



# АНГЛИЙСКИЙ ЯЗЫК

Учебно-методические указания к практическим занятиям

для обучающихся

по специальности 08.02.05 «Строительство и эксплуатация автомобильных дорог  
и аэродромов»

3 курса и преподавателей

Иркутск, 2019

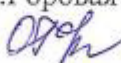
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Данные учебно-методические указания к практическим занятиям предназначены для студентов 3х курсов колледжа, обучающихся по специальности 08.02.05 «Строительство и эксплуатация автомобильных дорог и аэродромов».

Данное учебное пособие состоит из заданий, упражнений и текстов по истории строительства мостов, тоннелей, по развитию различных средств городского транспорта, начиная с древних времен и до наших дней, а также включены сведения и задания по материалам, применяющихся при строительстве различных городских сооружений. В заключительной части учебно-методических указаний предложен краткий грамматический справочник.

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## Introduction.

Учебная дисциплина «Иностранный язык» относится к общему гуманитарному и социально-экономическому циклу Программы подготовки специалистов среднего звена (ППССЗ) и является обязательной для изучения студентами СПО. На основании действующих рабочих программ по иностранному языку, разработанных в соответствии с ФГОС СПО третьего поколения для специальности 08.02.05. *Строительство и эксплуатация автомобильных дорог и аэродромов*. На изучение тем по профессиональной тематике на третьем курсе отведено 48 часов аудиторных занятий и 10 часов самостоятельной работы. Раздел состоит из четырех тем, нашедших отражение в данном учебно-методическом пособии - *The history of building, Building materials, Types of transport, Airdroms and airplanes*. Каждая тема состоит из лексических и грамматических упражнений, текстов и диалогов, а также послетекстовых упражнений. Работа над языковым материалом начинается с введения и закрепления лексики, а для ее активизации предложены различные типы упражнений. В конце пособия предложены таблицы по рассматриваемому грамматическому материалу. К данному пособию прилагается терминологический словарь.

В результате освоения раздела студенты должны уметь:

- общаться (устно и письменно) на иностранном языке на профессиональную тематику;
- переводить (со словарем) иностранные тексты строительной направленности;
- пересказать текст, опираясь на план и используя вводные фразы;
- выделить основную мысль текста и высказать ее на английском языке;
- задавать все виды вопросов;
- употреблять нужное грамматическое время в предложениях;
- рассказать о любом архитекторе или архитектурном памятнике на английском языке;

- рассказать о преимуществах и недостатках строительных материалов на английском языке;
- рассказать о современных средствах транспорта.

В результате освоения раздела студенты должны знать:

- лексический и грамматический минимум, необходимый для чтения и перевода (со словарем) иностранных текстов строительной направленности;
- значение и уместность употребления различных английских аффиксов;
- сложные времена английского глагола в действительном и страдательном залоге.

Для проверки полученных знаний и умений по каждой теме проводится контрольная работа, по темам *Types of transport* и *Airdroms and airplanes* студенты выполняют задания по самостоятельной работе в виде докладов и презентаций.

## Unit I. The history of building

**Task 1. a).** *Study information.*

### Types of affixes.

#### 1. Affixes of nouns:

- ion / - sion /-tion; -ure / -ture; -ment; -ance / -ence - *abstract nouns*;  
 - er / -or - *denotes a job*;  
 -ing - *process*;  
 -ty / -ity; -ness - *property, attribute*.

#### 2. Affixes of adjectives:

-ic; -able / -ible; -ant / -ent ; -ive; -ous; -al; -ful – *presence of the characteristic expressed by stem*;  
 -less - *lack of quality*;  
 -un / -in / -ir / -il / -im - *opposite, not*.

#### 3. Affixes of verbs:

- ize – *from noun, to acquire the features of noun*;  
 re- (prefix) *again or back*.

**b).** *Find in the dictionary all meanings of the words. Construct all possible words adding any affixes.*

*Example: research – researcher (noun), construct – constructive (adjective), write - rewrite (verb).*

1. Engineer \_\_\_\_\_
2. Build \_\_\_\_\_
3. Application \_\_\_\_\_
4. Construct \_\_\_\_\_
5. Utilize \_\_\_\_\_

**Task 2.** *Use the table to construct statements about buildings and builders.*

Her father	is are	a builder.
Builder		an honorable profession.

The builder's profession	have has	many old bridges in our town.
There		pads to protect their hands.

**Task 3.** Read and translate the following word combinations into Russian.

1. Profession of civil engineer \_\_\_\_\_
2. Branches of civil engineering \_\_\_\_\_
3. Utilization of materials and forces of nature \_\_\_\_\_
4. To protect oneself against the elements \_\_\_\_\_
5. Civil engineering \_\_\_\_\_
6. Mechanical engineering \_\_\_\_\_
7. Electrical engineering \_\_\_\_\_
8. Nuclear engineering \_\_\_\_\_
9. Mining engineering \_\_\_\_\_
10. Military engineering \_\_\_\_\_
11. Marine engineering \_\_\_\_\_
12. Sanitary engineering \_\_\_\_\_

**Task 4.** Read and translate the text.

### Civil Engineering

The word "engineering" means the art of designing, constructing, or using engines. But this word is now applied in a more extended sense. It is applied also to the art of executing such works as the objects of civil and military architecture, in which engines or other mechanical appliances are used. Engineering is divided into many branches. The most important of them are: civil, mechanical, electrical, nuclear, mining, military, marine, and sanitary engineering. While the definition "civil engineering" dates back only two centuries, the profession of civil engineer is as old as civilized life.

In order to understand clearly what civil engineering constitutes, let us consider briefly the development of different branches of engineering. Some forms of building and utilization of the materials and forces of nature have always been necessary for man. Man had to protect himself against the elements and sustain himself in the conflict with nature.

Up to about the middle of the 18th century there were two main branches of engineering - civil and military. The former included all those branches of the constructive art not directly connected with military operations and the construction of fortifications, while military engineering concerned itself with the application of science and the utilization of building materials in the art of war. But later there came a remarkable series of mechanical inventions, great discoveries in electrical science and atomic energy. It led to the differentiation of mechanical, electrical, nuclear engineering, etc.

Architecture, which up to the 18th century had been considered a branch of engineering had become a profession by itself. The term "civil engineering" has therefore two distinct meanings. In the widest and oldest sense it includes all non-military branches of engineering as it did two centuries ago. But in its narrower and at the present day more correct sense civil engineering includes mechanical engineering, electrical engineering, metallurgical, and mining engineering.

**Task 5.** Answer the following questions.

1. What are the main branches of engineering?
2. What is civil engineering?
3. How old is the profession of civil engineer?
4. What are the fields of civil engineering?

**Task 6.** Put these items of the plan in the order according to the content of the text above.

1. Two main branches of engineering.
2. The age of the profession of civil engineer.
3. The meaning of the word “engineering”.
4. The widest and oldest sense of the term “civil engineering”.
5. The consequences of inventions and discoveries.

**Task 7.** Use these clichés to retell the text.

I’m going to retell.....

In the beginning of.....

I’ve known that.....

It was interesting to know that.....

Speaking of..... it turned out that.....

The fact that ..... was new for me.....

It goes without saying that .....

Moreover (Furthermore).....

To sum up .....

In conclusion .....

However .....

**Task 8.** Read, translate and complete the dialogue.

**Teacher:** Today we are going to discuss the development of different branches of engineering. Can you name any?

**Student:** Yes, certainly. The most important of them are: civil, mechanical, electrical, nuclear, mining, military, marine and sanitary engineering.

**Teacher:** Let’s remember the fields of civil engineering.

**Student:** In the whole, civil engineering makes housing, industrial construction; the construction of highways, city streets and railroads.

**Teacher:** Explain, please, the fields of mechanical and military engineering.

**Student:**.....

**Task 9.** Read and translate the text.



Most people think of communications only when they want to get from one place to another. But communications are important to the national economy of a country. Without good roads and railways a country cannot develop its resources and industry. Without roads it is impossible to market agricultural produce.

Early man probably used the river as his first means of travel and communications. Here he was safe from the wild animals in the forests. Later, man began to develop roads. These at first would be no more than tracks across the mountains and paths through the forests. But very early in Europe we find the development of the amber trade, from the Baltic coast via the great rivers, such as the Rhine, Elbe and Danube, to the Mediterranean.

In Roman times, roads became important for military reasons. Today we have increased the ways of communication. Roads are still important, water, in the form of either rivers or seas, is useful for carrying bulky materials.

But to these we have added the railway and the airplane. Airplanes cannot carry a great deal in weight, and are used mainly for carrying mail, people, or important goods.

Although the future belongs to air transport the railways today still carry the bulk of passenger and goods traffic. Railway transport is still one of the cheapest ways of hauling freight over long distances.

Modern Soviet railways run a transcontinental passenger service. It rushes the traveler across two continents - Europe and Asia - in most convenient all-metal carriages. The dining-car will cater for all appetites. The luggage-van and the then existing machines could not cope with the ever increasing demands of the mines. The stationary steam engine invented by I. Polzunov in 1763 and installed at some plants paved the way for the introduction of steam as tractive power on railways.

The first steam locomotive in Russia was constructed by the Cherepanovs, father and son, who were considered to be the most skilled and most talented workmen of their time.

The first railway in Russia using steam traction was put into operation at the Nizhni Tagil metallurgical works. It was a short distance line covering only 854 m. It is to the Cherepanovs that Russia owes the right to be placed among the countries which were the first to use steam as tractive power.

