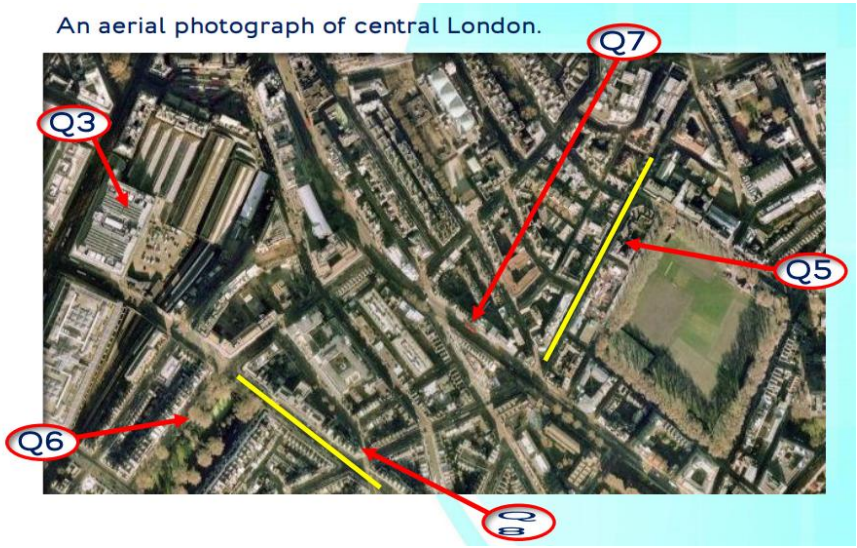
Ex. 2.12. Match the words in A with the words in B to form word combinations:

A. physical, cultural, detailed, natural, obvious, specific, important, major, accurate, distorted, perfect, flat, valuable, new, various, mental, satellite, electronic, remotely sensed

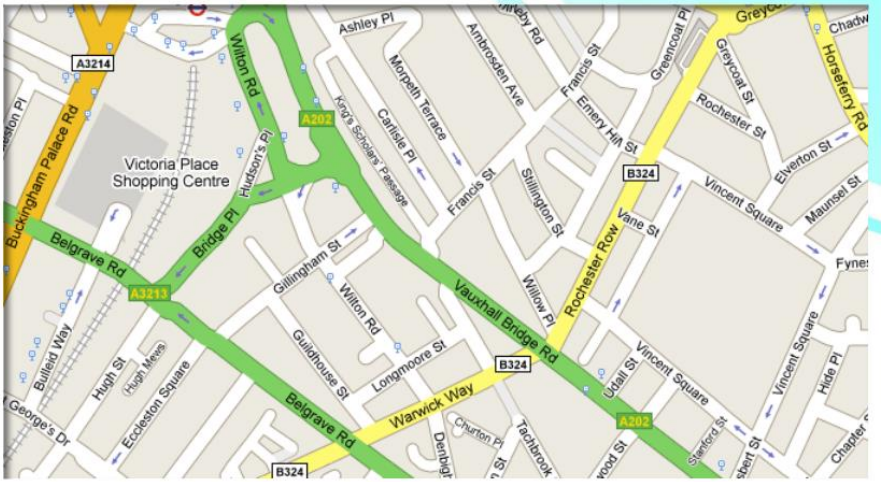
B. representation, advantages, image, features, information

Ex. 2.13. Compare an aerial photograph and a map of the same part in London and answer the questions [10]:

1. List features that you can see in the aerial photograph.
2. List features that you cannot see in the aerial photograph.
3. This is a large building. What is it called?
4. Suggest an activity that you can do in this building.
5. What is the name of the road marked on the map?
6. What are the objects marked here?
7. What is this long red object?
8. What is the name of the road marked on the map?



A map of the same area in central London.

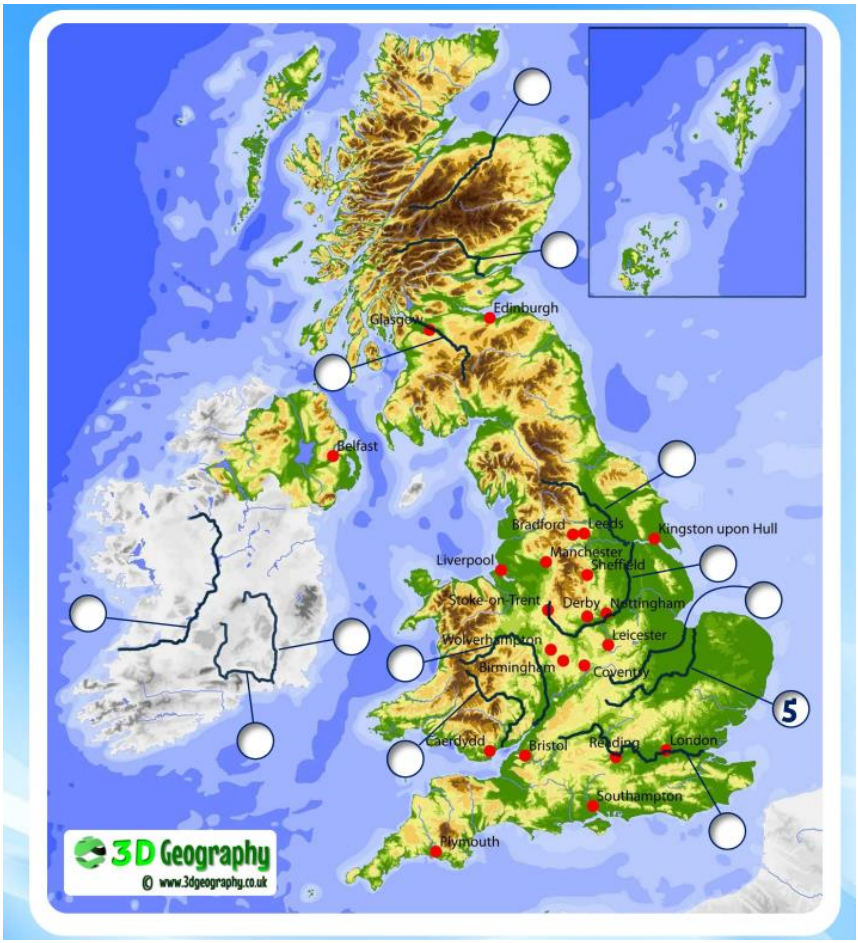


Ex. 2.14. Match each of the following terms with the correct definition [2]:

a) remote sensing b) stereoscope c) multispectral scanner d) aerial photograph e) distortion f) map projection g) Landsat h) legend

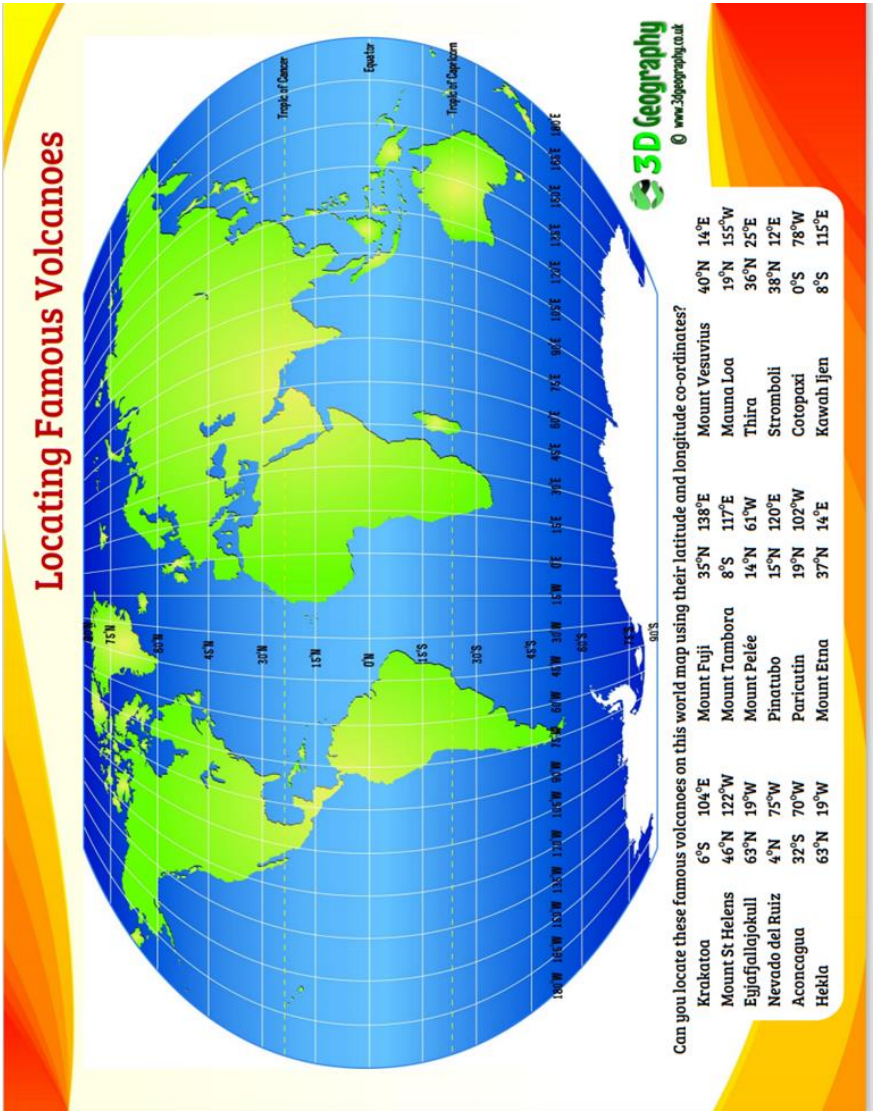
1. Gathering and recording information from a distance through aerial photographs and satellite images.
2. Picture taken from above the earth.
3. Instrument that takes a pair of overlapping aerial photographs.
4. Instrument that records observations from space electronically and sends them to ground stations where computers translate the data into electronic images.
5. Satellite that views the earth.
6. One of the many different ways to show the spherical earth's surface on a flat map.
7. It explains the meaning of symbols and colors used on a map.
8. Inaccuracy contained on maps, which is a major disadvantage.

Ex. 2.15. Identify the longest rivers of the British Isles on the map [10]:



1 River Shannon 386 km
2 River Severn 354 km
3 River Thames 346 km
4 River Trent 297 km
5 River Great Ouse 230 km
6 River Wye 215 km
7 River Ure/Ouse 208 km
8 River Barrow 192 km
9 River Tay 188 km
10 River Suir 184 km
11 River Spey 172 km
12 River Clyde 172 km
13 River Nene 161 km

Ex. 2.16. Locate famous volcanoes [10]:



Ex. 2.17. Condense the text and translate into English:

Спутниковая система навигации (*Global Navigation Satellite System, GNSS*) — система, предназначенная для определения местоположения (географических координат) наземных, водных и воздушных объектов, а также низкоорбитальных космических аппаратов.

На 2020 год три спутниковые системы обеспечивают полное покрытие и бесперебойную работу для всего земного шара — GPS, ГЛОНАСС, «Бэйдоу».

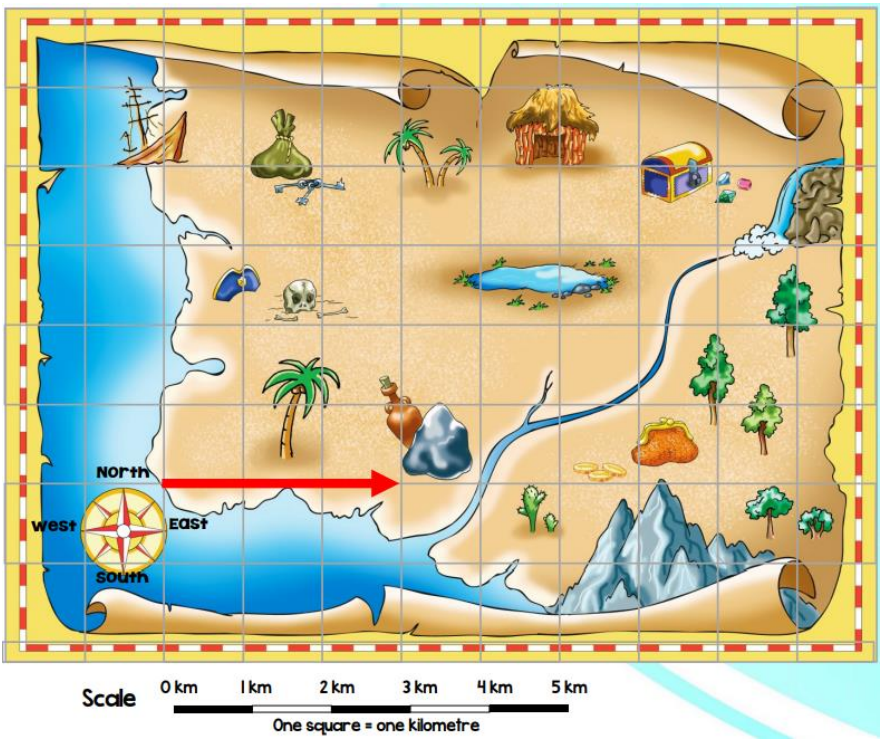
Применение систем навигации

Кроме навигации, координаты, получаемые благодаря спутниковым системам, используются в следующих отраслях:

- Геодезия: с помощью систем навигации определяются точные координаты точек.
- Навигация: с применением систем навигации осуществляется как морская, так и дорожная навигация.
- Спутниковый мониторинг транспорта: с помощью систем навигации ведётся мониторинг за положением, скоростью автомобилей, контроль за их движением.
- Сотовая связь: первые мобильные телефоны с GPS появились в 90-х годах. В некоторых странах (например, США) это используется для оперативного определения местонахождения человека, звонящего 911. В России в 2010 году начата реализация аналогичного проекта — Эра-ГЛОНАСС.
- Тектоника, тектоника плит: с помощью систем навигации ведутся наблюдения движений и колебаний плит.
- Геотегинг: информация, например, фотографии, «привязываются» к координатам благодаря встроенным или внешним GPS-приёмникам [6].

Ex. 2.18. Treasure hunt. Part 1 [10]:

Here is a map of an island where some treasure is buried. Follow the instructions below to find it. Mark the route on the map. The first one has been done for you.



1. ~~Go East 3 km~~
2. Go North 5 km
3. Go East 2 km
4. Go South 2 km
5. Go East 3 km
6. Go South 4 km
7. Go West 3 km
8. Go North 3 km
9. Go West 4 km
10. Go South 1 km
11. Go East 1 km
12. Go North 3 km
13. Go West 2 km
14. Mark a cross

Part 2:

Now you have a go at writing some instructions for someone else to follow. Choose a starting point, draw a route and then write down instructions.

My instructions	
1.	8.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

Ex. 2.19. At home choose a map and describe a route.

Ex. 2.20. Complete the sentences:

1.The equator divides the earth into...
a) north and south hemispheres
b) north and east hemispheres
c) south and west hemispheres
d) east and west hemispheres

2. The prime meridian divides the earth into ...
a) north and south hemispheres
b) north and east hemispheres
c) south and west hemispheres
d) east and west hemispheres

3. The best way to show all the features of the earth is ...
a) hemispheres
b) a globe
c) lines of latitude and longitude
d) maps

4. We use the grid system on globes and maps ...
a) to divide them into equal parts
b) to show all the features of the surface
c) to locate points on the earth
d) to call them parallels and meridians

5. Each meridian is a certain distance from ...
a) 0° longitude
b) the equator
c) latitude
d) the grid

Ex. 2.21. Answer yes/no:

1. A map can show any feature on the earth's surface.
2. A map legend shows how many times smaller the map is than the distance on the earth.
3. The best way to go from point A to B is the way (on a topographic map) where there are most contour lines.

4. On a topographic map of a flat surface, there is a very large distance between contour lines.
5. An imaginary grid system on a map or a globe consists of lines of latitude and longitude.
6. The prime meridian is at 0° latitude.
7. Flat maps are the best maps of the earth.
8. Contour lines that are very close together show the top of a mountain.
9. Maps almost always have south at the top.

Ex. 2.22. Rearrange the letters [2]**:**

предоставлять	pdroevi	широта	dealtiut
сравнивать	crepoma	долгота	ituglonde
сгибать, складывать	dflo	координатная сетка	irgd
накрывать, покрывать	cvero	спутник	etsaillte
широкий диапазон	dwie nerag	снимок	egiam
поверхность	sfuraec	расстояние	stdiacen
включать в себя	inuclde	точка	itpon
измерять	msueare	полушарие	sheerpheim
искажать	doristt	делить	vieddi
характерная черта	fateeur	вершина, верхушка	opt

Ex. 2.23. Complete the sentences, using the map of the United Kingdom [10]:

London is _____ of Bristol.
Belfast is _____ of Liverpool.
Cardiff is _____ of Edinburgh.
Nottingham is _____ of Oxford.
Glasgow is _____ of Edinburgh.
Plymouth is _____ of Bath.

Birmingham is _____ of London.
Cambridge is _____ of Manchester.
_____ is NORTH of Glasgow.
_____ is WEST of Norwich.
_____ is SOUTH of London.
_____ is EAST of Londonderry.
_____ is SOUTH-EAST of Holyhead.
_____ is NORTH-EAST of Newport.
_____ is SOUTH-WEST of Northampton.
_____ is NORTH-WEST of York.

Now make some direction sentences on your own.

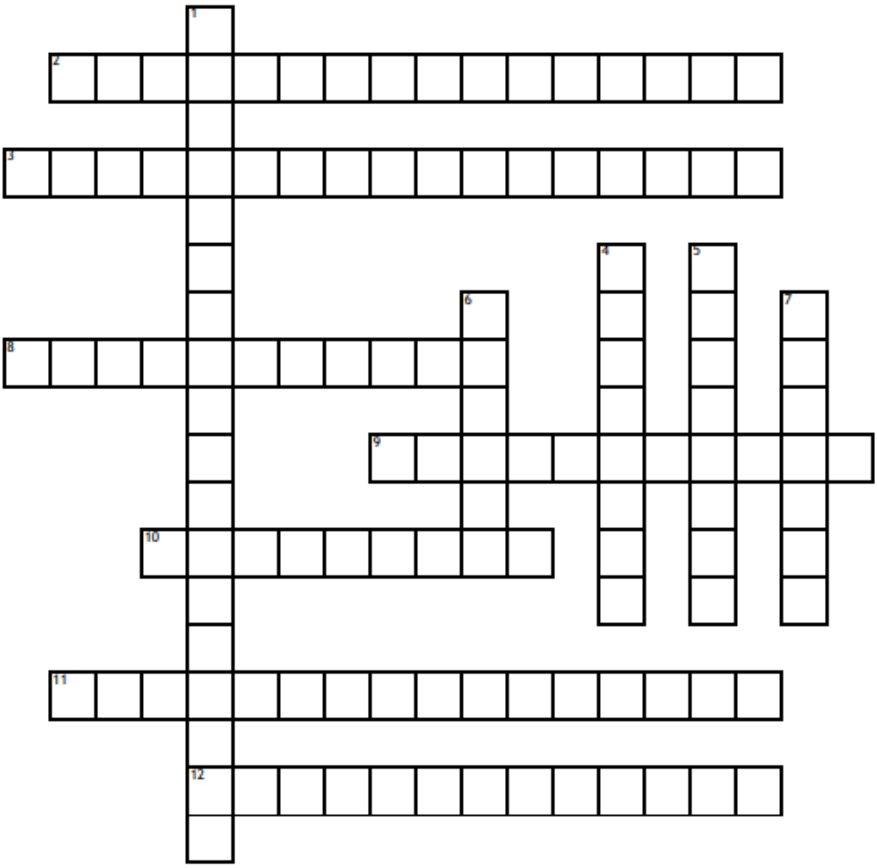
Ex. 2.24. Crossword:

Across

2. The exact position of a place on earth often stated in latitude and longitude.
3. Description of the formations of the earth, mountains, valleys, rivers, and lakes.
8. It points which way is north, south, east, west, and some distance intermediate directions on the map.
9. A map that shows a specific topic theme or spacial distribution of an activity.
10. Imaginary lines that run north to south around the globe and measure distance east and west of the prime meridian.
11. A location of a place in relation to another place.
12. The line that passes through Greenwich, England (0 degrees longitude).

Down

1. Description of the boundaries of states & regions, the location of cities & towns, and other aspects of human society that have to do with geography.
4. Imaginary lines that run east to west around the globe and measure distance north and south of the equator.
5. The ratio between the distance between two points found on the map as compared to the actual distance between these points in the real world.
6. A small table accompanying the map that explains the symbols that are used on the map.
7. The imaginary circle around the earth, halfway between the north south poles.


1
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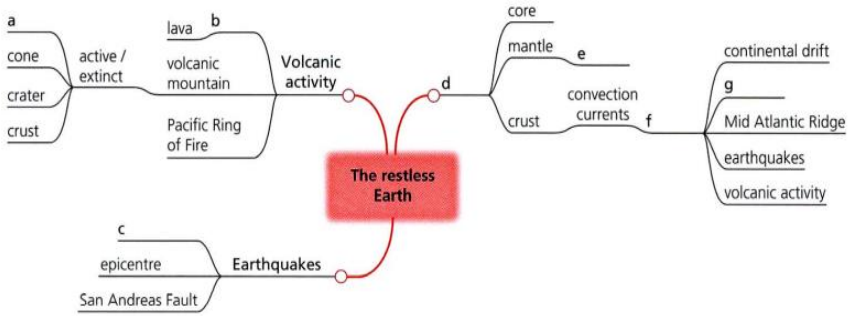
UNIT 3. THE EARTH AND ITS STRUCTURE

Ex. 3.1. Write these words in the correct place on the word map [4]:

folding, magma, vent, structure, plates, semi-molten, focus



Ex. 3.2. Video 3 "Plate tectonics" (https://disk.yandex.ru/i/jv5DThDaAlKKqA**) 7:08.**
Complete the sentences:

1. In the early 20th century a scientist named Alfred Wegener called this supercontinent _____.
2. He thought different chunks of it broke off and slowly _____.
3. Over millions of years they formed the continents we know today.
4. He couldn't explain why _____ split up or how, but there was some evidence to support his idea.
5. _____ from similar plants and animals had been found oceans apart, the age and type of rock _____ matched up too.

6. Wegener's theory of _____ provided an explanation but his ideas weren't taken seriously until long after he died.
7. In the 1950s scientists began mapping _____.
8. It's a mountain _____ running 10,000 miles along the ocean floor.
9. Tests revealed that the farther you got from the ridge, the older the seafloor was.
10. So a geologist named Harry Hess proposed a revolutionary idea: new _____ was forming at the ridge and spreading outward to make room for more.
11. In other words the _____- of the planet was moving.
12. Hess called this process _____.
13. It seemed to indicate that rock was being forced up from inside the planet.
14. Nowadays we can see this rock formation in action.
15. Wegener had guessed something like this, but he had no way to prove it at the time.
16. As he suspected there's a lot going on beneath the earth's _____.
17. Up here everything seems pretty cool and stable, but miles below our feet it's a raging inferno.
18. The deeper you go the hotter it gets.
19. Earth's center - a _____ - is as scorching as the surface of the Sun.
20. All that energy wants to escape like steam inside a boiling kettle it pushes outward putting immense pressure on the middle section, the _____.
21. Standing in its way is the lithosphere - a rigid layer of _____ rock.
22. Well the lithosphere isn't like a smooth shell.
23. It's cracked into pieces, each one a different _____, size and thickness.

24. We call those pieces plates.
25.Yep, the Mid-Atlantic ridge is the border between several _____.
26. They're being dragged apart by forces from deep inside the planet.
27. You can think of it like a pot of soup.
28. The Earth's core is the burner and the mantle is the boiling soup, as the soup near the burner heats up it becomes less _____ and rises, when it gets to the top, it cools off and sinks down toward the heat.
29. In physics those are called _____.
30. A similar process is driving the mantle and it's taking the plates along for the ride.
31. That movement is called _____.
32. It's the engine driving the constant transformation of our planet's surface.
33. Plates have been bouncing off each other for eons.
34. The oceans have _____ and contracted.
35. Land masses have smashed into each other and broken apart.
36. The plates move about as fast as your fingernails grow, so we don't see the ground sliding around under our feet, but we do sometimes feel it.
37. I'm talking about _____.
38. Seismic activity is greatest along plate borders.
39. At convergent boundaries where two plates _____, at divergent boundaries where they pull apart and at transform boundaries where they _____ past each other.
40. At all three boundaries there's enormous pressure on the Earth's _____.
41. That's the topmost layer of the _____.
42. The _____ can build up for years.
43. The longer it takes to release, the bigger the earthquake.
44. Plate movement drives _____ activity too.

45. At divergent boundaries like the Mid-Atlantic ridge there's a gap in the lithosphere, so magma - _____ from the mantle - is constantly pushing up along the boundaries.
46. These are the most volcanically active places on earth.
47. Volcanoes are also common at _____, called subduction zones.
48. That's when a dense ocean plate converges with a lighter continental plate.
49. The heavier plate gets pushed below, down into the mantle.
50. Some of it _____ and the magma erupts farther inland.
51. The Ring of Fire is a massive chain of these volcanoes.
52. Dense sedimentary rock making up the Pacific seafloor is subducted, transformed into metamorphic rock, through pressure and _____ and then recycled as igneous rock through volcanic eruptions.
53. In other words plate tectonics drives the rock cycle – the constant process of transformation and _____ of the Earth's crust.
54. It also creates our most prominent geologic features: mountain _____.
55. That happens when two continental plates converge, since they're both about the same density neither once abducts.
56. Instead it's like a slow-motion car crash.
57. The plates _____ and warp.
58. The land pushes up into jagged _____.
59. The Himalayas are still growing from a plate _____, that began half a billion years ago.
60. Alfred Wegener's theory has come a long way in a hundred years.
61. He was practically laughed out of the scientific community for his ideas, but today plate tectonics is the unifying theory, that ties to go the entire field of geology.

Ex. 3.3. Complete the sentences with these words [4]:
pressure, buckle, eruption, folded, colliding, wells up, sinks, collisions, surface, crust, melts

1. The Earth's plates are frequently _____ with each other.
2. The collision of the Earth's plates leads to intense _____ along their zones of contact.
3. The pressure from plate _____ causes the rock layers of the _____ to fold.
4. When rock layers _____, this forces them upwards to create fold mountain chains.
5. When one plate is forced under another plate it _____ down into the intensely hot mantle and _____.
6. Melted rock is lighter than solid rock, so some of it will rise upwards to the _____ through the buckled and _____ rock layers.
7. The melted rock _____ to erupt violently at the surface, creating some of the most dangerous volcanoes on Earth.
8. An example of such an _____ was at Mount St Helens in the Rocky Mountains in 1980 which killed 57 people.

Ex. 3.4. <u>Oral task</u>. Imagine that you have to explain the structure of the Earth, plate tectonics, volcanic eruptions and earthquakes to a 7-year-old. Please be simple and clear, use simple comparisions.

Ex. 3.5. Put the sentences in the correct order [4]:

a. Buildings may sway and eventually collapse if the force is strong enough.
b. Earthquakes tend to happen where plates collide or slide past each other.

c. The colliding or sliding plates cause such a great compression below the surface that rocks bend and then crack suddenly.
d. The shock waves may cause the Earth's surface to tremble or "quake" for several seconds.
e. The earthquake is usually strongest at the epicenter, which is the surface area directly above the focus.
f. This is the place where cracks occur.
g. When this happens, shock waves spread out from the focus.

1	2	3	4	5	6	7

Ex. 3.6. Match the terms with their definitions [4]:
plates, continental drift, folding, earthquakes, mid ocean ridges, volcanic mountains, the Pacific Ring of Fire
1. These can occur where plates collide or slide past each other and compression and cracking of rock causes shock waves to spread from the focus. When these waves reach the surface, the ground trembles, causing great damage to life and property.
2. This phenomenon can occur where plate boundaries collide and compression causes parts of the Earth's crust to become raised and buckled into mountains.
3. These are formed where plates collide and magma reaches the surface violently through a vent. Layers of ash and lava gradually form a volcanic cone, which will have a crater at its summit.
4. These can be formed where plate boundaries separate beneath the oceans. Magma makes its way to the surface along long cracks to form raised formations. Some higher parts may protrude above the surface of the ocean in the form of volcanic islands.
5. The layers on the surface of the Earth's crust which make up our continents and the floors of our oceans.
6. This is the world's largest earthquake and volcanic zone.

7. The process by which convection currents in the mantle below the Earth's surface cause the plates to move slowly and also cause the boundaries of plates to collide with and separate from each other.

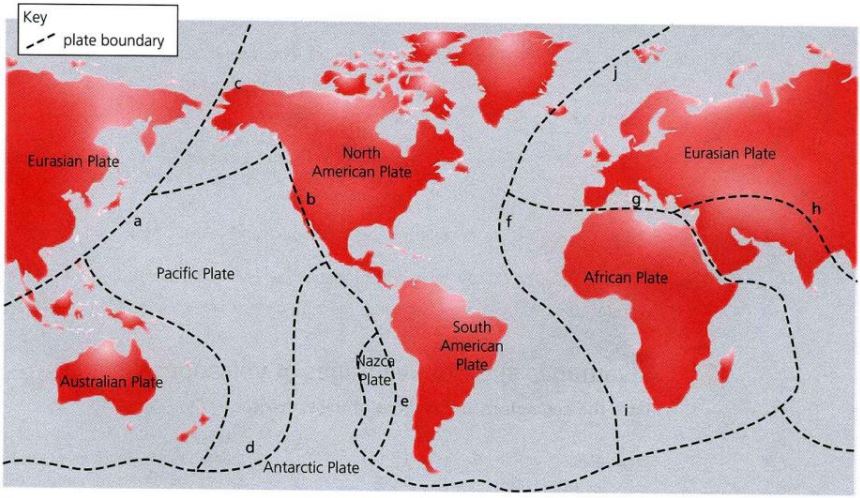
Ex. 3.7. Match the beginnings and the endings of the sentences:

Beginnings	**Endings**
1. New land is	a. created by erupting volcanoes on the sea floor. They can kill thousands of people, especially in low-lying places such as deltas, e.g. in Bangladesh.
2. Coffee beans are	b. created for farming and living space, e.g. in Iceland.
3. Hot springs called geysers, heated by magma near the Earth's surface, are	c. devastated by landslides and mud-flows when snow-capped volcanic mountains erupt.
4. Dormant and extinct volcanoes are	d. grown in the mineral rich lava soils around volcanoes, e.g. in Colombia in the Andes mountains in South America.
5. Villages and towns are often	e. used to heat glasshouses for food production in Iceland.
6. Giant tidal waves called tsunamis can be	f. visited by thousands of people each year, e.g. Mount Vesuvius near Naples in Italy.

Ex. 3.8. Read the text, look at the map after the text and write *collide, separate* or *slide* next to each letter on the map [4]:

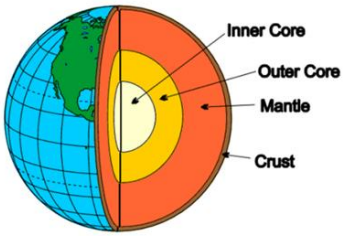
The Earth's plates are always moving. Plates collide, some separate and others slide along each other. Plates which separate from each other include the Atlantic Plate from the Pacific Plate. Another is the section of the Eurasian Plate north of India which separates from

the Australian Plate. Other plates which move away from each other are in the Atlantic Ocean where the African and the South American Plates meet, where the African and the North American Plates meet and where the Eurasian and North American Plates meet.
While all this is happening, other plates collide or slide against each other. For example, at the meeting point of the North American Plate with the Pacific Plate, the movement is in opposite directions, but the Pacific Plate moves north whereas the North American Plate moves south. Examples of colliding plates can be seen where the Pacific and the Eurasian Plates meet and where the South American Plates meet. Yet another example of plate collision is where the Eurasian and the African Plates meet.



Ex. 3.9. Sort the sentences into the correct section [4]:
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 ºC.

7. The outer part of this layer consists of solid rock, mostly basalt and granite.
8. The rock here is so hot (up to 4,000 ºC) 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.



Crust	Mantle	Core

Ex. 3.10. Fill in the correct words from the list below:
interior, major, solid, outside, familiar, iron, rock, molten, outer, core, fluid, inner, shell, includes, floats.
1. …… of the Earth has four …… layers. 2. On the …… is the crust made of …… soil and rock. 3. Under this is the mantle, which is solid …… with a …… layer at the top. 4. The inside or …… of the Earth has two sections: an outer core of thick ……, and a solid …… core. 5. Earth's outer …… is called the lithosphere. 6. It …… the crust and parts of the upper mantle. 7. The crust …… on the asthenosphere, like an iceberg on the sea. 8. The Earth probably comprises a …… core, …… liquid core, and a solid mantle of …… and magnesium silicates.

Ex. 3.11. Fill in the correct word(s) from the list below:
to take shape, formed from, reverse, swirling, scientists, cooled, gravity, suggest, asteroids, dense, southern, tiny, rotates, orbits, gravity, summer, beneath, calm, blue, spins, Sun, significant, magnetosphere, electric current, giant, poles.

About 5,000 million years ago our Solar System began ……. . The Sun and the nine planets …… a cloud of dust and gas …… in space. Some …… believe that the center of this cloud …… and contracted to form the Sun. …… pulled the planets from the rest of the cloud. Other scientists …… that the dust cloud formed …… that joined together to make the Sun and planets. Earth is a …… rocky planet, third nearest to the Sun, and ……..... compared with Jupiter and Saturn. While Earth …… on its axis each day, it also …… the Sun each year, held in orbit by the Sun's ……. . One moon revolves around the Earth. From space the earth looks …… and …… but under its oceans, deep …… the crust, the Earth's core is fiery and white-hot. As the Earth …… on its axis, it also orbits the ……. . When the northern hemisphere faces the Sun, it has its ……. . At the same time the …… hemisphere faces away from the Sun and has its winter. The equator faces towards the Sun most of the time and there are no …… seasonal changes there. The earth behaves like a …… magnet. Molten iron and nickel flow in the Earth's outer core and produce an ……. . This electricity creates a magnetic field, or ……, that extends into space. Like a magnet, the Earth has two magnetic ……. . From time to time, the magnetic poles …… polarity. The last time they changed was about 700,000 years ago. No one knows why this happens. North and south geographical poles lie at either end of the Earth's axis (the invisible line around which the Earth turns). The magnetic poles' position varies over time. It is the Earth's magnetic field that causes a compass needle to point north.

