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**Английский язык**

Учебное пособие

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Включены упражнения для закрепления лексического и грамматического материала, а также ряд текстов для развития навыков перевода текстов, как по данной специальности, так и общеразговорного характера с английского на русский язык. Кроме того, содержит основные сведения по курсу грамматики английского языка, необходимые для работы с заданиями и текстами. Прилагается список основных синонимов, антонимов и производных слов, необходимых при работе с текстами. Имеется список сокращений, список неправильных глаголов и грамматические таблицы.

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## Lesson 1

### Глагол to be

To be (быть) – am (1-е л. ед. ч.), is (3-е л. ед. ч.), are (мн. ч.)

I am a student. – Я студент.

He is an engineer. – Он инженер.

They are programmers. – Они программисты.

Этот глагол образует отрицательную форму при помощи **not**:

We are not pupils. – Мы не школьники.

You aren't teachers. – Вы не учителя.

Вопросительная форма образуется путем изменения порядка слов (глагол-сказуемое ставится перед подлежащим):

Is she a doctor? – Она врач?

### Выражения с глаголом to be:

To be sorry – сожалеть

to be angry – сердиться

To be dry – быть сухим

to be hungry – быть голодным

To be wet – промокнуть

to be thirsty – испытывать жажду

To be sure – быть уверенным

to be certain – быть уверенным

To be busy – быть занятым

to be well – чувствовать себя хорошо

To be right – быть правым

to be wrong – быть не правым

To be afraid of – бояться

to be free – быть свободным

To be ill – быть больным

to be unwell(sick) – плохо себя чувствовать

To be bored – скучать

to be anxious – быть обеспокоенным

To be fond of – любить

to be late for something – опаздывать куда-то

To be tired – быть уставшим

to be happy – быть счастливым

To be cold – мёрзнуть

to be hot – изнемогать от жары

To be glad – быть радостным

to be eager – очень хотеть

To be at home – быть дома

to be in a hurry – спешить

To be good at – преуспевать в

to be engaged in – заниматься чем-либо

To be engaged with somebody – быть помолвленным с кем-то

To be exhausted – быть истощённым, измученным

To be absent – отсутствовать to be present – присутствовать

To be interested in – интересоваться чем-либо

### **Времена группы Indefinite(Simple) Active**

Глаголы в формах Simple относят действие к настоящему, прошедшему или будущему времени, не уточняя, как оно протекает по времени. Времена Simple Active образуются от инфинитива.

#### **Present Simple**

Формы глагола в Present Simple совпадают с инфинитивом без частицы to. Лишь в 3-м лице единственного числа добавляется суффикс –s или –es. Исключениями являются глаголы to be (см. выше) и to have:

To have (иметь) – has (имеет)

Это время употребляется для выражения действия, происходящего обычно, регулярно, или для обозначения вневременных фактов и явлений. Указателями времени являются наречия: always (всегда), never (никогда), seldom (редко), often (часто), usually (обычно), sometimes (иногда), every day (каждый день).

I get up at seven every day except Sunday. – Я встаю в семь утра каждый день, кроме воскресенья.

The sun rises in the east and sets in the west. – Солнце всходит на востоке и заходит на западе.

Чтобы задать вопрос или образовать отрицательную форму, необходимы вспомогательные глаголы do, does (3-е л. ед. ч.).

I do not get up at seven on Sunday. – Я не встаю в семь утра в воскресенье.

Does the sun rise in the east? – Солнце всходит на востоке?

#### **Past Simple**

Стандартные глаголы образуют формы в Past Simple путем прибавления к инфинитиву (без частицы to) суффикса –ed (d) для всех лиц единственного и множественного числа. Например:

to ask – asked

to translate – translated

Нестандартные глаголы образуют формы в **Past Simple** различными способами. Например:

to go (ходить) – went	to take (брать) – took
to write (писать) – wrote	to come (приходить) – came
to give (давать) – gave	to be – was (ед. ч.), were (мн. ч.)