Some four years later, in 1837, the inauguration of the St. Petersburg - Tsarskoye Selo railway took place.

That very important railway line, which was 27 km, was soon followed, in 1851, by the construction of the St. Petersburg - Moscow line, 644 km in length. That was a first-class double-track railway line, which linked two large industrial and cultural centers - Moscow and St. Petersburg; 185 bridges and 19 viaducts were erected to make the line as straight and level as possible. P. P. Melnikov and N. O. Kraft, prominent engineers, were in charge of the construction work.

## Notes

1. may be traced — можно проследить
2. as far back as — уже, еще
3. tram-ways — вагонеточные пути

4. who suggested that cast iron rails should be used instead of trams - который предложил использовать чугунные рельсы вместо деревянных (лежней)
5. to meet the needs — удовлетворять потребности
6. to be superior — превосходить
7. to time train movements — составлять расписание поезда
8. to gain ground — распространяться, усиливаться
9. the then existing — существовавшие тогда
10. paved the way — (зд.) проложил путь
11. the Cherepanovs — Черепановы

**Task 10.** Complete each sentence with right variant.

1. Early man used \_\_\_\_\_ (trees, rivers, bridges) as his first means of communications.
2. In Roman times, roads became important for \_\_\_\_\_ (economical, traveling, military) reasons.
3. The future belongs to \_\_\_\_\_ (air transport, railways, sea transport).
4. The first railway in Russia with steam traction was put into operation at the \_\_\_\_\_ (Tsarskoye Selo, Nizhni Tagil, Moscow) metallurgical works.
5. The inauguration of the St. Petersburg - Tsarskoye Selo railway took place in \_\_\_\_\_ (1851, 1763, 1837).

**Task 11.** Complete the sentences.

1. Without good roads and railways a country cannot \_\_\_\_\_
2. Airplanes cannot carry \_\_\_\_\_
3. Railway transport is still \_\_\_\_\_
4. It is to the Cherepanovs which were the first \_\_\_\_\_

**Task 12.** Answer the following questions.

1. What does the communication system include?
2. Why do railways still stay one of the most important ways of communications today?
3. Who was the constructor of the first steam locomotive in Russia?
4. What do you prefer to travel by?

**Task 13.** Use correct forms of adjectives.

1. Civil, mechanical, electrical, nuclear, mining, military engineering branches are (important) \_\_\_\_\_ ones.
2. Civil engineering is (old) \_\_\_\_\_ than nuclear one.

3. Railway transport is still one of (*cheap*) \_\_\_\_\_ ways of hauling freight over long distances.
4. The line covering 854 m. is much (*short*) \_\_\_\_\_ than distance line in 644 km. Nowadays air transport is (*fast*) \_\_\_\_\_ way of communication.

**Task 14.** Choose the correct forms of verbs.

1. During the last hundred years many new methods of building \_\_\_\_\_.  
a) *has been discovered*, b) *have been discovered*, c) *will has been discovered*
2. One of the most recent discoveries \_\_\_\_\_ the usefulness of steel as a building material.  
a) *is*, b) *were*, c) *be*
3. Nowadays it \_\_\_\_\_ often necessary to have a very fast transport.  
a) *is*, b) *are*, c) *were*

**Task 15.** Read and translate the text.

### **The history of road markings.**

In 1911 in Wayne County (округ), Michigan, an automobile driver observed a collision on a narrow bridge between a horse and a buggy (новозка), and an automobile going into opposite directions. Each of the drivers was sure that he was on his own side of the road. The observer was Edward Hines, the governor of the county.

Mr. Hines immediately decided that it must be possible for drivers to determine with certainty where their side of the road was. He ordered a white line painted on the centre of every bridge and every turn within his county.

Subsequently he had his idea extended to all the highways of the county. The centre line and various pavement markings have unquestionably saved many lives. They are now one of the most effective means of controlling traffic.

**Task 16.** Make your own questions for any 3 sentences of the text above.

## **Unit II.**

### **Building materials.**

**Task 1.** *Read and translate the text.*

### **Building materials.**

Building materials - natural and artificial material and products, used at the construction and building repair. Differences in the purpose and conditions to erecting and usages the buildings define varied requirements to the building materials and their extensive nomenclature.

Building materials are distinguished on strictly building materials and building products - ready details and elements, assembled in the building on the place of construction.

The list of building materials is extensive and varied. Alongside with traditional materials - ceramic, natural, stone, glass and other - in the modern construction broadly use new building materials on the base of metal.

At the building activity and erecting it is necessary in the first place to use local building materials (sand, gravel, lime, brick and others) that shorten transport expenses, forming much of the material cost. The greater value for cheapen building materials has a salvaging the departures of industry.

Requirements to the building material and products are kept in state sin formation on the building material, given its determination, specified raw material application, categorization, and division by the sort and marks, methods of test, condition of keeping and transporting.

Official document for builders is also "Building rates and rules", where are kept nomenclature and sizes of main building materials, requirements to their quality, instructions upon their choice and using depending on conditions of usages of raising building standards, standard specifications and other normative documents.

**Task 2.** *Read the sentences from the text with the verbs in Passive Voice, paraphrase them using Active Voice.*

*Example:* This bridge *is made* of concrete.

1). It *is* the concrete bridge.

2). They made this bridge of concrete.

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**Task 3.** Write out the names of natural and artificial building materials.

1. natural building materials: \_\_\_\_\_
2. artificial building materials: \_\_\_\_\_

**Task 4.** Read and translate the text.

### **Properties of materials.**

**Density** (specific weight) is the amount of mass in a unit volume. It is measured in kilogram per cubic meter. The density of water is  $1000 \text{ Wm}^3$  but most materials have a higher density. Aluminium alloys, with typical densities around  $2800 \text{ kg/m}^3$  are considerably less dense than steels, which have typical densities around  $7800 \text{ kg/m}^3$ . Density is important in any application where the material must not be heavy.

**Stiffness** (rigidity) is a measure of the resistance to deformation such as stretching or bending. The Young modulus is a measure of the resistance to simple stretching or compression. It is the ratio of the applied force per unit area (stress) to the fractional elastic deformation (strain). Stiffness is important when a rigid structure is to be made.

**Strength** is the force per unit area (stress) that a material can support without failing. The units are the same as those of stiffness, but in this case the deformation is irreversible. The yield strength is the stress at which a material first deforms plastically. For a metal the yield strength may be less than the fracture strength. It is the stress at which it breaks. Many materials have a higher strength in compression than in tension.

**Ductility** is the ability of a material to deform without breaking. One of the great advantages of metals is their ability to be formed into the shape that is needed, such as car body parts. Materials that are not ductile are brittle.

**Toughness** is the resistance of a material to breaking when there is a crack in it. For a material of given toughness, the stress at which it will fail is inversely proportional to the square root of the size of the largest form present. Toughness is different from strength. For example, the toughest steels are different from the ones with the highest tensile strength. Brittle materials have low toughness. For example, glass can be broken along a chosen line by first scratching it with a diamond. Composites can be designed to have considerably greater toughness than their constituent materials.

**Creep resistance** is the resistance to a gradual permanent change of a shape, and it becomes especially important at higher temperatures. A successful research has been made in materials for machine parts that operate at high temperatures and under high tensile forces without gradually extending. For example, they can be the parts of plane engines.

**Task 5.** Name all properties of materials.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**Task 6.** Match the following words with their Russian equivalents:

1	density	a	вес
2	weight	b	количество
3	a volume	c	объем
4	an amount	d	плотность
5	stiffness	e	жесткость
6	rigidity	f	твердость
7	a force	g	сила
8	strength	h	прочность

1 \_\_\_\_, 2 \_\_\_\_, 3 \_\_\_\_, 4 \_\_\_\_, 5 \_\_\_\_, 6 \_\_\_\_, 7 \_\_\_\_, 8 \_\_\_\_.

**Task 7.** Make up your own sentences with the words from above.

**Task 8.** Find out 8 words:

x s t i f n e s s i  
 u d e f 0 r m s t d  
 w i z u r 0 0 a r g  
 p e e r c w z y e e  
 x i s t e e l 0 n h  
 w y 0 0 l l a z g g  
 s s e n h g u 0 t n  
 f r a c t u r e h c

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

**Task 9.** Read the text and answer the following questions.

1. Is density (specific weight) the amount of mass in a unit volume?
2. Is it measured in kilograms per cubic meter?
3. Is density important in any application where the material must not be heavy?
4. Is stiffness (rigidity) a measure of the resistance to deformation such as stretching or bending?
5. Is strength the force per unit area (stress) that a material can support without failing?
6. Is toughness the resistance of a material to breaking when there is a crack in it?
7. Is creep resistance the resistance to a gradual permanent change of shape?

**Task 10.** Read the text again and complete the following sentences:

1. Aluminium alloys, with typical densities around.....are considerably less dense than steels, which have typical densities around.....
- 2.....is important in any application where the material must not be heavy.
- 3.The Young modulus is a..... to simple stretching or compression.
4. It is the ratio of the applied force per unit area (stress) to the.....
- 5.The yield strength is the stress at which a .....
6. For a metal the yield strength may be which the stress at which it breaks is; many materials have a..... tension.
7. One of the great advantages of metals is..... such as car body parts.
8. Materials that are not ductile are.....
- 9.Toughness is the..... of a material to breaking when there is a crack in it.
10. ....is a measure of the resistance to deformation such as stretching or bending.