Ex. 3.12. Read the text and make 6 true/false statements. Set up 2 teams, team 1 gathers all positive impacts of the Age of Exploration, team 2 - negative:

The era known as the Age of Exploration, sometimes called the Age of Discovery, officially began in the early 15th century and lasted through the 17th century. The period is characterized as a time when Europeans began exploring the world by sea in search of new

trading routes, wealth, and knowledge. The impact of the Age of Exploration would permanently alter the world and transform geography into the modern science it is today.

Impact of the Age of Exploration

- Explorers learned more about areas such as Africa and the Americas and brought that knowledge back to Europe.
- Massive wealth accrued to European colonizers due to trade in goods, spices, and precious metals.
- Methods of navigation and mapping improved, switching from traditional portolan charts to the world's first nautical maps.
- New food, plants, and animals were exchanged between the colonies and Europe.
- Indigenous people were decimated by Europeans, from a combined impact of disease, overwork, and massacres.
- The workforce needed to support the massive plantations in the New World, led to the trade of enslaved people, which lasted for 300 years and had an enormous impact on Africa.
- The impact persists to this day, with many of the world's former colonies still considered the "developing" world, while colonizers are the First World countries, holding a majority of the world's wealth and annual income.

The Discovery of the New World

While the Portuguese were opening new sea routes along Africa, the Spanish also dreamed of finding new trade routes to the Far East. Christopher Columbus, an Italian working for the Spanish monarchy, made his first journey in 1492. Instead of reaching India, Columbus found the island of San Salvador in what is known today as the Bahamas. He also explored the island of Hispaniola, home of modern-day Haiti and the Dominican Republic.

Columbus would lead three more voyages to the Caribbean, exploring parts of Cuba and the Central American coast. The Portuguese also reached the New World when explorer Pedro Alvares Cabral explored Brazil, setting off a conflict between Spain

and Portugal over the newly claimed lands. As a result, the Treaty of Tordesillas officially divided the world in half in 1494.

Columbus' journeys opened the door for the Spanish conquest of the Americas. During the next century, men such as Hernan Cortes and Francisco Pizarro would decimate the Aztecs of Mexico, the Incas of Peru, and other indigenous peoples of the Americas. By the end of the Age of Exploration, Spain would rule from the Southwestern United States to the southernmost reaches of Chile and Argentina.

Opening the Americas

Great Britain and France also began seeking new trade routes and lands across the ocean. In 1497, John Cabot, an Italian explorer working for the English, reached what is believed to be the coast of Newfoundland. A number of French and English explorers followed, including Giovanni da Verrazano, who discovered the entrance to the Hudson River in 1524, and Henry Hudson, who mapped the island of Manhattan first in 1609.

Over the next decades, the French, Dutch, and British would all vie for dominance. England established the first permanent colony in North America at Jamestown, Va., in 1607. Samuel du Champlain founded Quebec City in 1608, and Holland established a trading outpost in present-day New York City in 1624.

Other important voyages of exploration during this era included Ferdinand Magellan's attempted circumnavigation of the globe, the search for a trade route to Asia through the Northwest Passage, and Captain James Cook's voyages that allowed him to map various areas and travel as far as Alaska [5].

Ex. 3.13. Match the achievements of famous geographers and explorers to their names:

Eratosthenes	explorer, ethnologist, anthropologist and biologist, who studied indigenous people of New Guinea
Al Idrisi	discovered a new continent

Alexander von Humboldt	discovered the Strait, separating mainland South America to the north and Tierra del Fuego to the south
Ptolemy	demonstrated to Europeans that the New World was not Asia but a previously unknown fourth continent
Wegener	His main work is his Geographia. Devised and provided instructions on how to create maps
Semion Chelyuskin	wrote the Kosmos, a multi-volume work that covered the aspects of geography and natural science
Pyotr Semyonov-Tyan-Shansky	created the theory of continental drift
David Livingstone	created one of the earliest maps; came up with the word “geography”
Amerigo Vespucci	pioneering exploration of certain mountains
Christopher Columbus	discovered the northern extremity of Asia
Ferdinand Magellan	wrote an extremely detailed account of all of the geographical features, ethnic groups, socioeconomic factors, and other features of every area he drew on his maps
Nicholas Miklouho-Maclay	an explorer in Africa

Ex. 3.14. Report. Choose one famous geographer or explorer and make a report on him.

Ex. 3.15. Video 4. Song "Iron Maiden - Run To The Hills", 1982 (https://disk.yandex.ru/i/KkWYsS_2nknPOw):

First, put these verbs into Past Simple:

come, bring, kill, take, fight, give

Provide these verbs with -ing ending:

rape, chase, ride, enslave, take, waste

Now complete the text of the song:

White man _____across the sea
He _____ us pain and misery
He _____ our tribes, he killed our **creed**
He _____ our **game** for his own need
We _____ him hard, we _____ him well
Out on the plains we _____ him hell
But many _____, too much for Cree
Oh, will we ever be set free?

_____ through dust clouds and barren wastes
Galloping hard on the plains
_____ the **redskins** back to their holes
Fighting them at their own game
Murder for freedom the **stab** in the back
Women and children, a **coward's** attack
Run to the hills
Run for your lives
Run to the hills
Run for your lives

Soldier blue in the barren wastes
Hunting and killing's a game
_____ the women and _____- the men
The only good Indians are **tame**
Selling them whiskey and _____ their gold
_____ the young and destroying the old
Run to the hills

Run for your lives
Run to the hills
Run for your lives
Yeah

Which part of the song is said by whom?

Ex. 3.16. Match the following words from the song to their definitions:

a. Creed	Sexual assault
b. Game	People with no courage
c. Tame	Wild animals hunted for food
d. Redskins	Making someone to a slave
e. Stab	North American Indians
f. Cowards	A system of religious belief
g. Raping	Lifeless
h. Enslaving	Thrust a knife into someone

UNIT 4. COUNTRIES AND NATIONALITIES

Article rule

Referring to geographical names or areas, we tend to use **the definite article** with:

• seas (the Atlantic, the Pacific, the North Sea)
• mountain ranges (the Alps, the Andes)
• island groups (the British Isles, the West Indies)
• areas (the Midlands, the Lake District, the Middle East)
• rivers (the Danube, the Blue Nile, the Thames)
• deserts (the Gobi, the Sahara)
• hotels and pubs (the Red Lion, the Grand Palace)
• cinemas and theatres (the Playhouse, the Majestic)

We generally use **no articles** with:

• continents (Africa, South America, South East Asia)
• counties and countries (Oklahoma, Bulgaria, Nigeria)
• towns and principal buildings (Ely Cathedral, Oxford University)
• lakes (Lake Como, Lake Windermere, Derwent Water)
• mountains and volcanoes (Everest, Etna, Vesuvius)

Of course, there are always exceptions: **the** UK, **the** USA, **the** UAE, **the** Netherlands, **the** Hague. It is just a matter of learning them!

Exception: the earth (as surface of the planet) / the Earth (as a unique planet) **BUT:** Earth as one of the planets no article, because planets are used with no article, e.g. Venus, Saturn.

Ex. 4.1. Video 5 "Articles in geographical names" (https://disk.yandex.ru/i/7luyXaSBXdQY0g**) 13:21.**

Ex. 4.2. Some of the following sentences are correct but some of them need definite article "the" maybe more than once. There are also some factual mistakes:

Danube flows into the Caspian Sea - The Danube doesn't flow into Caspian Sea. It flows into the Black Sea.

1. Europe is much larger than Africa.
2. The highest mountain in Slovakia is Salkowski Peak.
3. South of Iceland is warmer than north.
4. United Kingdom consists of Scotland and Wales.
5. We are going skiing to Rockies.
6. I have visited United States and Canada.
7. Hungary is in northern Europe.
8. Gdansk is in north of Italy.
10. Toronto is on Lake Superior.
11. Canary Islands are a group of islands in Pacific Ocean.

Ex. 4.3. Answer:

1. What is a continent and how many are there? 2. What are the five countries with the highest population? 3. How many languages are there in the world? 4. Where do people speak Inuit? 5. What are the five most widely spoken languages?

Ex. 4.4. On Which Continent Will You Find...

On which continent are the Caribbean islands?
On which continent is Greenland?
On which continent is the South Pole?
On which continent is the North Pole?
On which continent is the Prime Meridian?
On which continent is the International Date Line?
On which continent is the equator?
On which continent is the deepest point on land?

Ex. 4.5. Put "the" where necessary:

1. _____Moscow is _____ capital of Russia.
2. The official language of _____ Netherlands is Dutch.
3. _____ Amazon is the second longest river in the world.
4. _____ United Kingdom of _____ Great Britain and _____ Northern Ireland occupies _____ British Islands.
5. _____ Cyprus used to be a British colony until 1960.
6. There are 30 bridges over _____ Thames in London.
7. The South Pole is situated in _____ Antarctica.
8. _____ Kangaroos don't live in _____ South America, do they?
9. What was the weather like in _____ South Pole?

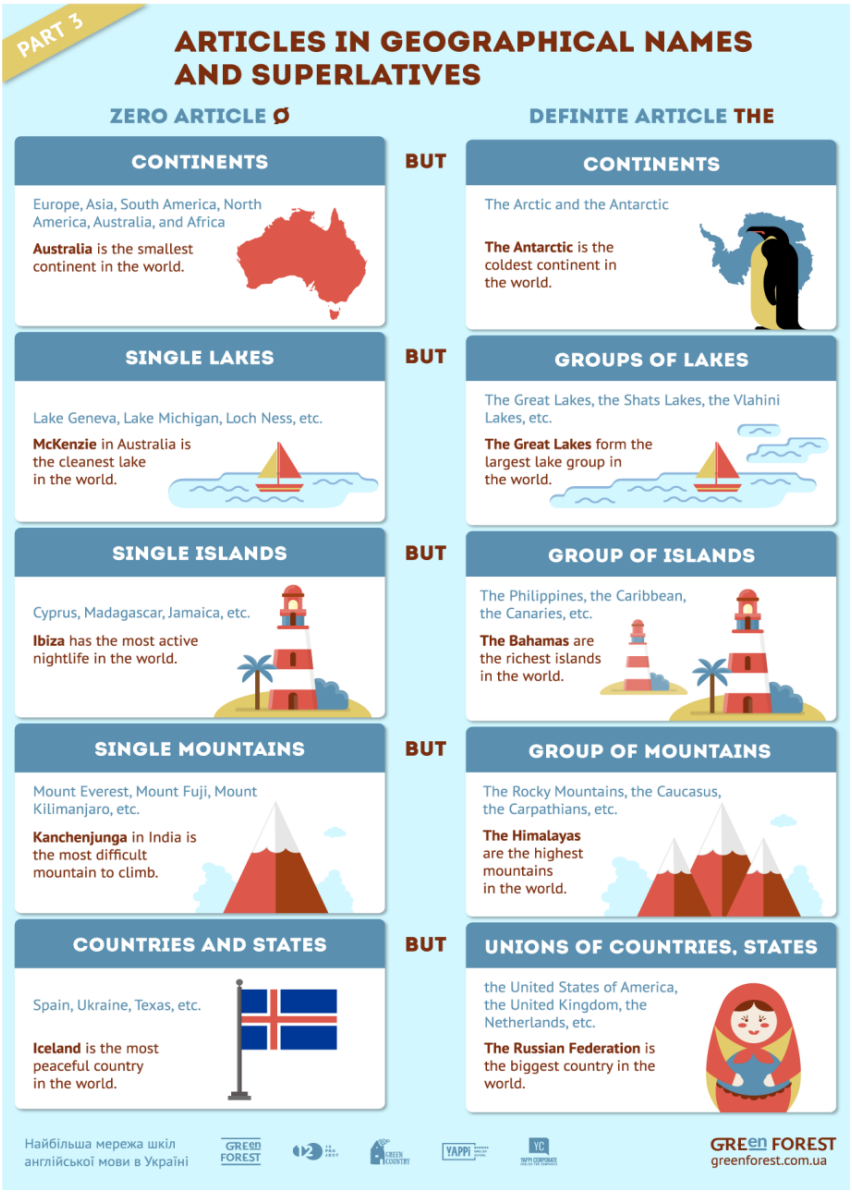
Ex. 4.6. Guess the European country:

1. Name one major product.
2. Name two neighboring countries.
3. Describe the national flag.
4. What is the national animal?
5. How big it is?
6. What is the population?
7. What is the highest point?
8. What is the GDP per person?
9. What is the main industry?

<u>Additional questions:</u>

10. What are citizens called?
11. What is the capital?
12. What language is spoken?

For remembering the rule better:



THE ARTICLE "THE" IN GEOGRAPHICAL NAMES

DIRECTION REGIONS

The North, the South, the East, and the West

UNIONS OF COUNTRIES, STATES

The United States of America, the United Kingdom, etc.

GROUPS OF ISLANDS

The Philippines, the Caribbean, the Canaries, etc.

SEAS

The Mediterranean, the Black, the Red, the Nile, etc.

GULFS

The Gulf Steam, the Persian Gulf, the Finland Gulf, etc.

GROUPS OF LAKES

The Great lakes, the Shats Lakes, the Vlahini Lakes, etc.

RIVERS

The Danube, the Dnipro, the Amazon, etc.

CANALS & CHANNELS

The English channel, the Panama canal, the Suez canal, etc.

POLES

The North Pole and the South Pole

REPUBLICS

The Czech Republic, the Republic of Cuba, the Congo, etc.

POLAR REGIONS

The Arctic and the Antarctic, etc.

GROUPS OF MOUNTAINS

The Rocky Mountains, the Caucasus, the Carparpathians, etc.

OCEANS

The Pacific, the Indian, the Atlantic and the Arctic, etc.

REGIONS OF COUNTRIES

"The American Midwest, the Mekong Delta, etc.

DESERT

The Sahara, the Gobi, the Kara Kum, etc.

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Ex. 4.7. Here are some geographical questions. Choose the right answer from one of the boxes and write "the" where necessary:

Continents	Countries	Oceans and seas	Mountains	Rivers and canals
Africa	Canada	Atlantic	Alps	Amazon
Asia	Denmark	Indian Ocean	Andes	Danube
Australia	Indonesia	Pacific	Himalayas	Nile
Europe	Sweden	Black Sea	Rockies	Suez Canal
North America	Thailand	Mediterranean	Urals	Panama Canal
South America	United States	Red Sea		Rhine Thames Volga

1. What do you have to cross to travel from Europe to America?
2. Where is Argentina?
3. Which is the longest river in Africa?
4. Of which country is Stockholm the capital?
5. Of which country is Washington the capital?
6. What is the name of the mountain range in the west of North America?
7. What is the name of the sea between Africa and Europe?
8. Which is the smallest continent in the world?
9. What is the name of the ocean between America and Asia?
10. What is the name of the ocean between Africa and Australia?
11. Which river flows through London?
12. Which river flows through Vienna, Budapest and Belgrade?
13. Of which country is Bangkok the capital?
14. What joins the Atlantic and Pacific Oceans?
15. Which is the longest river in South America?

Ex. 4.8. Look at this short article about Iceland. Fill in the definite article where necessary:

Iceland. An island republic in North Atlantic. Landscape consists largely of barren plains and mountains, with large ice field particularly in south west. Island has active volcanoes and is known for its thermal springs and geysers. With less than 1% of land suitable for growing crops, nation's economy is based on fishing, and fish products account for 80% of the exports. Area: 103, 000 square km. Population: 227, 000. Capital: Reykjavik.

Ex. 4.9. Video 6 "Comparison of Iceland and Greenland" (https://disk.yandex.ru/i/jWl-5UlIe7-TLw**) 7:55. Fill in the gaps:**

Iceland and Greenland Both are countries….um, well, Greenland is not exactly its own country. It's part of the Kingdom of _____, considered a self-governing constituent country. So it's almost a country? Kind of a country? Well, most of the people who live there are not _____. They are _____. Iceland is a country. Both are way north. In fact, north of _____ degrees north of the Earth's equator. So in the winter they have little sunlight, but in the summer the sun doesn't seem to ever go down. The _____, or more accurately the Norsemen, were the first European settlers of both Iceland and Greenland, reaching the two places hundreds of years before _____ sailed west. However, Greenland was first settled by various Inuit _____ thousands of years before European arrival. The Norseman were the first _____ of Iceland, arriving around the year 870. So Iceland is one of the most recent _____ ever settled by humans. Islands? Yeah, both Iceland and Greenland are _____. Greenland is the largest island in the world. Both have hardly any people. Iceland has a _____ of around 350,000, while Greenland has a population of around 57,000, despite being about 21 times bigger than Iceland. There are more people in the city of Omaha, Nebraska, than both Iceland and

Greenland COMBINED. Both have hardly any native _____ of plants and animals. There are absolutely no native _____ or amphibians on the two islands. Get this, Greenland has _____, that can be pretty relentless in the summer especially since it's been getting warmer there, but Iceland? Nope. Iceland apparently has no mosquitoes. Most residents of both are concentrated in one single city. More than half of Icelanders live in or around Reykjavík, Iceland's largest city, and about a third of Greenlanders live in Nuuk, Greenland's largest city. The biggest _____ in both countries is Christianity, specifically having ties with Lutheranism. The _____ of Denmark dominates in Greenland, and the Church of Iceland dominates in, um, you know, Iceland. But really, Iceland is much less religious than Greenland. It's a very secular country, and church attendance tends to be low there. Both are more politically and culturally aligned with Europe than North America, despite the fact that Greenland is part of North America. Both have a _____ system of government. As I mentioned earlier, Greenland is technically still part of the Kingdom of Denmark, but it _____ itself. Denmark only still controls Greenland's _____ and _____. Both have economies that revolve _____ and fish processing and the _____. Greenland, however, is heavily dependent on Denmark in terms of investment dollars. _____ is much bigger in Iceland than Greenland. Both are members of _____. Both are not members of the _____. Well, Denmark is so Greenland is closely linked to it. Both Iceland and Greenland have universal _____. Based solely on the names of the two, it may seem that Iceland and Greenland are two very different places, and yep, they mostly are, but they also have many, many differences.

What other differences between Iceland and Greenland are mentioned?

Ex. 4.10. Try to solve the crossword first on your own, then discuss the answers with owners of other clues:

A clues Across

2. This Mediterranean country has lots of islands.
4. This country is in East Asia.
6. This country is famous for cheese and wine.
7. This country is very-very big.
10. This country is in South America.
12. This country has a famous volcano called Mount Vesuvius.

Down 1. This country is famous for bacon and butter.
3. The language of this country is Arabic (two words).
5. This big country is partly in Europe and partly in Asia.
8. This country is famous for jazz, hot dogs and jeans (two words).
9. This country is in the middle of Europe.
11. This country is a very big island.

B clues Across

2. This country had the first Olympic Games.
4. This country has four main islands.
6. There is a tunnel under the sea between this country and England.
7. This country has very cold winters.
10. This country has a famous carnival.
12. This European country is long and narrow.

Down 1. The capital city of this country begins with the letter C.
3. This country is in the Middle East (two words).
5. This country borders on the Black Sea.
8. The language of this country is English (two words).
9. This country is famous for chocolate and watches.
11. People speak English in this country.

C clues Across

2. The capital city of this country begins with the letter A.
4. This country has a famous mountain called Mount Fuji.
6. This is one of the largest countries in Europe.
7. Some famous composers were born in this country.
10. The language of this country is Portuguese.

12. This country is famous for art and music.

Down 1. This country is in the north of Europe.

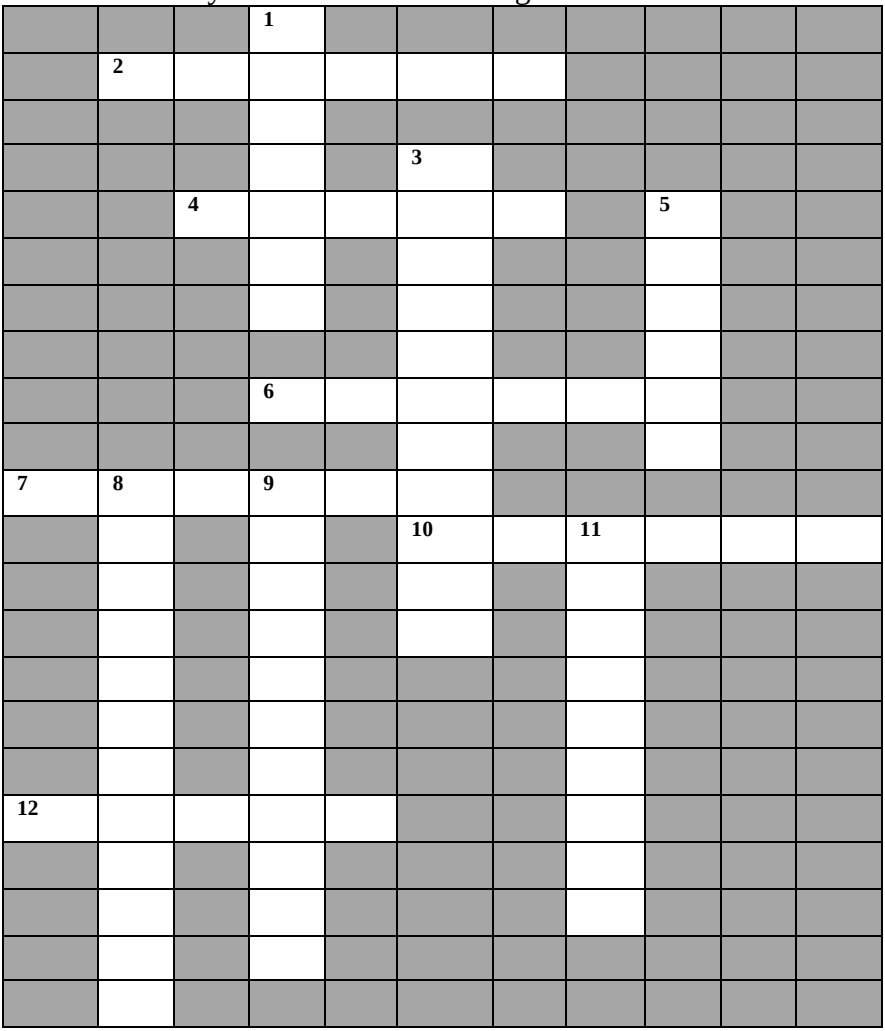
3. This country produces a lot of oil (two words).

5. The capital city of this country begins with the letter A.

8. This country has many different states (two words).

9. There are many high mountains in this country.

11. This country is the home of the kangaroo.



Ex. 4.11. Read the following article and fill in the missing geographical names:

Mediterranean, Caucasus, Oceania, British Isles, Asia, Greenland, Eurasian, Syria

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.....(1) but this name does not imply that scientists consider them the remains of a continent. Political considerations have often overridden geographical facts when it came to naming continents. Geographically, Europe, including the.....(2), is a large western peninsula of the continent of Asia; and many geographers, when referring to Europe and Asia, speak of the.....(3) continent. But traditionally, Europe is counted as a separate continent, with the Ural and the .....(4) mountains forming the line of demarcation between Europe and Asia. To the south of Europe, Asia has an odd-shaped peninsula jutting westward, which has a large number of political subdivisions. The northern section is taken up by Turkey; to the south of Turkey there are.....(5), Iraq, Israel, Jordan, Saudi Arabia, and a number of smaller Arab countries. All these are part of.....(6). Traditionally, the island of Cyprus in the.....(7) is also considered to be part of Asia. The Caribbean islands, Central America, and.....(8) are considered part of North America.

Ex. 4.12. Work in groups and do the following quiz:

1. Which city is sometimes referred to as the “Queen of the Adriatic”?
2. Which country is called the “Land of the Midnight Sun”?
3. In which city in Italy is the Leaning Tower located?
4. Which is the highest mountain peak in Europe?
5. How high is the Eiffel Tower in Paris?

6. In which city can you take a ride in a gondola?
7. The Caucasus Mountains lie between the _____ Sea and the _____ Sea.
8. Which is the water body that separates the British Isles from the mainland?
9. Which is the water body that separates Europe from Asia?

Ex. 4.13. Do the quiz in groups:

1. Name four countries or colonies where Portuguese is the major official language.
2. For each of the six inhabited continents, name one country where English is a major language.
3. Name four countries where Islam is a major religion.
4. Name four countries that have large deserts.

BONUS: Make them four countries on four different continents.

5. Assume that it is now 3:00 P.M. in Washington, D.C. (and New York, Miami, Boston, Atlanta, etc.). Name five cities where it is not 3:00 P.M., and give the time in each. Only one of the cities you name may be in the U.S.
6. Name four countries where there are rain forests.
7. Name four countries with high birth rates, high death rates, and low life expectancy.
8. Name four countries with low birth rates, low death rates, and high life expectancy.
9. Name four countries which are major manufacturers of automobiles.
10. Name four countries which are major producers of petroleum.

BONUS: Make them four countries on four different continents.

Ex. 4.14. Choose the correct answer:

1) Which mountains are higher?
a) the Andes
b) the Rockies

2) Which country has a longer coastline?	a) Russia b) Denmark
3) What is further?	a) London to New York b) London to Moscow
4) Which city has bigger population?	a) Seoul b) San Paulo
5) Which elephant weighs more?	a) the Indian elephant b) the African elephant
6) Where are there more countries?	a) in Africa b) in South America
7) What city has more polluted atmosphere?	a) New York b) Beijing
8) Which country has a smaller population?	a) Australia b) Japan
9) Which pyramids are older?	a) the Egyptian Pyramids b) the Maya Pyramids
10) Where is colder?	a) in the Antarctic b) in the Arctic

Ex. 4.15. Write the nationality for each country:

Country	**Nationality**	**Country**	**Nationality**
Australia		Turkey	
Egypt		Switzerland	
Japan		China	
Holland		Ireland	
Britain		Spain	
Israel		France	
The United States		India	
Poland		Portugal	
Italy		Vietnam	
Thailand		Burma	

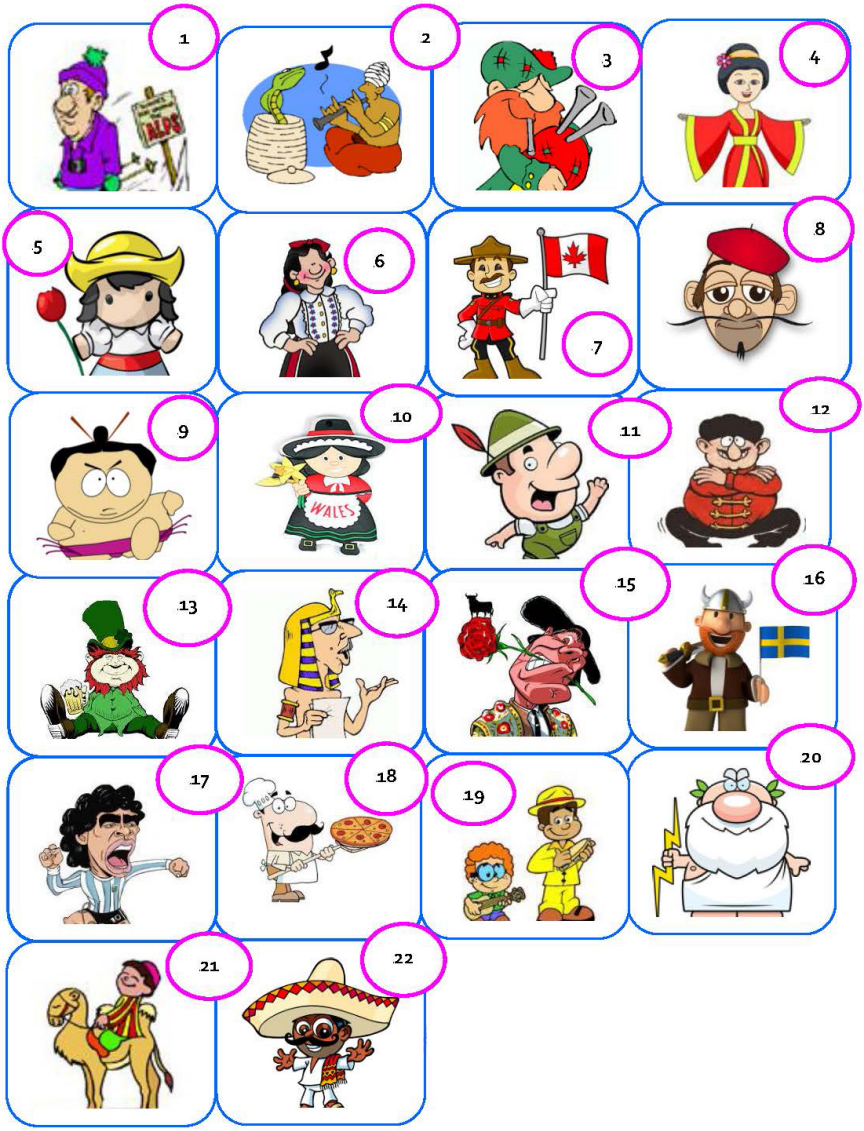
Categorize the nationalities according to their syffixes:

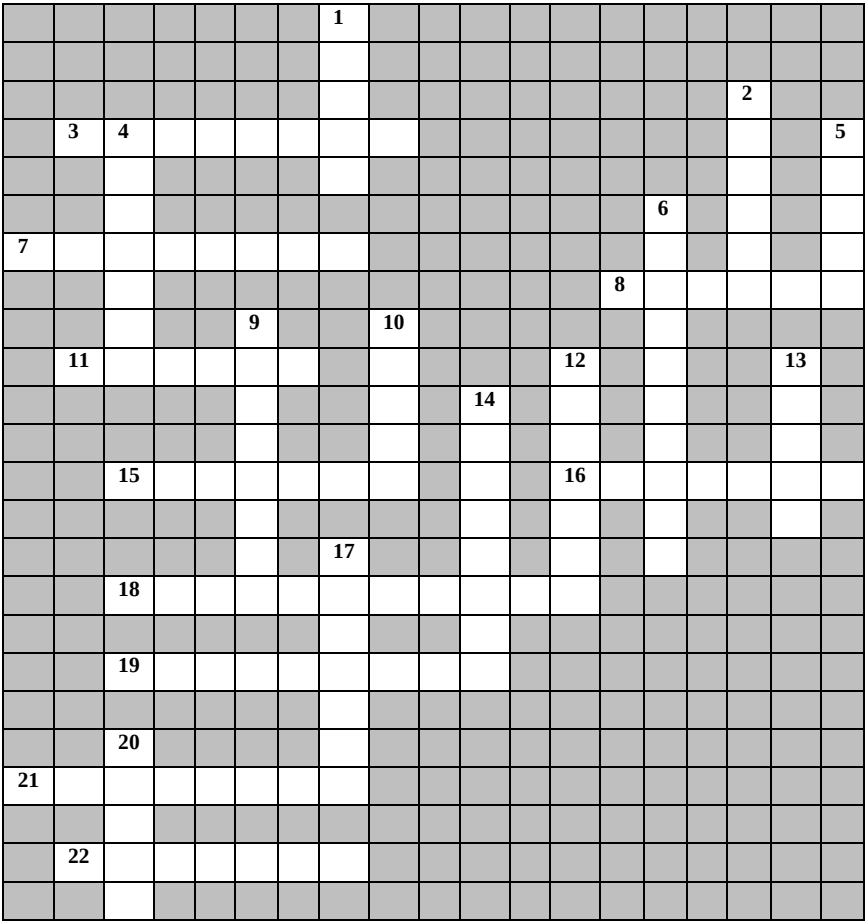
-n, -an, -ian	**-ese**	**-ish**	**Other**

Ex. 4.16. Put "the" where necessary:

1. Last year we visited ____ Canada.
2. __ Africa is much larger than __ Europe.
3. Do you know what _Hague is?
4. We saw ___ Silicon Valley.
5. He worked in ____ Middle East.
6. We will ski in _____ Swiss Alps.
7. ___ Malta is a republic.
8. _____ Nile is a long river.
9. We study the history of _____ United Kingdom
10. Have you ever been to ____ Vatican?
11. We live in _____ Russian Federation.
12. We swam in _____ Black Sea.
13. It is in _____ South of England.

Ex. 4.17. Crossword “Nationalities” [11]:





Ex. 4.18. Now it is your turn. Make a crossword on nationalities out of at least 12 words.

Ex. 4.19. Video 7 "Names of European countries" (https://disk.yandex.ru/i/AZ_wE0UgHuisEw**) 5:55.**

Ex. 4.20. Read the following verbs and form sentences using these to describe one country:
border, flow, separate, occupy, form, locate, stem, divide, interrupt, run, situate

Ex. 4.21. Match countries and their capitals:

Libya	Nuakchott
Syria	Moroni
UAE	Tripoli
Oman	Doha
Djibouti	Manama
Morocco	Khartoum
Yemen	Sana'a
Somalia	Damascus
Egypt	Amman
Sudan	Rabat
Palestine	Cairo
Iraq	Algiers
Jordan	Djibouti
Tunisia	Beirut
Saudi Arabia	Abu Dhabi
Quatar	Tunis
Lebanon	Riyad
Mauratnia	Jerusalem
Kuwait	Mascat
Bahrain	Mogadishu
Algeria	Baghdad
Comoros	Kuwait city

Ex. 4.22. Match the national dish to the country [12]:

Ex. 4.23. Complete the names of countries, capital cities, languages and nationalities:

1. Great Britain is the largest _____ in Europe. It consists of three countries: England, Scotland and Wales. These three countries and the Nothern Ireland are also known as the_____ .
2. _____ is the biggest country in Great Britain. _____ is its capital city and the nationality and language of the people is _____ .
3. Duncan is _____. He is from _____. Capital city of Scotland is _____.
4. Wales is also part of Great Britain. People of _____ are called _____. Capital city of Wales is _____.
5. Paddy and Murphy are probably two of the most famous _____ names. People of Ireland speak _____. Capital city of Ireland is _____.
6. Anders and Andree are from Sweden. They are _____. _____ is the capital city of Sweden.
7. Camilla is from _____. She is _____. She lives in the capital city of Holland which is _____.
8. Nigar comes from _____. She is _____. Capital city of Azerbaijan is _____.
9. Amira comes from _____. She is _____. Amira speaks _____. Capital city of Algeria is _____.
10. _____ is in the South of the USA. Abelena is _____. She speaks _____. Capital city of Mexico is _____.
11. Azzan comes from Israel. Capital city of Israel is _____. Israel has 2 official languages: _____ and _____.