Past Simple употребляется

а) для выражения ряда последовательных действий в прошлом:

He stood up, came up to the window and saw an endless stream of cars running along the street. – Он встал, подошел к окну и увидел бесконечный поток машин, едущих по улице.

б) когда действие соотносится с обстоятельственными словами, точно обозначающими прошедшее время (к ним относятся наречия ago (тому назад), yesterday (вчера), last month / week / year (в прошлом месяце / на прошлой неделе / в прошлом году) и т.п.):

My friends came to see me on Saturday. – Мои друзья приходили ко мне в субботу.

Для образования вопросительных и отрицательных предложений используется вспомогательный глагол did.

We didn't get up home until midnight. – Мы добрались домой только в полночь.

в) когда интересуются временем совершения действия в прошлом, т.е. в вопросительном предложении, начинающемся с when, what time:

When did you see her last? – Когда вы видели ее в последний раз?

What time did you arrive home? – Когда вы добрались домой?

### **Future Simple**

Формы глагола в Future Simple образуются при помощи вспомогательного глагола will и инфинитива глагола без частицы to. Например:

They will go to the country tomorrow. – Завтра они поедут за город.

С 1-м лицом единственного и множественного числа в британском варианте английского языка часто употребляется также глагол *shall*. В разговорной речи используется форма *'ll*:

He'll make his report next week. – Он сделает доклад на следующей неделе.

I shall be twenty-one next year. – В будущем году мне будет 21 год.

Отрицание образуется при помощи слова *not*:

He will not make his report next week. – Он не будет делать доклад на следующей неделе.

### Структура специальных вопросов

В специальных вопросах, относящихся к любому члену предложения (кроме подлежащего и его определения) и начинающихся с вопросительного слова, вспомогательный глагол стоит перед подлежащим, а основной глагол в форме инфинитива без частицы *to* сохраняет свое место после подлежащего.

Таблица 1

Вопросительные слова	Вспомогательный глагол	Подлежащее и определение к нему	Смысловой глагол в первой форме (V <sub>1</sub> )	Другие члены предложения, к которым не задается вопрос
What	do	you	do	in the evening?
Where	did	he	go	yesterday?
When	will	your sister	return	home?

В вопросах, относящихся к подлежащему или его определению, само вопросительное слово является подлежащим или определением подлежащего, поэтому полностью сохраняется порядок слов утвердительного предложения:

Who knows his address? – Кто знает его адрес?

Who will help you with this work? – Кто поможет тебе с этой работой?

Whose father worked as a doctor? – Чей папа работал врачом?

### Ответы на вопросы

Ответ на общий вопрос обычно бывает кратким:

Do you know German? – Yes, I do. ( – No, I don't.)

Did he study German at school? – Yes, he did. ( – No, he didn't.)

Will they come tomorrow? – Yes, they will. ( – No, they won't.)

Специальный вопрос требует полного, развернутого ответа:

What language did you study at school? – I studied English.

Where does your mother work? – She is a school teacher.

What will they do after work? – They will go home.

Специальный вопрос к подлежащему, как правило, требует краткого ответа:

Who will help them? – I will.

Who saw her yesterday? – We did.

Who translates articles from English journals? – I do.

### ***Grammar exercises:***

#### ***1. Choose the verbs in Present Tense.***

1. They employ; 2. They employed; 3. They will employ; 4. He obtains; 5. He will obtain; 6. He obtained; 7. He does not compare; 8. He did not compare; 9. He will not compare; 10. They have; 11. He has; 12. They had; 13. They will have; 14. There are; 15. There were; 16. There was; 17. There will be; 18. There is.

#### ***2. Choose the verbs in Past Tense.***

1. They showed; 2. They show; 3. They will show; 4. She will describe; 5. She described; 6. She describes; 7. It does not operate; 8. It did not operate; 9. It will not operate; 10. We had; 11. She has; 12. He will have; 13. They have; 14. There was; 15. There is; 16. There are; 17. There were; 18. There will be.