**Task 11.** Read the following statements and tell whether they are true or false. Correct all false statements.

1. Density (specific weight) is not the amount of mass in a unit volume.
2. Aluminium alloys, with typical densities around  $3000 \text{ kg/m}^3$  are considerably less dense than steels, which have typical densities around  $7800 \text{ kg/m}^3$ .
3. Density is not important in any application where the material must not be heavy.
4. The Young modulus is a measure of the resistance to simple stretching or compression.

5. It is the ratio of the applied force per unit area (stress) to the fractional elastic deformation (strain).
6. Strength is the force per unit area (stress) that a material can support without failing.
7. Many materials have not a higher strength in compression than in tension.
8. Ductility is the ability of a material to deform without breaking.
9. Toughness is the resistance of a material to breaking when there is a crack in it.
10. It is measured in a kilogram per cubic meter.

**Task 12.** Put the following sentences in negative and interrogative form:

1. Density (specific weight) is the amount of mass in a unit volume. \_\_\_\_\_
2. Stiffness (rigidity) is a measure of the resistance to deformation such as stretching or bending. \_\_\_\_\_
3. Toughness is the resistance of a material to breaking when there is a crack in it. \_\_\_\_\_
4. Ductility is the ability of a material to deform without breaking. \_\_\_\_\_
5. Strength is the force per unit area (stress) that a material can support without failing. \_\_\_\_\_

**Task 13.** Make up sentences.

1. any, in , density, important, application, is \_\_\_\_\_
2. important, a, is, stiffness, rigid, structure, is, to, when, mad, be  
\_\_\_\_\_
3. from, toughness, is, strength, different \_\_\_\_\_
4. low, brittle, have, materials, toughness \_\_\_\_\_
5. a, many, in, materials, have, higher, strength, in, tension, than, compression. \_\_\_\_\_

**Task 14.** Read and translate the text.

### **Brick**

A brick is best described as "a building unit". It may be made of burnt clay, of concrete, of mortar or of a composition of sawdust and other materials; in shape it is a rectangular solid and its weight is from 6 1/2 to 9 pounds.



The shape and convenient size of a brick enables a man to grip it with an easy confidence and, because of this, brick-building has been popular for many hundreds of years. The hand of the average man is large enough to take a brick and is able to handle more than 500 bricks in an eight-hour working day.

It is necessary, therefore, for the "would-be" bricklayer to practice handling a brick until he can control it with complete mastery and until he is able to place it into any desired position.

**Task 15.** Answer the following questions.

1. What materials is brick made of?
2. Why brick-building has been popular for many hundreds of years?
3. What is the shape of a brick?
4. What is the brick's weight?

**Task 16.** Find English equivalents from the text above.

1. форма и размер кирпича \_\_\_\_\_,
2. ширина кирпича \_\_\_\_\_,
3. строительство из кирпича \_\_\_\_\_,
4. из обожженной глины \_\_\_\_\_,
5. практиковаться в укладке \_\_\_\_\_,
6. достаточно большая \_\_\_\_\_,
7. с полным мастерством \_\_\_\_\_,
8. лучше всего характеризуется \_\_\_\_\_.

**Task 17.** Make sentences using the words below.

1. clay, a brick, of, can, made, be, burnt. \_\_\_\_\_
2. Brick-building, popular, has, years, of, been, hundreds, for, many. \_\_\_\_\_
3. A "would-be", a brick, must, bricklayer, until, practice, mastery, handling, control, with, he, complete can, it. \_\_\_\_\_
4. able, a bricklayer, is, any, a brick, to place, position, into, position. \_\_\_\_\_
5. pads, the bricklayer's, with, and, thumb, the fingers, be, protected, must, leather. \_\_\_\_\_

**Task 18.** Read and translate the text.

### **Prestressed concrete**

Prestressed concrete is not a new material. Its successful use has been developed rapidly during the last four decades, chiefly because steel of a more suitable character has been produced.

Concrete is strong in compression but weak when used for tensile stresses. If, therefore, we consider a beam made of plain concrete, it will at once be realized that the beam's own weight will cause the beam to "sag" or bend. This sagging at once puts the lower edge of the beam in tension, and if the cross-sectional area is small, causes it to break.

If, on the other hand, we use a beam of similar cross-section, but incorporate steel bars in the lower portion, the steel will resist the tensile stress derived from the sag of the beam, and thus assist in preventing it from breaking.

In prestressed concrete steel is not used as reinforcement, but as a means of producing a suitable compressive stress in the concrete. Therefore any beam (or member) made of prestressed concrete is permanently under compression, and is consequently devoid of cracks-under normal loading, or so long as the "elastic limit" is not exceeded.

Prestressed concrete is not only used for beams but is now employed extensively for columns, pipes, and cylindrical water-towers, storage tanks, etc.

**Task 19.** Choose correct variant and complete the sentences.

1. Prestressed concrete is ...  
*a) a completely new building material, b) not really a new material*
2. The successful use of prestressed concrete has been developed rapidly ...  
*a) long ago, b) during the last four decades*
3. Plain concrete is ...  
*a) strong in compression, b) weak in compression*
4. Plain concrete is ...  
*a) weak when used for tensile stress, b) strong when used for tensile stress*
5. Prestressed concrete is used ...  
*a) only for beams, b) for beams, columns, pipes, etc.*

**Task 20.** Complete the sentences.

1. Prestressed concrete has been used during ... .
2. Plain concrete is strong in ... .
3. The sagging of a beam made of plain concrete may cause it to ... .
4. Incorporated steel bars in the lower portion of a beam prevent ... .
5. A beam made of prestressed concrete is permanently under ... .
6. Prestressed concrete is now employed extensively for ... .

**Task 21.** Answer the following questions.

1. Is prestressed concrete a new building material?
2. How long has prestressed concrete been used in construction?

3. What disadvantages has plain concrete?
4. What is steel used in prestressed concrete for?
5. What will happen if "elastic limit" of a beam is exceeded?
6. What is prestressed concrete used for?

**Task 22.** a) In the text above find the sentence with the verb used in the Present Perfect.  
b) Write this sentence in interrogative and negative form.

**Task 23.** Read and translate the text.

### Ferrous and non-ferrous metals.

In general metals are used in various constructions and different industries. For example, thousands of miles of railway track. All metals are divided into ferrous and non-ferrous metals. Ferrous metals are iron and its alloys (steel, cast iron etc.). Especially ferrous metals are of great importance. Machine tools and machinery, steamships and locomotives, automobiles and aeroplanes, rails and bridges, razor blades are turned out by the steel industry.

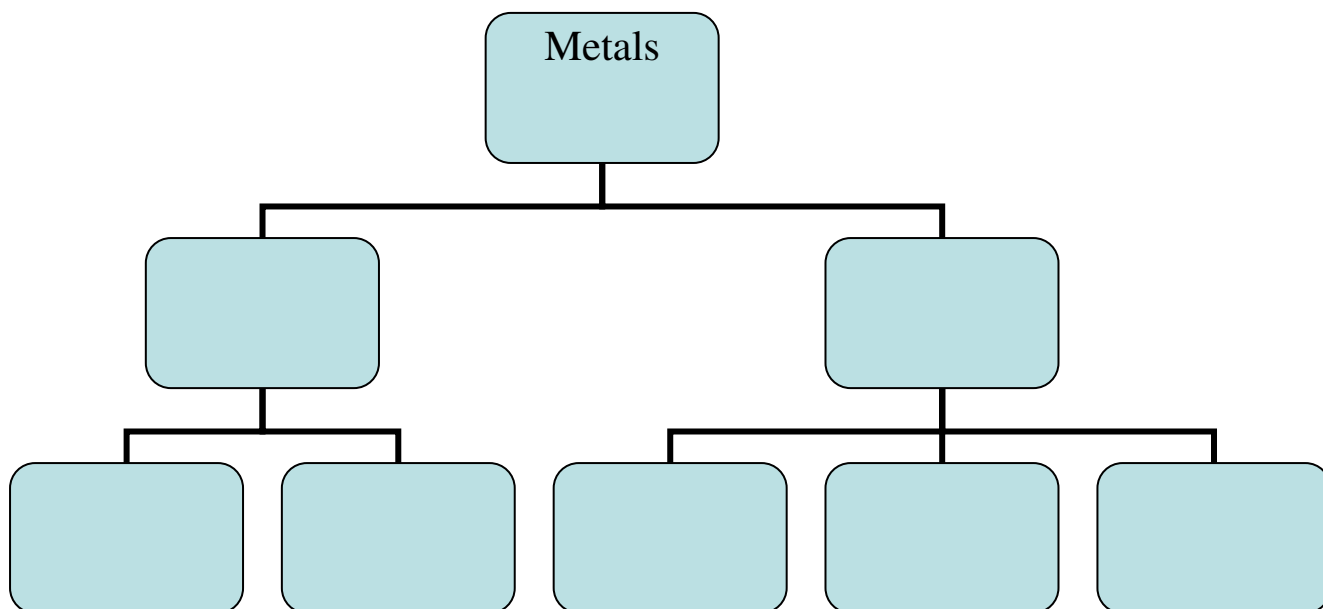
Non-ferrous are metals and alloys the main component of which is not iron but another element. It may be copper, aluminium, zinc. That's why copper and aluminium are belonged to as non-ferrous metals. Non-ferrous metals are extracted from minerals such as magnesite (magnesium carbonate), tinstone (tin oxides) etc. Non-ferrous metals have some characteristics. They are: high electric and heat conductivity, high corrosion resistance, non-magnetic qualities, light weight and easiness to fabrication.