Ex. 4.24. Read the text and answer the questions after the text [2]:

THE PUZZLE OF GEOGRAPHIC NAMES

One of the most puzzling problems in cartography is the selection of the correct spelling of place names. This problem involves language, changes in government, and changes in national policy. In general, cartographers print names in their own language, even though the inhabitants of the region call the place by a different name. For example, on an American-made map of Europe you will probably see a label for the Danube River. The same river would be labeled Donau on a German map, Duna on a Hungarian map, and Duna-rea on a Romanian map. On the same American-made map you would see labels for Finland and Hungary, even though the people of these nations call their countries Suomi and Magyarorszag.

Another language problem involves repetition. For example, rio means "river", sierra means "mountain", and Sahara means "great desert". Therefore, labels such as Rio Grande River, Sierra Nevada Mountains, and Sahara Desert are repetitious. They actually mean "River Grande River", "Mountain Nevada Mountains", and "Desert Desert". Maps of China create special problems for American cartographers. Until recently maps used a system of transcribing the Chinese alphabet into English. In 1979, however, the Chinese government adopted a new system of transcription that more accurately reflects the sounds of the Chinese words for places.

Cartographers also must deal with name changes. In recent years many nations have taken on new names. After World War II, for example, Germany was divided into the Federal Republic of Germany (West Germany) and the German Democratic Republic (East Germany). As European colonies throughout the world gained their independence, many changed their names. In Africa the former Belgian Congo became Zaire, the former British colony of Southern Rhodesia became Zimbabwe, and the former French colony of Dahomey became Benin. In the Pacific the New Hebrides became

the Republic of Vanuatu and the islands of Yap, Kusaie, Truk, and Ponape became the Federated States of Micronesia. Even internal political changes in a nation can bring about important place-name changes. In the Soviet Union, for example, the nation's second largest city, Leningrad, had three names since 1915. Before 1914 the city was called St Petersburg. It was named for Saint Peter, the keeper of the heaven keys. After Russia went to war with Germany in 1914 the name was changed to Petrograd. This name change took place in order to drop the German ending (burg) in the original name. In 1924, the Communist government changed the city's name again to honor the founder of the Soviet Communist party, Vladimir Lenin.

Governments around the world have established agencies to help cartographers choose the correct place names and spellings on maps. In the United States this agency is the United States Board on Geographic Names. In Britain it is the British Permanent Committee on Geographical Names. Argentina, Brazil, Canada, and most European countries have similar agencies.

1. What problems arise in connection with the selection of place names?
2. Why geographic names may change over time?
3. Could you give some examples?
4. How do some nations protect place names?
5. Is it necessary in your opinion?
6. Does Russia have a similar agency?
7. What do you know about its activity?

Ex. 4.25. In groups list 10 funny and strange place names you know. Don't forget to choose the strangest place name, your whole group should agree on it.

Ex. 4.26. Video 8. List the 25 funniest and strangest place names (https://disk.yandex.ru/i/05cuv5CyYhzt1A**) 9:01. Please try to explain how did the name appear:**

Ex. 4.27. Quiz on countries:

1. How many countries are there in the world?
a) about 100
b) about 150
c) about 200
d) about 300

2. Which of the following countries is the largest in size?
a) Brazil
b) Canada
c) China
d) Russia

3.What is the population of the world?
a) about 2.6 billion (2,000,000,000)
b) about 4 billion
c) about 7.2 billion
d) about 10 billion

4. How many states are there in the United States of America?
a) 48
b) 49
c) 50
d) 52

5. Which language is most commonly spoken in Brazil?
a) Italian
b) Portuguese
c) Russian
d) Spanish

6. Which country's flag has a picture of a tree on it?
a) Canada
b) Greece
c) Lebanon
d) Ireland

7. About how many different languages are spoken in the world?
a) 600
b) 1,000
c) 6,000

d) 15,000
8. In which country is the United Nations located?
a) Germany
b) the United Kingdom
c) Japan
d) the United States
9. When did Christopher Columbus first visit the Americas?
a) 1136
b) 1492
c) 1648
d) 1723
10. Which of the following countries has the smallest population?
a) Iceland
b) Singapore
c) Mexico
d) Yemen
11. Which of the following countries is smallest in size?
a) Ireland
b) Japan
c) Egypt
d) Argentina
12. Which of these countries does NOT have a coast?
a) Mongolia
b) Peru
c) Poland
d) Turkey
13. Which of the following continents is largest?
a) Africa
b) Europe
c) North America
d) Asia
14. Which of the following countries has a king?
a) Chile
b) Sweden
c) South Africa

d) the Philippines

Ex. 4.28. Divide what can be found on what continent, add the definite article, if needed:

snow; cold; Loch Ness; Great Lakes; lake Michigan; Jamaica; Cyprus; Caribbean; Bahamas; Mount Everest; Mount Kilimanjaro; Himalayas; Mount Fuji; Caucasus; Carpathians; Spain; Texas; USA; Netherlands; United Kingdom; Russian Federation; Iceland; Ireland; Pacific; Sahara; Gobi; North Pole; Congo; Gulf Stream; Danube; Amazon; Black Sea; Nile; Vistula; Dnipro; Panama canal; Mediterranean; Canaries; Volga; English Channel; Onyx River; Lake Vanda; Adélie penguin; 90% of the world's ice; iceberg B-15; Balkan Peninsula; 1150 types of mushrooms; polar bears; -89,2 °C; Transantarctic Mountains; was discovered 1820; northern deer; polar region located at the northernmost part of Earth; hare, lemming, muskox, and caribou; Arctic Ocean; China; Karakorum; Mount Saramati; Euphrates; Indus River (Sindhū); Sinai Peninsula; Indochina Peninsula; Mangyshlak Peninsula; Arabian Peninsula; Neva; Bosporus; Mariana Trench; Bermuda Triangle; Gulf of Finland; Canberra; Sydney; Adelaide; Surrounded by the Indian and Pacific oceans; used to be colony; lies between latitudes 9° and 44°S, and longitudes 112° and 154°E; Great Barrier Reef; Great Dividing Range; koala; emu; has six states.

Ex. 4.29. Articles test:

1. _ Milan is in_ north of __ Italy.

a. -, the, the b. -, -, the c. -, the, -

2. __ Africa is much larger than __ Europe.

a. the, the b. -, the c. -, -

3. Last year I visited _ Mexico and _ United States.

a. the, the b. -, - c. -, the

4._ south of _ England is warmer than _ north.

a. the,-, the b. -, -, - c. -, the, the

5. __ highest mountain in _ Africa is _ Kilimanjaro.

a. the, the, the b. the, -, - c. -, -, the

6. __ United Kingdom consists of _ Great Britain and _ Northem Ireland.

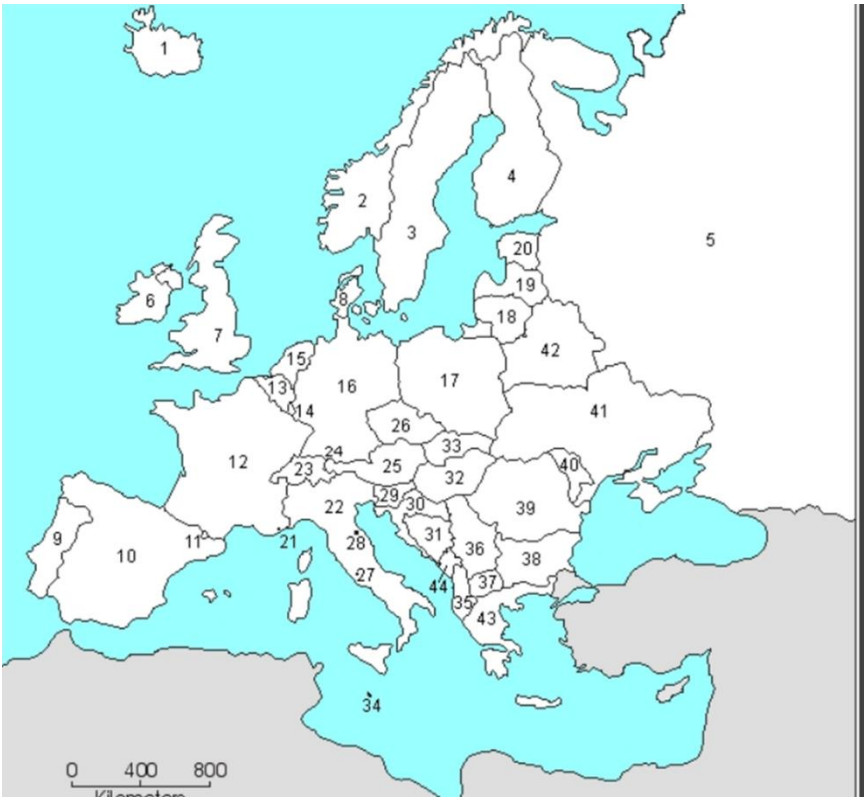
a. the, the, the b. the, -, - c. the, -, the

7. _ Ural flows into __ Caspian Sea.

a. the, - b. -, the c. the, the

Ex. 4.30. <u>Report</u>. Choose one country and prepare a report, retell about its geographic features, people, culture, food etc.

Ex. 4.31. How many European countries can you name?



UNIT 5. NATURAL DISASTERS

Ex. 5.1. Match the following expressions on the left with their definitions on the right:

Natural disaster	a fierce fire that spreads rapidly, especially in an area of wilderness
Global warming	a downhill displacement of rock, mud, or earth, often caused by rainfall or erosion
Wildfire	a shock wave traveling through the Earth from the epicenter of an earthquake
Sewage plant	liable to being affected by something
Seismic wave	an artificial embankment alongside a river, built to prevent flooding of the surrounding land
To wipe out	a place where sewage is treated to make it nontoxic
Landslide	to flow from a container, especially accidentally and usually with resulting loss or waste
Levee	the number of deaths that occur at a specific time, in a specific group, or from a specific cause
To spill	a naturally occurring opening in the surface of the Earth through which molten, gaseous, and solid material is ejected
Vulnerable	an increase in the world's temperatures, believed to be caused in part by the greenhouse effect
Mortality	a disaster caused by natural forces rather than by human action, e.g. an earthquake
Volcano	to destroy large numbers of things or kill large numbers of people, especially suddenly

Ex. 5.2. Work in pairs and answer the following questions. Report your findings to your colleagues:

1. What natural disasters do you consider the most threatening?
2. Think of the recent natural disasters in the world, choose one and try to explain their cause.
3. What areas on Earth are most prone to natural disasters?
4. Have there been any natural disasters in your country?
5. What places in the USA are most susceptible to natural disasters?

Ex. 5.3. Read the following article. While reading, add the correct forms of passive voice:

Ten risky places by Mark Monmonier

Hazards of different types affecting areas of varying size are not easily…… (compare). Even so, the research experience makes it easy to identify ten typical risky places — areas to which I would be reluctant to move.

1. Almost any place in California, for various reasons: In addition to earthquakes, wildfire, landslides, the state has volcanically active areas in the north, around Mt. Shasta and other major volcanoes, as well as in the east, where the Long Valley Caldera shows signs of renewed activity. Even beyond its infamous seismic zones, California's shoreline is vulnerable to tsunamis (seismic sea waves) from submarine earthquakes throughout the Pacific. More recent additions to this smorgasbord of hazards aresmog, freeway snipers, urban riots, oil spills, and (looking ahead a few decades) severe water shortages.

2. …… (locate) only 70 miles from Mt. Rainier and Glacier Peak, which the U.S. Geological Survey considers active volcanoes, Seattle, Washington is also vulnerable to severe earthquakes. Unlike Californians, long aware of the risk, Washingtonians have only recently begun to plan for a seismic disaster.

3. Coastal Alaska and Hawaii are especially susceptible to tsunamis, huge waves ……. (whip up) by submarine earthquakes in the Ring of Fire encircling the Pacific Ocean. Alaska's Pacific coast is seismically active, and the Hawaiian Islands can generate their own

tsunamis: deposits on Lanai suggest past run-ups as high as three thousand feet, and geophysicists fear a similar disaster were the southeast side of the Big Island (the island named Hawaii) to slide suddenly into the sea.

4. Tropical hurricanes pose a less catastrophic but more frequent danger to the Atlantic Coast, particularly to North Carolina's Outer Banks, a long, thin barrier island, from which evacuation is difficult. Since the seventeenth century, infrequent but fierce storms have carved new inlets, filled old channels, and move the shoreline westward at a rate of 3 to 5 feet per year. Moreover, if forecasts of a 250-foot rise in sea level because of global warming prove correct, current settlements on the Outer Banks could……. (wipe out) in the next century or so.

5. Inadequate building codes, shoddy construction, low elevation, and level terrain make areas south of Miami especially vulnerable to high winds and flooding from storms like Hurricane Andrew, which caused over 20 billion dollars damage there in August 1992. Adding to the region's misery is metropolitan Miami's crime rate, one of the highest in the nation.

6. The Louisiana coast is also vulnerable to multiple hazards: winds and storm surge from tropical hurricanes, unnaturally high levees along the lower Mississippi River, and air and groundwater pollution from poorly regulated chemical industries concentrated along the state's Gulf Coast. Cancer mortality is extraordinarily high here as well.

7. The floodplains of the Mississippi and other main stem rivers, which drain vast areas, are vulnerable to prolonged high water……. (cause) by persistent weather systems. The costly floods of summer 1993 demonstrated the shortsightedness of flood forecast models based on limited hydrologic data. Humans play a dangerous game of hydrologic roulette by building homes, factories, and sewage-treatment plants in low-lying areas along rivers.

8. Any floodplain, large or small, anywhere in the country. Think about it: What does the word mean, and how did the floodplain get there? Although most victims evacuate in time, a picturesque parcel

where "a river runs through it" carries the threat of sodden heirlooms and undermined foundations. In arid areas, where thunderstorms are infrequent, flash floods kill around two hundred unsuspecting campers and hikers in a typical year. Along rivers large and small, the Federal Flood Insurance program uses maps to set rates, spread the risk, and encourage local governments to plan evacuations and control land use.

9. Because warm weather is attractive to affluent retirees and housebreakers, property crime is especially high in the south, where a warm climate favors year-round burglary. And urban areas with many young males, newly arrived or unemployed are notorious for violent crime. Growing southern cities such as San Diego, Los Angeles, Phoenix, El Paso, and Miami, are thus especially hazardous, although risk varies greatly with neighborhood and time of day.

10. The neighborhoods of nuclear plants are risky areas of a different sort. Although catastrophic radiological accidents are rare and highly unlikely, the 1986 Chernobyl event had frightening consequences. More worrisome than the poor design and mismanagement underlying the 1979 Three Mile Island incident, near Harrisburg, Pennsylvania, is the specter of terrorism: a nuclear facility is an enormously attractive target for organized terrorists able to breach security with a vehicle bomb. Over four million people live within the ten-mile emergency planning zones (EPZs) around America's atomic power plants, and Chernobyl indicated clearly that radiological accidents can have a lethal reach much longer than ten miles. Equally daunting is the variation in emergency preparedness among EPZs.

Ex. 5.4. Work in groups and discuss the following questions:

1. Which of the 10 risky places do you consider the riskiest?
2. Name all types of natural disasters mentioned in the article, choose one and try to explain its origin and cause.
3. Is there anything that can be done in order to prevent natural disasters?

4. How are natural disasters related to climate change?

Ex. 5.5. Report. Retell about 10 most dangerous places in Russia. Number 1 should be the most dangerous place in your opinion. Explain why.

Ex. 5.6. Name natural disasters, using the descriptions:

1. It is a train of gigantic waves that occur after an earthquake or volcanic eruption. They can be as high as 30 meters and travel as fast as a jet plane.
2. It is like a mudslide except it is made up of snow and ice. They occur in the mountains after fresh snowfalls and can travel at 80 miles an hour.
3. It is a severe snowstorm with very high winds, extremely low temperatures, and poor or no visibility.
4. It is a spinning tube of air that touches the ground and a cloud above.
5. It occurs when there has not been enough rain so that crops and plants can grow.
6. They occur when storms cause rivers to overflow or by high tides.
7. It is a strong tropical storm with high winds and heavy rain.
8. They are caused by the movement of the earth's plates.
9. Lightning can start them but usually careless people do.
10. It is explosions that happen from openings in the earth's surface.

Ex. 5.7. The following expressions are either natural disasters or are somewhat related to them. Look at expressions and find their right definition below:

Tsunami, Volcano, Wildfire, Blizzard, Core, Crust, Drought, Earthquake, Flood, Fujita scale, Hurricane, Magnitude, Mercalli scale, Saffir-Simpson scale, Tornado

1. a series of waves created when a body of water, such as an ocean, is rapidly displaced on a massive scale.
2. is a phenomenon that results from the sudden release of stored energy in the Earth's crust that creates seismic waves.

3. is a severe winter storm condition characterized by low temperatures, strong winds, and heavy blowing snow.
4. is a 1-5 rating based on the hurricane's present intensity.
5. is used to rate the intensity of a tornado by examining the damage caused by the tornado after it has passed over a manmade structure.
6. is a scale used for measuring the intensity of earthquake.

Ex. 5.8. Video 9 "Natural disasters" 21:53 (https://disk.yandex.ru/i/Ah_fBluaE-adsw)**:**

1. What may causes of **floods** be?
2. How can floods be classified?
3. How can floods be prevented?
4. What are other names for **landslides**?
5. What are reasons of landslides?
6. What are different types of **droughts**?
7. What water saving tips are mentioned in the video? What are other ways to save water?
8. How are **hurricanes** formed?
9. Could you describe the structure of a hurricane?
10. What are the most dangerous categories of hurricanes?
11. How are hurricanes in the Pacific called?
12. Why do **earthquakes** happen?
13. What happens on boundaries of tectonic plates?
14. What instrument is used to measure earthquakes?
15. What is a **tsunami**?
16. What causes tsunamis?
17. Where are waves higher – in the deep ocean or near to coast?
18. What wave is more dangerous – the first one or successive?
19. What should you do, if you are trapped by a tsunami?
20. What is a **volcano**?
21. What is the difference between magma and lava?
22. In what unusual places are volcanoes found?
23. Where does the name "volcano" come from?
24. Where is the tallest volcano?

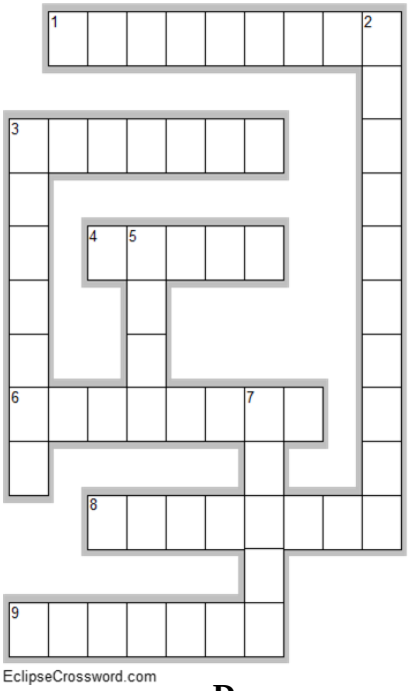
Ex. 5.9. What disasters do you see in the picture?

Now you choose one disaster and describe it without naming. Your groupmates try to guess.

Ex. 5.10. Fill in the crossword [13]:

Across

1.a very strong wind in west Atlantic
3.tidal wave
4.a large amount of water spread from a river, sea etc. that covers an area that is normally dry
6.a very bad event, causing harm or death
8.move somebody from a dangerous place
9.a long period without rain



Down

2.a sudden violent movement of the ground
3.a strong wind that blows in a circle
5.hot liquid rock
7.(of a volcano) to explode and throw out fire, lava, smoke etc.

Ex. 5.11. Use the correct forms of the words from the crossword to complete the sentences:

1. Last night volcano Maui _____ and the hot _____ poured downhill. Since there are two villages located at the foot of the volcano, the local population was _____.
2. The devastation caused by superstorm Sandy, particularly in New York and New Jersey, is tragic, but the _____ has at least put climate change back on the map.
3. After the harshest winter in decades, the Balkans region in the southeast of Europe is now facing its hottest summer and the worst _____ across the area in nearly 40 years.
4. A powerful _____ off the coast of Indonesia sparked a three-metre-high _____that killed at least 113 people.
5. A landslide caused by rains in southern China left 21 people missing today, adding to a growing death toll from China's worst _____ season in a decade.
6. This summer a dozen _____, which are more common in the US, have hit Europe. The twister which swept through Poland yesterday flattened more than 400 hectares of woodland in the area.
7. The US navy has been deployed to help avert a looming environmental _____ in the Gulf of Mexico.

Ex. 5.12. Read the text, paying special attention to numbers:

Mount St. Helens

Mount St. Helens, Washington, is the most active volcano in the Cascade Range.

The first sign of activity at Mount St. Helens in the spring of 1980 was a series of small earthquakes that began on March 16. After hundreds of additional earthquakes, steam explosions on March 27 blasted a crater through the volcano's summit ice cap. Within a week the crater had grown to about 1,300 feet in diameter and two giant crack systems crossed the entire summit area. By May 17, more than 10,000 earthquakes had shaken the volcano and the north flank had grown outward at least 450 feet to form a noticeable bulge. Such

dramatic deformation of the volcano was strong evidence that molten rock (magma) had risen high into the volcano.

Within 15 to 20 seconds of a magnitude 5.1 earthquake at 8:32 a.m., the volcano's bulge and summit slid away in a huge landslide - the largest on Earth in recorded history. The landslide depressurized the volcano's magma system, triggering powerful explosions that ripped through the sliding debris. Rocks, ash, volcanic gas, and steam were blasted upward and outward to the north. This lateral blast of hot material accelerated to at least 300 miles per hour, then slowed as the rocks and ash fell to the ground and spread away from the volcano; several people escaping the blast on its western edge were able to keep ahead of the advancing cloud by driving 65 to 100 miles an hour! The blast cloud traveled as far as 17 miles northward from the volcano and the landslide traveled about 14 miles west down the North Fork Toutle River.

The lateral blast produced a column of ash and gas (eruption column) that rose more than 15 miles into the atmosphere in only 15 minutes. Less than an hour later, a second eruption column formed as magma erupted explosively from the new crater. Then, beginning just after noon, swift avalanches of hot ash, pumice, and gas (pyroclastic flows) poured out of the crater at 50 to 80 miles per hour and spread as far as 5 miles to the north. Based on the eruption rate of these pyroclastic flows, scientists estimate that the eruption reached its peak between 3:00 and 5:00 p.m. Over the course of the day, prevailing winds blew 520 million tons of ash eastward across the United States and caused complete darkness in Spokane, Washington, 250 miles from the volcano.

During the first few minutes of this eruption, parts of the blast cloud surged over the newly formed crater rim and down the west, south, and east sides of the volcano. The hot rocks and gas quickly melted some of the snow and ice capping the volcano, creating surges of water that eroded and mixed with loose rock debris to form volcanic mudflows (lahars). Several lahars poured down the volcano into river valleys, ripping trees from their roots and destroying roads and bridges.

The largest and most destructive lahar was formed by water seeping from inside the huge landslide deposit through most of the day. This sustained flow of water eroded material from both the landslide deposit and channel of the North Fork Toutle River. The lahar increased in size as it traveled downstream, destroying bridges and homes and eventually flowing into the Cowlitz River. It reached its maximum size at about midnight in the Cowlitz River about 50 miles downstream from the volcano [7].

Use the numbers from the text, try to remember what these numbers mean:

1980, 16, 27, 1300, 17, 10000, 450, 15 to 20, 5.1, 8:32, 300, 65 to 100, 17, 14, 15, 15, 50 to 80, 5, 3:00 and 5:00, 520 million tons, 250, 50

Ex. 5.13. Test "Volcanoes and earthquakes":

1. The landforms that we call volcanoes are created by
   a. tectonic plates colliding.
   b. cracks in the Earth's crust.
   c. repeated eruptions of lava.
   d. collections of ash and other pyroclastic materials.
2. Where are volcanoes most likely to form?
   a. near the center of continents
   b. along bodies of water
   c. along plate boundaries
   d. in mountainous areas
3. The center point on the surface of an earthquake is called what?
   a. center point
   b. epicenter
   c. focus
   d. seismic waves
4. What type of boundary is the San Andreas?
   a. convergent
   b. optimus prime
   c. transform

d. divergent

5. Where is the point at which the first movement occurs during an earthquake?
   a. epicenter
   b. fault
   c. focus
   d. plate

6. Which scale measures the intensity of the ground movement?
   a. Mercalli Scale
   b. Seismogram Scale
   c. Richter Scale
   d. Bernoulli Scale

7. What is subduction?
   a. one plate collides with another
   b. one plate goes beneath another
   c. one plate destroys another
   d. one plate divides another

8. What types of waves are released from an earthquake?
   a. energy waves
   b. heat waves
   c. seismic waves
   d. sonic waves

Ex. 5.14. Report. Choose an earthquake or a volcanic eruption and prepare a report on it. If some signs of a forthcoming disaster could be noticed, mention them.

UNIT 6. LANDFORMS

Ex. 6.1. Video 10 "Landforms" 6:46 (https://disk.yandex.ru/i/3qBrm2raKCbZ9w**):**

What is geography?

What types of landscape are mentioned?

What landforms can you name?

Ex. 6.2. Read the text and answer the questions [2]:

The Earth's surface has a variety of landforms

Mountain building. As you have read, earthquakes and volcanic eruptions can change the earth's surface in a matter of seconds. However, the process of mountain building can take millions of years. Depending on how the mountains are formed, geographers classify them as fault block or folded mountains. Under pressure, the earth's crust may fold and the mountain ranges are formed. The Andes of South America, the Alps of Europe and the Himalayas of Asia are examples of folded mountains.

Sometimes sections of the earth's crust break up into blocks and mountains develop. One block, with its layers of rock, moves up or sinks down. In the eastern part of Africa faulting has been responsible for the formation of great depressions called rift valleys. Faulting helped give the Sierra Nevada Range in California its block shape.

Surface forces create distinctive landforms. As plate movements reshape the earth's continents and ocean floor, certain external processes are at work, changing surface features. These processes are weathering and erosion. They work much more slowly than earthquakes and volcanoes. In fact, like the process of mountain building, they often go unnoticed for generations. Over time, however, they can produce results as dramatic as the Grand Canyon, carved out by erosion — and it is more than 1.5 km deep.

Physical weathering breaks rocks down into smaller and smaller pieces. Chemical weathering alters the composition of rocks. When the minerals that make up limestone, for instance, dissolve in water it is called chemical weathering. Both types of weathering often occur simultaneously. Even granite, one of the hardest rocks, slowly decomposes. The chemicals present in acid rain speed the process of weathering even more.

Erosion moves weathered products from one place and deposits them in another. The major agents of erosion include running water, waves, moving ice, and wind. Running water, found almost

everywhere, probably, does more to change the earth's surface than any other agent of erosion.

Waves cause erosion and other changes along the shores of the ocean and large lakes. Along rocky coasts waves cut into the land causing parts of cliffs to drop into the water. In other spots waves wash up eroded materials to form sand beaches.

Large masses of moving ice, known as glaciers, erode the land in the colder regions of the world. As the glaciers move through mountain passes, they create distinctive U-shaped mountain valleys by eroding soil and rocks from the valley floor and walls.

Wind is a powerful agent of erosion, especially in regions that receive little rainfall. Winds carry sand, volcanic ash, and even gravel. High winds carrying such windblown materials cut even the hardest rocks into many different and often fantastic shapes.

Because of all these forces and processes, the surface of Earth has a tremendous variety of landforms or shapes of the earth's surface. Plain, plateau, hill, mountain, canyon, valley, island, ridge, and fjord are a few of the names given to these landforms. Landforms help to characterize the natural landscape of each place which is the combination of a place's physical features. Other aspects of the physical environment include climate, vegetation, and soils. Landforms have an important impact on human activity. Most landforms have both advantages and disadvantages for human use and settlement.

1. How do mountains form?
2. How does physical weathering differ from chemical weathering?
3. What are the most important agents of a) physical weathering; b) chemical weathering; and c) erosion?
4. How can erosion change the appearance of a landscape over time?
5. Why does acid rain speed the chemical weathering process?
6. Which changes — those caused by weathering or those caused by erosion — have had the greatest impact on human activity?
7. How do landforms affect human activity?

Ex. 6.3. Vocabulary:

When the land meets sea: coast, shore, beach, cliff, cape, peninsula, cove, bay, gulf

Words connected with rivers: source, tributary, waterfall, mouth, valley, gorge, delta, brook, stream, estuary

Words connected with mountains: foot, ridge, peak, summit, glacier

There are 6 adjectives below. Try to match them with nouns from above

1. sandy 2. steep 3. shallow 4. rocky 5. turbulent 6.dangerous

Ex. 6.4. Match the words with the explanations:

Relief features

Words	Explanations
1 mountain	a steep-sided landform, usually over 400 metres in height
2. hill	a steep-sided landform, usually less than 400 metres in height
3 ridge	a low area of land between hills, usually occupied by a river
4 col	a dip between two areas of high land
5 spur	the part of a river mouth which is tidal
6 valley	a cliff-like area jutting into the sea
7 estuary	a large coastal inlet
8 bay	a protruding tongue of high ground
9 headland	a long, narrow area of high land

Ex. 6.5. Supply the geographic term that correctly completes each sentence [2]:

1. The shapes on the earth's surface are called _____.

2. The _____ forms the solid outermost layer of the earth.

3. An idea for explaining something that is not proven is called a _____.

4. A _____ is characterized by a generally flat area that rises far above the surrounding land on at least one side.
5. _____ are formed as molten rock from within the earth pushes up layers of soft rock.
6. The _____ uses numbers to measure the intensity of an earthquake.
7. The slow process of breaking down rocks into smaller and smaller pieces is called _____.
8. _____ are solids deposited by water.

Ex. 6.6. Match the words from the list below with the correct line below:

ridge; lava; earthquakes; valley; plain; ash; cone; core; liquid; mantle; hill; crust; solid; molten; plateaus; gaseous; fossil; volcanic; forthcoming; volcanic eruption;

1. Features of the earth's surface:
2. Natural phenomena:
3. States of matter:
4. Adjectives used with "eruption":
5. Major layers of the earth's interior.
6. Products of volcanic eruption:

Ex. 6.7. Write the translation of the word. Then write what the word refers to with or without article:

1. Black _____ *example:* the Black forest
2. Ionian _____
3. Thames _____
4. Alps _____
5. Atlantic _____
6. Philippines _____
7. Namibia _____
8. Iceland _____
9. Antarctica _____
10. Victoria _____

Ex. 6.8. Match the words with the definitions:
1. climate 2. agriculture 3. altitude 4. industry 5. population 6. earthquake 7. valley 8. coast

a. a low area of land between two mountains or hills
b. the height of a place above sea level
c. a sudden movement of the ground caused by movements within the earth's crust
d. the weather conditions of a particular country or region
e. land along the edge of the sea
f. cultivation of soil to grow crops and rearing of animals to provide food and other products
g. the number of people living in an area
h. the production of goods and services

Ex. 6.9. Complete the sentences with the correct words:

1. Naples is in the _____ of Italy.

2. If the river breaks its banks, it will _____the city.

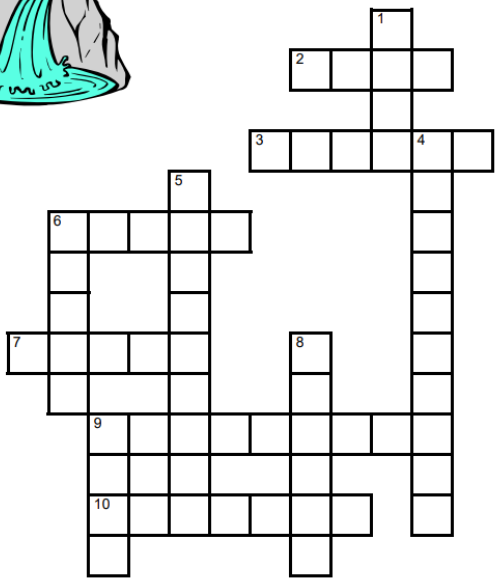
3. Coal and oil are both _____.

4. An _____ is a place in a desert where there is water and the land is fertile.

5. A _____ is a naturally raised area of land not as high as a mountain.

6. The catastrophic tsunami in 2004 was caused by a _____under the sea.

Ex. 6.10. Crossword [14]:



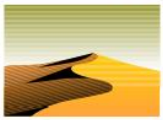
Across	Down
2 the highest point of a mountain (4)_____	**1** piece of water surrounded by land (4)_____
3 What is the Sahara? (6)_____	**4** place with lots of big trees (10)_____
6 big sea like the Pacific (5)_____	**5** water which comes running down from a high place (9) _____
7 big water which is always running (5) _____	**6** a piece of wet land in the desert (5)_____
9 where the sea meets the land (9)_____	**8** piece of land surrounded by water (6)_____
10 a mountain that spits fire (7)	**9** hole in the mountain (4) _____

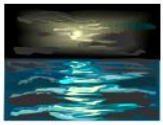
Ex. 6.11. Complete the words:

1. c _v _  (4)

3. r _ _nf _r _s _  (10)

6. l _ k _  (4)

7. d _ s _ r _  (6)

9. oc _ _n  (5)

4. c _ astl _ n_  (9)

5. v _ l _a _ o  (7)

8. p_ _k  (4)

9. o _ s _ s  (5)

10. r _v _ r  (5)

11. i _ l _n _  (6)

Ex. 6.12. Your turn: make a crossword on landforms, which should consist out of at least 7 words.