#### ***3. Choose the verbs in Future Tense.***

1. The cathode repels; 2. The cathode will repel; 3. The cathode repelled; 4. The anode attracted; 5. The anode attracts. 6. The anode will attract; 7. There will be; 8. There are; 9. There was; 10. There is; 11. There were; 12. It will operate; 13. We shall have; 14. The scientist will have; 15. They had; 16. It has; 17. It will have.

#### ***4. Open the brackets using the verbs in Present Simple.***

(USUALLY) 1. My working day (to begin) at seven o'clock. I (to get) up, (to switch) on the radio and (to do) my morning exercises. It (to take) me fifteen minutes. At half past seven we (to have) breakfast. My father and I (to leave) home at eight o'clock. He (to take) a bus to his factory. My mother (to be) a doctor, she (to leave) home at nine o'clock. In the evening we (to gather) in the living room. We (to watch) TV and (to talk).

2. My sister (to get) up at eight o'clock. 3. She (to be) a schoolgirl. She (to go) to school in the afternoon. 4. Jane (to be) fond of sports. She (to do) her morning exercises every day. 5. For breakfast she (to have) two eggs, a sandwich and a cup of tea. 6. After breakfast she (to go) to school. 7. It (to take) him two hours to do his homework. 8. She (to speak) French well.

#### ***5. Open the brackets using the verbs in Future Simple.***

1. I want to get a medical checkup. I (to go) to my doctor tomorrow. 2. He (to give) me a complete examination. 3. The nurse (to lead) me into one of the examination rooms. 4. I (to take) off my clothes and (to put) on a hospital gown. 5. Dr. Setton (to come) in, (to shake) my hand, and (to say) "hello". 6. I (to stand) on his scale so he can measure my height and my weight. 7. He (to take) my pulse. 8. Then he (to take) my blood pressure. 9. After he takes my blood pressure, he (to take) some blood for a blood analysis. 10. He (to examine) my eyes, ears, nose and throat. 11. He (to listen) to my heart with a stethoscope. 12. Then he (to take) a chest X-ray and (to do) a cardiogram (EKG). 13. After the checkup I (to go) home and (to wait) for Dr. Setton's call. 14. Dr. Setton (to call) me tomorrow afternoon and (to say) to me: "Stop worrying! Your blood analysis is excellent." He is a very good doctor.

#### ***6. Open the brackets using the verbs in Past Simple.***

1. What your neighbours (to do) yesterday? 2. Mr. Smith (to fix) his car yesterday morning. 3. His wife (to water) plants in the garden. 4. Their children (to clean) the yard and then they (to play) basketball. 5. In the evening their boys (to listen) to loud music and (to watch) TV. 6. Their little girl (to cry) a little and then (to smile). 7. Her brothers (to shout) at her. 8. Mrs. Smith (to work) in the kitchen. 9. She (to bake)



a delicious apple pie. 10. She (to cook) a good dinner. 11. She (to wash) the dishes and (to look) very tired. 12. The children (to brush) their teeth, (to yawn) a little and (to go) to bed. 13. Their mother (to change) her clothes and (to brush) her hair. Then she (to talk) on the phone. 14. Her husband (to smoke) a cigarette and (to talk) to his wife. 15. They (to wait) for the bus. The bus (to arrive) at 9 o'clock. 16. They (to visit) their friends. 17. They (to dance) a lot there. 18. Mr. and Mrs. Smith (to rest) very well last night. They really (to have) a wonderful time at their friends.

**7. Complete the sentences. Use these verbs:**

boil close cost cost like like meet open speak teach wash

Olga speaks four languages.