**Task 24.** Match the following words with their Russian equivalents:

1	non-ferrous metal	a	медь
2	an alloy	b	инструмент
3	a railway	c	мост
4	a network	d	цветной металл
5	a tool	e	сплав
6	a bridge	f	железная дорога
7	copper	g	сеть

1. \_\_\_\_, 2. \_\_\_\_, 3. \_\_\_\_, 4. \_\_\_\_, 5. \_\_\_\_, 6. \_\_\_\_, 7. \_\_\_\_.

**Task 25.** Read the text again and complete the spidergram.



**Task 26.** Complete the following sentences:

1. Ferrous metals \_\_\_\_\_.
2. \_\_\_\_\_, steamships and locomotives, automobiles and aeroplanes \_\_\_\_\_.
3. \_\_\_\_\_ are referred to as non-ferrous metals.
4. \_\_\_\_\_ are divided into \_\_\_\_\_.
5. In general, \_\_\_\_\_.
6. \_\_\_\_\_ have some characteristics.

**Task 27.** Read the following statements and say whether they are right or wrong. Correct false statements.

1. Thousands of miles of railway track form an intricate network of steel over the world, helping to carry daily billions of freight for different industries.
2. Copper, aluminium and some other metals are not referred to non-ferrous metals.
3. All metals are divided into ferrous and non-ferrous metals.
4. Metals in general and especially ferrous metals are of great importance in various constructions.
5. Ferrous metals are iron and its alloys.
6. Non-ferrous metals are extracted from minerals such as magnesite, tinstone etc.

**Task 28.** Put the following sentences in negative and interrogative form.

1. All metals are divided into ferrous and non-ferrous metals. \_\_\_\_\_
2. Ferrous metals are iron and its alloys. \_\_\_\_\_

3. Ferrous metals are of great importance in various constructions. \_\_\_\_\_

---

4. Non-ferrous are metals and alloys the main component of which is iron. \_\_\_\_\_

---

5. Copper, aluminium and some other metals are referred to as non-ferrous metals. \_

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### **Unit III.**

#### ***Types of transport.***

***Task 1. Read and translate the text.***

#### **The coming revolution in transportation.**

You ride toward the city at 90 miles an hour, glancing through the morning newspaper while your electrically powered car follows its programmed route on an automated "guideway". You leave your car at the city's edge - a parklike city without streets - and enter a small plastic "people capsule". Inside, you dial your destination on a sequence of numbered buttons and settle back. Smoothly, silently, your capsule accelerates to 80 miles an hour. Guided by a distant master computer, it slips down into the network of tunnels under the city and takes precisely the fastest route to your destination.

Far-fetched? Not at all. Every element of this fantastic system is already within range of our scientists' skills. Indeed, the system utilizes only a few of the exciting new people-moving machines that have reached or passed the experimental stage.

Automated highways - engineers call them guideways - are technically feasible today. General Motors successfully demonstrated an electronically controlled guidance system. A wire was embedded in the road, and two pick-up coils were installed at the front of a car to sense its position in relation of that wire. The coils sent electrical signals to the steering system, to keep the vehicle automatically on course. They tested a system that also controlled spacing and detected obstacles. It could slow down or stop an overtaking vehicle until the road was clear.

Other companies are also experimenting with guide ways. In some systems, the car's power comes from an electric transmission line built into the road. In others, vehicles would be carried on a high speed conveyer, or perhaps in a container.

Computer-controlled highways will almost surely become a reality, for when the human element is removed, vehicles can travel with greater safety at faster speeds, closer together. In fact, most experts believe that each lane of automated highway could move the traffic of three or four of today's uncontrolled lanes.

"People Places". And when all this comes true, will we drive into even more nightmarish traffic tangles on city streets? The answer to this was found in Sweden. As you stroll across a fountain-dotted plaza lined with attractive shops, you don't hear any traffic noise here; this is "a walking plaza", "a people place", and the key to its success is the network of tunnels beneath it. Down there, trucks are supplying the stores with merchandise, and a subway carry people to and from nearby Stockholm.

Underground Highways? Most transportation experts don't consider them extravagant at all. Improved boring methods laser beams, chemicals, water or flame jets - will make tunneling cheaper. Moreover, underground highways are not affected by weather, and they do not provoke the bitter debates that have erupted in many cities over the displacement of people by surface construction.

Many of the transportation authorities are enthusiastic about Stockholm's "walking plaza" concept. The idea is to provide for most of the people's needs in a more concentrated area, so that they have less reason to travel outside their own community.

Still, people must travel to their place of work - which is not necessarily near where they live - and this causes an almost universal problem in our cities. Some recent studies point toward solution. For example, a bus line picks up passengers practically at their doors (for a monthly charge) and carries them, directly to their place of work. In the future, such personalized computer services may be provided by mini-buses. One proposal calls for special metal plates connected to a central computer, installed throughout a neighborhood. When someone pushes a plate, it signals the computer which orders the nearest mini-bus to pick him up.

**Task 2.** *Answer the following questions.*

1. What will the city of the future look like?
2. Can you explain what an automated "guide way" mean?
3. What is a "people capsule"? Is it fantasy?
4. What is a small computer in the automated autos used for and where is it placed?
5. What are the advantages of automated highway lanes as compared with uncontrolled lanes?
6. How did the specialists in Sweden solve the transportation problem in the busy centre of the city?
7. What are the advantages of the underground highways as compared with the surface highways?
8. What services may be provided by mini-buses in the future city?

**Task 3.** *Unscramble the words.*

edawyugi \_\_\_\_\_  
stediotaion \_\_\_\_\_  
leuscpa \_\_\_\_\_  
hielvec \_\_\_\_\_  
vorkepo \_\_\_\_\_  
ghdoonobrhi \_\_\_\_\_  
telericc \_\_\_\_\_

**Task 4.** *Make the following interrogative.*

1. You leave your car at the city's edge and enter a small plastic "people capsule".
2. You dial your destination on a sequence of numbered buttons.
3. Other companies are also experimenting with guide ways.
4. Vehicles would be carried on a high speed conveyer or in a container.
5. You don't hear any traffic noise here.
6. Trucks are supplying the stores with merchandise.
7. This causes an almost universal problem in our cities.
8. A bus line picks up passengers practically at their doors.
9. Personalized computer services may be provided by mini-buses.
10. The computer orders the nearest mini-bus to pick him up.

**Task 5.** *Translate sentences into English.*

1. Просматривая утреннюю газету \_\_\_\_\_
2. Вы оставляете свою машину на окраине города \_\_\_\_\_
3. Достигать 80 миль в час \_\_\_\_\_
4. Посылать электрический сигнал \_\_\_\_\_
5. Подземные шоссе не зависят от погоды \_\_\_\_\_
6. Установленный в окрестностях \_\_\_\_\_
7. Персональные компьютерные службы \_\_\_\_\_

**Task 6.** *Complete the sentences.*

1. You leave your car at the city's edge - a parklike city without streets – and \_\_\_\_\_
2. Guided by a distant master computer, it slips \_\_\_\_\_
3. The system utilizes only \_\_\_\_\_
4. The coils sent electrical signals to \_\_\_\_\_
5. When the human element is removed, vehicles can \_\_\_\_\_
6. The key to success of "a people place" is \_\_\_\_\_
7. Underground highways do not provoke \_\_\_\_\_
8. When someone pushes a plate, it \_\_\_\_\_

**Task 7. Read and translate the text.**

### **The use of underground space in big cities.**

At a conference held in Tokyo in 1974 leading representatives of New York, London, Paris, Moscow and Tokyo met to discuss the problems of the World's Great Cities.

The representatives spoke of the extremely rapid intensification of urban space density, of the absolute shortage of services, sewers, roads and other urban facilities as well as new urban problems.

In this connection the exploration of urban subspace for the movement of goods, freight, persons has become vitally important.

Moscow has a total and comprehensive view of the subsurface: the use of underground space in cities like Moscow, where there is a considerable number of historical architectural structures of value, especially in the central part, is the way towards solving the transportation problem.

The complex scheme of utilizing underground space which has been worked out, involves an underground network of tunnels for cars under the central part of the city, duplicating the surface transportation network as well as underground garages.

New York too has a vast and expanding transport system carrying some 7.5 million people each business day.

The simple statistics that the subways of New York alone carry more passengers than all US domestic airlines combined show the great importance of transportation underspace.

**Task 8. Find the explanation of these words in vocabulary.**

1. representative \_\_\_\_\_
2. intensification \_\_\_\_\_
3. density \_\_\_\_\_
4. sewer \_\_\_\_\_
5. facility \_\_\_\_\_
6. exploration \_\_\_\_\_
7. freight \_\_\_\_\_
8. network \_\_\_\_\_
9. duplicate \_\_\_\_\_
10. expand \_\_\_\_\_
11. domestic \_\_\_\_\_

**Task 9. Make up your own sentences with them.**

**Task 10. Fill in the table.**

<i><b>Noun</b></i>	<i><b>Verb</b></i>
leader	
	to discuss



intensification	
	to serve
shortage	
	to move
connection	
	to expand
exploration	
	to combine

**Task 11.** Write out all *ing*-forms and tell what part of speech they are.

**Task 12.** Answer the following questions.

1. Who met in Tokyo to discuss the problem of big cities?
2. What was the problem discussed by the representatives?
3. Has the exploration of urban space or subspace become vitally important?
4. Why does the use of underground space in big cities seem the real way out of the problem?
5. How do the scientists present us the scheme of utilizing subsurface?
6. Do the New York subways carry fewer passengers than all US airlines?
7. Do you suppose the underground tunnels are important for nowadays cities and why?