Ex. 6.13. Translation into Russian [2]:

1. The earth's surface displays an amazing variety of landforms.

2. The variety of landforms that cover the face of the earth have advantages and disadvantages for human settlement.

3. Geographers use slope, local relief, and other characteristics to classify landforms as plains, plateaus, hills, or mountains.

4. Fossils and geological evidence help scientists understand the changes the earth has undergone over the years. Scientists are also seeking answers about the earth's interior — the exact structure of the core, the mantle, and the crust.

5. Many theories have been presented about how the earth has changed over time. Francis Bacon was among the first to suggest that the continents were once joined as one huge landmass.

6. The evidence to support the theory of plate tectonics was provided by the discovery of seafloor spreading. The theory of plate tectonics states that the earth's outer shell is not one solid piece but is broken into plates that are constantly moving.

7. Earthquakes and volcanoes, which cause violent changes on the earth's surface, occur most often near major faults on the edges of the earth's plates.

8. Weathering and erosion can produce dramatic changes in the surface of the earth over time. They create distinctive landforms.

9. Movements of the earth's plates have changed its surface features.

Ex. 6.14. Match landforms to their definitions [15]:

Landform Match

Can you match the landform to its description? Add the correct number to the description.

1. Cliff	_____	A narrow valley with steep sides caused by erosion.
2. Dune	_____	A hollow space in the ground or mountain with an opening.
3. Valley	_____	A high steep slope made of rock or soil usually along an ocean or sea.
4. Floodplain	_____	One of seven of the largest bodies of land on earth.
5. Continent	_____	Very dry land, often sandy.
6. Mountain	_____	A pile of sand created by the waves or the wind.
7. Desert	_____	A flat area surround river sides that floods when the river rises.
8. Canyon	_____	An area of land that is completely surrounded by water.
9. Island	_____	High with a peak and made of rocks and soils, sometimes with snow at the tops.
10. Plain	_____	Long flat ground.
11. Cave	_____	Low land between hills and mountains.

UNIT 7. SOIL. EROSION

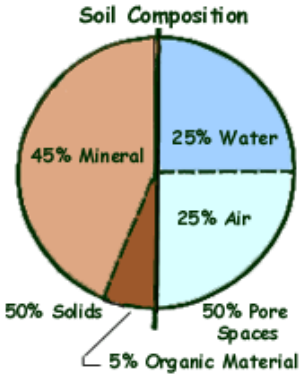
Ex. 7.1. Video 11 "What is soil" (https://disk.yandex.ru/i/A8t1Z-EDghjgww**) 10:02:**

1. What happened to the Aral Sea?
2. What were the consequences?
3. Could you explain where components of soil come from?
4. What are soil horizons? What can you name?
5. Why is soil compared to a cake?
6. How is it possible to protect soil?
7. How do soil types differ in different regions?

Ex. 7.2. Read the text [16]:

Soil Formation

Soil is a mixture of weathered rock & organic matter that usually covers **bedrock** (solid rock that underlies all soil). Both chemical & mechanical processes are involved in the development of soils.

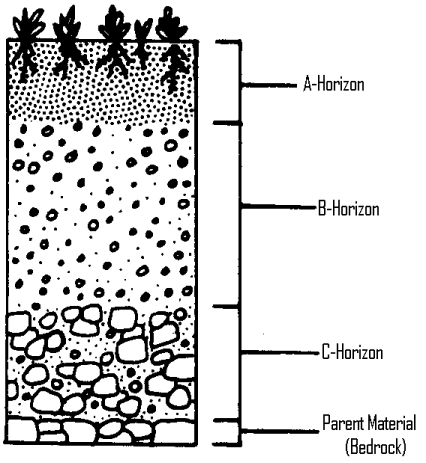


- Chemical weathering turns hard minerals into soft ones.
- Mechanical weathering breaks solid rock into smaller pieces.
- Plant & animals add organic materials in the form of waste products & dead organisms.
- The decay of organic matter produces acids which accelerate chemical weathering.
- Burrowing animals, such as earthworms, insects, & rodents, help circulate air and water through the soil & mix mineral & organic remains.

The material from which soil forms is called its **parent material.** Soil that has weathered directly from the bedrock beneath it and therefore matches its parent material is called **residual soil.**

Soil that does not match the bedrock it is over is called **transported soil.** It did not weather from the bedrock beneath it but was brought there by agents of erosion such as winds, rivers, or glaciers. Much of New England & the Midwest are covered by soil that was deposited by the movement of glaciers after the last Ice Age.

A cross section of soil exposed by digging is called the **soil profile.** The weathering of soil produces layers known as **soil horizons.** The topsoil or **A horizon** is usually rich in dark-colored organic remains called **humus.** The subsoil or **B horizon** contains minerals that have been transported deeper by groundwater. Most of the clay in soil has also been washed down to this layer. The partially weathered bedrock or **C horizon** is composed of broken up bedrock on top of the solid bedrock (parent material).



Soil erosion is the removal of topsoil by the action of running water or wind. It takes between 100 & 400 years for one centimeter of topsoil to form.

Loss of topsoil can be caused when plants root are no longer present to hold down soil. Salting roads can raise the salinity of the soil and kill the plants. Over grazing can kill plants. Winds, construction, & mining can all effect plant cover.

Ex. 7.3. Answer the following questions:

1. Which layer contains the most organic material?

1. A 2. B 3. C 4. the bedrock

2. How is soil created from rock?

1. physical weathering without chemical weathering
2. chemical weathering without physical weathering
3. erosion
4. both chemical and physical weathering

3. Approximately how many years does one centimeter of topsoil take to form?

1. 100 – 400 years
2. 10 – 40 years
3. 1000 – 4000 years
4. 10,000 – 40,000 years

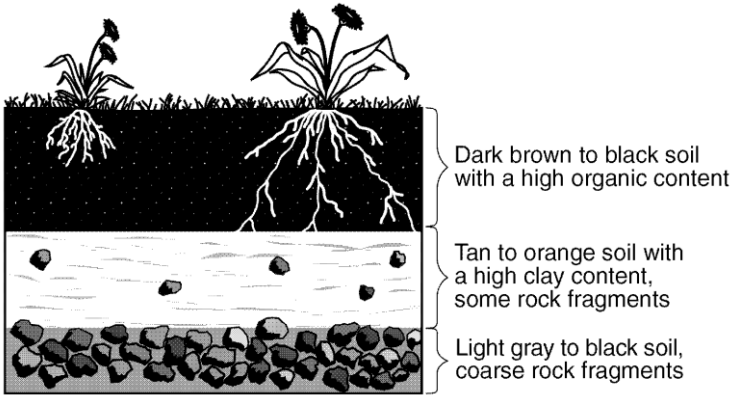
4. Which of the following is found in the greatest % in soil?

1. Mineral matter 2. Organic matter
3. Water 4. Air

5. Which layer of a soil profile forms first from the bedrock?

1. A horizon 2. B horizon
3. C horizon 4. Humus

6. The cross section below shows layers of soil



Which 2 processes produce the layer of dark brown to black soil?

1. Erosion and uplift
2. Melting and solidification of lava
3. Compaction and cementation
4. Weathering and biological activity

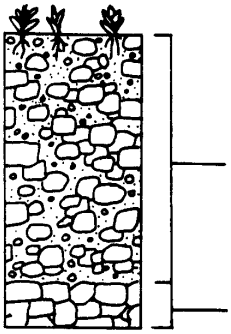
7. The mineral composition of a residual soil is most affected by the

1. Depth of the water table
2. Type of bedrock material
3. Elevation of the surface
4. Steepness of hill slopes

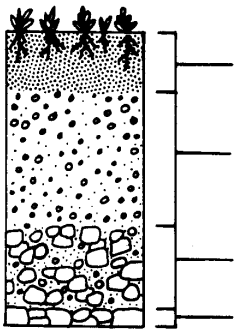
8. What factors most directly control the development of soils?

1. Earthquake intensity and volcanic activity
2. Direction of prevailing winds and storm tracks
3. Bedrock composition and climate characteristics
4. Soil particle sizes and method of deposition

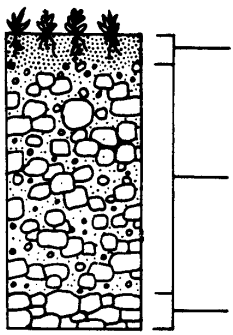
9. For the soil profiles below, label the horizons (A, B, or C) and the parent material in each of the soil profiles using the spaces provided next to each image:



Profile A



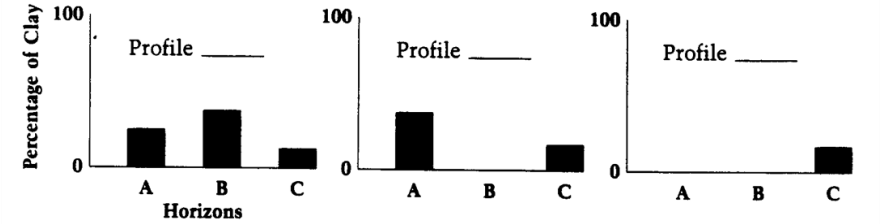
Profile B



Profile C

10. At the base of each profile above, number the profiles according to the proper sequence of development.

11. Match each soil profile above to the graph below that would most likely represent that profile. Write the letter of the matching profile in the space provided below each graph.

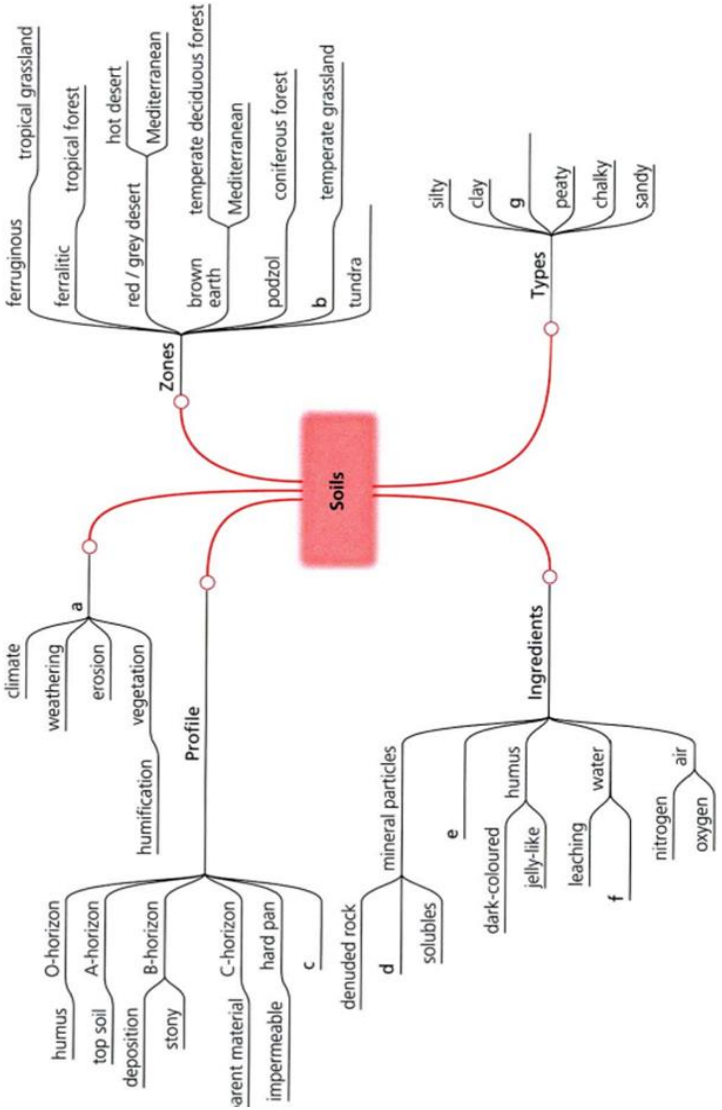


Ex. 7.4. Put the phrases in the correct order to make sentences:

Breakdown of vegetation

1. soil litter surfaces most contain plant
2. on the surface of the soil this consists of and other pieces of decaying vegetation accumulate dead leaves, grasses which
3. and some fungi as bacteria such microorganisms on the plant litter work
4. substance slowly into they called humus cause it to decay a black-coloured, jelly-like
5. of plant litter is also needed into humus oxygen to assist the breakdown
6. plays an important role so humification air in the soil in the process of
7. soil to make fertile humus helps

Ex. 7.5. Write these words in the correct place on the word map *formation, chernozem, nutrients, capillary action, loamy, microorganisms, bedrock* **[4]**



Ex. 7.6. Underline the correct words in the text:

Composition

Mineral particles make up the biggest (1 impediment / ingredient) of soil. Most minerals exist in the form of tiny particles. They are the remains of rock, which have been broken down over long periods by (2 weathering / thundering) and erosion. Some minerals are soluble. They may dissolve in water and so take on a liquid form. Numerous creatures live in the soil. Some of these are visible to the naked eye - insects and (3 earthworms / flatworms), for example. But the vast majority of creatures are too small to be seen without the aid of a microscope. These are called microorganisms. Microorganisms help to break down plant (4 litter / rubbish) to form humus. So they play a vital role in making the soil (5 fertile / fresh). When dead plants, leaves and other forms of plant litter enter the soil, they decay to form a dark-coloured, (6 cream-like / jelly-like) substance called humus. Humus nourishes plants. It also helps to hold soil particles together. As rainwater moves through the soil it dissolves soluble minerals. It then distributes these minerals to plants that can (7 absorb / release) them in liquid form through their roots. The dissolved minerals are called (8 snacks / nutrients) because they nourish the plants, Air is found in many of the spaces between soil (9 particles / chunks). The air supplies the oxygen and nitrogen that are (10 vivid / vital) to plant life and to the survival of microorganisms.

Ex. 7.7. Put the sentences in the correct order:

Water movement in soil

a. Firstly, water often dissolves minerals, humus and other plant nutrients on the upper parts of the soil.

b. Here, minerals may accumulate, gradually forming a crusty layer called a hard pan.

c. In rainy areas rainwater percolates (soaks) downwards through the soil.

d. The hard pan is usually impermeable — it does not allow water to pass through it.
e. Then, as the water seeps downwards, it washes these plant nutrients down beyond the reach of many plant roots.
f. This process is known as leaching.
g. Too much leaching is bad for the growth of vegetation because it deprives plants of many of the nutrients they need.
h. Where leaching is severe, the dissolved minerals may be washed downwards until they reach a depth at which the soil has become saturated.

1	2	3	4	5	6	7	8

Ex. 7.8. Read the texts and sort them into the correct place in the table:

Natural vegetation

1. Soil is a living and everchanging mixture of: minerals, plant remains, water and microorganisms.
2. A deep soil forms in areas of great heat and moisture such as at the equator. These soils are generally tinted a red colour due to their high iron mineral content. They are called ferruginous or laterite soils.
3. The natural vegetation of any region is determined by the climate of that region. For example, some plants will only grow in areas of high temperature and cannot withstand frost.
4. Soil is weathered rock and rock is composed of minerals. The quantity and quality of minerals in a soil is therefore influenced by the type of rock from which a soil forms.
5. The type of vegetation that will grow on a soil is often influenced by the quantity and quality of minerals in that soil.
6. The vegetation of regions varies from soil to soil. For example in lowland areas some plants need peat soils, such as rhododendron and heather. Nearby brown soils will support oak trees and grass.

7. All plants need some moisture to germinate and grow. Some plants can survive on just a little moisture, such as the cactus. Deciduous trees, on the other hand, need lots of moisture during their growing season.

Heat	Moisture	Great heat and moisture
Minerals	Vegetation	Soil type

Ex. 7.9. Read the text and make notes in the framework below [4]:

Soil conditions

Fertile soil produces rich vegetation by providing it with essential minerals

- These minerals include nitrogen for the production of leaves and potash to encourage plant roots. Once the area is sufficiently warm and there is no risk of frost, then the quality of the soil determines the various species.
- Some plants need many minerals for healthy growth. These include deciduous trees such as oak and ash. Other plants such as coniferous trees need few minerals and will grow on thin gravel or peat soils.
- Soils without lime are called acid soil. They support a limited variety of plants such as rhododendron, heather and coniferous trees. Soils with lime, however, support a much greater variety of plant life, such as most deciduous trees and rich grasses for dairying and beef rearing.
- Deep soils are found in lowland plains and river valleys.

The depth of soil affects the type and height of plants

- Some plants need deep soils for support and the supply of essential minerals. Tall deciduous trees, such as oak and ash, have deep roots and a large network of other roots nearer the surface.

- Coniferous trees will naturally grow in upland areas where soils are thin. Their roots spread outwards just under the surface. Because of this they are easily uprooted during storms.
- Deep soils produce taller plants than shallow soils. This is especially noticeable when foundations of ancient houses, no longer visible on the surface, produce lighter and shorter plants than surrounding areas. These are called crop marks and are helpful to archaeologists in search of ancient buildings.

Fertile soil produces rich vegetation by providing it with essential minerals

1. a. nitrogen helps with ……
   b. potash encourages……..
2. c. deciduous trees such (oak and ash) need ……..
   d. coniferous trees need ……
3. e. acid soil supports ……..
   f. soils with lime support……
4. g. deep soils are found in…….

The depth of soil affects the type and height of plants

5. h. deep soils are needed ……
   i. deciduous trees, such as oak and ash have…….
6. j. coniferous trees grow in ……
   k. roots spread under surface and because of this……..
7. l. deep soils produce …….
   m. invisible foundations produce……..

Ex. 7.10. Read the sentences and sort them into the correct column in the correct order:

Two types of soil

1. Additionally, the process of decay is slower in cooler areas. Brown earth soils are found in areas where deciduous forests once grew.

2. Pine cones and larch needles fell to the forest floor. Plant litter, such as leaves from these trees, decayed and formed humus on the forest floor.

3. The high percentage of humus, which helps to make soil crumbly, created well-drained soils with many minerals.
4. Their brown colour occurs because of their large humus content and little leaching.
5. Another reason is that there are fewer microorganisms because there is not enough nitrogen in the soil for them to live.
6. Lastly, there is less mineral content as needles provide few minerals when they decay.
7. As there is greater rainfall in these regions than in areas with brown earth soils, this causes some leaching.
8. These soils are found in upland areas where coniferous forests (mostly evergreen) once grew. These needles and cones formed slightly acid soil for a number of reasons.
9. Firstly, the climate is cooler and wetter in elevated areas.
10. This humus was rich in minerals.

Brown earth soils	**Podzols**

Ex. 7.11. <u>Oral task.</u> Explain why soil is so important for people and the planet in general.

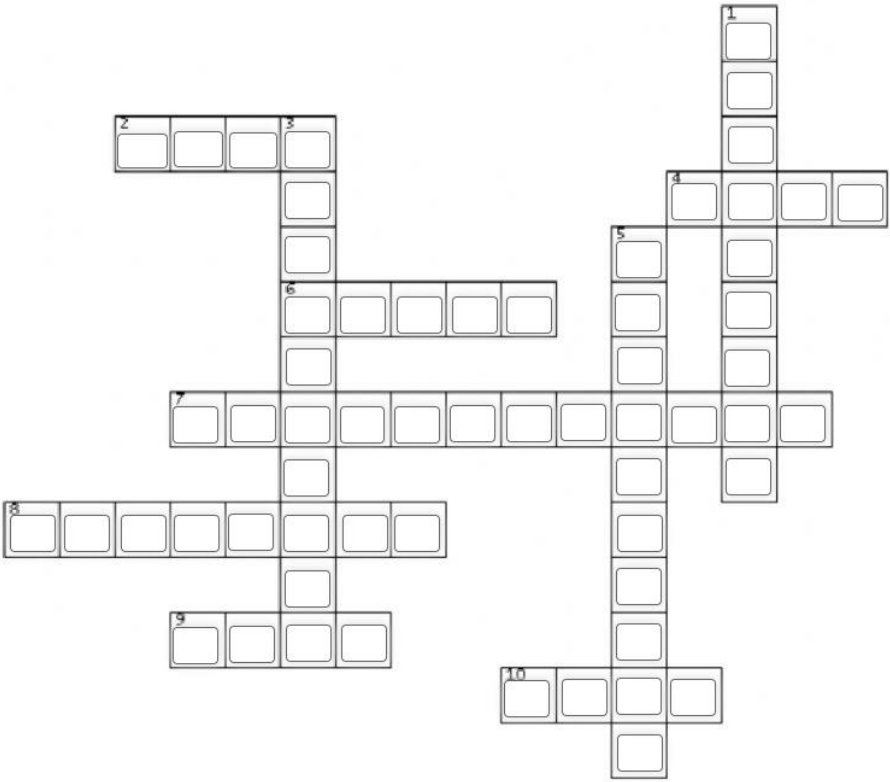
Ex. 7.12. Crossword:

Across

2. This soil is a combination of all soil types which makes it the best sol for gardening
4. This type of soil holds much water.
6. It is made up of decayed plants and animal matter that makes the soil fertile.
7. What do you call the act of keeping the soil healthy and in place?
8.Which type of weathering occurs when iron containing rocks starts to become brittle because of the formation of rust?
9. This type of soil is rich in nutrients and can hold minimal amount of water
10. This type of soil is loose and coarse. It does not hold water for long.

Down

1. What do you call the result of adding unwanted substances or garbage into the soil?
3. Which type of weathering occurs when you hammer rocks to turn it into powder?
5. The process of breaking rocks to form soil is called …



UNIT 8. WATER. WATERBODIES

Ex 8.1. Read the text [1]:

Water

Water can be in the form of ice and water vapour, but most water is in liquid form. As a liquid, water travels across the earth's surface. Water covers seventy one percent of the earth. Today, most of the earth's water is in the oceans. Smaller amounts are in glaciers and ice, in ground, in lakes and rivers, or in the air. Water freezes at zero degrees and boils at a hundred degrees. If we heat water to the boiling point, it becomes gas. This gas is called steam. All pure water has the same composition. It consists of two parts of hydrogen and one part of oxygen. All pure water has only these two types of matter in these amounts.

Ex 8.2. Choose the correct word:

1. Many/most/must of water on the earth's surface is in liquid form.
2. Land covers about 20 percent/percents/percentage of the earth.
3. Water freezes at zero degree/degrees Celsius ('Centigrade').
4. It boil/boils at 100 °C.
5. Water becomes steam if you hot/heat/heats it to the boiling point.
6. This/these composition is the same for all forms of water.
7. Pure water consists of this/these two types of matter.

Ex 8.3. Read the text:

Glaciers

Most snow that falls on land melts and returns to the sea. There are places on the earth where it is too cold for all the snow to melt. The layers of snow get thicker and heavier. The weight of the snow changes the lower layers into ice. When the ice becomes heavy enough, it begins to move. A large body of moving ice and snow is called a glacier. There are two types of glaciers on the earth today: valley glaciers and icecaps. Valley glaciers are in mountains all over the world. Icecaps are large bodies of ice that cover thousands of kilometres. Icecaps cover most of Antarctica and Greenland.

Glaciers move very slowly. Small ones may move only an inch a day, large ones may move as much as 10 feet (3 metres) per day.

Ex 8.4. Decide if the following topics are mentioned in the text and put them in order according to the text:

1. Скорость движения ледников.
2. Причины возникновения ледников.
3. Масса ледников.
4. Параметры, влияющие на скорость их движения.
5. Основные типы ледников.
6. Таяние ледников.

Ex 8.5. Match the beginnings and the endings of the sentences:

1. The layers of snow	a. may move as much as 3 m per day.
2. A glacier	b. cover much land in the north and south.
3. Valley glaciers	c. are in mountains.
4. Large glaciers	d. falls on land.
5. There are	e. melt slowly.
6. Icecaps	f. is a large body of moving ice.
7. It is too cold	g. become heavier.
	h. two types of glaciers.
	i. for the snow to melt.
	j. changes into ice.

Ex 8.6. Put the words into correct order to make questions:

1. What, snow, does, do, most?
2. Thicker, get, layers, snow, do, of?
3. It, begin, does, when, to move?
4. How, there, of, types, there, the earth, on, glaciers, many, are, today?
5. Cover, do, icecaps, of, thousands, kilometres?
6. Ten, per, may, move, as much as, feet, day, glaciers, large?

Ex 8.7. Read the text:

Iceberg

An iceberg is a mountain of ice in the sea. It was once a part of a glacier. But it broke off when the glacier reached the edge of the ocean. Although the ocean is salty the ice of an iceberg has no salt in it. An iceberg is made of fresh water that comes from the glacier. An iceberg is born in a very cold place. It can weigh a million tons. It floats out to a warmer area where it begins to melt. For about three years, it keeps travelling and melting little by little. Eventually, it gets very soft, breaks into pieces, and melts away completely. Most of the iceberg's ice is under the water. What people see is just the top of the ice above the water.

Ex 8.8. Choose the correct word:

1. Water moves from one place to another/the other.
2. The water cycle has no begin/beginning.
3. Sunlight heats/heat ocean water.
4. This air is light/lighter than cold air.
5. The water vapour go/goes up.
6. They form rivers that return/returns the water into the oceans

Ex 8.9. Read the text:

The Water Cycle

The water of the earth moves from one place to another. It moves from oceans to air and land and back to the oceans again. This movement all over the earth is called the water cycle. It has no beginning or end. The water cycle has three parts: evaporation, condensation and precipitation. Sunlight heats ocean water and causes some water to evaporate. The ocean heats the air over it. Warm air is lighter than cold air, so warm air always rises. The water vapour goes up with the warm air. When warm, moist air meets colder air, the moisture forms into fine drops. This part of the water cycle is called condensation. Most of this water returns to the earth as precipitation. Large amounts of precipitation fall on the land and

form rivers that return the water into the oceans. The cycle begins again.

Ex 8.10. Explain using "because":

1. The water cycle has no beginning ...
2. The ocean water becomes warm ...
3. The ocean water begins to evaporate ...
4. Warm air always rises ...
5. The moisture forms into fine drops ...

Ex 8.11. Complete the sentences with given words:

usually, cool, consists, hold, dust, to see, crystals, condense, oceans, water, grass

1. Water evaporates from....
2. Water vapour... of fine water droplets.
3. It is not cold, it is....
4. Cool air cannot... much water vapour.
5. The droplets ... around tiny particle of....
6. In the cold air there may be ice....
7. The droplets are too small for us...

Ex 8.12. Read the text:

Clouds

Air always has some water vapour in it. Water evaporates from lakes, rivers, oceans and seas. It evaporates from trees, grass and ground, too. Water vapour consists of fine water droplets. If the air is warm, it is light, and it rises. As it rises it gets colder. The higher the air goes, the cooler the water vapour gets. Cool air cannot hold as much water vapour as warm air. When the water vapour is cold enough, its particles condense. They usually condense around tiny particles of dust or salt in the air. They form small water droplets. If the air is very cold, they form ice crystals. The water droplets and ice crystals are light enough to float in the air. A water droplet or ice crystal is too small for us to see. But all of them make a cloud.

Ex 8.13. Find sentences that do not correspond the text:

1. There is much water vapour in the air.
2. Warm air always rises.
3. Cold air can hold less water vapour than warm air.
4. Some ice crystals are heavy enough to fall to the ground.
5. Clouds may consist of ice crystals and water droplets.

Ex 8.14. Read the text:

When air rises high into the sky, it cools off. Then it begins to lose some of its water vapour. The coolness makes the water vapour come out of the air and turn into many tiny droplets. The droplets of water are too small to fall back to the ground. They float high above the earth. They form a cloud. Some clouds look white because the sun shines through them and makes them bright. When clouds are light and thin, they hold only a little water. There are days when the whole sky is covered with thick layers of clouds. The sunlight cannot get through them. Then the cloudy sky looks dark and grey. When clouds are dark and heavy, they hold much water. Some clouds form much higher in the sky than the others. It is very, very cold up there. It is so cold that the water vapour freezes. Then there are tiny bits of ice floating in the air, instead of drops of water. They make clouds that look like thin layers of smoke.

Clouds come in many shapes and sizes. Meteorology uses a system of names, based on the appearance of clouds. Three major classifications of clouds are stratus, cumulus and cirrus clouds. Stratus clouds are flat broad layers. They form a gray blanket over the entire sky. Cumulus clouds are individual clouds with rounded tops and flat bottoms. Cirrus clouds are usually high in the atmosphere. They are made up of ice crystals. Some cloud formations are combinations of these classes. For example, a layer of stratus clouds may have a very bumpy (шишковатый) surface, like many cumulus clouds put together. These clouds are called stratocumulus.

When water vapour rises in the air it cools and then condenses into fine water droplets around very small particles. This may occur

when the air rises over a mountain, or when it is in a depression, or this may take place when there are strong upward currents of warm air. The cold makes more and more water vapour change to water droplets. There are so many tiny droplets that they join and form larger drops. The drops get larger and heavier all the time. When they are too heavy to float in the air, rain drops to the ground, but the very fine raindrops remain as clouds. The raindrops vary greatly in size. Thunderstorms may have large raindrops, but in the mountains we may have fine rain. If the air is very cold, snow or hail may fall instead of rain.

Ex 8.15. Decide if the following topics are mentioned in the text and put them in order according to the text:

1. Размеры дождевых капель.
2. Начало дождя.
3. Условия образования града и снега.
4. Типы ядер конденсации.
5. Условия, необходимые для осуществления процесса конденсации.
6. Размеры и формы снежинок.
7. Образование более крупных капелек.

Ex 8.16. Read the text:

Snow

Most clouds in the cooler regions of the earth have ice crystals in their upper parts. Water from the air condenses on the cool surfaces of the ice crystals and freezes. The process continues until the ice crystals have changed into snowflakes large enough to fall. Most often the snowflakes melt as they fall to earth. In this case, they hit the earth as rain. If the air is cold all the way to the ground, however, snow falls. Each snowflake is a tiny bit of ice. It has six sides or six points, but the design of each one is different. No two are ever exactly alike.

Hail

A cloud is made of millions and millions of water droplets. The air above the earth is cooler than the land. The higher air goes, the colder it becomes. Some clouds are so high that the drops in these high clouds freeze. They become small bits of ice. The bits of ice start to fall. Air from the earth carries them up again, high into the cloud. More water gathers on the ice. The water freezes again. Now there is a second layer of ice. The ice falls, but still it does not reach the earth. Air carries the ice up again, high where it is cold. Another layer freezes. After some time, the ice is so heavy it falls to the earth. We call the ice a hailstone. Hailstones may be as big as golf balls - even bigger. Hailstones are not really stones. They are pieces of ice. If you break a hailstone in two you can see the layers of ice.

Ex 8.17. Complete the sentences with given words:

reaches, spaces, reflect, sinks, during, stays

1. Some of the rainwater... into the ground. 2. This water fills open... between soil particles. 3. The water which sinks through the soil... the level of water table. 4. The water table usually... the form of the land surface. 5. The water table generally... at the same level. 6. During... periods, the depth of it usually falls.

Ex 8.18. Read the text:

Groundwater

Three things can happen to water that falls to the ground as rain. Some of it may return to the atmosphere by evaporation. Some of the rainwater may form runoff. Most of the time some of the water from rain sinks into the ground. Rainwater that sinks into the ground is called groundwater. Water can sink into soil because there are open spaces between the soil particles. The groundwater fills these spaces. The water moves downward through the soil and rock until it reaches a level where all open spaces are already filled with water. This level is called the water table. In general, it reflects the form of the land surface. The water table in a region generally stays at the same level unless there is a change in the amount of rain in the

region or the amount of water used. During dry periods the depth of the water table usually falls. A heavy rain can cause the water table to rise.

The Water Table

The water that lies underground is something like lake filled with dirt and rocks. The top of this lake is called the water table. In valleys that get plenty of rain the water table may be only two or three feet from the surface of the ground. When there is heavy rainfall, the water table rises. In a dry season the water table goes down. It also goes down if water is pumped from many wells.

Springs

Springs are found where the water table comes to the surface. While most springs disappear when the water table drops during a dry period, some flow all the time. This happens if the groundwater is sitting on top of a layer of nonporous rock

What is a Hot Spring?

Some parts of the earth have natural hot or warm water under the ground. If this water comes up above the ground through a crack, people call it a hot spring. Some hot spring are hot because their water comes from far down in the earth where there is great heat. But the water from the most hot springs starts closer to the top of the earth. This water is hot because it is near a volcano. The volcano may be an active one, or it may be one that is extinct.

Geysers

A geyser is a special kind of hot spring. Its water gets so hot underground that it boils and explodes into steam. The geyser spurts the hot water and steam into the air from an opening in the ground. The water shoots up like a fountain for a while, and then dies down. The water in some geysers rises only a couple of inches. In others, it shoots as high as a ten-story building. Some geysers spurt only once every few years.

Ex 8.19. Right down 10 nouns, connected with the topic "Water". Work in pairs. You have 1 minute to name as many words on the topic as you can, try to guess. Then you swap roles.

Ex 8.20. Video 12 "Exploring a coral reef" (https://disk.yandex.ru/i/GPE8gu8-bdmQaw**) 9:21:**

1. What is a coral?
2. What is the building material of corals?
3. Why corals are so important?
4. What creatures live in coral reefs?
5. How do corals and turtles depend on each other?
6. What other types of symbiosis can you name?
7. How are beaches and parrot fish connected?
8. What endangers coral reefs?
9. What can be done to protect them?