**Task 13.** Choose the right variant.

1. A conference was held in \_\_\_\_\_.  
a. Tokyo; b. Moscow; c. New York; d. London.
2. There weren't any representatives of \_\_\_\_\_ at the conference.  
a. Paris; b. Washington; c. Moscow; d. Rome.
3. The discussed topic was the exploration of \_\_\_\_\_.  
a. urban airspace; b. urban subspace; c. urban subwaterspace.
4. The complex scheme of utilizing subspace involves \_\_\_\_\_.  
a. underground houses; b. underground pubs; c. underground garages.
5. Each day New York transport system carries more \_\_\_\_\_.  
a. 7,5 million people; b. 7,5 thousand people; c. 7,5 billion people.

**Task 14.** Tick (✓) the sentences which are true.

1	The presidents of New York, London, Paris, Moscow and Tokyo met at the conference to discuss the problems of big cities space.	
2	The representatives spoke of the extremely rapid intensification of urban space density.	

3	The absolute shortage of services, sewers, roads is old and unimportant urban problems nowadays.	
4	The use of underground space in big cities is the real way towards solving the transportation problem.	
5	The New York subways carry much more passengers than all international airlines combined.	

**Task 15.** *Make up sentences.*

1. freight, in this, of goods, the exploration ,vitally, subspace, the movement, for, become, persons, has, connection, important, of urban. \_\_\_\_\_

2. the, Moscow, in cities, like, use, is, towards, solving, space, the, of, transportation, the way , problem, underground. \_\_\_\_\_

3. the, the, statistics, great, underspace, importance, simple, of, transportation, show. \_\_\_\_\_

**Task 16.** *Entitle the text above.*

**Task 17.** *Make up the plan of this text and retell it.*

**Task 18.** *Read and translate the text*

### **Moscow metro.**

More than 40 years ago, in June 1931, it was decided to start preparations for the building of the Metro in Moscow. In the spring of 1932 the project drawn up by Soviet engineers and architects was endorsed. Thousands of young specialists and mine workers, construction workers from the Donbas and from Moscow Region, from the Urals, and Dneprostroi went underground into Metro shafts and tunnels. In a short time (it was called a record time by the world press) the first line was constructed. More than eleven kilometers of track connected the Sokolniki district with the Gorky Park district. There were ten stations on this line. The construction work was done in difficult geological conditions, of a kind never encountered by European or American Metro builders.

So this day saw the first section of a double track line 8 miles long put into operation.

The Metro was opened on May 15, 1935. Since then building work on the Metro has not stopped for a single day. Even at the time when the fascist hordes were near Moscow, the Metro builders continued their work.

After the war the scale of construction increased considerably. The construction of the belt line was completed and it connected all the radial routes. The new routes and stations began appearing in new housing districts. Some of the lines go overland, across new bridges and aqueducts.

Moscow's rapidly increasing population, the growth of its industrial enterprises and cultural institutions required the capital to have efficient and convenient means for accommodating passenger traffic.

The Soviet people wanted the Metro to be the best in the world.

There are many stations in the Metro; their surface buildings and underground halls are spacious, well ventilated and well lit. They differ widely in architectural design and are decorated with marble, bronze, aluminium and glass. The present Metro coaches are much better than the early ones. They are -considerably lighter in weight, and the seats are soft. Muscovites and the visitors to the city do not have to wait long for trains, for the interval between them is always short. "Clever" machines have appeared in the Metro recently. An experimental automatic driver conducts trains according to the timetable and stops precisely as required.

The Moscow Metro is developing rapidly. The capital is growing and new Metro lines are being constructed every year.

**Task 19.** Find out all mistakes and write down the right variant.

1. priperation \_\_\_\_\_
2. enjiners \_\_\_\_\_
3. canstryction \_\_\_\_\_
4. konditionz \_\_\_\_\_
5. dable \_\_\_\_\_
6. opereition \_\_\_\_\_
7. incrised \_\_\_\_\_
8. popjulation \_\_\_\_\_
9. wentilated \_\_\_\_\_
10. avtometric \_\_\_\_\_

**Task 20.** Make up your own sentences with them.

**Task 21.** Transcribe the following words.

building	
architect	
thousands	
region	
encounter	
fascist	
considerably	
aqueducts	
efficient	
surface	
widely	
interval	
experimental	
precisely	

required	
----------	--

**Task 22.** Match the columns.

1	drawn up	a	шахтеры
2	mine workers	b	промышленные предприятия
3	go overland	c	вагоны метро
4	industrial enterprises	d	разработанный
5	well lit	e	проходить над поверхностью земли
6	metro coaches	f	мрамор
7	marble	g	хорошо освещенный
1 ____, 2 ____, 3 ____, 4 ____, 5 ____, 6 ____, 7 ____.			

**Task 23.** Write out all phrases with *Passive Voice* and transform them into *Active Voice*.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Task 24.** Unscramble the words.

1. jtprcoe \_\_\_\_\_
2. netnul \_\_\_\_\_
3. ilne \_\_\_\_\_
4. sionsta \_\_\_\_\_
5. actkr \_\_\_\_\_
6. psgensare \_\_\_\_\_
7. ouisapc \_\_\_\_\_
8. zborn \_\_\_\_\_
9. atrnsi \_\_\_\_\_
- 10.otsf \_\_\_\_\_

**Task 25.** Fill in the table.

<i>Infinitive</i>	<i>Past Indefinite</i>	<i>Participle II</i>	<i>Participle I</i>
	decided		
to build			
		drawn	
to be			
			doing
	saw		
to open			
		begun	
to grow			

	wanted		
to lit			
			stopping

**Task 26.** Answer the questions.

1. Who was endorsed for building the Moscow Metro?
2. How much time did it take to construct the first line?
3. What was the difference between the construction of the European and the Soviet metro?
4. Did the Moscow Metro stop during the time when the fascists were near Moscow?
5. What was the reason for the capital to have efficient and convenient means for accommodating passenger traffic?
6. What building materials are used for decorating the Metro nowadays?
7. What does “clever” machine mean/
8. Do you think that the future is for the underground constructions? Why?

**Task 27.** Translate into English.

1. Мы хотели, чтобы вы показали нам московское метро.
2. Они знают, что вы хороший строитель.
3. Пассажиры видели, как поезд подошел к платформе.
4. Известно, что залы Московского метро хорошо освещены и имеют хорошую вентиляцию.
5. Ожидают, что строительство этого тоннеля будет закончено в срок.

**Task 28.** Match beginnings and endings of sentences.

1	In June 1931 it was decided ....	a	.... connected the Sokolniki district with the Gorky Park district.
2	More than 11 km of track .....	b	..... completed and it connected all the radial routes.
3	On May 15, 1935 .....	c	.... trains according to the time-table and stops precisely as required.
4	The construction of the belt line was .....	d	..... to start the building of the Metro in Moscow.
5	An experimental automatic driver conducts .....	e	..... the Metro was opened.
1 ____, 2 ____, 3 ____, 4 ____, 5 ____.			

**Task 29.** Divide the text into 3 logical parts and define the key idea of each one.

**Task 30.** Write a short resume of the text.

**Task 31.** Read and translate the text.

## The first trams.

The very first tram was on the Swansea and Mumbles Railway in south Wales, UK; it was horse-drawn at first, and later moved by steam and electric power. The Mumbles Railway Act was passed by the British Parliament in 1804, and the first passenger railway (similar to streetcars in the US some 30 years later) started operating in 1807. The first streetcars, also known as horse cars in North America, were built in the United States and developed from city stagecoach lines and omnibus lines that picked up and dropped off passengers on a regular route without the need to be pre-hired. These trams were an animal railway, usually using teams of horses and sometimes mules to haul the cars, usually two as a team. Occasionally other animals were put to use, or humans in emergencies.

The first streetcar line, developed by Irish-American John Stephenson, was the New York and Harlem Railroad's Fourth Avenue Line which ran along the Bowery and Fourth Avenue in New York City. Service began in 1832. It was followed in 1835 by New Orleans, Louisiana, which has the oldest continuously operating street railway system in the world, according to the American Society of Mechanical Engineers.

The first electric street tramway in Britain, the Blackpool Tramway, was opened on 29 September 1885 using conduit collection along Blackpool Promenade. Since the closure of the Glasgow Corporation Tramways 1962, this has been the only first-generation operational tramway in the UK.

**Task 32.** Write down all the numerals and dates from the text by words.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

**Task 33.** Find English equivalents in the text.

1. южный Уэльс \_\_\_\_\_
2. запряженная лошадьми \_\_\_\_\_
3. паровая и электрическая тяга \_\_\_\_\_
4. начала существование \_\_\_\_\_
5. постоянный маршрут \_\_\_\_\_
6. тащить за собой машину (вагон) \_\_\_\_\_
7. протянуться вдоль \_\_\_\_\_

**Task 34.** Complete the sentences from the text.

1. The very first tram was \_\_\_\_\_ at first, and later moved by \_\_\_\_\_.
2. The first streetcars were built \_\_\_\_\_ and also known as \_\_\_\_\_.
3. Stagecoach lines and omnibus lines were \_\_\_\_\_, usually using teams of \_\_\_\_\_ to haul \_\_\_\_\_.
4. According to the \_\_\_\_\_ New Orleans, Louisiana have the \_\_\_\_\_ in the world.
5. Since 1962 the \_\_\_\_\_ Tramway has been the only \_\_\_\_\_.

**Task 35.** Define Tense form of verbs.

1. was passed
2. started
3. were built
4. was followed
5. has
6. has been
7. was opened

**Task 36.** Make up a few questions on the topic.

**Task 37.** Write a report on first trams in Irkutsk.

**Task 38.** Read and translate the statements, then point out advantages and disadvantages of using trams.

### Pros and cons of tram systems.

1	Unlike buses, trams give off no exhaust emissions at point of use. Compared to motorbuses the noise of trams is generally perceived to be less disturbing. However, the use of solid axles with wheels fixed to them produces a characteristic loud, high frequency noise often referred to as a "squeal."	
2	Trams can cause speed reduction for other transport modes (buses, cars) when stops in the middle of the road do not have pedestrian refuges, as in such configurations other traffic cannot pass whilst passengers alight or board the tram.	
3	The trams' stops in the street are easily accessible	
4	They can use overhead wire set to be shared with trolleybuses (a three wire system).	
5	Tram infrastructure occupies urban space at ground-level, sometimes to the exclusion of other users, including cars.	
6	The opening of new tram and light rail systems has sometimes been accompanied by a marked increase in car accidents, as a result of drivers' unfamiliarity with the physics and geometry of trams.	

7	Trams can adapt to the number of passengers by adding more cars during rush hour (and removing them during off-peak hours). No additional driver is then required for the trip in comparison to buses.	
8	The capital cost is higher than for buses, even if a tramcar usually has a much higher lifetime than a bus.	
9	Trams can run on renewable electricity without the need for very expensive and short life batteries.	
10	In the event of a breakdown or accident, or even road works and maintenance, a whole section of the tram network can be blocked.	
11	Passenger comfort is normally superior to buses because of controlled acceleration and braking and curve easement. Rail transport such as used by trams provides a smoother ride than road use by buses.	
12	Because the tracks are visible, it is easy for potential riders to know where the routes are.	
13	Light rail vehicles are often heavier per passenger carried than heavy rail and monorail cars, as they are designed with higher durability (which means more mass) to survive collisions, since they cannot swerve to avoid oncoming objects in emergencies.	

#### **Unit IV.**

#### **Airdroms and airplanes.**

**Task 1.** *Read and translate the text.*

#### **Air Transport.**

Modern air transport using craft which is heavier than air requires a good deal of power merely to stay in the air. It is for this reason that air transport uses more fuel to carry a ton over a distance of a mile than land or water transport. Another drawback of air transport is that whereas a ship, truck or train whose engines break down can stop until they are mended, an aircraft with the same trouble must land. This means that an aircraft must have several engines and this increases its cost. Safety precautions for air transport also tend to make it expensive. It cannot be relied upon for regular services in places or seasons with low clouds and mist. The great advantage of air transport being its high speed, all civilized countries try to develop it. If you want to save time, you will naturally fly by air.

*Balloons.* The earliest form of air transport was balloons, which are sometimes called «Free balloons» because having no engines they are forced to drift by the wind flow. This fact alone makes balloons not reliable enough for carrying people. If they were safer, they would be used more for obtaining information about the upper atmosphere, its density and other scientific subject. Weather balloons are particularly used by meteorologists.



They carry instruments whose readings are automatically sent back to the ground by the radio, the position of the balloon being obtained by radar. Small balloons released from air-fields are observed to obtain the direction and strength of the wind.

*Aeroplanes.* The heavier-than-air machines called aeroplanes were rather slow in being adopted for transport. The first aeroplane flight was made in 1884.

World War I quickened the development of aeroplanes enormously. By 1918 they were no longer unreliable things capable of only short flights, but powerful machines able to carry heavy loads at high speeds for long distances. What was more, the ending of the war meant that thousands of aeroplanes and skilled pilots were available.

The first aeroplanes were machines that had been used as bombers. They were quickly converted for use by passengers by fitting extra seats and windows. The first regular public air service from London to Paris was started in August.

During World War II the value of aeroplanes for carrying heavy loads was recognized. This led after the war to an increase in the practice of sending goods by air. Air freight is expensive but is often thought worth while for such goods as early vegetables, fruit and flowers, as well as for things urgently needed such as spare parts for machinery, medical supplies, films and photographs. Some parts of the world are hundreds of miles from a road, a railway or waterway, and air transport is the only possible kind of transport. Such places are kept supplied wholly by air.

After World War II, bigger and faster airliners were introduced. Jet-propelled aircraft were first used in 1950. Air transport is very valuable for carrying passengers and carrying mail. If the letters are sent by air transport besides carrying passengers is carrying mail. If the letters are sent by air mail, they are not long in coming. Although it is unlikely that aircraft will ever replace ships for carrying heavy and bulky cargoes such as oil, coal, minerals, grain and machinery, air transport is already proving a serious rival to passenger ships on some routes.

*Helicopters and Hovercraft.* Helicopters are very useful in places where there is no room for long, flat runways. Modern turbo-jet airliners need a run of nearly two miles long to take off, but helicopters can use small fields, platforms mounted on ships and the flat tops of buildings. Helicopters were first introduced for regular airline service in 1947. Later, helicopters were used for carrying passengers and mail on short routes, and for taking airlines passengers between the centres of cities and the main airports.

While helicopters gain in needing very little space for taking-off and landing, they lose because the speed at which they move forward is quite low. So the problem was to develop an aircraft combining the advantages of the helicopter with the high speed of an ordinary aircraft. If the designers could develop such a machine the problem would be solved. So for this purpose the hovercraft was designed. Hovercrafts are likely to be useful for ferry service – for example, in ferrying motor cars across the English Channel. They may also be useful for travel in roadless countries.

## ***Task 2. Put a question tag.***

1. Modern air transport using craft requires a good deal of power to stay in the air, \_\_\_\_\_?
2. An aircraft must have several engines, \_\_\_\_\_?
3. Air transport uses more fuel to carry a ton over a distance of a mile than land or water transport, \_\_\_\_\_?

4. The earliest form of air transport was balloons, \_\_\_\_\_?
5. Small balloons released from air-fields are observed to obtain the direction and strength of the wind, \_\_\_\_\_?
6. By 1918 they were no longer unreliable things capable of only short flights, \_\_\_\_\_?
7. After World War II, bigger and faster airliners were introduced, \_\_\_\_\_?
8. Modern turbo-jet airliners need a run of nearly two miles long to take off, \_\_\_\_\_?
9. They may also be useful for travel in roadless countries, \_\_\_\_\_?

**Task 3.** Write out from the text above the events which took place in the indicated period of time.

1. 1884
2. World War I
3. 1950
4. 1947

**Task 4.** Read the text again. Entitle each part.

**Task 5.** Complete the sentences.

1. It is for this reason that air transport \_\_\_\_\_ than land or water transport.
2. \_\_\_\_\_ for air transport also tend to make it expensive.
3. «Free balloons» without engines are forced to \_\_\_\_\_.
4. The ending of the war meant that thousands of \_\_\_\_\_ were available.
5. The first regular public air service from London to Paris was started in \_\_\_\_\_.
6. Air freight is expensive but is often thought worth while for such goods as \_\_\_\_\_, as well as for things urgently needed such as spare parts for machinery, \_\_\_\_\_.
7. \_\_\_\_\_ is very valuable for carrying passengers and mail.
8. Modern turbo-jet airliners need \_\_\_\_\_ to take off, but helicopters can use small fields, platforms mounted on ships and the flat tops of buildings.
9. So the problem was to develop an aircraft combining the advantages of the helicopter with \_\_\_\_\_.

**Task 6.** Read and translate the text.

**London airport serves the world.**

If you have ever travelled by plane (we also say «by air»), you will probably agree that travelling by plane is very experience. An airport is so different from a railway station or a bus stop, the people you meet and the things you see are very interesting and new. What is more, a big airport is like a town – with its own shops, banks and police.

London airport is one of the most modern in the world today and is a popular visiting place for both old and young. The airport covers over four square miles, and the road round it is 13 miles long. The airport has five main runways: the longest is 12,000 feet. The total number of people who work at the airport is nearly 36,000. London airport is one of the busiest in the world – more than 50 airlines operate from it every week. Every day of the week in summer over 800 planes take off.

London airport is unique in its layout. All passenger and control buildings are in the centre of the airport. The only way for passengers to approach these buildings is by a tunnel which has been constructed under the main runways.

This great airport is famous for the efficiency of its service to the passengers who are continually travelling to all parts of the world. At the airport, all luggage is mechanically handled. This is done by a system of conveyor belts, which enables the passengers to pass this great airport with ease.

The cost of making such an airport was approximately 20 millions, but much more will be spent before the work is completed. Each year much money is needed for the development of the airport to accommodate great new transatlantic aircraft. Runways have to be lengthened to enable these airplanes to take off with their heavy loads. Airbus system started in 1977.

One of big attractions at London airport is the Roof Gardens which are open to visitors who wish to see how a modern airport operates. The Roof Gardens give a view of the whole airport. From the garden you can see all the aircraft landing and taking off: you can see VC-10 – an intercontinental airliner – which has its engines at the back, and has a speed of 600 m.p.h., the Trident, the Boeing 707, the Concorde, and many others. While you are watching the planes, a loudspeaker tells you where they are all going to or where they have come from. It also tells you if there are any film-stars, actors or other personalities on board. If you have your own camera you can take a lot of exciting pictures.