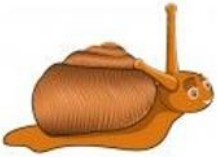
Ex 8.21. Put these sentences in the correct order:

Sea cliffs

a. Waves lash against the cliff, air gets trapped in cracks and helps shatter the rock face.
b. Material eroded from the cliff builds up to form a wave-built terrace.
c. The former base of the cliff remains as a wave-cut platform.
d. The force of storm waves erodes a notch in the rock of the coastline.
e. The overhanging rock above the notch becomes unstable and finally collapses forming a cliff.
f. Continued undercutting causes the notch to cut deeper into the rock.

1	2	3	4	5	6

Ex 8.22. Complete the names of marine animals [17]:

 j_llyf_sh	 cr_b	 d_lph_n
 _ct_p_s	 c_ttl_f_sh	 s_ _h_rs_
 st_ngr_y	 wh_l_	 sh_rk
 sn_ _l	 s_lm_n	 f_sh

whale

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s	x	c	a	s	w	z	a	v	q
d	z	f	p	e	n	g	u	i	n
s	y	i	l	a	z	v	h	t	n
a	x	r	h	t	p	c	n	s	a
q	w	g	i	u	g	u	b	t	m
a	h	t	f	r	j	y	i	a	a
z	a	x	e	t	s	h	a	r	k
l	l	i	d	l	e	p	e	f	c
x	e	n	y	e	w	d	a	i	j
i	w	y	o	l	s	z	v	s	n
c	r	a	b	c	e	w	s	h	j
z	c	f	r	y	a	b	x	r	i
p	d	o	l	p	h	i	n	t	a
f	e	o	p	b	o	g	u	o	v
w	e	e	l	u	r	l	m	c	s
z	c	e	s	f	s	i	o	t	v
q	r	r	a	f	e	h	v	o	p
s	e	a	l	m	c	s	u	p	d
v	i	c	d	e	u	w	n	u	a
z	j	e	l	l	y	f	i	s	h

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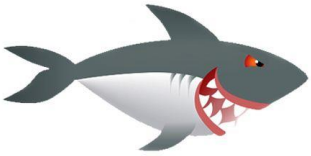

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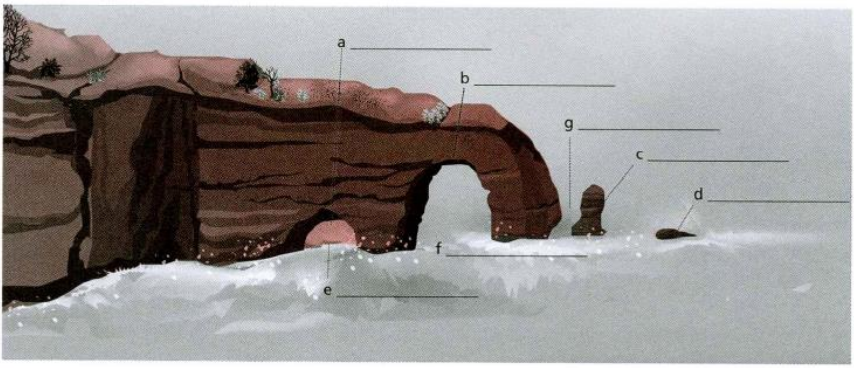
Ex 8.23. Put the sentences in the correct place on the picture [4]:

Sea caves, arches and stacks



1. Cave is eroded right through the headland.
2. A sea arch is a natural archway in a rocky headland.
3. A sea cave is a long, cylindrical tunnel in a cliff.
4. A sea stack is a pillar of rock jutting out of the sea near the coast.
5. A sea stump is the remainder of a sea stack, which has been eroded by the sea.
6. An arch collapses and its outer wall stands out as a pillar of rock.
7. A sea cave usually decreases in width away from the entrance.

Ex 8.24. Read the text and sort the information into the correct columns. Some words and phrases can be used more than once:

Features of erosion and deposition

Cliffs and wave-cut platforms are both features of sea erosion. The processes of sea erosion include hydraulic action from the force of storm waves which compresses air in cracks in the cliff, abrasion when large waves hurl beach material against the cliff, attrition when waves cause rocks on the beach to bump into each other and break up; and solution when salts and acids in the sea water dissolve the cliff.

The beach itself is a feature of deposition. The process which forms the beach is a combination of longshore drift and wind action. Caves, sea stacks, sea arches and blow holes are also caused by a combination of ail of the processes of erosion mentioned above: hydraulic action, abrasion, attrition and solution Sand spits, sand bars and tombolos are deposition features which are formed from the processes of longshore drift and wind action.

abrasion, beach, blow holes, caves, cliffs and wave-cut platforms, solution, hydraulic action, longshore drift, sand bars, sand spits, sea arches, sea stacks, tombolos, wind action, attrition

Features of erosion	**Processes**	**Features of deposition**	**Processes**
1	2	3	4
5	6	7	8

Ex 8.25. Read the text and make notes on the three areas in the table [4]:

People and the sea

There are a number of ways that people interact with the sea. Positive ways include recreation. The sea and beaches provide recreational areas for sunbathing, swimming, sailing and fishing Additionally, the sea brings food from large fish catches by trawlers. Thirdly, large deposits of fossil fuels, such as oil and natural gas, are found under the sea floor. A fourth advantage is the transport opportunity offered by the sea for large ships such as supertankers, which carry heavy and bulky cargo over long distances. In terms of agriculture, the sea offers farming opportunities for fish such as salmon, and shellfish such as mussels and oysters are reared in cages in sheltered bays. Lastly, the sea can be used to produce electricity generated by the incoming and outgoing tide in some estuaries.

There are also ways in which the sea is harmful to people. Houses, farmland and roads may be undermined and washed away when cliffs are eroded by the waves. Secondly, some beaches and sand spits may be eroded during storms. Another problem is caused by

huge waves which may cause flooding in low-lying areas during storms. Fourthly, longshore drift may cause a harbour to fill up with sand and silt and ships are unable to continue to use it as a port.
There are ways in which people attempt to prevent the damage and destruction caused by the sea. Firstly, reinforced concrete walls are built along the foot of a cliff to reduce the force of waves. Large boulders may also be placed there for the same purpose. Secondly, groynes are built along the coast to trap sand, creating beaches where there was erosion originally. Next, dams or dykes are built to keep out the sea in low-lying areas. Lastly, jetties (concrete wails) are built at a harbour entrance to prevent silting.

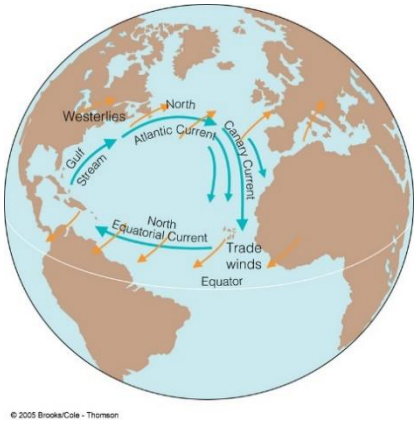
A. Ways in which the sea helps people	**B. Ways in which the sea is harmful to people**	**C. Action to prevent damage**
1	**1**	**1**
2	**2**	**2**
3	**3**	**3**
4	**4**	**4**
5		
6		

Ex 8.26. Read the text and choose the most appropriate title [1]:
1. Wind Systems in the Northern Hemisphere.
2. Wind Systems.
3. Seasonal Changes in the Wind Direction.
4. Winds and Currents.
5. The Westward Flow of Ocean Water

Ocean currents

Although many factors contribute, there can be little doubt that ocean currents are principally due to the great prevailing wind

systems of the Earth's surface. Air movement over water surfaces produces a "drag" of the surface water, resulting from the friction between the air and the water; thus, the winds may be said to blow the water along. The direction of flow of the principal currents is, therefore, closely connected with the direction of the prevailing winds. For instance, the westward flow of ocean water in near equatorial latitudes is due to the persistent trade winds. Similarly, in midlatitudes the general prevalence of the south-westerlies (north-westerlies in the southern hemisphere) leads to a surface drift of ocean water towards the north-east. Perhaps the strongest evidence we have for the efficacy of the winds as the prime motivating force of surface currents is to be found in the northern part of the Indian Ocean. Here the currents are flowing northwards and eastwards during the summer monsoon season when the winds are blowing on-shore, but flow southwards and westwards during the winter season when the winds are blowing off-shore; in other words, there is a complete reversal of current flow which can be correlated with the seasonal change in the wind direction.



Ex 8.27. In each line find the unnecessary word:

1. trade wind, westerlies, evidence, monsoons;
2. northward, off-shore, westward, strong;
3. persistent, seasonal, strong, weak;
4. Indian, Atlantic, Mediterranean, Arctic;
5. current, movement, wind, direction;
6. principal, prevailing, main, reversal;
7. ice, air, water, solid;
8. closely, correlated, similarly, equally.

Ex 8.28. Translate into Russian:

1. Winter is much warmer on the ocean coasts.
2. Near the coast the Canaries Current is responsible for much cooler days.
3. The South Equatorial Current reaches its greatest velocity during the southern winter.
4. The greater part of the Atlantic water spreads as a warm layer over large parts of the Polar Sea.
5. In high latitudes the temperature is low from the surface to the bottom.
6. The most important of all currents is the Gulf Stream and its extension, known as the North Atlantic Drift.
7. The current tends to move more or less with the wind.
8. Progress towards better forecasting will continue.

Ex 8.29. Choose the correct verb from in the brackets:

1. Water of the North Equatorial Current is (mix/mixed/mixes) with water of South Atlantic origin.
2. The classification of sea ice deals with forms (have produced/are produced/produced) under different conditions of freezing.
3. In our study of the oceans we follow the terminology (adopted/adopting/was adopted) by Sverdrup, Johnson and Fleming.
4. The north polar extension of the Atlantic and the Pacific is (term/was termed/termed) the Arctic Ocean.
5. Many (isolated/were isolated/are isolated) sections of the primary oceans are known as seas.
6. The greatest depth (is achieved/has achieved/achieved) by storm waves is 100 fathoms.
7. Between South Africa and Australia the current is (directed/direct/will direct) from west to east

Ex 8.30. Read the text:

Salinity

The degree of saltness of water is known as salinity and is expressed either as percentage or as parts per thousand. Since average ocean water contains 3.5 kg of solids (in solution) to 100 kg of water, the average salinity is 3.5 per cent, or, more commonly, 3.5 per cent since 1,000 kg of water contains 35 kg of salts. Salinity varies from place to place, averaging 0.7 per cent in the Baltic, over 4.0 per cent in the Red Sea, and as much as 24.0 per cent in the inland drainage basin of the Dead Sea. The saltness of sea-water is not uniform and the variation depends mainly upon three factors:

a) the amount of fresh-water added by: (i) rainfall; (ii) rivers; (iii) ice-melt;

b) the rate of evaporation;

c) the presence of ocean currents.

Surface temperatures

The temperature of ocean waters varies both horizontally and vertically. Let us deal first with the surface temperatures of the sea. The mean annual temperature of ocean water shows a general decrease from equatorial regions, where it is 26.7 °C (80 °F) or over at the surface, towards the poles where it is near freezing point. Surface temperatures vary appreciably seasonally, but much less so than air temperatures. The sea never gets as warm or as cold as the land because water heats up, and cools down, more slowly than land does. Therefore the temperature range of sea-water is never very great. The poleward decrease in temperature is not regular largely because of the effects of warm and cold currents, which transport large volumes of warm and cold water about the ocean, and the warming or chilling influence of airmasses and winds.

Ex 8.31. Answer the questions:

1. What factors control the saltness of sea water?

a) The rate of evaporation.

b) The surface temperature.

c) The principal currents.

2. Which sea has the greatest salinity?
a) The Red Sea.
b) The Dead Sea.
c) The Black Sea.
3. How does the temperature of ocean waters vary?
a) Seasonally and horizontally.
b) Horizontally and vertically.
c) Vertically.
4. Why does the sea never get as warm or as cold as the land?
a) Because of the different warning and chilling influence of airmasses over them.
b) Because water heats up and cools down more slowly than land does.
c) Because of the influence of ocean currents.

Ex 8.32. Find the correct Russian equivalent:

1. degree of saltness	a) пресная вода
2. percentage	b) снеготаяние
3. parts per thousand	c) степень солёности
4. average salinity	d) норма испарения
5. fresh water	e) океанские течения
6. rate of evaporation	f) частей на тысячу
7. ocean currents	g) процентное содержание
8. surface temperature	h) температура поверхности
9. mean annual temperature	i) средняя годовая температура
10. freezing point	j) холодное течение
11. temperature range	k) точка замерзания
12. cold current	l) диапазон температур
13. ice melt	m) средняя солёность

Ex 8.33. Video 13 "Oceans pollution" (https://disk.yandex.ru/i/6Wnn7KOGKKO2DA**) 2:53:**
1.What is altering the ocean and how?
2.Why is it dangerous?

3. How can it be stopped?

Ex 8.34. Complete the sentences:

1. The degree of saltness of water is known as...
2. The average salinity is 3.5... since 1,000 kg of water contains 35 kg of salt.
3. The amount of fresh water depends on rainfall ,... and... .
4. The presence of ocean currents, the rate of evaporation and the amount of fresh water affect...
5. The temperature of ocean waters varies both horizontally and...
6. The mean annual temperature of ocean water decreases from... regions toward the...
7. The temperature... of sea-water is never very great.

Ex 8.35. Translate into Russian:

1. In the straits between Sweden and Denmark the surface current is directed from the Baltic to the North Sea.
2. In the Baltic the currents are governed by local wind conditions.
3. In the Polar Sea the surface currents are greatly influenced by local winds.
4. The North Equatorial Current is fed by the south-easterly currents off the west coast of North Africa.
5. The general distribution of temperature is closely related to that of the density.
6. The upper layer of warm water is separated from the deep water by a transition layer within which the temperature decreases with depth.
7. The temperature of the sea water may be raised by the absorption of radiation entering the sea-surface.
8. If the atmosphere and the ocean are considered together, they constitute a heat engine in which energy is taken in at certain places and given out at other places and motion is maintained according to the principles of thermodynamics.

Ex 8.36. Choose the correct word:

1. The air in big cities (pollutes/is polluted) by exhaust gases.
2. The classification of icebergs (based/is based) on the shape of the bergs.
3. In August - September the North Equatorial Current disappears and (replaces/is replaced) by the Monsoon current.
4. Several classifications of sea ice (have proposed/have been proposed).
5. Between South Africa and Australia the current (directs/is directed) from west to east.
6. Heat (is taken/has taken) in by the surface waters in low latitudes and (is given/has given) out in high latitudes.
7. The longer waves (absorbed/are absorbed) in the immediate neighborhood of the sea-surface.
8. In summer the Equatorial Current (drives/is driven) forward by the S.W. monsoon.

Ex 8.37. Choose the correct verb from

1. It is nearly autumn; soon the leaves... their colour.
a) are changing
b) changed
c) will change
2. The winds which... from the ocean are charged with moisture.
a) are blowing
b) blowing
c) blows
3. The oceans like the continents... their heat from insolation.
a) derives
b) derive
c) deriving
4. Convection... the prominent feature of ocean behavior.
a) is
b) are
c) being
5. There exists the belief that the oceans... still... today.

a) grows
b) have grown
c) are growing

6. The ocean currents... important general or local effects on climate.

a) is
b) has
c) have

7. The principal tide-producing forces... the semidiurnal forces.

a) are
b) is
c) has

8. The continents... the water area into three primary oceans: the Atlantic, the Pacific, and the Indian.

a) separates
b) separate
c) has separated

9. This zone,... the continental shelf may be very narrow.

a) calls
b) is called
c) called

10. As water cools at the surface, the cold water sinks before heat...

a) has lost
b) is lost
c) is losing

11. The Atlantic coast of Morocco.....by the cool Canaries Current.

a) is washed
b) has washed
c) is washing

12. To the north of the equator the currents..... by monsoons of South Asia.

a) have controlled
b) will control
c) are controlled

13. To the south of South Africa the Agulhas Stream bends to the south then to the east, thus... to the Indian Ocean.
a) returning
b) return
c) returned
14. In August-September the North Equatorial Current is replaced by the Monsoon Current, ... from west to east.
a) flow
b) flowing
c) flow
15. By the process of vertical mixing due to turbulence, the changes ... at the sea-surface are propagated downwards.
a) introducing
b) introduce
c) introduced

Ex 8.38. Complete the sentences with given words:
oceans, oceanography, winds, salinity, climate, transport, seas, Pacific
1. ... is the study of the oceans, the waters of the oceans and their movements.
2. The oceans exert important influences on...
3. The oceans provide the cheapest form of bulk....
4. The oceans are four in number - the Atlantic, the Indian, the Arctic and the...
5. The ... are the major water units, the... are the minor water units.
6. The direction of flow of the principal currents is closely connected with the direction of the prevailing...
7. The degree of saltness of water is known as...

Ex 8.39. Find the correct Russian equivalent:

1) ocean currents	а) преобладающие системы ветров
2) earth's surface	б) континентальный шельф

3) southernmost part	в) химические характеристики
4) continental shelf	г) пассаты
5) density	д) океанические течения
6) degree of saltness	е) степень солёности
7) chemical characteristics	ж) плотность
8) prevailing wind systems	з) поверхность земли
9) trade winds	и) в северном направлении
10) northwards	к) самая южная часть

Ex 8.40. Read the text [1]:

Lakes

The character of lakes. Lakes are accumulations of water in the hollows of the land surface. Lakes are essentially natural features, but man has created artificial lakes which serve as reservoirs for drinking water, irrigation or hydro-electricity. Lakes vary widely in shape and size. Shape-wise, however, most lakes fall into two types: a) approximately circular lakes, occupying depressions in fairly level areas, e.g. Lake Victoria, the Aral Sea. 185 b) elongated or finger lakes, occupying valleys or troughs, e.g. Lake Windermere, Lake Tanganyika. Lakes vary in size from mere ponds to very large stretches of water such as the Great Lakes of North America and the Caspian Sea. Natural lakes which have their waters drained by rivers are fresh, but if they have no outlet, such as the Dead Sea, they accumulate salts and have saline waters. Rivers, springs and lakes. Lakes are purely temporary features of the Earth's surface, sooner or later becoming filled in with alluvium. Old lake beds with their alluvial soils are usually very fertile and provide first-class agricultural land, e.g. the Vale of Pickering in Yorkshire and the "clay belt" of former Lake Agassiz in Canada. The formation of lakes. Lakes are formed in a variety of ways, but can best be classified according to their mode of origin. Naturally formed lakes may be said to fall into three main groups:

a) those resulting from earth movements of one kind or another;

b) those due to the erosion of the land surface, thereby creating a depression in which water can accumulate;
c) those due to deposition of some kind forming a barrier behind which water ponds up.

Ex 8.41. What sentences correspond best with the text:
1. Lakes are accumulations of water in the hollows of the land surface.
2. Man has created artificial lakes.
3. Lakes may differ in size, shape and by origin; they may be artificial and natural.
4. Old lake beds are very fertile.
5. Lakes are purely temporary features of the Earth's surface.
6. Natural lakes may be formed through earth movements, erosion of the land surface and due to deposition of some kind forming a barrier behind which water ponds up.
7. Lakes may vary in salinity and temperature.

Ex 8.42. Complete the sentences:
1. Lakes are accumulations of...
2. Shape-wise most lakes fall into two types: ...
3. Lakes can best be classified according to...
4. Old lake beds are usually very fertile and provide...
5. Natural lakes are fresh, but if they have no outlet, they...

Ex 8.43. Underline the incorrect word in each sentence. Write the correct word next to the sentence [4]:

Erosion and deposition

channel, cut-off, deposits, floodwaters, horseshoe-shaped, loop, sediment, slows down, steep-sided, swing

1. An ox-bow lake is a v-shaped lake found on the flood plain of a river in its old stage. _____
2. An ox-bow lake is formed when riverflow speeds up in its lower stages. _____

3. This causes the river to slope from side to side and form meanders. _____
4. The meander forms a pool so that only a narrow neck of land separates the outer banks of the channel. _____
5. In heavy flood the river cuts through this neck leaving the section of river as a cut-out. _____
6. River depositions seal up the section from the river and an ox-bow forms. _____
7. A levee is a broad, low ridge of fine cement built along the bank of a river. _____
8. It is built along the riverbank by groundwaters over thousands of years. _____
9. People also create artificial levees which are narrow and triangular-shaped. _____
10. They are built to retain floodwaters within a narrow tunnel to prevent flooding. _____

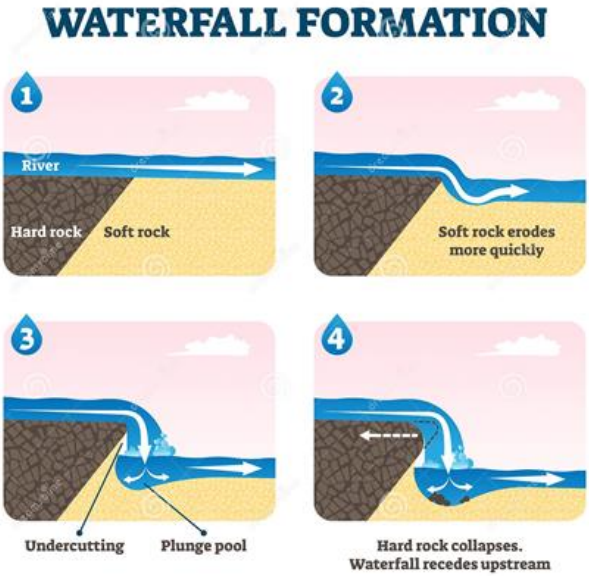
Ex 8.44. Video 14 "River landforms" (https://disk.yandex.ru/i/LI4DgX0TUTH_Q**) 6:35:**

1. How are waterfalls, rapids, potholes, meanders, oxbow lakes formed?
2. What different types of deposition are mentioned in the video?

Ex 8.45. Put the sentences in the correct order. Use the picture to help you [4]:

a. A waterfall begins its formation where the band of hard rock crosses the bed of the river.
b. But the river erodes the band of soft rock quickly downstream from the hard rock.
c. Sometimes the soft rock underneath the hard rock is worn away creating an overhang.
d. The deep pool which has been created is called a plunge pool.
e. The river is unable to erode this rock easily.

f. The river plunges over this fall and erodes a deep pool underneath the falling water.
g. This causes a sudden drop in the river's bed below the hard rock.
h. Waterfalls occur when a layer of hard rock lies on top of a band of soft rock on the river bed.



1	2	3	4	5	6	7	8

Ex 8.46. Match the beginnings and endings of the sentences:

Meanders

Beginnings	**Endings**
1. A meander is a winding	a. by erosion and deposition.
2. It occurs because the river is flowing very slowly	b. erodes the bank, creating a river cliff.
3. Small meanders are found	c. deposits fine particles of material, called alluvium, to form the slip-off slope.

4. But large, sweeping meanders are found	d. in the flood plain of a mature river.
5. Meanders are developed both	e. in the flood plain of an old river valley.
6. The river flows most strongly on the outside of the bend and	f. loop or bend in a river's channel.
7. The river flows most slowly on the inside of the bend and	g. on level ground and is trying to find the easiest route to the sea.
8. Alluvium is very rich in minerals, and by erosion and deposition	h. plants need these minerals to grow.

Ex 8.47. Report: Choose one of the famous waterfalls and prepare a report.

Ex 8.48. Read the text and sort the information into the table [4]:

Features of erosion by young rivers

Three examples of erosion in young rivers are v-shaped valleys, interlocking spurs and waterfalls. V-shaped valleys have steep sides and very narrow floors and their cross-sections are shaped like the letter v. Here, the river erodes downwards in what is known as vertical erosion. As the river cuts downwards, its steep sides are attacked by weathering. This loosens and breaks up the rock and soil. Gravity causes the loose material to slide or creep downslope into the river. The river transports the material away. All these actions combine to form a v-shaped valley.

Interlocking spurs are areas of high ground which jut out and seem to ‘lock into’ each other from both sides of a young river valley. If the young river meets obstacles of hard rock, it is unable to cut through them, so it flows around them. At the same time, it continues to erode downwards. As it so develops its valley, the river

leaves interlocking spurs of high ground jutting out on both sides of the valley.

In a waterfall, a river falls over a vertical slope. It happens where a sudden drop occurs in the course of a river. Waterfalls develop where a band of hard rock lies on an area of soft rock. The river erodes the soft rock more quickly than the hard rock and a vertical drop develops where the hard and soft rocks meet. The river falls over this drop into what is called a plunge pool.

both sides jutting out, drop develops, hard rock, hard rock on soft, plunge pool, steep sides, river transports material, soft rock eroded, sudden drop, vertical erosion, very narrow floors

Name	V-shaped valleys	Interlocking spurs	Waterfalls
Characteristics	1	high ground, 2	vertical slope, 3
Formation	weathering of sides; sides fall into river, 4	flow around, 5	6

Ex 8.49. Read the text and make notes using the frame provided:

River action

River factors involved in erosion. A river rises (begins) at its source. It flows downslope (its course) and enters the sea at its mouth (estuary). Rivers flow quickly down steep slopes. They erode the land and transport eroded material from highland to lowland areas. How quickly they erode the land depends on three things. Firstly, the hardness of rock - soft rock erodes faster than hard rock (soft chalk is used to mark hard blackboards). Secondly, the volume (amount) of water - rivers with large volumes of water, such as rivers in flood, erode faster than those with less water. Thirdly, the speed of river water - fast-flowing rivers erode more powerfully than slower-flowing rivers.

River processes involved in erosion. There are four important processes involved in river erosion. Hydraulic action describes the force with which moving water breaks off pieces of rock and soil from the bed and banks of a river's channel. This broken-off material is then carried downstream and is called the river's load. Next, attrition is when boulders and other material being carried by the water collide and break up. Then, abrasion is when the river then uses its load to wear away (erode) its bed and banks, making its channel deeper and wider. Lastly, solution is when acids, such as carbonic acid (rainwater) dissolve some rocks, such as limestone, and erode the rock, much like what happens to some tablets in a glass of water.

Transportation of eroded material. There are four ways rivers transport materials downstream. Firstly, the lighter particles are carried in suspension - they are lifted and carried along by the water. Similarly, heavier particles, such as sand and gravel, are bounced along the river bed. This is called saltation. Additionally, the heaviest particles slide or are rolled and dragged along the river bed. This is called traction. Finally, some materials are dissolved and are carried in solution.

River factors involved in erosion	River processes involved in erosion	Transportation of eroded material
1	4	8
2	5	9
3	6	10
	7	11

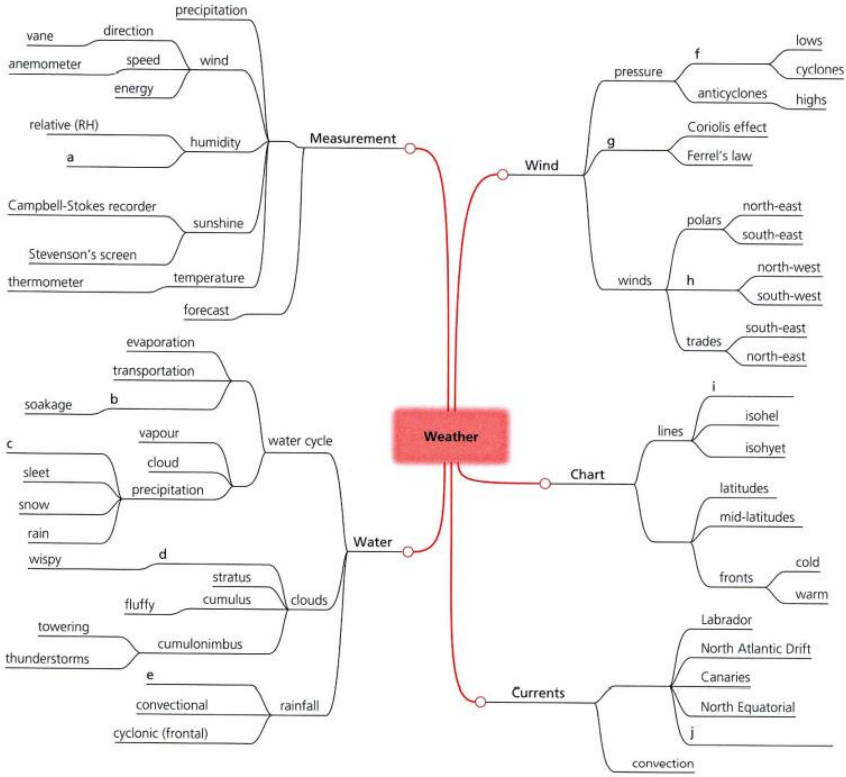
Ex 8.50. Video 15 “Stages of a river” (https://disk.yandex.ru/i/uH9gqp8r0MmaRg**) 5:02:** 1. What may be sources of a river? 2. What is the course of a river? 3. What are tributaries? 4. What is the main

function of silt? 5. What is the mouth of a river? 6. What is the delta of a river? 7. What is estuary?

UNIT 9. CLIMATE, VIOLENT WEATHER

Ex 9.1. Write these words in the correct place on the word map:

deposition, Gulf Stream, relief, depressions, anti-trades, isotherm, hygrometer, hail, cirrus, deflection **[4]**



Ex 9.2. Put the sentences in the correct order [4]:

Evaporation

a. As the clouds rise, they get colder and form rain, hail, snow or sleet.
b. In the air, the water vapour cools and condenses, forming cloud.
c. Inland, the clouds continue to rise.
d. Rivers and groundwater return most of the precipitation to the sea.
e. Sea winds blow the clouds inland.
f. The light water vapour rises high into the air.
g. The remainder is evaporated from the land by the sun‘s heat.
h. The sun's heat evaporates sea water, forming a gas called water vapour.

1	2	3	4	5	6	7	8

Ex 9.3. Complete the sentences with these words:

Winds transfer heat and cold

south-westerlies, continental, cool, Coriolis, blow, deflected, equator, poles, warm

1. Winds are named after the direction from which they _____ .
2. Winds which come from the south-west are called the _____ .
3. Winds which blow from places nearer to the _____ to places farther away are called warm winds.
4. Coming from these regions they tend to _____ the areas over which they blow.
5. Likewise, winds which blow from places nearer to the _____ to places farther away are called cold winds.
6. Coming from these regions they tend to _____ the areas over which they blow.

7. Because the Earth rotates, winds are _____ to the right in the northern hemisphere and to the left in the southern hemisphere.
8. This movement is referred to as the _____ effect.
9. Winds which blow from _____ regions are dry winds and winds which blow from sea areas (oceans) are wet winds.

Ex 9.4. Read the text. Some of the sentences contain incorrect words. These are underlined. Replace them with one of these words:
annually, flooding, shaduf, resource, control, constant, renewable, scarce, block, irrigation

Water in the Sahara

Water is a basic natural source needed to maintain human and animal life and to grow food. It is renewing if it is used carefully. In some places where rainfall is too scared to grow crops, water is provided artificially to grow food. This process is called regulation. It is the artificial watering of land. From the times of the Pharaohs until very recently, water from the Nile was gained in two ways: flood water was allowed to cover farmland, where it remained trapped until it had deposited its silt, which fertilized the land when the river level was low, or water could be lifted from the Nile by a shading or Archimedes screw. But these methods were slow, inefficient and difficult. Egyptians had always wished to patrol the Nile so that its level would remain constrained throughout the year. In recent times this became even more important in order to provide food for Egypt's rapidly growing population. The attempt to solve this problem was the building of the Aswan High Dam across the Nile gorge. Its purpose is to blacken the waters of the Nile for irrigation. Two and sometimes three crops can now be grown gradually using water from the reservoir behind the dam. It also plays the role of controlling fleeing in the Nile valley. The dam also produces hydro-electricity for industry in the region.

Ex 9.5. Match the beginnings and endings of the sentences:

Heating

Beginnings	**Endings**
1. Places near the equator receive sunrays from	a. air moves from high pressure to low pressure.
2. These rays are more concentrated and travel through a lesser depth of atmosphere than	b. almost directly overhead because the sun shines straight down.
3. Air has weight and exerts pressure and so	c. and keep harbours in high latitudes free of ice.
4. Heavy, cold air presses down and exerts high pressure and so	d. help to drag the ocean currents along in their direction.
5. There are general, prevailing patterns of moving air	e. light, warm air tends to rise and exert low pressure.
6. The Coriolis effect is the name given to the force created by	f. sunrays at places near the poles.
7. Ocean currents are also caused by	g. the effect of the rotation of the Earth on its axis.
8. Unequal heating sets up convection currents between	h. throughout the world called global winds.
9. The global winds, caused by unequal heating,	i. unequal heating at different latitudes.
10. Warm ocean currents, such as the North Atlantic Drift, raise sea and air temperatures	j. warm and cool parts of the oceans.

Ex 9.6. Read the sentences and choose the best ending:

Showing the weather

Endings:

a blowing wind, a given day, a weather chart, degrees Celsius, millimeters, equal pressure, equal rainfall, equal sunshine, equal

temperature, kilometers per hour, sunny weather, the wind is blowing, wind speed

1. Isolines are different lines on _____ .
2. An isobar is a line joining places of _____ .
3. An isotherm is a line joining places of _____ .
4. An isohel is a line joining places of _____ .
5. An isohyet is a line joining places of _____ .
6. Isotachs are lines on a weather map which show _____ .
7. Anticyclones are areas of descending air which bring clear skies and _____ .
8. Wind vanes show the direction _____ .
9. A rain gauge is used to measure precipitation in _____ .
10. A Campbell-Stokes recorder indicates the hours of sunshine in _____.
11. A thermometer measures temperature in _____ .
12. Anemometers are used to measure wind speed in _____ .
13. The Beaufort Scale shows the force of _____ .

Ex 9.7. Read the text and sort the information into the table in the correct places:

How to measure the weather

Temperature is measured over days, months and years. It is also measured to give the average and a range of temperatures.

In order to obtain average mean temperatures for a given day, add the highest and lowest temperatures for the day and divide by two.