The English, as you know, like animals very much. You will not be surprised, therefore, when we tell you that London airport has a special animal 'hotel'. Every year thousands of animals arrive at London airport. Some stay the night there; others stay several weeks. Some just go to have a drink of water and a rest. The "hotel" looks after birds, insects, fish, elephants, monkeys and spiders.

**Task 7.** *Answer the following questions.*

1. Why is an airport like a town?
2. How do the passengers approach the centre of the airport?
3. What helps the passengers to pass London airport easily and quickly?
4. From what place can the visitors see how London operates?
5. What accommodation does London airport have for animals?

**Task 8.** Translate the following words.

1	aircraft		14	fiber	
2	cloud		15	rope	
3	readings		16	mortar	
4	adopt		17	suspension	
5	density		18	crude	
6	plank		19	pier	
7	ubiquitous		20	hovercraft	
8	crossbeam		21	runway	
9	cargo		22	roadless	
10	bamboo poles		23	fit	
11	cavern		24	to cross	
12	deciduous		25	drawback	

**Task 9.** Match the parts of word combinations.

1	hovercraft	a	use
2	runway	b	countries
3	In roadless	c	length
4	fit	d	do
5	to cross	e	space
6	drowback	f	hardware
7	aircraft	g	repair

**Task 10.** Make up your own sentences with them.

**Task 11.** Mark the statements as true or false. Correct the false statements.

1. The airport covers over five square miles, and the road round it is 18 miles long.
2. London airport has a special animal 'hotel'.
3. From the Roof Gardens you can see all the helicopters landing and taking off:
4. The "hotel" looks after birds, insects, fish, elephants, elephants and spiders.
5. The cost of making such an airport was approximately 50 millions.

6. While you are watching the planes, a loudspeaker tells you if there are any film-stars, actors or other personalities on board.

7. This is done by a system of conveyor belts, which enables the pilots to pass this great airport with ease.

**Task 12. Translate into English.**

Комендантский аэродром был сооружён в 1910 году западнее Комендантского ипподрома на средства товарищества «Крылья». На нём проводились праздники воздухоплавания, испытывались и осваивались различные типы аэропланов, как российских, так и зарубежных. С Комендантского аэродрома совершил первый перелёт в Кронштадт пилот Г. В. Пиотровский. В 1910 году авиаторы Лев Мациевич и Михаил Ефимов осуществили первые ночные полёты.

В сентябре 1910 года на Комендантском аэродроме прошёл Первый Всероссийский праздник воздухоплавания, в ходе которого самолёт Льва Мациевича упал, а пилот погиб. Осенью 1911 года с территории аэродрома стартовали авиатор Е. В. Руднев и механик С. Плотников во время осуществления перелета Санкт-Петербург — Гатчина. В том же году с Комендантского аэродрома стартовали участники первого в России группового перелёта Санкт-Петербург — Москва. Над полем аэродрома проводил испытания изобретатель авиационного ранцевого парашюта Глеб Котельников. В годы Первой мировой войны (1914—1918) аэродром использовался как военный.

В начале 1920-х гг. на нём базировалась эскадрилья истребителей. В 1930-х — 1950-х аэродром был учебной и испытательной базой ВВС. В частности, в 1930-х гг. авиаконструктор Николай Поликарпов испытывал истребители серии «И». В годы блокады Ленинграда аэродром использовался как база для полков истребительной авиации и для приёма транспортных самолётов, перевозивших грузы и людей (аэродром использовался транспортной авиацией вплоть до 1950-х гг.). В 1963 году полёты были прекращены, в начале 1970-х гг. территория бывшего аэродрома стала зоной массового жилищного строительства.

**Task 13. 1. Translate into Russian.**

**2. Come up with the best title for the text.**

The word aerodrome is derived from the Greek words *aeras*, "air" and *dromos*, "road" or "course", literally meaning "air course".

According to the International Civil Aviation Organization (ICAO) an aerodrome is "A defined area on land or water (including any buildings, installations, and equipment) intended to be used either wholly or in part for the arrival, departure, and surface movement of aircraft."

In the UK, the term airfield was used by the Royal Flying Corps in the First World War and Royal Air Force in the two World Wars as it had the advantage that their

French allies, on whose soil they were based and with whom they co-operated, used the equivalent term (aérodrome).

In Canada and Australia aerodrome is a legal term of art for any area of land or water used for aircraft operation, regardless of facilities.

An aerodrome or airdrome is a location from which aircraft flight operations take place, regardless of whether they involve cargo, passengers, or neither. Aerodromes include small general aviation airfields, large commercial airports, and military airbases. The term airport may imply a certain stature (having satisfied certain certification criteria or regulatory requirements) that an aerodrome may not have achieved. That is to say, all airports are aerodromes, but not all aerodromes are airports. Usage of the term 'aerodrome' remains more common in the UK and Commonwealth nations, and is conversely almost unknown in American English.

A water aerodrome is an area of open water used regularly by seaplanes or amphibious aircraft for landing and taking off.

In the early days of aviation, when there were no paved runways and all landing fields were grass, a typical airfield might permit takeoffs and landings in only a couple of directions, much like today's airports, whereas an aerodrome was distinguished, by virtue of its much greater size, by its ability to handle landings and take offs in any direction.

The ability to always take off and land directly into the wind, regardless of the wind's direction, was an important advantage in the earliest days of aviation when an airplane's performance in a crosswind takeoff or landing might be poor or even dangerous. The development of differential braking in aircraft, the improved aircraft performance, the utilization of paved runways, and the fact that a circular aerodrome required much more space than did the "L" or triangle shaped airfield eventually made the early aerodromes obsolete.

**Task 14.** *Transcribe the following words.*

aerodrome \_\_\_\_\_  
installation \_\_\_\_\_  
departure \_\_\_\_\_  
flight \_\_\_\_\_  
stature \_\_\_\_\_  
conversely \_\_\_\_\_  
amphibious \_\_\_\_\_  
distinguish \_\_\_\_\_  
obsolete \_\_\_\_\_

**Task 15.** *Identify verbs in the text above and state their tense-form.*

**Task 16.** *Make sentences.*

1. location, An aerodrome, a, which, from, aircraft, is, flight, take, operations, place.

2. airport, imply, The term, that, may, a certain, an, aerodrome, stature, may, have, achieved, not. \_\_\_\_\_

3. the, early, of, no, aviation, fields, there, days, were, and, paved, all, runways, landing, were, grass, In. \_\_\_\_\_

**Task 17. Complete the utterances with the proper word.**

1. In the \_\_\_\_\_, the term was used by the Royal Flying Corps in the First World War.

a. USA    b. UK    c. USSR

2. \_\_\_\_\_ include small general aviation airfields, large commercial airports, and military airbases.

a. Aerodromes    b. Airbus    c. Air companies

3. A \_\_\_\_\_ aerodrome is an area of open water used regularly by seaplanes or amphibious aircraft for landing and taking off.

a. land    b. grass    c. water

4. In the early days of aviation a typical airfield might permit takeoffs and landings in only a \_\_\_\_\_ of directions.

a. couple    b. one    c. different

**Task 18. Translate into English.**

1. Аэродром — это земельный или водный участок с воздушным пространством, сооружениями и оборудованием, обеспечивающими взлёт, посадку, руление, размещение и обслуживание самолётов, вертолётов и планёров.

\_\_\_\_\_

2. Аэродромные покрытия - конструкции, воспринимающие нагрузки и воздействия от воздушных судов. \_\_\_\_\_

3. «Покрытие» воспринимает нагрузки от колес воздушных судов и воздействия природных факторов. \_\_\_\_\_

4. «Искусственное основание» обеспечивает совместно с покрытием передачу нагрузок на грунтовое основание. \_\_\_\_\_

**Task 19. Retell the text above using introductory words and phrases.**

I'd like to tell – я бы хотел рассказать

the main idea of the text is – основная мысль текста

to start with/to begin with – начнем с того, что

firstly, secondly, thirdly – во-первых, во-вторых, наконец

The first thing that needs to be said is – первое, что нужно сказать, это то, что (прежде всего, следует сказать, что)

It is true that/clear that/noticeable that - это правда, что/ясно, что/примечательно, что  
 One should note here that - здесь следует отметить, что  
 What is more, moreover, furthermore - более того  
 Besides, in addition to - кроме того  
 On the other hand - с другой стороны  
 Although - хотя  
 It goes without saying - само собой разумеется  
 However - однако  
 As far as I know - насколько мне известно  
 In other words - говоря другими словами  
 Probably - возможно  
 ...in total - ... в общей сложности.  
 To sum up - подведем итоги.  
 In conclusion - в заключение  
 Thus/ Therefore - таким образом, поэтому  
 In conclusion, I can say that - в заключение я могу сказать, что  
 To draw the conclusion, one can say that - подводя итог, можно сказать, что

**Task 20.** Make a report about: a). Russian and foreign aviators; b). first airplanes

### Grammar tables.

#### *to be* *Simple Active*

Present	Past	Future
(I) am (he, she, it) is (we, you, they) are	was (ед. ч.) were (мн. ч.)	shall be (1-е л.) will be

#### *to have* *Simple Active*

Present	Past	Future
have (got) has (got)	had	shall have will have

#### *Сводная таблица модальных глаголов и их эквивалентов*

	Present	Past	Future
Долженствов	I must meet him.		