The average monthly temperature can be calculated by adding the mean daily temperatures for the month and dividing by the number of days in that month.
You can find the mean annual temperature by simply adding the average monthly temperatures for the year and dividing by 12.
To obtain the temperature range for a given day you need to take the highest temperature for the day minus the lowest temperature for the day.
The monthly temperature range can be found by subtracting the mean temperature for the coldest day in the month from the mean temperature for the hottest day in the month.
The method used for calculating an annual temperature range is to take the mean temperature for the hottest month in the year minus the mean temperature for the coldest month in the year.

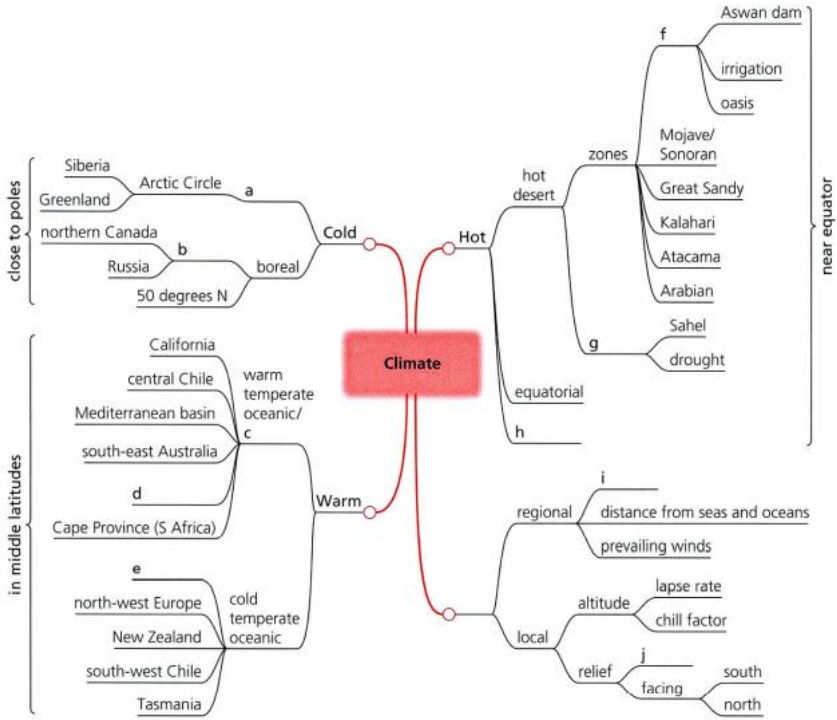
a. daily temperatures for the month and divide by number of days in that month
b. add mean monthly temperatures for the year
c. and lowest temperatures for the day and divide by 2
d. annual temperature range
e. daily temperature range
f. mean annual temperature
g. mean daily temperature
h. mean monthly temperature
i. monthly temperature range
j. temperature for coldest day in month from mean temperature for hottest day in month
k. temperature for hottest month in year minus mean temperature for coldest month in year
l. temperature for the day minus the lowest temperature for the day

To obtain average mean temperatures	Method
1	2 add highest ...
3	4 add mean ...

5	6... and divide by 12
To obtain temperature ranges	Method
7	8 take the highest ...
9	10 subtract the mean ...
11	12 take the mean ...

E 9.8. Write these words in the correct place on the word map [4]:

aspect, desertification, latitude, Mediterranean, Sahara, savanna, south-west Australia, south-west Canada, taiga, tundra



Ex 9.9. Read and sort the information into the correct place in the grid:

Some hot climates

a. none in some areas, otherwise thorn, cacti, palm and dates at oases, long roots, waxy leaves

b. 1,000 mm, two seasons and dry in winter, convectional rain

c. 10-250 mm, thunderstorms and flash floods on occasions, generally cloudless skies

d. hot, 27°C all year

e. selvas, growth all year, no seasons, mahogany and other hardwoods

f. hot, 30-40°C, western side of continents, large daily range

g. hot, 30°C all year

h. savanna, tall grasses, green in wet season, golden brown in dry season; lion, cheetah, giraffe

i. rain daily, 2,000 mm, convectional rain, very humid

	Equatorial	Savanna	Hot desert
Temperature	1	2	3
Rainfall	4	5	6
Natural vegetation, animals	7	8	9

Ex 9.10. Look at the map and table, and decide which sentences are true and which are false [4]:

Climate characteristics

1. Temperatures in the UK are warm in the summer from 15°C to 17°C.

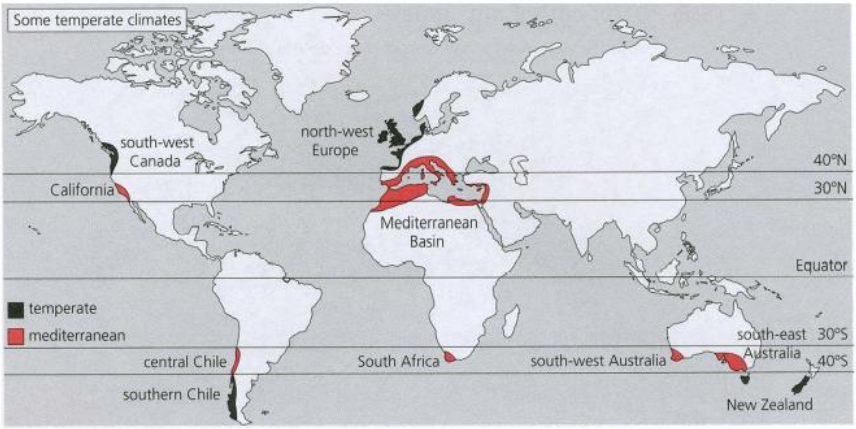
2. California enjoys hot summers around 30°C with clear sunny skies.

3. Warm trade winds blow throughout the Mediterranean basin in the winter.

4. New Zealand records 800-2,000 mm of cyclonic rainfall annually.

5.Tasmania is covered predominantly with evergreen woodland, pine, cypress, cork and oak trees.
6. South-west Canada enjoys mild winters and a temperature of around 12°C in January.
7. The natural vegetation of southern Chile includes deciduous forests, with ash, elm and oak trees and with some mountain ash, pine and birch on wet upland soils.
8. France, Belgium and Holland have a small annual temperature range of 12°C.
9. Italy has predominantly changeable cloudy weather characterized by cyclonic rainfall.
10. Central Chile has dry summers and moist winters.

	Cool temperate oceanic (maritime)	**Mediterranean (warm temperate oceanic)**
Temperature	warm summers 15°C-17°C; mild winters 5°C; small annual temperature range 12°C	hot summers, 30°C with dear sunny skies; mild winters, 12°C January; warm trade winds
Rainfall	800-2,000 mm annually; cyclonic rainfall; changeable cloudy weather; rain throughout the year	dry summers and moist winters; 400-1,000 mm; moist anti-trade winds in winter; moist anti-trade winds in winter
Natural vegetation	deciduous forest, with ash, elm and oak trees; some mountain ash, pine and birch on wet upland souls	evergreen woodland, with pine, cypress and cork oak trees; sweet-smelling herbs such as lavender.



Ex 9.11. Choose a region on Earth. Describe its climatic conditions, vegetation, animals, seasons change. Other group members try to guess.

Ex 9.12. Read the sentences and choose the best ending:

Warm temperate oceanic climates

Endings

hot desert regions, hours of sunshine, in summer, they are warm, equator, from dry landmasses, during thunderstorms, relatively dry, of rainfall, from the sea, warm and wet, between 12-15°C

1. The warm temperate oceanic areas of the world are found at locations on the western sides of landmasses and between 30°C and 40°C north and south of the _____ .
2. The temperature in these areas is hot at around 30°C in summer and warm in winter _____ .
3. The Mediterranean areas lie just above _____ .
4. High pressure creates clear cloudless skies in summer with long _____ .

5. Settled hot weather attracts tourists to Mediterranean beaches _____ .
6. In winter, the anti-trade winds blow from lower latitudes and so _____ .

7. In summer, Mediterranean areas are affected by the trade winds which blow _____ .
8. Some convectional rain falls _____ .
9. But the summers are _____ .
10. The winters are moist with 400 to 1,000 mm _____ .
11. The anti-trades bring depressions and rain _____ .
12. These winds also blow from lower latitudes so they are _____ .

Ex 9.13. Read the text and retell about reasons for desertification:

Desertification in the Sahel

Desertification is the result of a combination of natural and human causes. High birth rates in the Sahel have resulted in rapid population growth. More people need more food, fuel and housing More people keep more sheep, goats and cattle which have overgrazed the land and stripped away its natural grass cover. More trees have been cut for fuel and housing for the growing population. Land has been overcultivated, so that its fertility has declined. All of this clearance has left the soil bare and exposed so winds blow away the unprotected topsoil and the eroded land is left almost completely barren. At this point, desertification has taken place.

Another factor is unreliable rainfall and several severe droughts have occurred in the Sahel since the 1970s. Droughts are unusually long rainless periods during which crops fail and soils become dry and dusty. Some scientists also believe that global warming may contribute to drought. Higher global temperatures permit the air to

hold more water vapour. This results in less condensation and therefore less rain.

Ex 9.14. Read the text [1]:

Air

Air is a mixture of many gases. Air also usually contains small amounts of dust. We know the amount of some of the gases in the air changes from time to time, but air always contains the gases we describe here. Nitrogen is the most plentiful of all the gases in air. It makes up about 78% of the volume of air. Oxygen is the second most plentiful gas in the air. It makes up about 21% of the air by volume. Green plants use oxygen, but also produce oxygen during the process of photosynthesis. Argon is a gas found in air in very small amounts. It makes up less than 1% of the air. Argon does not combine chemically with other substances. The atmosphere also contains tiny amounts of other rare gases. Carbon dioxide makes up; only 0.03% of the air, but it is an important gas. Green plants use C02 during photosynthesis. Water vapour may make up as much as 4% of the air. It plays a very important part in weather changes.

Ex 9.15. Fill in the gaps:

1. Air... many gases and small... of dust.
2. ... is the most plentiful of all the gases in the air.
3. Oxygen is the... most plentiful gas in the air.
4. Green... use it, but also... it during photosynthesis.
5.... does not... chemically with other substances.
6. Argon is one of the... gases.
7. Water vapour plays an important part in weather...

Ex 9.16. Read the text:

The Greenhouse Effect

The amount of C02 used by plants seems to be equal to the amount released by animals and by other natural processes. However, the balance is upset by the burning of fuels such as coal and oil, which dumps billions of tons of carbon dioxide into the atmosphere each

year. As a result the amount of carbon dioxide in the atmosphere is increasing slightly each year. This increased amount of C02 may affect the earth's weather.

Ex 9.17. Complete the sentences with the given words:
that, sample, cooling, hold, saturated, let us, means
1. These... of air have the same humidity.
2. The humidity of the... air is 100%.
3. Warm air can... much water vapour.
4.... compare the measurements.
5. This symbol... that the dew point becomes lower.
6. The... of the air may cause the water droplets to freeze.
7. The water in... sample does not reach the boiling point.

Ex 9.18. Choose the correct word:
1. Air always has some/the same moisture.
2. Air does not always have some/the same humidity.
3. Warm air can hold more/less water vapour than cold polar air.
4. Let us measure/measurement how much moisture the air sample contains.
5. This mean/means that the relative humidity is 50%.
6. The cool/cooling of air causes condensation.
7. The measurement which/with we use is important

Ex 9.19. Read the text:

Humidity

The amount of moisture in the air is called the humidity. Air does not always have the same humidity. The humidity may be between nearly 0 up to about 4% of the volume of a sample of air. The air which contains all the water vapour that it can hold at its temperature is called saturated air. The warm air near the earth's equator can hold about ten times as much water vapour as the cold polar air. Air is not usually saturated. Most of the time, the air contains less water vapour than it can hold. A measurement we often use to describe the amount of water vapour in the air compares how much water vapour

the air contains and how much the air can hold at its temperature. This measurement is called the relative humidity. A relative humidity of 50% means that the air contains half of the water vapour it can hold at that temperature. The cooling of air often causes it to become saturated with water vapour. The temperature at which the air becomes saturated is called its dew point. When air reaches its dew point, its relative humidity is 100 %.

Ex 9.20. Decide if these statements are true, then put them in the order according to the text:

1. Относительная влажность составляет 100% при достижении точки росы.
2. Относительная влажность обычно больше 50%.
3. Обычно в воздухе содержится меньше влаги, чем он может удержать.
4. Влажность воздуха, как правило, меняется.
5. Насыщенный воздух может содержать 0-4% влаги от своего объёма.
6. Количество влаги в тёплом воздухе намного больше, чем в холодном воздухе.
7. Если воздух охлаждается, ему легче стать насыщенным.

Ex 9.21. Fill in the gaps:

1. Air does not always have... humidity. 2. The humidity may be about 0-4% of the... of an air sample. 3. If the air contains all the moisture that it can hold it is called... air. 4. Air usually contains... water vapour than it can hold. 5. If the air contains half of the water vapour it can hold, its relative humidity is... %.

Ex 9.22. Read the text:

Air pressure

We live at the bottom of the earth's atmosphere and are under pressure from the weight of air above the earth. Atmospheric pressure is measured by an instrument called a barometer. When you are in the mountains, you may notice a slight drop in the air

pressure. The drop-in air pressure at high altitudes is a result of the earth's gravity. If you are at the top of a mountain 5 km high, half of all the atmosphere lies below. In addition to lower air pressure than at sea level, the temperature on the mountain top is colder. At an altitude of 5 km, the temperature is 30 °C colder than at sea level. Pressure and temperature continue to drop at higher altitudes. At a height of about 11 km, the pressure drops to 25% of that at sea level and the temperature is about -55 °C. Beyond an altitude of about 11 km, the pressure continues to fall, but the temperature remains at -55 °C. This altitude marks the boundary between two layers of the atmosphere, troposphere and stratosphere.

Ex 9.23. Make sentences with given words:

1. the, the, is, to, closest, troposphere, earth;
2. this, boundary, troposphere, the, is, of, upper;
3. 11 km, measurement, the, altitude, the, is, of, average, an, earth, for;
4. clear, stratosphere, is, this, called, layer, the;
5. more, the, falls, once, temperature;
6. another, above, there, the, layer, atmosphere, is, stratosphere;
7. ozone, rays, us, from, protects, layer, the, sun's, the, ultraviolet;
8. about, of, to, an, 600 km, the, extends, thermosphere, altitude;
9. thin, in, is, this, the, air, layer, extremely.

Ex 9.24. Read the text:

The atmosphere

Temperature changes at certain altitudes divide the atmosphere into layers. Closest to the earth is the denser troposphere. This is the layer in which you live. Almost all weather takes place in the troposphere. The upper boundary of the troposphere is higher over the equator than at the poles. The altitude of 11 km is an average measurement for the entire earth. Above the troposphere is the clear, cold layer called the stratosphere. Temperatures in the lower stratosphere are very cold. But above an altitude of 25 km, the temperature begins to rise until it reaches nearly 10 °C around the

50 km height. It then falls once more to about -75 °C at 80 km above sea level. These temperature changes indicate that there is another atmosphere layer above the stratosphere. It is called the mesosphere. The mesosphere and the upper stratosphere contain small amounts of ozone. This small amount of ozone is very important because it protects us from most of the sun's ultraviolet rays. Above the mesosphere is the thermosphere. The thermosphere extends to an altitude of about 600 km with the temperature up to 2,000 °C. Air in the thermosphere is extremely thin. It is only one ten-millionth (0.0000001) as dense as air at sea level.

Ex 9.25. Match the term and its definition:

1. Stratosphere. 2. Thermosphere. 3. Atmosphere. 4. Ionosphere 5. Mesosphere 6. Troposphere	a. The atmospheric layer that lies above the stratosphere. b. A region of the atmosphere that contains many electrically charged particles. c. A large body of air that has the temperature and humidity of the earth's surface. d. The densest layer of the atmosphere, closest to the earth's surface. e. The layer of gases that surrounds the earth f. The atmospheric layer above the mesosphere g. The atmospheric layer which lies above the troposphere

Ex 9.26. Finish the sentences:

1. The upper boundary of the troposphere is higher over... 2. Temperatures in the lower stratosphere are... 3. The temperature falls again at 80 km above... 4. The ozone layer protects us from...

5. Above the mesosphere is... 6. It extends to an altitude of... 7. Air in it is...

Ex 9.27. Read the text:

The atmosphere

The atmosphere is a thin film of gas which surrounds the Earth and which is prevented from escaping into space by the force of gravity. It has no definite upper surface becoming rarer with increasing height. For most practical purposes the upper limit can be reckoned as lying at about 16 km (10 miles); "weather" is mostly confined to this lower layer. Above this approximately 16-km (10-mile) limit, the atmosphere exists in an increasingly attenuated form up to at least 300 km (200 miles) but the extreme outer fringe is conventionally supposed to be at a height of about 1000 km (600 miles). The envelope of air consists of a mixture of gases, chiefly nitrogen (7-8 per cent by volume), oxygen (21 per cent), and small quantities of argon, carbon dioxide, neon and other rare gases, together with a variable amount of water vapour. The atmosphere also contains pollutants, mainly dust and smoke, though locally there may be toxic constituents emitted by power stations and industrial plants. The very small proportion of carbon dioxide and water vapour in the air is of first importance in determining the character of the Earth's climates. Indeed, it is the variable quantity of moisture in the air which, when acted upon by the sun's energy (heat), produces weather.

Ex 9.28. Find a title for every paragraph of the text:

1. The upper limit of the atmosphere.
2. The layers of the atmosphere.
3. The height of the atmosphere.
4. Composition of the atmosphere.
5. Carbon dioxide and its influence on the Earth's climate.
6. The weather of the Earth.

Ex 9.29. Complete the sentences:

1. The atmosphere is a thin... of gas. 2. ... prevents atmosphere from escaping into space. 3. Above 16-km limit the atmosphere exists in increasingly... form. 4. The envelope of air consists of a... of gases. 5. The atmosphere also contains pollutants, mainly... and...

Ex 9.30. Make sentences with given words:

1. many, air, a, is, of, gases, mixture;
2. always, oxygen, nitrogen, air, contains, and;
3. of, of, up, about, the, 78%, air, makes, volume, nitrogen;
4. the, is, in, most, plentiful, oxygen, plentiful, air, second, gas;
5. photosynthesis, of, during, green, process, produce, plants, oxygen, the;
6. other, with, chemically, argon, substances, not, combine, does;
7. dust, tiny, rare, amounts, contains, gases, the, other, atmosphere, also, and, of;
8. gas, an, is, dioxide, important, carbon;
9. changes, in, a, very, part, plays, weather, important, vapour, water.

Ex 9.31. Video 16 "Climate" (https://disk.yandex.ru/i/CUCHBu_k4ub0yw**) 9:02:**

1. What is the main determining factor of climate?
2. What season is in the Southern Hemisphere when it is winter in the Northern Hemisphere?
3. What latitudes do geographers differentiate?
4. What influence does elevation have on climate?
5. What is the influence of the Gulf Stream on climate?

Ex 9.32. Read the text, sort the terms from the text into the table [1]:

Weather and Climate

The scientific study of the phenomena and physical processes of the atmosphere is termed meteorology. Climatology concerns the various climates of the Earth. A branch of the latter is

microclimatology which is the detailed study of local climates. The term weather denotes the conditions of the atmosphere at a given place at a specific time; climate is the average of the customary weather conditions of a place. A distinction must be drawn between the elements or ingredients of climate and the factors or determining causes. The elements of both weather and climate are those physical conditions prevailing at a given time and place in the atmosphere. They comprise the following: a) temperature, b) pressure, c) wind, d) moisture, which includes: (i) humidity, (ii) cloud and fog, (iii) precipitation, e) sunshine.

The elements of climate result from the interaction of a number of factors or determining causes, chief of which are as follows:

a) latitude, b) altitude, c) relief features, d) distribution of land and sea, e) pressure, f) air masses and winds, g) storms, h) ocean currents.

Weather	**Climate**

Ex 9.33. Correct the sentences according to the text:

1. Meteorology is the scientific study of local climates.
2. Microclimatology is a branch of meteorology.
3. Latitude is an element of weather.
4. The term weather denotes the average of the climate conditions of a certain place.
5. Climatology concerns physical processes of the atmosphere.

Ex 9.34. Complete the sentences:

1. The scientific study of the phenomena and physical processes of the atmosphere is termed...
2. ... concerns the various climates of the Earth.
3. ... is the detailed study of the local climates.
4. The condition of the atmosphere at a given place at a specific time is...
5. The average of the customary weather conditions of a place is ..

Ex 9.35. Choose the correct verb forms:

1. Regions near the ocean may have high or low precipitation, (в зависимости от) whether the winds are off the ocean or off the land.
a) depend upon
b) depended upon
c) depending upon

2. Elevation differences always (вносят) temperature changes.
a) introduce
b) introducing
c) are introducing

3. In pollution problems, both vertical and lateral (перемешивание) of polluted air with clean air is important.
a) mixing
b) mixed
c) have mixed

4. There are (движущиеся) systems such as groups of thunderstorm cells and tornadoes, which are characterized by stronger winds than any other weather system.
a) travelled
b) travelling
c) travels

5. The area (покрытая) by the fog may be several hundred kilometer in extent.
a) covering
b) is covered
c) covered

6. The energy from the sun (передаётся) as solar radiation to the earth.
a) transmitted
b) is transmitted
c) was transmitted

7. The atmosphere possesses global tides with small amplitude which are almost entirely due to (нагревание) rather than gravitational attraction.
a) being heated

b) heated
c) heating

8. Both dew-point and wet-bulb temperatures can be easily (измерены).

a) measuring
b) measured
c) measure

Ex 9.36. Read the text:

Air and Air Temperature

Air has weight, and because of the height of the atmosphere its weight exerts a pressure of 0.9 kg per square centimetre upon all surfaces. Since air is fluid, this pressure acts not only downwards but in all directions. Air pressure is measured by means of a barometer. Normal barometric pressure at sea-level is 760 mm or 29.9 inches or 1,013 millibars, but pressure decreases with height. Pressure is not uniform over the Earth's surface but varies considerably from region to region. These differences result from: a) variations in air temperature; and b) variations in water-vapour content of the air. Any increase in temperature causes air to expand, this, in turn, causes the air to rise, a process known as convection. Air containing water-vapour is lighter than dry air because water-vapour is lighter than dry air. Resulting from these variations is a movement of air from cooler, drier areas, with high pressure, to warmer, damper areas, with low pressure. Apart from a small amount of terrestrial heat - heat released from the centre of Earth - the sun is the sole source of heat, and the radiant energy received is termed insolation. The amount of solar energy received depends upon a number of factors or conditions:

1. The sun's output of radiation, which fluctuates slightly.
2. The Earth's distance from the sun, which varies seasonally.
3. The obliquity of the sun's rays, which varies seasonally.
4. The diurnal sun-period, which varies with latitude and the season.
5. The transmission, reflection and absorption of the atmosphere.

The solar energy which reaches the Earth's surface warms the land

and water surfaces which, in turn, radiate energy back into the air, a process known as radiation. Land and water undergo differential heating. Land warms up more rapidly and intensely than water because:
a) land has a lower specific heat
b) there is no transmission to depth (as in translucent water);
c) there is no distribution of heat (as in mobile water);
d) there is less evaporation and therefore less loss of heat.
The air is warmed mainly by:
a) conduction, i.e. contact with the surface;
b) radiation from the Earth;
c) convection, i.e. the ascension of warm air.

Ex 9.37. Answer the questions, support your answer with information form the text:

1. What is the air mainly warmed by?
a) by conduction, transmission and radiation;
b) by radiation, evaporation and conduction;
c) by convection, conduction and radiation.
2. What is insolation?
a) It is the radiant energy received.
b) It is the solar energy which is emitted back by the land.
c) It is the ability of the sun to emit energy.
3. What characteristics of the atmosphere influence the amount of insolation?
a) transmission, humidity and the level of transparency;
b) reflection, transmission and absorption;
c) reflection, pressure and humidity.
4. What factors controlling the amount of solar energy received vary seasonally?
a) the sun's output radiation;
b) the Earth's distance from the Sun;
c) the transmission of the atmosphere.
5. What instrument is used to measure pressure?
a) thermometer;

b) barometer;
c) wind vane.
6. In what directions does air pressure act?
a) downwards;
b) in all directions;
c) upwards.

Ex 9.38. Correct the sentences according to the text:
1. Pressure is uniform over the Earth's surface.
2. Air pressure acts only downward.
3. Any increase in temperature causes air to sink.
4. Air containing water-vapour is heavier than dry air.
5. The solar energy which reaches the Earth's surface cools the land and water surfaces.
6. Water warms up more rapidly and intensely than land.

Ex 9.39. Choose the correct word:
1. Since air is (fluid / solid) pressure acts in all directions.
2. Pressure (decreases / increases) with height.
3. Air pressure is (measured I calculated) by means of a barometer.
4. Any increase in temperature causes air to (contract / expand).
5. Land (warms up / cools) more rapidly and intensely than water.
6. The solar energy which (reaches / leaves) the Earth's surface.

Ex 9.40. Choose the correct verb form:
1. Summer thunderstorms (were accompanied/accompanied/have accompanied) by hail are frequent in places with the heaviest atmospheric turbulence.
2. The temperature-measuring instruments cannot be (to expose/expose / exposed) freely to the sky and direct rays of the sun.
3. Heavy rainfalls (occurred/has occurred/occurs) in northern areas of Scotland on the 25th and 26th of February.
4. The reflecting power of clouds becomes evident when the clouds are (view/viewed/viewing) from an airplane.

5. Clouds have a high reflective power, (estimated/is estimated/are estimated) at about 78 per cent.
6. The heat and moisture (are absorbed/have absorbed/absorbed) from the underlying surface will be carried to higher levels.
7. Continuous records of air temperature are (obtaining/obtained/to obtain) by the use of thermographs or thermometers

Ex 9.41. Read the text and answer the questions:
1. What information is necessary to know about the rainfall of any place?
2. May there be any local factor of precipitation?
3. Where does the water vapour usually condense in the air?
4. What kind of rains is typical of equatorial regions?
5. What factors are necessary to know when considering the rainfall of any place?

Rainfall

Rain is formed when air is cooled beyond its saturation point and the cooling continues. The cooling causes the water vapour in the air to condense - usually around dust particles floating in the air - and form droplets of water. The droplets undergo a process of accretion and enlargement until they become big enough to fall as rain. Rainfall is produced in three main ways, corresponding to three different origins of rain-producing clouds: a) convectional or instability rain. This type, as the name implies, is produced by convection currents. Whenever the land is intensely heated, the hot air near the surface rises vertically. If the relative humidity of this air is high, as often is, and if it ascends rapidly, it is likely to give rise to thunderstorms when carried aloft and cooled. Equatorial regions experience convection rains. Summer thunderstorm rain, as sometimes occurs in Britain, is also of this kind. b) orographic or relief rain. This type of rainfall is produced when moisture-laden air is compelled to rise when it meets a relief barrier. The consequent ascent, expansion and cooling of the air leads to condensation of the water vapour in the air and its precipitation. The leeward sides of mountain barriers, where the air is descending, undergoing

compression and is being warmed, are much drier than the windward slopes and are said to be in the rain-shadow. c) cyclonic, frontal or convergence rain. This results from the meeting and ascension of warm, moist air with and over colder, denser air producing condensation. It is not always possible to define which factor is the cause of local precipitation, e.g. in Britain, cyclonic and relief rain are closely connected; in India the monsoon rainfall may be convectional, orographic or convergent in form. In considering the rainfall of any place it is necessary to know the following:
a) the total annual amount; b) the seasonal distribution; c) the variability of the rainfall; d) the reliability of the rainfall; e) the nature of the rainfall, e.g. torrential, gentle, etc. f) the evaporation rate.

Ex 9.42. Complete the sentences with given words:
condense, rain, precipitation, droplets, descending, convection, clouds
1. When air is cooled beyond its saturation point... is formed.
2. The cooling causes the water vapour to... and form... of water.
3. Equatorial regions experience... rains.
4. The expansion and cooling of the air leads to condensation of the water vapour in the air and its...
5. The leeward sides of mountains, where the air is... are much drier than the windward slopes.

Ex 9.43. Translate into Russian:
1. It is quite unreasonable to expect uniform or typical conditions in all urban area.
2. To compare the two systems we note that the boiling point of water is put at 212 °F and at 100 °C.
3. Because of the natural variability of climate small changes in rainfall and temperature are difficult to identify.
4. To get an accurate air temperature it is necessary that the thermometer be protected from the direct rays of the sun.

5. We observed the evaporation of water, a phenomenon to be fully described later.
6. To give a true picture of the surrounding matter is the task of natural science.
7. Pressure causes ice to melt.
8. The effect was too small to be detected.
9. It is impossible to determine the upper limit of the earth's atmosphere.

Ex 9.44. Choose the correct verb form:

1. The valuable information (to collect/to be collected) by satellites will help to improve previous forecasts.
2. (To simplify/simplified) the process of drawing isobars, a number of empirical rules have (to be developed/to develop).
3. Water particles or ice crystals are so small that the slightest movement of the air is sufficient (to be kept/to keep) them aloft.
4. All attempts (to model/models) the atmosphere in the laboratory have significant limitations.
5. The ability of the air (to hold/to be held) moisture will vary as the temperature varies.
6. (To have converted/to convert) from Fahrenheit to Centigrade we must take 5/9 of the Fahrenheit to obtain the Centigrade.
7. It is not possible (to determine/determine) the source of any particular water vapour in the air at any time or place.
8. Water vapour tends (to be retained/to retain) heat after the sun has set.
9. By comparison with the (a. begin/b. beginning/c. having began) of the twentieth century the accumulation of carbon in the atmosphere has increased dozens of times.
10. Precipitation (a. fall/b. falling/c. is falling) to the earth's surface is either retained where it falls or finds its way into the surface-channel system of the basin.
11. (a. Taking/b. Taken/c. Took) England and Wales as a whole the period from May to September was drier than any of the last 200 years.

12. The more rapidly (a. move/b. moving/c. being moved) molecules escape from the water into the air.
13. Many of the fogs observed on the Grand Banks were tropical-air fogs already in existence before (a. reach/b. reaches/c. reaching) the cold waters near Newfoundland.
14. Weather radar can give useful information (a. concemed/b. concerns /c. concerning) mesoscale systems.
15. (a. Pollute/b. Pollutes/c. Polluted) air is the hallmark of the atmosphere of big cities.
16. In typical American cities, there is a notable double peak of emissions (a. caused/b. is caused/c. to be caused) by the traffic during the morning and evening rush hours.

Ex 9.45. Make sentences from the given words:
1. Water/sun/is/and/the/evaporated/wind/by/the.
2. Water/carried/is/movements/air/by/land/the/towards.
3. Transpiration/plants/is/evaporation/from.
4. Spring/the/feeds/water/streams.
5.Groundwater/origin/of/derived/is/internal/the/Earth/from/interior /the/of.
6. Amount/comes/the/precipitation/from/greatest/of/groundwater.

Ex 9.46. Translate into Russian:
1. If there is no relatively impervious stratum above the water table, there may be no surface runoff.
2. In the valley of the Nile there are records of stage, the oldest of which date back about 5,000 years.
3. Water was flowing down Cooper's Creek and there was appreciable flooding of Lake Eyre.
4. Streams become dry if there is more than a short interval between rains.
5. There is a never-ending cycle, called the hydrologic cycle, of water moving from the atmosphere to the earth, over and through the earth, and to the atmosphere again.

6. Where there are heavy accumulations of snow, the regimen of the spring runoff is controlled by temperature.
7. In the past history there were many examples of flourishing and fertile lands that became desert wastes.
8. Most of the rocks of Scotland are ancient and very hard, showing traces of volcanic action.
9. Many rivers flowing into the English Channel are very short and unimportant, unless they have navigable estuaries.
10. Rivers are chiefly valuable in providing a drainage system and in supplying a means of inland water-transport for commerce.
11. Melting snow can cause a flood without accompanying rainfall.
12. Ordinary methods of measuring streamflow are unsatisfactory.
13. The retardation of snow melting is another service that forests perform in the regulation of streamflow and the protection of watersheds.
14. Increasing population and higher standards of living demand an ever greater food from the soil.
15. The loss of soil, or soil erosion is becoming rapidly widespread and acute.

Ex 9.47. Choose the correct verb form:
1. An example of river regeneration on a large scale is the successful attempt (to restore/restored) the Thames estuary.
2. It is absolutely inadmissible (to dump/to have been dumped) uncleaned sewage into rivers and lakes.
3. It appears that Horton was the first (to be suggested/to suggest) the theory of infiltration capacity.
4. In British Isles all the lakes are of fresh water, and all bodies of water large enough (to be called/calling) lakes are connected with the sea by means of rivers.
5. Of the moisture precipitated on the land area some enters into the plant fiber (must remain/to remain) until the plant is destroyed.
6. There are various types of evaporation pans (using/to be used

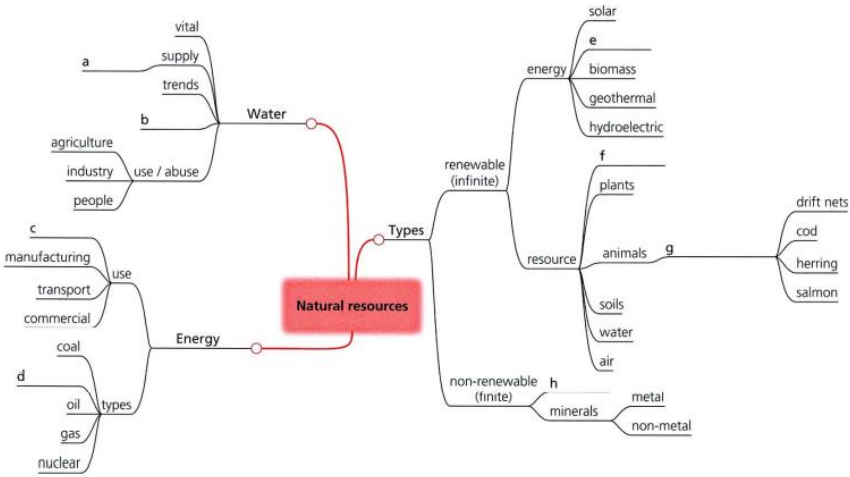
Ex 9.48. Video 17 "Climatic zones" (https://disk.yandex.ru/i/gmjY-SmI-A1scg**) 4:53. Complete the gaps:**

Different climate zones of the Earth are….
The region between the two tropics is ….
The time of the year when the Sun passes overhead the farthest North, is known as the Summer …
And the Winter …… is when the sun passes farthest South of the Equator.
And an …… happens either of the 2 times each year.
When the sun crosses the …….. and day and night are approximately of …… length.
The ……. zone includes, most of Africa, Southern India, Southern Asia,
Indonesia……
……
…….
Next is the …… Zones.
And the …… Circle in the North.
And the ……Circle in the South respectively.
The North ……. Zone includes
……
……
…….
The South …….. zone includes
……
……
……
And so it's called the
…….. Zones.
These zones lie beyond the ……..
and …….. circles.

Ex 9.49. In groups imagine you could create a new country made up of the best qualities and features from other countries.
What would your country be called?
What would your country be like?
Write down your ideas for each category: climate, food, culture, people, environment, the standard of living, natural resources, capital city, population, anything else.

UNIT 10. NATURAL RESOURCES

Ex 10.1. Write these words in the correct place on the word map [4]:
cycle, domestic, fossil fuels, land, overfishing, peat, purification, tidal



Ex 10.2. Read and answer the questions:

The use of resources

Natural resources. Resources help people satisfy their needs and wants. Natural resources — a naturally occurring material that can

be used to produce goods and services — occur as part of the environment and are an important part of an area's characteristics. Renewable resources can be used over and over again, but scarce and non-renewable resources must be conserved or recycled for use by future generations.

Earth is a planet rich in the materials necessary to support life. People can live only by making use of the earth's natural resources. Resources include not only minerals, soil, water, forests, and wildlife, but also air and the energy of the sun when people know how to make use of them. People convert the things that nature provides into useful machines, tools, and foods. Even the most desolate and isolated areas of the world contain at least some resources, or materials that people use to meet basic needs and wants.

As people use natural resources, they change the natural landscape. Changes in the landscape brought about by mining and farming illustrate this idea. Yet the use of natural resources also brings about changes in the cultural landscape. Centuries ago the Romans built stone aqueducts to carry water to many parts of the Roman Empire. For some people, this made water readily available for the first time.) Today vehicles use highways, canals, and airways to speed the movement of valuable resources throughout the world. Not all people in the world use natural resources in the same way. Factors that affect the use of natural resources include cultural differences, technological change, economic factors, and geopolitics.

Cultural differences. People in different times and places may have different ideas about whether something supplied by nature is or is not a Natural resource. Years ago, for example, Native Americans viewed the Great Plains of the United States as hunting grounds, while settlers moving west across the frontier saw the Great Plains as a place for farms and towns.

Even people in the same culture may view and use resources differently. A farm family may see a forest as a source of winter warmth and cooking fuel. Loggers may see the forest as a place to

find jobs. Campers may see the forest as a recreational area in which to spend vacations.

New technology also affects how people value and use natural resources. Before tractors and trucks, farmers considered mules to highly valued resource. Mules pulled plows and carried crops to market. Today tractors and trucks do the work once done by mules. For this reason, people value mules less than they did in the past.

Technological change also creates uses for previously unvalued natural materials. In the 1700s people did not use uranium ores and did not value them as natural resources. Uranium ores gained value only after modern advances made them useful as a resource for nuclear energy.

Economic factors. These factors also play an important part in the way people use natural resources. Scarcity and rising prices have always led people to seek cheaper substitutes for costly resources. In colonial days, for example, people burned whale oil for lighting. As demand for whale oil rose, more and more whales were hunted. Eventually overhunting made whales harder to find and prices rose. People then looked for cheaper substitutes. In time they found a way to make kerosene from petroleum. Because kerosene cost less than whale oil, it quickly replaced whale oil as a lighting fuel.

Another factor that affects the use of natural resources is geopolitics — the relationship between geography and political policy. The international trade of scarce minerals provides an example of the importance of geopolitics in today's world.

Most mineral deposits are unevenly distributed across the earth. This uneven distribution has resulted in increased world trade as countries Jacking certain mineral resources buy what they need from other countries. Depending on the circumstances, a price increase or interruption in supply could result in great changes in the country importing the mineral. Geopolitics is becoming an increasingly important force in the world today [2].

1. Why are natural resources important?

2. How can the use of natural resources change a) the natural landscape and b) the cultural landscape?
3. What different factors affect the value and use of natural resources?
4. How did technological advances and economic factors change the way people met their needs?

Ex 10.3. Supply the geographic term that correctly completes each sentence:

1. Materials people use to meet basic needs are called _____.
2. A _____ can be replaced naturally and can be used over and over again.
3. A _____ is an inorganic substance in the earth's crust, such as gold and iron ore.
4. _____ is the soil layer that consists of decayed plants and animals.
5. _____ makes it possible to reuse products that have been used and discarded.
6. A person who works to protect natural resources is a _____.
7. _____ are oil-based materials.
8. An energy source that has been formed from the remains of plants and animals that died millions of years ago is known as a _____ .

Ex 10.4. Match the words in A with the words in B to form word combinations:

1) A. hunting; decayed; muscle; hazardous; resource; fossil; mineral; natural
B. fuel; depletion; power; ground, gas; deposit; waste; plant
2) A. to gain; to manufacture; to meet; to plow (plough); to raise; to pump; to deplete; to prevent; to generate; to preserve
B. electricity; oil resources; erosion; basic needs; goods; fields; value; natural habitat; crop; water

Ex 10.5. Cross out a word in a line which is different. Number each line according to the headings given below:

forest bauxite soil wildlife
sun wind fossil geothermal
iron ore sun energy copper fossil fuel
overhunting overfishing overlapping overgrazing
abundant scarce exhaustible fragile
fertilizers traces sewage pesticides

1. Overuse of something.
2. Renewable natural resources.
3. Pollutants.
4. Resources that can be depleted.
5 Non-renewable natural resources.
6. Kinds of energy.

Ex 10.6. Match the verbs close in meaning in A and B:

A. bring about; demand; encourage; dispose (of); deplete; concern; gain; rely (on); replace; supply; search (for); prevent; convert
B. provide; reduce; worry; depend (on); acquire; substitute (for); look for; stop; change; discard; require; stimulate; cause

Ex 10.7. Match the words in A with the words in B to form word combinations:

A. naturally; unevenly; readily; virtually; previously; relatively; commonly; highly; extremely; increasingly
B. cheap; valued resource; important; occurring material; dangerous; recycled materials; available; inexhaustible power source; distributed; unvalued natural materials

Ex 10.8. Match the words and word combinations with the phrases from the previous exercise:

Water (for some people), most mineral deposits, mules, uranium ore, natural resources, geopolitics, paper, electricity generated by nuclear energy, sun, nuclear materials.

Ex 10.9. Translation into Russian:

1. Natural resources are naturally occurring materials that are used to produce goods and services.
2. People use natural resources in many different ways.
3. Energy resources support industrialization.
4. Human innovations help the earth produce more agricultural resources.
5. All places on the earth have advantages and disadvantages for human settlement. A natural resource is a great advantage to a group of people able to use it. Land, soil, and water are examples of natural resources. Other examples include fish, wildlife, vegetation, and minerals. Minerals are inorganic substances found in the earth's crust, such as coal, copper, and iron ore.
6. The use and value placed on the earth's abundant resources are affected by cultural differences, changing technologies, economic factors, and geopolitics. Technological advances have changed the patterns of resource use throughout the world.
7. Some natural resources are renewable — they are replaced naturally and supplies can be used over and over again. Other natural resources are non-renewable — their supplies diminish with use and are not replaced.
8. Both renewable and non-renewable natural resources help people satisfy their needs and wants.
9. Mineral resources are unevenly distributed on the earth. This uneven distribution leads to global interdependence.
10. Energy resources are essential to industrial societies. Coal, oil, and natural gas are non-renewable fossil fuels. Hydroelectricity and solar energy are based on abundant or renewable resources, but each of these alternative energy sources, along with nuclear energy, currently has disadvantages.
11. Industrial societies depend on non-renewable energy sources but are experimenting with other sources such as hydroelectricity, nuclear energy, and solar energy.

Ex 10.10. Read each sentence. Some are correct, but some have a word which should not be there. Tick (✓) each correct sentence, if a sentence has a word which should not be there, write it next to the sentence.

Renewable and non-renewable energy

1. Some of the energy we use is renewable and some is non-renewable. _____
2. Renewable energy can be used open repeatedly without being used up. _____
3. Wind energy can be cleanly captured with huge turbines on wind farms on land or on water. _____
4. Tidal energy is collected from the wave movements in the sea and some river estuaries. _____
5. Hydroelectric power is produced by capturing the energy created by outward falling water. _____
6. Solar power comes from the energy from the rays of the sun. _____
7. All of these are examples of renewable or non-finite energy. _____
8. Some sources of energy are non-renewable or finite. _____
9. These are fuels that must be burned in order to release their energy and once burnt through, they cannot be used again. _____
10. Finite resources include oil, gas, coal, olive, and peat and they will eventually be used up. _____
11. Much of our energy now comes in the form of electricity and is called a secondary source of energy, because it is generated from original fuel sources. _____

Ex 10.11. Read the text and sort the arguments for and against oil into the correct column:

Oil: for and against

Oil is the world's most popular source of energy and is the world's most important trading commodity. Petrol has many advantages as

a fuel. There is a plentiful supply of oil with enough to last for another fifty to a hundred years. Having said that, oil is a finite source of energy. This means that there is only a certain amount of it in the ground to extract. Many people predict that, unless energy is conserved or much more oil is discovered, the present world's oil supply could be used up by the end of the 21st century. It is a relatively clean fuel to burn. It gives off few fumes or smoke and so to a certain extent may be considered environment-friendly.

There have, however, been numerous infamous occasions of catastrophic oil spills from damaged ships at sea which create great environmental pollution. As a result, coastal wildlife, such as seagulls, are killed and beaches are damaged. It is an efficient fuel which gives off great heat when burnt. It is easy to handle and transport. Huge oil tankers can transport millions of litres at a time. It is easily stored in domestic tanks and is piped directly to domestic burners in people's homes. Numerous by-products such as synthetic fabrics, paint, dyes and other chemicals are manufactured from oil.

For	Against

Ex 10.12. Read the text and explain how this small island became so rich:

How a tiny country became rich

When an English sea captain first saw the Pacific island of Nauru in 1789, he called it Pleasant Island. It was a good name for the coral island. The low cliffs formed a backdrop for the palms along the beach. The people of Nauru probably numbered about 1,000 in 1789. Like other Pacific Islanders they lived by fishing, growing a few roots, and harvesting coconuts and bananas. They made little use of the rocky plateau that covered four fifths of their island. Nothing much grew among the rocks except a few coconut palms.

In 1900 a New Zealander discovered that Nauru's rocky plateau consisted of high-grade phosphate. It is very valuable for fertilizer. A few years later a foreign company began to mine the phosphate

rock and ship it abroad. The mining of this tiny island with an area of only 21 square km has continued to the present day. Over the years millions of tons of the island's rocky center have been dug up and exported.

After Nauru became independent in 1968, income from the export of phosphate made it a rich country. Nauruans have never done much work in the mine. Foreign workers do most of the hand labor. Today most Nauruans have other jobs with the mining company or work for the government. They no longer fish — except for fun. They do not depend on coconuts and bananas for food. They import most of their food, along with automobiles, motor scooters, radios, and other manufactured goods. During times of drought they even import water from Australia or Japan. Nauruans pay no taxes, but the government provides free medical and dental care, education, bus transportation, and even copies of the island's only newspaper. The export of phosphate pays for all of this. Nauruans live by the sale of one important resource — the island itself.

The number of people on Nauru has grown with its wealth. Its population in 1900 was probably not much larger than it was in 1789. Today about 8,000 people live on Nauru. This is seven or eight times the number of people that were there when the English captain first sighted Pleasant Island.

The change of attitude. The history of Nauru is unusual. Before 1900 the people of Nauru had very little use for the rocky plateau on their little island. They had no use for the rocks except to make sinkers for their fishing lines. They thought it very strange that outsiders went to so much trouble to dig the rocky dirt on their island. For the people of Nauru in 1900, the rock was not a form of wealth. Today they well understand that phosphate rock is Nauru's greatest wealth, their most valuable natural resource.

The people of Nauru have lived well in recent years by selling their major natural resource. Unfortunately, the supply of phosphate rock on the tiny island is limited. The supply will be used up in the near future. Someday the last scoop of rock will be loaded on board ship, and the mine will be closed. What will happen then? Some islanders

are reported to reply with an old saying: "Tomorrow will take care of itself." Fortunately, other Nauruans think that they had better plan today to take care of themselves tomorrow.
The government of Nauru has invested part of the profits from the Phosphate abroad. Nauru owns the tallest building in Melbourne, Australia, as well as hotels and other buildings on different Pacific islands. The government hopes that in the future Nauruans will be able to live on the income from foreign investments. Perhaps they will be able to. In any case, they will not be able to depend on phosphate mining much longer.
The Nauruans are not the only people to face the problem of what to do when they have used up a limited resource. The people of the whole world face this problem as they use up more and more of the earth's limited resources.
The world has used a great deal of oil. What will happen as the world keeps using more oil? Some people give the same answer as those Nauruans who say, "Tomorrow will take care of itself." Others believe that we should carefully conserve the oil we still have and that we could develop other resources to take the place of oil.

Ex 10.13. <u>Report</u>. Give examples you know of the rational or careless use of natural resources.

Ex 10.14. Read about the current situation of Nauru. What happened?
Phosphate has been mined on Nauru since 1907. For much of the 20th century the phosphate industry was owned and operated by a corporation jointly managed by the British, Australian, and New Zealand governments. The government of independent Nauru gained control of phosphate operations in 1970, and in the 1980s Nauru was for a time one of the wealthiest countries in the world in terms of gross domestic product per capita. Landowners received royalties from the phosphate earnings, and many Nauruans were unemployed by choice. A major portion of the earnings from phosphate mining was invested abroad, but it lost much of its value

to risky investments and fraud. By the late 20th century, however, the phosphate deposits were quickly becoming exhausted, and Nauru experienced a severe drop-off in earnings, leading to the country's near bankruptcy by the early years of the 21st century. Nauru struggled to develop other resources and find alternative sources of income. Virtually all food, water, and manufactured goods are imported.

UNIT 11. POPULATION. URBANIZATION

Ex 11.1. Complete the text with these words:

Overcrowding in Hong Kong

accommodate, communities, density, distribution, household, housing, migrant, slum

Hong Kong's population 1_____ is 5,860 persons per square kilometer. However, because of its uneven population 2 _____ some areas, such as Mong Kok in Kowloon, have about 40,000 persons per square kilometer (about 100,000 per square mile).

Most of Hong Kong's slum areas have been replaced by public high-rise apartment blocks. Peaceful demonstrations have gained improved 3 _____ nights and improved buildings.

Hong Kong's government has reduced the demand for transport by building numerous planned 4_____ near employment centres. Since many people in Hong Kong prefer living near their workplace, this approach has helped to 5 _____ Hong Kong's large population on its small area of land.

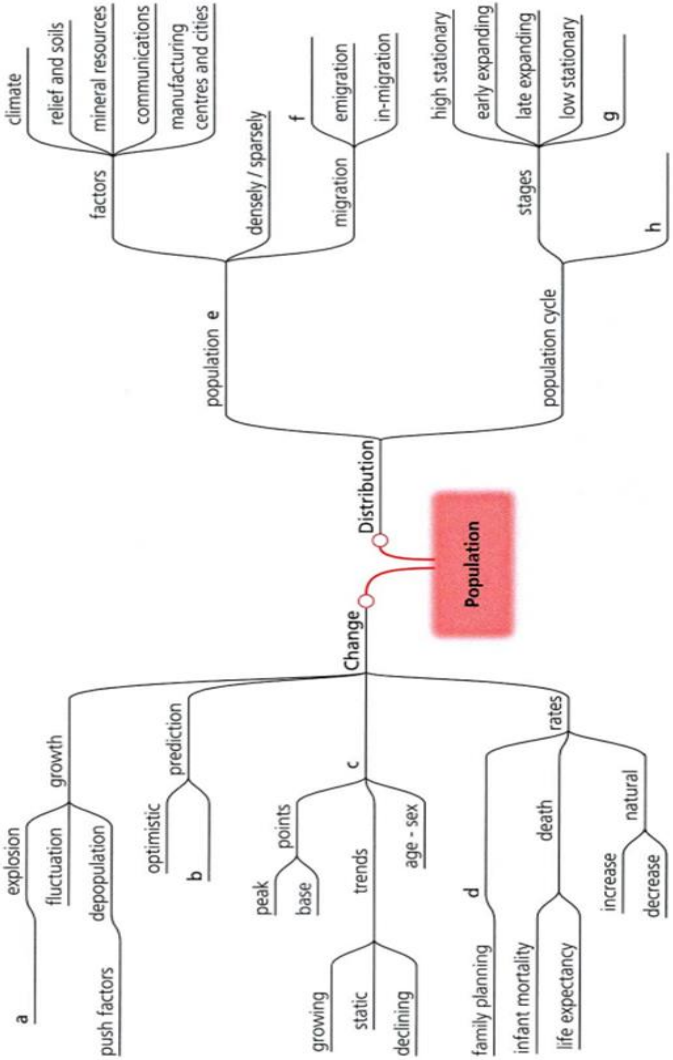
Wages are low in Hong Kong, but rents in public housing seldom rise above fifteen per cent of a family's income and most families pay well under ten per cent of their 6 _____ income.

Some 7 _____ areas are still located in downtown Hong Kong and on steep hillsides. The people who live in these slums are often single men and women, many of them old, who never married.

Many recent 8 _____ families from China and Vietnam live in Hong Kong's harbour area.

Ex 11.2. Write these words in the correct place on the word map [4]:

birth, demographic transition, density, immigration, overcrowding, pessimistic, pyramids, senile



Ex 11.3. Match the beginnings and endings of the sentences:

Population change

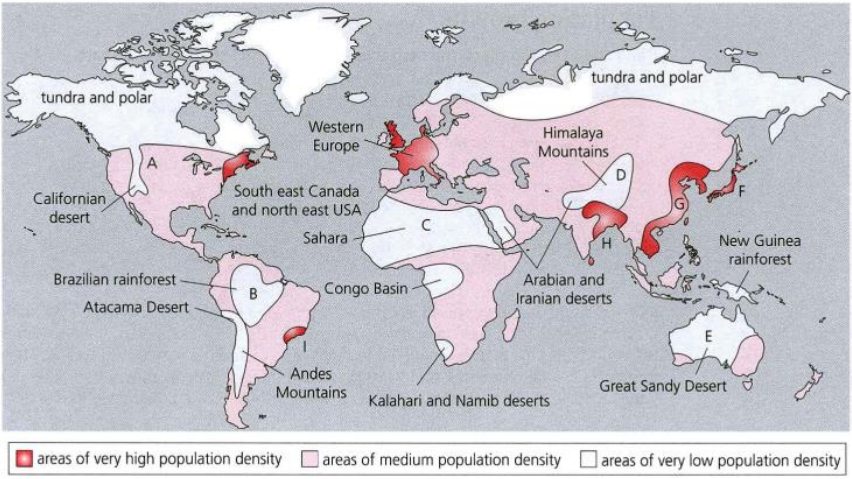
Beginnings	**Endings**
1. Natural increase in a population occurs	a. are called migrants.
2. When the death rate is greater than the birth,	b. because it also takes into account migrants which rate, include emigrants (out) and immigrants (in).
3. Population change may differ from the natural increase or decrease	c. increase population.
4. Birth rate	d. means the number of births for every 1,000 people in a country for one year.
5. The natural increase is found	e. reduce population.
6. People who move home from one country to another	f. there is a natural decrease.
7. Immugrants (into a country, immigration)	g. when the birth rate is greater than the death rate.
8. Emigrants (out of a country, emigration)	h. when the birth rate is measured against the number of deaths (death rate) for every 1,000 people in the same year.

Ex 11.4. Look at the map, and decide which sentences are true and which are false [4]:

Population density

1. Western Europe is an area of very high population density.
2. Areas F and G are both areas of medium population density.
3. Areas in B have very low population density because this is the Brazilian rainforest.
4. Area D is an area of very low population density because this area is almost entirely mountainous.

5. C is an area of very low population density because this is the area of African rainforest.
6. The tundra and polar regions are both areas of medium population density.
7. I is an area of very high population density largely due to the big cities in this area.
8. E is an area of very low population density because this is largely made up of desert.



Ex 11.5. Put the sentences in the correct order:

Population growth in Brazil and Germany

a. On the other hand, the population of developing countries such as Brazil and Ethiopia is increasing rapidly.
b. As a result, there is very little or no natural increase.
c. Firstly, the population of developed countries such as Britain, France and Germany increased rapidly during the industrial revolution from 1750 onwards.
d. They have high birth rates and their death rates are falling rapidly.
e. This creates a large natural increase in population growth.

f. This is because Germany is in the low stationary stage where standards of living are very high and deaths and births are almost equal.
g. This is because these countries are in the expanding stages of the population cycle.
h. This meant an increased food supply, and medicine and the invention of new machines improved living standards at that time.
i. Today, however, the population of rich developed countries such as Germany shows little or no increase.

1	2	3	4	5	6	7	8	9

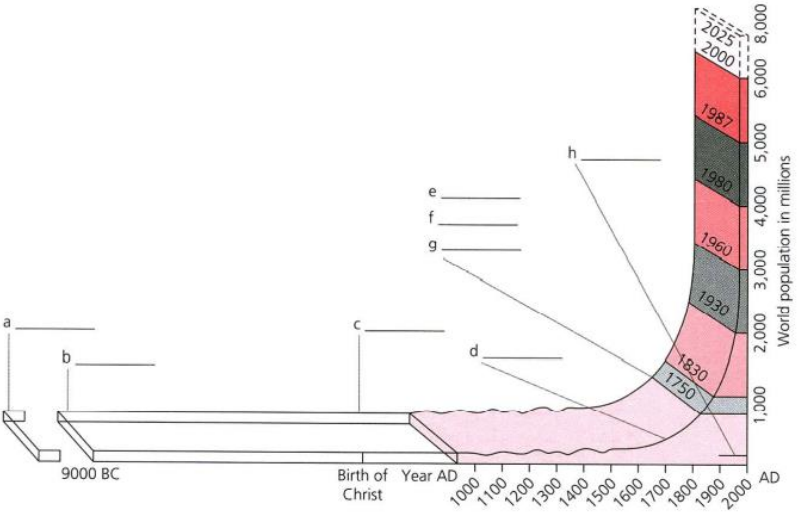
Ex 11.6. Read the text and place the sentences in the correct place on the chart [4]:

Population growth

1. about 260 million people on Earth
2. population explosion during 20th century
3. industrial revolution in Europe provided employment for many people
4. war, famine, plagues and lack of medicine prevented rapid population growth
5. the spread of agriculture and speeding up of population growth
6. improvement in medical knowledge and hygiene
7. new farming methods lead to increased food production
8. population doubled to 520 million

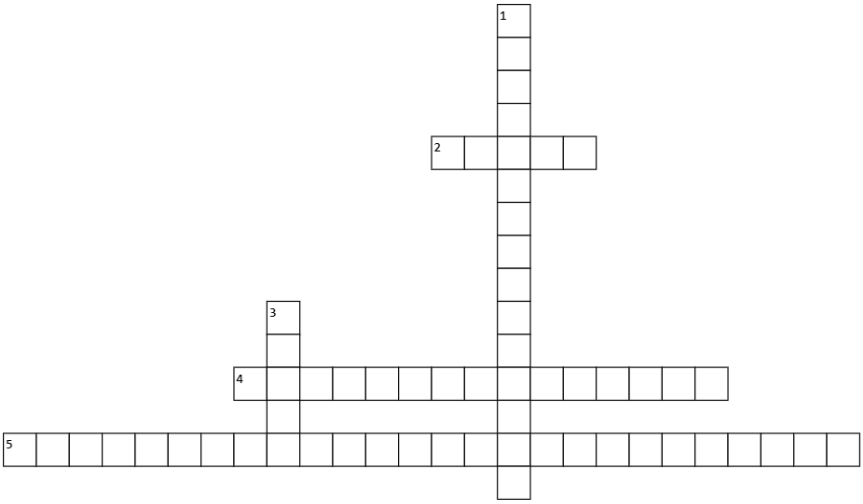
In the past, the world's population fluctuated. War, famine, plagues like the Black Death, and lack of medicine prevented rapid population growth. It is estimated that the population of the world in 9000 BC was about ten million. At this time people wandered from place to place in search of wild cereals. Then, people in Mesopotamia (present-day Iraq) discovered that by using seeds from wild cereals and scattering them in a fertile area they would grow, flourish and produce crops for food. This eliminated their need to wander and so they became the first farmers.

The discovery and spread of agriculture led to a speeding up of population growth. Initially population growth was slow. When Christ was born there were about 260 million people on Earth. Growth rates continued to fluctuate because of war, famine and other natural disasters. It took the next 1,700 years for the world's population to double to 520 million. However, from 1750 onwards the world's population grew faster than before. Around then, new farming methods in Europe such as the development of better breeds of animals and the use of new farm machines, led to a large increase in food production. The invention of the steam engine provided employment for thousands of workers in coalfield areas in Europe. At this time hygiene and medical knowledge also improved. Europeans were healthier, lived longer and had more children than before. They conquered new lands in the colonies, which increased land for agriculture. So the world's population grew faster than ever. Throughout the twentieth century the world's population grew so fast that it was called a population explosion. Improved medical knowledge, hygiene and food supplies throughout the world allow people to live longer and have larger and healthier families.



Ex 11.7. Describe demographic situation in one country without naming it. Other group members try to guess the country.

Ex 11.8. Crossword:



Across

2. _____ rates show the number of babies born per 1000 of the total population within one year.
4. Population decline due to the birth rate being lower than the death rate.
5. A generalised model linking population changes with development changes over time.

Down

1. What occurs when birth rates are higher than death rates.
3. _____ rates show the number of deaths in a year per 1000 of the total population [18]

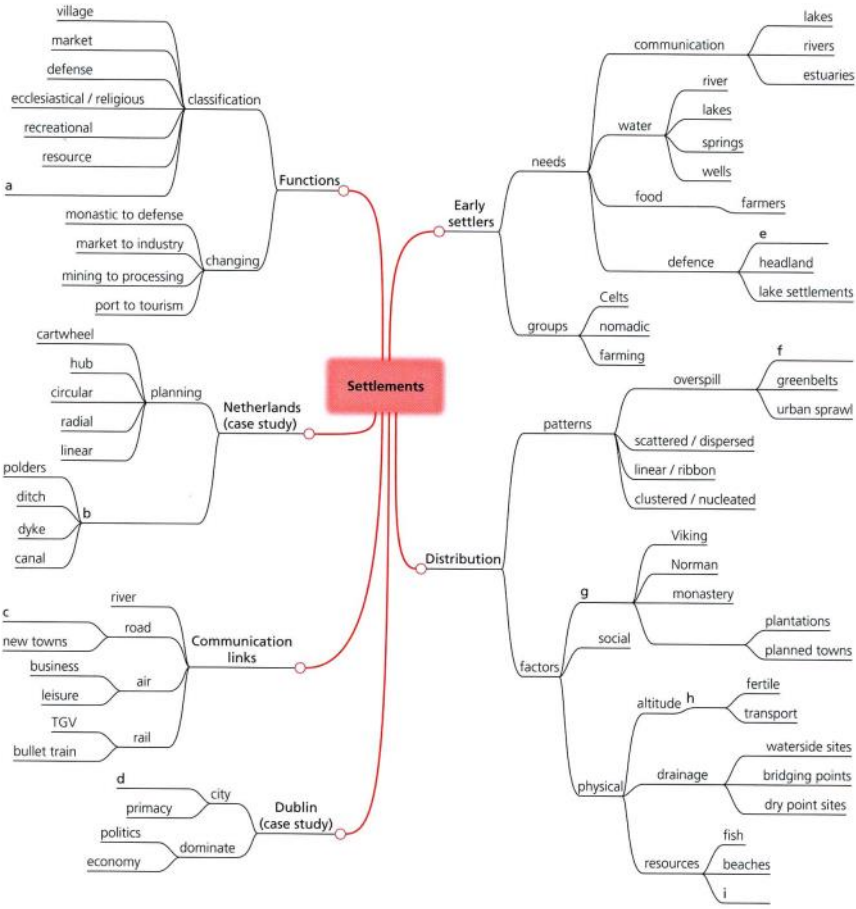
Ex 11.9. Read the phrases and sort them into the correct place in the table "The population cycle":

1. birth rate falls quickly 2. birth rate very low 3. Brazil 4. death rate falls much more slowly 5. death rate falls rapidly 6. Germany and many Western European countries 7. high 8. poor and undeveloped economy 9. rapid increase 10. very slowly increasing

	High stationary stage	**Early expanding stage**	**Late expanding stage**	**Low stationary stage**	**Senile stage**
Birth rate	a	birth rate remains high	b	birth rate is low	c
Death rate	high	d	e	death rate is also low and people live long lives	
State of Economy **Reasons for changes in birth and death rates**	f Wars, famines and diseases. Few medical facilities.	Economy improves. Some new industries are established. New improved hospitals are built in cities. Vaccinations are introduced and food supplies improve.	Economy improves further. Many new industries set up. People's incomes improve. Parents have fewer children. People live longer.	Economy is developed: people are 'well off'. People have few or no children. Birth rate may be lower than death rate, so the population may fall slightly or remain the same.	
Natural increase in population growth	slow	g	still increasing but rate of growth is slowing down	h	Stable or slightly decreasing.
Examples of countries experiencing these conditions	Parts of Ethiopia near the border with Eritrea, Rwanda	i	Venezuela	j	

Ex 11.10. Write these words in the correct place on the word map [4]:

Primate, historical, land quality, reclamation, hinterland, convergence, hilltop/knolls, lowlands, residential/dormitory



Ex 11.11. Match the words with the explanations:

Classifications of settlements by function

Words	**Explanations**
1. resource settlements	a. These provide a small number of services, which cater for people's regular heeds. Services might include small shops, bars, a church and a primary school.
2. dormitory settlements	b. These provide a wider range of services such as specialist shops (like jewelers and clothes shops), banks, insurance offices, a cinema and hotels. Most were once the venues of agricultural fairs and some now contain cooperative marts.
3. villages	c. Many grew up around castles, which offered protection in the event of an armed attack. Some settlements were once surrounded by medieval walls.
4. recreational settlements	d. These developed as a result of natural resources being found nearby Mining towns, such as Navan in Co. Meath, are typical of such settlements.
5. market settlements	e. These are built in sheltered harbours or estuaries and have docking and mooring facilities for ships. Commercial ones are usually larger than those used for fishing.
6. defence settlements	f. All towns are largely residential in nature These are especially so, because they provide a residential function for many people who work in nearby cities.
7. ports	g. These are usually holiday resorts, typically in areas that offer attractions such as sandy beaches, water sports, fishing and golf courses The towns offer tourist information centres, as well as numerous leisure services.

Ex 11.12. Read the sentences and decide which are true and which are false:

Planned urban settlements

1. The town of Emmeloord is located at the periphery of the villages.
2. The villages form a ringed settlement pattern in relation e to the town.
3. The roads make a radial pattern which connects many of the villages to the town.
4. The road that joins all the villages together forms a triangular pattern.
5. The settlements are well laid out from a farmer's point of view because they have easy access to other farms and to the market in Emmeloord.
6. The circular road 1s well planned as it joins Emmeloord to all of the villages.

Ex 11.13. Read the information and sort it into the grid to make short texts:

European airports

a. air travel has improved the comfort of travel and has reduced the time taken to reach foreign places
b. capital cities like London and Paris
c. competition between travel companies has reduced air fares and increased the number of flights to a greater variety of places
d. developed cities such as Paris and London, which have expanded because of the extra business created by air traffic
e. European people have become wealthier and so can afford to travel more often on holiday
f. industrial areas like the Ruhr in Germany
g. new towns, such as Shannon New Town in Co. Clare, which have developed near airports
h. recreational areas like Spain's Mediterranean coastline
i. religious centres like Lourdes in France and Knock in Co. Mayo

j. there are far more companies in developed countries now than before. Many of their personnel need to travel between their offices or factories for business purposes.
k. tourist resorts, such as Alcudia and Santa Ponza in Majorca, which have grown from tiny fishing villages into large seaside resorts

Many large international airports have been developed over the past sixty years. These airports have attracted large numbers of people to certain places such as (4)	**Many large airports been built during this time because (4)**	**The presence of so many airports has led to the growth of settlements like (3)**

Ex 11.14. Complete the sentences with these words:

Paris

commercial, cultural, dominated, located, manufactured, outer suburbs, primate, redeveloped, scattered

1. The economic and social life of France is _____ by Paris, the capital and centre of government.
2. With a population of almost 11 million, Paris is several times larger than Lyons, which is France's second biggest city. Paris is therefore a _____ city.
3. The CBD of Paris is _____ in the heart of the city around such famous streets as the Champs Elysées.
4. To the west of the CBD is La Défense, an elegantly _____ area of Paris. The CBO is usually in the busy centre of a city and is a city's main commercial area.
5. Land is extremely valuable and buildings are usually high, occupied usually by profitable _____ offices, banks, department stores and specialist shops such as jewelers.

6. The CBD is also likely to contain important _____ centres such as museums and cathedrals.
7. A number of traditional industries still make light, luxury items in _____ city-centre locations.
8. Heavy industries make bulky products in the north-eastern suburbs and most _____ goods are produced in the suburbs and fringes of Paris.
9. Modern industries produce electronics, medicines and many other products in the _____ and new satellite towns.