ание	I have to meet him.	I <b>had</b> to meet him.	I <b>shall have to</b> meet him.
	I am to meet him.	I <b>was</b> to meet him.	I'll be to meet him.
	I <b>should</b> meet him.		
Способность или возможность совершения действия	He <b>can</b> help you.	He <b>could</b> help you.	
	He is able to help you.	He was able to help you.	He <b>will be able to</b> help you.
Разрешение или возможность	I may use this device.	I might use this device	
	I am allowed to use the device.	I was allowed to use the device.	I <b>shall be allowed to</b> use the device.

### *Simple Active Tenses*

Форма	Present Simple	Past Simple	Future Simple
Утвердительная	My friends study French. He speaks English.	My friends <b>studied</b> French at school. He <b>spoke</b> English at the conference.	My friends <b>will study</b> French at the Institute. The teacher <b>will speak</b> about our English exam.
Вопросительная	<b>Do</b> your friends study French?  <b>Does</b> he speak English?	<b>Did</b> your friends study French at school?  <b>Did</b> he speak English at the conference?	<b>Will</b> your friends study French at the Institute?  <b>Will</b> the teacher speak about our English exam?
Отрицательная	My friends <b>don't</b> study French. He <b>doesn't</b> speak English.	My friends <b>did not</b> study French. He <b>didn't</b> speak English at the conference.	My friends <b>won't study</b> French at the Institute. The teacher <b>won't speak</b> about our English exam.

### *Progressive Active Tenses*

Форма	Present Progressive	Past Progressive	Future Progressive
Утвердительная	The <b>are having</b> an English class.  He <b>is still writing</b> an exercise.	They <b>were having</b> an English class when I came to see them. He <b>was writing</b> an exercise from 6 till 8 o'clock.	They <b>will be having</b> an English class tomorrow at 9 o'clock.  He <b>will be writing</b> an exercise from 6 till 8 o'clock tomorrow.
Вопросительная	<b>Are</b> they <b>having</b> an English class?  <b>Is</b> he still <b>writing</b> an exercise?	<b>Were</b> they <b>having</b> an English class when I came to see them?  <b>Was</b> he <b>writing</b> an exercise from 6 till 8 o'clock.	<b>Will</b> they <b>be having</b> an English class tomorrow at 9 o'clock?  <b>Will</b> he <b>be writing</b> an exercise from 6 till 8 o'clock tomorrow?

<b>Отрицательная</b>	They <b>aren't having</b> an English class, they are having a Russian class.	They <b>weren't having</b> an English class when 1 came to see them, they were having a Russian <b>class</b> .	They <b>will not be having</b> an English class tomorrow at 9 o'clock, they will be having a Russian class.
	He <b>isn't writing</b> an exercise, he is reading a book.	He <b>wasn't writing</b> an exercise from 6 till 8 o'clock, he was reading a book.	He <b>won't be writing</b> an exercise from 6 till 8 o'clock tomorrow, he'll be reading a book.

### *Perfect Active Tenses*

Форма	Present Perfect	Past Perfect	Future Perfect
Утвердительная	I <b>have sent</b> the letter.	I <b>had</b> already <b>sent</b> the letter by 6 o'clock yesterday.	I <b>shall have sent</b> the letter by tomorrow evening.
Вопросительная	<b>Have</b> you <b>sent</b> the letter?	<b>Had</b> you <b>sent</b> the letter by 6 o'clock yesterday?	<b>Will</b> you <b>have sent</b> the letter by tomorrow evening?
Отрицательная	I <b>have not sent</b> the letter yet.	I <b>had not sent</b> the letter by 6 o'clock yesterday.	I <b>shall not have sent</b> the letter by tomorrow evening.

### *Simple, Progressive, Perfect Tenses in Passive Voice*

	Simple to be + Participle II	Progressive to be + being + Participle II	Perfect to have + been + Participle II
Present	The letter is translated	The letter is being translated	The letter has been translated
	Is the letter translated?	Is the letter being translated?	Has the letter been translated?
	The letter isn't translated	The letter isn't being translated	The letter hasn't been translated.
Past	The letter was translated	The letter was being translated	The letter had been translated

	Was the letter translated?  The letter wasn't translated.	Was the letter being translated?  The letter wasn't being translated	Had the letter been translated?  The letter hadn't been translated?
Future	The letter will be translated  Will the letter be translated?  The letter won't be translated	He употребляются.	The letter will have been  Will the letter have been translated?  The letter won't have been translated.

### Структура специальных вопросов

Вопросительные слова	Вспомогательный глагол	Подлежащее и определение к нему	Смысловой глагол в форме инфинитива	Другие члены предложения
What Where When	do did will	you he your sister	do go return	in the evening? yesterday? home?

### Таблица производных слов от *some, any, no, every*

Местоимения	+ thing	+body, one	+where	Употребление
some некоторый какой-то какой-нибудь несколько	something <i>что-то, что-нибудь</i>	somebody someone <i>кто-то кто-нибудь</i>	somewhere <i>где-то, куда-то, где-нибудь, куда-нибудь</i>	в утверд. . предл.
any 1) <i>всякий любой</i> 2) <i>какой-нибудь</i>	anything 1) <i>всё</i> 2) <i>что-то</i> 3) <i>что-нибудь</i>	anybody anyone 1) <i>всякий,</i> 2) <i>кто-то, кто-нибудь</i>	anywhere 1) <i>везде,</i> 2) <i>где-нибудь, куда-нибудь</i>	1) в утверд. 2) в вопросит, предл.
no, not any <i>никакой + не</i>	nothing (not anything) <i>ничто + не ничего</i>	nobody (not anybody), no one <i>никто + не</i>	nowhere not anywhere <i>нигде, никуда + не</i>	в отрицат. предл.

every <i>всякий, каждый</i>	everything <i>всё</i>	everybody everyone <i>все</i>	everywhere <i>езде, повсюду</i>	в утверд., вопросит, и отрицат. предл.
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### **Словообразовательные аффиксы**

<b>Существительные</b> - ion / - sion /-tion - er / -or -ing -ment -ty / -ity -ance / -ence -ness -ure / -ture	- discussion, transmission, combination - writer, inspector - opening - development - activity - importance, difference - darkness - mixture
<b>Прилагательные</b> -ic -ive -able / -ible -ant / -ent -ous -al -ful -less -un / -in / -ir / -il / -im	- democratic - progressive - valuable, accessible -resistant, different - dangerous - central - hopeful - hopeless - uncomfortable, indirect, irregular, illogical, impossible
<b>Глагол</b> -ize re-	- to characterize - to rewrite

## Irregular verbs.

<i><b>Infinitive</b></i>	<i><b>Past</b></i>	<i><b>Participle II</b></i>	<i><b>Translation</b></i>
arise	arose	arisen	возникать
awake	awoke	awaked	будить, проснуться
be	was, were	been	быть
bear	bore	born	носить, родить
beat	beat	beaten	бить
become	became	become	стать
begin	began	begun	начать
bend	bent	bent	согнуться
bind	bound	bound	связать
bite	bit	bitten	кусать
blow	blew	blown	дуть
break	broke	broken	ломать
bring	brought	brought	приносить
build	built	built	строить
burst	burst	burst	разразиться, взорваться
buy	bought	bought	покупать
catch	caught	caught	ловить, поймать
choose	chose	chosen	выбирать
cut	cut	cut	резать
deal	dealt	dealt	иметь дело
dream	dreamt	dreamt	мечтать
do	did	done	делать
draw	drew	drawn	тащить, рисовать
drink	drank	drunk	пить
drive	drove	driven	ехать
eat	ate	eaten	есть, кушать
hear	heard	heard	слушать
hit	hit	hit	ударить, попасть
hold	held	held	держать
hurt	hurt	hurt	причинять боль
know	knew	known	знать
keep	kept	kept	держать
lay	laid	laid	класть, положить
lead	laid	laid	вести
leap	leapt/leaped	leapt/leaped	прыгать
leave	left	left	оставлять
lend	lent	lent	одолжить
let	let	let	пустить, дать
lie	lay	lain	лежать
lose	lost	lost	терять
make	made	made	делать
meet	met	met	встречать

pay	paid	paid	платить
put	put	put	класть
read	read	read	читать
ride	rode	ridden	ездить верхом
ring	rang	rung	звонить
rise	rose	risen	поднимать
run	ran	run	бежать
say	said	said	говорить, сказать
see	saw	seen	видеть
sell	sold	sold	продавать
send	sent	sent	послать
set	set	set	устанавливать
shake	shook	shaken	трясти
shine	shone	shone	светить, сиять
shoot	shot	shot	стрелять
show	showed	shown/showed	показывать
sing	sang	sung	петь
sink	sank	sunk	опускаться
sit	sat	sat	сидеть
sleep	slept	slept	спать
slide	slid	slid	скользить
speak	spoke	spoken	говорить
spend	spent	spent	тратить
steal	stole	stolen	украсть
stick	stuck	stuck	втолкнуть
strike	struck	struck/stricken	ударять, бастовать
swear	swore	sworn	клясться
swim	swam	swum	плавать
take	took	taken	брать
teach	taught	taught	учить
tell	told	told	говорить
think	thought	thought	думать
throw	threw	thrown	бросить
wake	woke	woken	просыпаться, будить
wear	wore	worn	носить
weep	wept	wept	плакать
win	won	won	выигрывать
wind	wound	wound	заводить
write	wrote	written	писать

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