Ex 11.15. Put the phrases in the correct order to make sentences:

Inner city development and new towns

1. are used, inner city decay, redevelopment and renewal, to combat, urban
2. are built, to reduce, new towns, urban sprawl, uncontrolled
3. are demolished, houses, is where; old, run-down; redevelopment; urban
4. are, in new towns, in the suburbs, or, rehoused, their inhabitants
5. are then used, commercial purposes, inner city sites, mainly for, multi-storey car parks, shops and, such as offices, the valuable
6. are refurbished, means that, new houses, old dwellings, or replaced by, urban renewal
7 and other, are encouraged, are provided, community centres, facilities, in their old localities, existing inner city residents, so that, to remain
8. are, built, in order to, near large cities, new towns, reduce, sometimes, urban sprawl
9. a planned, are deliberately built, but, do not grow, maximum population, naturally, new towns, to house
10. and, are built, are connected to, good transport systems, near large cities, new towns, the cities, with
11. and, is, of nearby cities, prevent urban sprawl, so, the overspill populations, their main function, to house

12. as well as, carefully planned, contain, industrial estates, new towns, services, shopping centres, such as

Ex 11.16. Read the sentences and sort them into the correct order in the grid:

Variations in housing

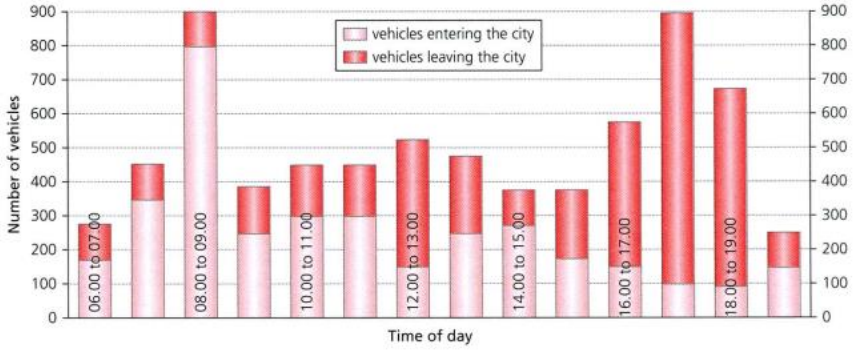
a. The quality of housing vanes greatly within cities.
b. Because most cities grow outwards, the newest houses are usually to be found in the outer suburbs of cities.
c. Most outer suburbs contain low-density, semi-detached or detached dwellings which are typically two-storey houses with front and back gardens.
d. Most cites grow from their centres outwards, so most of the older houses are situated in or near inner city areas.
e. Public housing estates, built by city corporations, usually contain dwellings that are modest in size and quality and are typically three-bedroom terraced or semi-detached houses with small front and back gardens.
f. Most inner city residences are multi-storey, high-density, terraced dwellings with little or no garden spaces.
g. Some privately built estates contain very large, high-quality houses for wealthy buyers with top of-the-range detached houses that may contain five or six bedrooms and large front and back gardens.
h. Houses tend to be older in inner city areas and newer towards the suburbs.
i. The densities and heights of houses tend to become lower from the inner city outwards.

	Tendency	**City**	**Suburbs**
Age of housing	1	2	3
Type of housing	4	5	6
Quality of housing	7	8	9

Ex 11.17. Look at the diagram and decide which sentences are true and which are false [4]:

Traffic patterns in Cork

1. The hour with the most ingoing traffic is 17.00 to 18.00.
2. The most outgoing traffic occurs between 07.00 and 08.00.
3. The two hours best described as rush hours are 08.00 to 09.00 and 17.00 to 18.00.
4. The most significant amount of outgoing traffic in between the rush hours occurs between 12.00 and 13.00.
5. There are two peaks of ingoing traffic in between the rush hours.
6. Generally speaking, the ingoing traffic flow in the morning period is less steady than the outgoing traffic flow in the afternoon and evening.
7. There is more traffic going into Cork between 06.00 and 07.00 than there is between 14.00 and 15.00.
8. More vehicles enter and leave Cork between 07.00 and 08.00 than between 12.00 and 13.00.



Ex 11.18. Read the text and sort the information into the table:

The expansion of Dublin

biggest manufacturing city, chef commercial centre, city-suburb migration, focus of transport routes, location of civil services, post-independence capital, rural-urban migration

There are a number of economic reasons for the growth and dominance of Dublin. Firstly, it 1s the focus of Ireland's road, rail and other transport routes. Secondly, it contains Ireland's chief port and airport. It is also Ireland's biggest manufacturing city. Finally, it is the chief commercial centre and port and it contains the headquarters of several Irish banks and other commercial firms.

There are also several social reasons for this phenomenon. Rural to urban migration greatly enlarged the population of Dublin. This means that many people moved from the countryside to live in the city. Additionally, the migration of people from the city centre itself to live in the suburbs caused Dublin to expand outwards.

Finally, there are also administrative reasons for the expansion of the city. After Irish independence in 1921, Dublin once again became the capital of Ireland. The Irish civil service operates mainly out of there. This means that the management of the whole country is located in Dublin.

Economic reasons	Social reasons	Administrative reasons
1	4	6
2	5	7
3		

Ex 11.19. Read the text and make notes in the framework provided:

Functional zones

Within cities, there is a general tendency for different areas or zones to be given over to different functions or uses. For example, some areas may be used mainly for housing, while other zones may be devoted principally to recreation, shopping or manufacturing industries.

Few urban dwellers do their regular shopping in the CBDs of large cities. Most people prefer to use shopping areas closer to where they live. Some of these smaller shopping areas were once the CBDs of small towns, which have been ‘swallowed up’ by growing cities. Some are the CBDs of new ‘satellite towns’, which

more recently were built at the fringes of cities. Most modern cities now contain numerous specially built shopping centres, each of which is made up of several stores adjacent to each other. Usually shopping centres are located in residential suburbs where they satisfy the day to day shopping needs of local residents. Some centres are located within the shopping areas described above.

Large cities usually have several different manufacturing zones. A small number of older industries may still exist near to the city centre. Most of these would produce valuable products in relatively small factories. Most modern industries, however, are now likely to be situated in new industrial estates in the suburbs. Land there is usually much cheaper and traffic congestion less serious than in areas closer to city centres. Likewise, industries that import or export bulky goods may be situated near dock areas.

Residential zones can be found in most city areas. The oldest ones are usually in the inner city areas. Some old housing areas fall into decay or are converted into very expensive apartments for wealthy people and many innercity residential areas are rezoned and redeveloped as profitable commercial areas. Most of the newer residential zones are in the city suburbs and in new satellite towns on the fringes of the cities. Housing is generally much more affordable there, because land values are not as high as in the city centre. Some satellite towns may be called commuter towns if many of their inhabitants commute to and from work in the city proper.

Most European cities contain within them many open spaces for recreation. Such spaces may vary from large, formal parks to small, children's playgrounds. They enable urban dwellers to escape from the noise and stress of modern life.

Introduction	
Zones given over to 1	
Smaller shopping areas	
In CBDs 2	or CBDs of 3
Shopping centres	
In residential 4	or within 5

Industrial areas	
Older industries 6	
Modern industries 7	
Residential areas	
Oldest in 8	
Newer 9	
Open spaces for recreation	
Children's 10	
Escape 11	

Ex 11.20. Read your part of the text, prepare a brief summary of it and get ready to retell it to others in a group:

Urban problems

Urban Neighborhoods and Poor Health

Social scientists have long thought that poor urban neighborhoods pose, in and of themselves, significant health risks for their residents. These neighborhoods lack supermarkets with fresh fruits and vegetables, and they lack safe parks and other settings for exercise. They are also neighborhoods with high crime rates and thus much stress. For all these reasons, they should impair the physical health of their residents. Reflecting this argument, the residents of poor urban neighborhoods do, in fact, exhibit significant health problems compared to the residents of wealthier neighborhoods.

Although this argument might sound compelling, the residents of poor and wealthier neighborhoods might differ in other ways that affects their respective health. For example, people living in wealthier neighborhoods are generally more educated and more conscious of taking care of their health. If their health then is better than that of their counterparts in poor neighborhoods, it is difficult to know how much the neighborhood setting itself plays a role in the health of residents.

Crowding

Another problem is crowding. Cities are crowded in at least two ways. The first involves residential crowding: large numbers of people living in a small amount of space. City streets are filled with apartment buildings, condominiums, row houses, and other types of housing, and many people live on any one city block. Residential crowding is perhaps the defining feature of any large city.

The second type of crowding is household crowding: Dwelling units in cities (apartments and houses) are typically small because of lack of space, and much smaller overall than houses in suburbs or rural areas. This forces many people to live in close quarters within a particular dwelling unit, especially if they are low-income individuals or families.

Housing

A third problem involves housing. Here there are several related issues. Much urban housing is substandard, as this chapter's opening news story illustrated, and characterized by such problems as broken windows, malfunctioning heating systems, peeling lead paint, and insect infestation.

At the same time, adequate housing is not affordable for many city residents, as housing prices in cities can be very high, and usually higher than in rural areas, and the residents' incomes are typically very low. Cities thus have a great need for adequate, affordable housing. According to the US Department of Housing and Urban Development (2012), housing is affordable when a household pays no more than 30 percent of its annual income on housing. Low-income households that must spend more than this benchmark may be unable to afford clothing, food, health care, and transportation. Yet 12 million US households pay more than half their annual incomes for housing.

Another housing issue concerns racial segregation. Although federal law prohibits segregated housing, cities across the country are nonetheless highly segregated by race, with many neighborhoods all or mostly African American. In a widely cited book, sociologists Douglas S. Massey and Nancy A. Denton (1993)

termed this situation “American apartheid.” They said that these segregated neighborhoods result from a combination of several factors, including (a) “white flight” into suburbs, (b) informal—and often illegal—racially discriminatory actions that make it difficult for African Americans to move into white neighborhoods (such as real estate agents falsely telling black couples that no houses are available in a particular neighborhood), and (c) a general lack of income and other resources that makes it very difficult for African Americans to move from segregated neighborhoods.

Children

Because of their circumstances, children who are homeless at least part of the year are at greater risk than their housed peers for hunger, asthma and other chronic health conditions, and stress and emotional problems.

They are at also greater risk for poor school performance. Amid the surge in children’s homelessness, the nation’s schools marshaled their resources to help their homeless children. An official with a private charity that helps poor families pointed out the obvious problem: “It’s hard enough going to school and growing up, but these kids also have to worry where they’ll be staying that night and whether they’ll eat. We see 8-year-olds telling Mom not to worry, don’t cry.”

School districts began sending special buses to homeless shelters, motels, and other settings for homeless children and their parents so that the children could continue attending their regular school. They also assigned social workers to help homeless families and other personnel to bring them school supplies, to drive them to look at shelters where they could live, and to perform other tasks. Federal legislation in fact requires schools to take extra measures to help homeless children, but school superintendents say that the federal government has not provided them the necessary funds to carry out the intent of the legislation. This lack of funding adds to their school districts’ already dire financial situation.

Homelessness

A related problem to housing is homelessness. In cities throughout the United States, men, women, and children live in the streets, abandoned vehicles or houses, cheap motels, or trailers, or living in someone else's home temporarily. In cities with cold climates, homelessness can be life-threatening during the winter. But regardless of climate, the homeless are in a dire situation. Some research finds that one-third of the homeless are victims of violence or theft during the year; this rate of victimization is four times higher than that in the general population (Wenzel, Leake, & Gelberg, 2001). Homeless shelters provide some relief against crime, hunger, and the many other problems arising from homelessness, but too few shelters exist to meet the demand, and those that do exist are underfunded.

It is rather difficult to determine the actual number of homeless persons (Lee et al., 2010). For example, if a family is living literally in the streets, we would all agree they are homeless. But if they are living in an abandoned building or in a cheap motel, should they be considered homeless? Even with an adequate definition of homelessness, it is difficult to actually count the number of homeless persons because it is very difficult to find them all. For example, if researchers count all the homeless people who use all the shelters in a city within a given time period, they still fail to count the homeless people who do not come to a shelter.

Traffic Congestion

One of the costs of urbanization and modern life is traffic. Urban streets and highways are clogged with motor vehicles, and two major consequences of so much traffic are air pollution and tens of thousands of deaths and injuries from vehicular accidents. To reduce city traffic, many European cities are trying to make driving so burdensome that commuters and other drivers will seek other forms of transportation. As a recent news story summarized this trend, these cities are "creating environments openly hostile to cars. The methods vary, but the mission is clear: to make car use expensive

and just plain miserable enough to tilt drivers toward more environmentally friendly modes of transportation."

For example, Copenhagen, Munich, and Vienna have banned cars on many streets. Barcelona and Paris have replaced car lanes with bicycle lanes. London and Stockholm now require drivers entering their downtowns to pay a heavy toll charge. Many German cities restrict parts of their downtowns to cars that meet certain limits on carbon dioxide emission. Other European cities have sharply limited the number of parking spaces at shopping malls and other areas, and they have also eliminated on-street parking.

Crime

Why are city crime rates much higher? Because crime rates take the number of people into account, the answer is not simply that cities have more people than rural areas. Nor is the answer simply that cities have higher poverty than rural areas, because rural areas in fact have higher poverty overall, as we discuss later in this chapter. Rather, an important answer is that cities have higher residential crowding (or higher population density) and also more household crowding, as we saw earlier.

Crime rates are higher in cities in part because the great numbers of urban residents provide many potential targets for criminals.

Several reasons explain why higher residential crowding produces higher crime rates. Consider violent crime. For a violent crime to occur, it takes two people to tangle, so to speak. Criminals cannot kill, rob, or assault someone unless there is a "someone" to assault. In a city, there are many potential targets of violence all crowded together into a relatively small space, and thus many potential targets for criminals. In a rural area, potential targets are spread across miles, and a robber can go a long time without ever seeing a potential victim [19].

How is it possible to solve these problems in your opinion? Discuss in your group.

Ex 11.21. Find someone who…

Find someone who...	Name	More information
... visited two countries last year.		
... has dual nationality.		
... has been to South America.		
... speaks three or more languages.		
... has lived in another country.		
... wants to visit Italy.		
... knows the names of eight countries in Europe.		
... plans to visit another country next year.		
... can say 'Thank you' in five languages.		
... has a friend from another country.		
... can name four nationalities in Southeast Asia.		
... has been to three continents.		
... knows the biggest and smallest country in the world.		

UNIT 12. TOURISM

Ex 12.1. Video 18 “12 Strange behaviors” (https://disk.yandex.ru/i/gaKK1Kqg2qzFSg**) 8:25. Match the countries to the keywords and explain the unusual behavior:**

compliments, cemetery, head, index finger, crossing your index and middle fingers, red ink, stick your tongue, front passenger seat, age, thank you, spitting, left hand.

Ex 12.2. Answer the questions:

1. What country do you come from?
2. How long have you been living in Russia?
3. What kind of a country is Russia in your opinion?
4. Where is it situated?
5. What places in Russia are worth visiting? Why?

Ex 12.3. Read and answer the questions after the text:

The Russian Federation is the largest country in the world. It occupies the area of about 17 mln square km. The country is greater in size than the USA and Canada combined. It covers about an eighth of the world’s land area. From its western edge on the Baltic Sea to the Pacific Ocean on its eastern seaboard is a journey of some 5.700 miles, crossing 11 time zones. The country is situated in the eastern part of Europe and the northern part of Asia. It is surrounded by two oceans (the Arctic Ocean in the north, the Pacific Ocean in the east) and by 12 seas: the White Sea, the Baltic Sea, the Laptev Sea, the Barents Sea, the Black Sea, the Okhotsk Sea, etc. Russia borders on many countries: Finland, Norway in the north, Latvia, Lithuania, Romania, Poland, Estonia, Ukraine in the west, Mongolia, Azerbaijan, Georgia, Korea, Iran, Turkey, China in the south. The longest borderline is with Kazakhstan, which stretches for 7200 km. Russia has seaboard with the USA in the northeast and Japan in the southeast. Having a favourable geographical location Russia provides transcontinental ways from Europe to Asiatic

section, connects two highly developed industrial parts of the world. It has only 40 ports. The results of the census in 2002 put the population at 145 mln people.

The European part is much more densely populated than the Asiatic areas (which are three times as large). One third of the population now lives in the rural areas. There are hundreds of different ethnic groups in the country. The Russians comprise the majority of its population. There are other Slav nations: the Ukrainians, the Beylorussians. The areas in the south around the Caucasus Mountains are dominated by a variety of people; many of them are of Turkic ancestry. The smaller ethnic groups range from Tatar, Chukot to Chinese. Here one can find all kinds of landscapes: rocky mountains with high peaks and deep valleys, plateaus, fertile plains, barren deserts, big seas, lakes and rivers. Russia spans 2 continents, the dividing line between the European and Asiatic parts being the Ural Mountains. Much higher mountain ranges dominate the south of the country, notably the Caucasus in Europe (Elbrus-5.642 km high), also the Altai mountains with the highest point Belukha (4506 m), the Sayans mountains in the Southern Siberia, Sikhote-Alin ridge in the Far East, Chukot, Aldan, Stanovoye upland regions and mountains of Kamchatka peninsula and the Kurile islands with active volcanoes.

There are two large plains in Russia: the Great Russian Plain and the Western Siberian Lowland. To the north lies the arctic tundra, encompassing large parts of Siberia. South of the tundra are dense pine forests of the taiga, the Russian word for “virgin forest”. Conifers, such as Siberian larches, are the main trees in the taiga. Further south still, one finds a mixed zone of forest and steppe or grasslands. Finally, in the south-most regions of the country lie the steppes, almost treeless flat plains. Semideserts extend in the far south. Huge rivers cut across Russia, mostly from north to south. The best-known are: the Don, the Yenisei, the Ob, the Lena (4400 km), the Amur (flows into the Pacific), the Irtysh. The Volga River (3531 km) is one of the longest inland water transportation routes in Europe, running through the Great Russian Plain together with its

tremendous tributaries and finally flows into the Caspian sea (the area of which is 370 sq.km). Most of the rivers are suitable for navigation, many rivers produce electrical power. The potential hydroelectric energy of the Siberian rivers is immeasurable. The Angara alone could provide 70 billion kilowatt hours a year. The largest inland water area is Lake Baikal (1600 km deep and 650 km long), the deepest and the most beautiful lake in the world. Its water is so clear, that you can see the stones on the bottom, if you look down. It contains one sixth of all the fresh waters in the world. Lake Baikal is also the world's oldest lake. Experts are still arguing about its origin and about how seals and sea cows ever came to be in it – not to mention the omul, a white fish of the salmon family. They have identified 1200 different creatures, which are unique to Lake Baikal, many of them reputed to be survivals, which have become extinct elsewhere. The water is cold – even in the hottest summers. Thousands of tourists like to visit it and see picturesque scenery around it.

Covering such a large territory, Russia certainly has different types of climate. It varies from arctic in the north to subtropical in the south. Continental type of climate prevails. The climate of the northern areas is severe, only a few of them remain frost-free during the winter. Average January temperature of below – 60 °C is recorded in the northeast of Siberia (in city of Oimyakon), although light winds and dry air make the weather more bearable than it sounds. It is similar to Canada's climate with cold winters and warm summers. The main cities in European Russia experience average temperatures of -10 °C in January, and reach the high 25 °C in July. The springtime is rather hazardous which brings the melting of snow and serious flooding. The greatest amounts of precipitations fall in the mountains of the Caucasus and Altai (up to 2000 mm per year) and the driest area is Prikaspiyskaya Lowland (about 150 mm per year). Russia is rich in natural resources, such as coal, oil, ore, natural gas and others. The coal is extracted in Pechora, Donbass, Kuznetsk basins. A large amount of iron ores can be found in Kursk. Russia has deposits of copper, nickel, uranium, magnetism, zinc,

lead in the mouth of the Angara River and round Baikal area and in Siberia. A lot of mines can be found in Europe too. The Urals, Karelia, Yakutia are famous for gems. There are 20.000 deposits of valuable variety of raw. It is a great world's exporter of timber both for Europe and Asia. Russia is a well- developed industrial country. It produces textiles, different kinds of machinery, electronics, and food products. Some new branches of industry were recently established. We have chemical industry, hi-tech, aircraft, light and many others [3].

1. Where is the Russian Federation located?
2. Is Russia the largest country in the world? Why?
3. What oceans and seas surround the country?
4. What bordering countries of the Russian Federation can you name?
5. People of what nationalities live in this country?
6. What are the major landscapes for different parts of Russia?
7. What great rivers are there in the country? Where do they flow?
8. What is Lake Baikal famous for?
9. What kind of climate does Russia have?
10. What mineral resources is our country rich in? Where can they be found?
11. What are the biggest and most popular cities in Russia?

Ex 12.4. Agree or disagree with the following sentences:
1. Its favourable geographical location properly serves the purposes of economic development of Russia.
2. In territory the Russian Federation ranks the third in the world.
3. There's only one ethnic group in the country.
4. Russia is dominated by one type of landscape.
5. There are no high mountains in the country.
6. The Russian Federation is noted for some great rivers, which are in the European part of the country.
7. The Russian climate doesn't vary greatly in different parts of the country.

8. There are only few deposits of mineral resources in Russia.
9. Saint Petersburg has always been the capital of our country.
10. There are few unique cities in Russia.

Ex 12.5. Give English equivalents of the following words and word combinations:

омываться; граничит с…; быть лишенным чего-либо; перепись населения; горные области; тундра и тайга; пустыня; огромный приток; опасный; наводнение; славяне, тюркское происхождение; плодородные равнины; суровый климат; неизмеримый потенциал энергии; лосось; уникальные создания; исчезнувшие (вымершие) существа; крупный поставщик древесины; запасы руды, цинка, меди, свинца; добывать природные ресурсы; драгоценные камни; живописный пейзаж; шумный город; курорт; славиться чем-либо.

Ex 12.6. Complete the sentences according to the text you have read:

1) The Russian Federation is so large that … 2) It extends from the icy arctic zone to ... 3) Many rivers with its tributaries are dangerous when … 4) Its landscapes vary from... 5) Lake Baikal is famous for ... 6) The climate of Russia is similar to ... 7) Russia has established many industries such as ... 8) There are some cities of Russia, which …

Ex 12.7. Comment on the statements:

1. The Russian Federation is no like any other country in the world. 2. Russia has always been famous for its rulers. 3. A great number of wars prevented our country from a rapid development and prosperity throughout its history. 4. The extraordinary wealth of natural resources has been a key factor in the Russian speedy industrialization. 5. Lake Baikal is called “Majestic Ocean” in one of the Russian songs. 6. Russia is one of the first to observe universe.

7. Many Russian cities are unique and worth visiting. 8. Biotic plants and animal associations are of great importance for Russia.

Ex 12.8. Video 19 "10 best places to visit in Russia" 13:41 (https://disk.yandex.ru/i/euU3uijCpCbEKQ**). Name the 10 places from the video.**

Ex 12.9. Oral task. Make your own list of 10 places you recommend to visit in Russia. Explain why.

Ex 12.10. Match the beginnings and endings of the sentences [4]:

Tourism and holidays

Beginnings	**Endings**
1. Tourism is a significant tertiary economic activity	a. like skiing or mountain walking.
2. People usually take paid time off work	b. that holidays can have an effect on local areas and communities.
3. Resorts are always at their busiest	c. travel together and stay in the same place.
4. Some people like to do active holidays	d. and is one of the world's largest industries.
5. Some people like to have a passive holiday	e. which means that you cook your own food.
6. Package holidays are organized holidays where groups of people	f. where all of the food and drink is included in the price.
7. Eco-tourism has developed with the awareness	g. and spend their time lying in the sunshine on a beach.
8. Holidays can be all inclusive	h. and most crowded during peak holiday periods.
9. Some holidays are self-catering	i. for a holiday once or twice a year.

Ex 12.11. Read the text and make notes in the table:

Tourism and development, Majorca, Spain

The main types of transport that link one place to another include road, rail, sea and air. Communications include TV and radio, telephone and fax, e-mail and other computer links, and printed matter. Transport refers to the movement of people and goods between places. Communications refer to the exchange of ideas and information, as well as the movement of people and goods between places. Tourism can lead to the development of both transport and communications in a region.

Firstly, large scale tourism creates a need for good transport and communication links to and within tourist areas. Secondly, profits from tourism provide the money to pay for the development of such links. Finally, even the prospect of job-creation and profits from tourism may encourage governments to invest in transport and communication links in potential tourist areas.

Before mass tourism, Majorca was a quiet and remote island. Now Palma airport is the busiest in Spain. Fleets of car ferries carry visitors to and from Portugal, Italy, France and other countries. Narrow country roads have been upgraded and replaced, in places, with motorways. Computer and telephone lines carry tens of millions of messages to and from the island each year.

Introduction	1 2
Development	3 4 5
Majorca examples	6 7 8 9

Ex 12.12. Read the arguments about tourism and sort them into the correct columns, for or against:

For and against tourism

1. Roads, electricity, water and sewage services have all been greatly improved.
2. The tourist boom has provided lots of work in the building trade.
3. Tourism is largely a seasonal business, with a very busy peak during the summer period. At other times of the year, many seasonal workers are without work.
4. These services are overused during the peak tourist season. Roads are overcrowded. Swimming pools use so much water that water is in short supply to local farms. The Mediterranean Sea is polluted annually with the sewage of up to 90 million tourists.
5. Land values have risen so rapidly here that only rich property developers and other wealthy outsiders can afford to buy land. Because of this, local people are gradually losing ownership of their own locality. High land values also mean that fewer public parks or other community amenities are being developed for local people.
6. I used to be a small farmer and was quite poor. I made a lot of money selling my land at a very high price to the property developers.
7. This used to be a lovely, peaceful place. Now it is noisy, brash and full of litter, and has lost its own distinctive character.
8. The cost of living has risen too, especially the cost of food, housing and entertainment. This is particularly hard for those local people who do not make their money from tourism.
9. The high-rise hotels that have been built are extremely ugly. Many of them are poorly finished, and building work seems to be going on all the time! The long unplanned lines of these hotels dominate the skyline and spoil our beautiful scenery.
10. This place used to be far too dull! Now there's plenty of entertainment available.
11. This was once an area of high unemployment. Most local people have now found jobs in hotels, restaurants and souvenir shops.

12. Tourism has brought lots of foreign money to the area. Peoples' standards of living have risen as a result.

Issues	For	Against
A. Jobs		
B. Construction		
C. Ambiance		
D. Services		
E. Standard of living		
F. Cost of land		

Ex 12.13. Video 20 "Never Do These Things in Foreign Countries" (https://disk.yandex.ru/i/SX5SkL49Wtoc3Q**) 10:12. Complete the gaps:**

If you don't want to be in one of those, or better yet featured on YouTube as "that crazy tourist," fined or even arrested, pay attention to our list of do's and don'ts accurate in different countries of the world. "So many countries, so many customs." Any jet-setter will agree this good old proverb is true. In the age of globalization, going places has become an essential part of our life. We're all well aware of the fact that while visiting a foreign country, we must obey certain local traditions and common rules. Failing to do so has given a rich ground for many jokes.

- If you want to surprise your Russian girlfriend or your business partner, _____. _____ of flowers are for grieving and funerals.
- Manners matter more to the people of Chile than to other South Americans. It is extremely important _____.
- _____, for example, is banned in Singapore, so you'd better leave it at home before getting on the plane. If you break the _____ rule for the first time, you may be fined for up to a $1000.

- When in India, you have to keep your private life to yourself and your _____ under control. No matter how much you want to show affection to your special someone, never _____ them in public.
- Similar to India, public demonstration of _____ is not acceptable in Japan. Remember, there is no _____, or even worse, _____, in public!
- A good piece of advice will be to stay as thick skinned as possible since Mexicans love making _____ and never miss a chance to do so. Don't take things too personally.
- Remember the difference between "aussies" and "kiwis." Never mix them up! In case you didn't know: the "aussies" stand for _____, and the "kiwis" – for _____.
- When in Norway, don't ask questions concerning _____. This may be taken for disrespect. Many people here don't attend _____, and those who do will want to keep it to themselves.
- An essential thing to remember before going to Turkey is not to give anyone the _____ sign. It might seem like a sign of approval to you but is considered an obscene gesture for the Turks.
- British people like their pudding fresh and their _____ well-organized. Don't jump the queue. Or expect to be judged by the locals.
- Do not try to play it cool and sound like Irishmen. For Irish people there is no such a thing as _____; they recognize and divide _____ depending on the region of Ireland they come from.
- Don't _____ at people. Germans might look very attractive but try to resist the temptation of _____ at Fraus on the metro. Only poorly educated and crazy people do that here.

- Don't show disrespect for _____. No matter what their _____ may be, Kenyans are very devout.

- For Malaysians, this is "the home of the soul" and the most sacred part of the body. Keep yourself from running your fingers through people's _____, especially babies.

- If you want to have good manners in Korea, use two hands when _____. When you pay for things, pass on your cash or credit card with _____. It's a sign of respect.

Do you know any other things that are prohibited in foreign countries?

Ex 12.14. Video 21 "European stereotypes" 8:59 (https://disk.yandex.ru/i/GnV5GV1R8_XJyQ). Name the stereotypes mentioned in the video.

Ex 12.15. Read and choose names for these types of tourism:

Business tourism, Alternative tourism, Domestic Tourism, Booze Tourism, Countryside Tourism, Educational tourism, Dark Tourism Ancestry tourism, Health and Wellness Tourism, Medical tourism

What are the different types of tourism?

1) In this type of tourism, citizens of a country only travel within their country.

2) Since prehistoric days, it has been a necessary form of tourism. Travelers in need of reclaiming their wellness find this category of tourism quite attractive. This distinctive type of tourism can assist you in overcoming psychological and physical pressure.

3) is a unique form of tourism that goes by the name of mourning tourism. It entails going to places and sites associated with some of history's most tragic events. Examples may include visiting places affected by genocide, war or disaster.

4) is a word for a variety of specialised tourism activities. Volunteer tourism, ecological tourism, community tourism, and medical tourism are just a few examples.

5) It is a specialised activity where visitors enjoy their free time in remote regions or settlements. Tourists might arrange a trip to the isolated community for a few days or a few months.
6) This type of tourism includes traveling to a different location to attend to business issues or work. Examples of activities include attending seminars and meetings, and conferences.
7) It involves traveling in search of new knowledge or learning a new language commonly used in that region.
8) People travel to different regions in the world in search of better medical healthcare and specialised treatment. Some diseases may require a specialised doctor found in another country or a different location from yours.
9) It is a unique category of travel that revolves around the activity of drinking alcohol.
10) It, also referred to as genealogy tourism or root tourism, is a typical form of travel that includes visiting places the traveler has a family connection [20].

Ex 12.16. Video 22 "15 most unusual hotels" (https://disk.yandex.ru/i/ZGhcHmRYLoQtCw**) 19:18. Name them and explain why they are so special.**

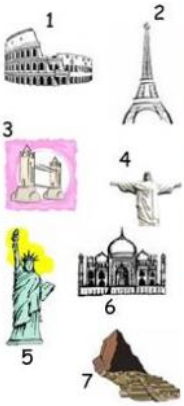
Ex 12.17. Report. Choose one unusual hotel (not necessarily from this text) and make a report.

Ex 12.18. Video 23 "Italian geography" 5:02 (https://disk.yandex.ru/i/Eq6vkn7uywj5OQ). **Describe location, climate, regions and cities, population, landforms, rivers and lakes, mountains, history.**

Ex 12.19. Let's talk about tourism [21]:

How often do you go on holiday? Where have you been?	What are the most popular tourist attractions in your country?	Describe a sightseeing trip you have taken.
Which museums have you visited? Which did you enjoy most? Why?	City trip or beach holiday? Which do you prefer? Why?	What are the benefits of tourism for a country? Explain.
What are possible disadvantages of tourism for a country? Explain.	What kind of jobs are there in the tourism industry? Would like to do one?	What makes a good tour guide? Explain.
For tourists, what is the most convenient way to get around in your country?	Have you flown? Was it short or long haul? Did you suffer from jet lag?	Have you taken a long distance bus trip? How many hours were you on the bus?
Which of the 7 new world wonders do you know? Where are they located?	Which city or country would you like to visit most? Explain why.	Name some landmarks from your city or country. Describe them.
Which countries are the most popular destinations? Discuss. Do online research.	Which cities or countries have you visited? What's your top 3?	Does your country benefit from tourism? In what way?

Landmarks	#	Country
Angkor Wat		
Christ Redeemer		
Coliseum		
Eiffel Tower		
Machu Picchu		
Mount Fuji		
Pyramids		
Statue of Liberty		
Taj Mahal		
Tower Bridge		

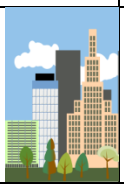
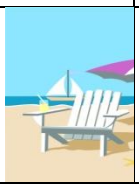


Match

1. go	a. immigration
2. book	b. a museum
3. board	c. some research
4. check	d. an arrival card
5. do	e. customs
6. visit	f. on a trip
7. fill in	g. local customs
8. pass	h. into a hotel
9. go through	i. a plane
10. respect	j. a plane ticket

Ex. 12.20. Plan a trip using the following [22]:

1. Choose a continent and a country
2. Choose the best season to go
3. Where would you like to go?

A BIG CITY	A VILLAGE	A MOUNTAIN	THE BEACH	A RESORT
				

4. I would like to stay for

a weekend a week a fortnight a month

5. You need to make a simple plan of the money you are going to spend on transport, accommodation, food, tours, gifts etc.
6. Where are you going to stay?

hotel	bed & breakfast	apartment	tent	caravan

7. What means of transport are you going to use?
8. Plan the activities you are going to do.

visit museums | go sightseeing | have a bath | hiking

meet a celebrity | visit a monument | go to a music festival | a cruise

9. Make a list of things you need to pack in.

- passport
- tickets
- credit card
- money
- mobile phone
- guidebooks
- map

SUMMER CLOTHES / WINTER CLOTHES

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