1. In Britain the banks usually ..... at 9.30 in the morning.
2. The City Museum ..... at 5 o'clock in the evening.
3. Nina is a teacher. She ..... physics to young children.
4. My job is very interesting. I ..... a lot of people.
5. Nick ..... his hair twice a week.
6. Food is expensive. It ..... a lot of money.
7. Shoes are expensive. They ..... a lot of money.
8. Water ..... at 100 degrees Celsius.
9. Diana and I are good friends. I ..... her and she ..... me.

**8. Write sentences from these words. Put the verb in the right form.**

(arrive or arrives etc.).

(always / early / Sveta / arrive)

Sveta always arrives early.

1. (volleyball / I / play / often) .....
2. (work / Mary / hard / usually) .....
3. (Lena / always / nice clothes / wear) .....
4. (dinner / we / have / always / at 7.30) .....
5. (television / Tony / watch / never) .....
6. (like / chocolate / children / usually) .....
7. (Julia / parties / enjoy / always) .....

**9. Complete the sentences. All of them are negative. Use don't/doesn't + one of these verbs:**

Cost            go            know            read            see            use            wear

I buy a newspaper every day but sometimes I don't read it.

1. Serge has a car but he ..... it very often.
2. They like films but they ..... to the cinema very often.
3. Anna is married but she ..... a ring.
4. I ..... much about politics. I'm not interested in it.
5. It's not an expensive hotel. It ..... much to stay there.
6. Bob lives near us but we ..... him very often.

**10. Write questions. Use the words in brackets (...) + do/does. Put the words in the right order.**

(where / live / your parents?)                      Where do your parents live?

1. (you / early / always / get up?) .....
2. (how often / TV / you / watch?) .....
3. (you / want / what / for lunch?) .....
4. (like / you / tennis?) .....
5. (your sister / like / basketball?) .....
6. (what / you / do / in the evenings?) .....
7. (your brother / work / where?) .....
8. (to the theatre / often / you / go?) .....
9. (what / mean / this word?) .....
10. (often / snow / it / here?) .....
11. (go / usually / to bed / when / you?) .....
12. (how much / to phone New York / it / cost?) .....
13. (you / for dinner / have / usually / what?) .....

**11. Write sentences about the past (yesterday / last week etc.).**

John always goes to work by car. Yesterday he went to work by car.

1. Rose often loses her keys. She ..... last week.
2. Lena meets her friends every evening. She ..... yesterday evening.

3. I usually buy two newspapers every day. Yesterday I .....
4. We usually go to the cinema on Sundays. Last Sunday we .....
5. I eat an orange every day. Yesterday I .....
6. Ted always has a shower in the morning. This morning he .....
7. Our friends come to see us every Sunday. They ..... last Sunday.

**12. Put the verb in the correct form – positive, negative or question.**

We went to the cinema but the film wasn't very good. We didn't enjoy it. (enjoy)

1. To .... some new clothes yesterday – two shirts, a jacket and a pullover. (buy)
2. .... yesterday? – No, it was a nice day. (rain)
3. The party wasn't very good, so we ..... long. (stay)
4. It was very warm in the room, so I ..... a window. (open)
5. Did you go to the bank this morning? – No, I ..... time. (have)
6. I cut my hand this morning. How ..... that? (do)

**13. Put in will ('II) or won't.**

Don't drink coffee before you go to bed. You won't sleep.

1. Are you ready yet? – Not yet. I ..... be ready in five minutes.
2. I'm going away for a few days. I'm leaving tonight, so I ..... be at home tomorrow.
3. It ..... rain, so you don't need to take an umbrella.
4. A: I don't feel very well this evening.  
B: Well, go to bed early and you ..... feel better in the morning.
5. It's Bill's birthday next Monday. He ..... be 25.
6. I'm sorry I was late this morning. It ..... happen again.

**14. Make the sentences negative and ask the questions.**

1. This is a large room.
2. I am a mechanic.
3. You are an engineer.
4. We were workers.
5. She was a doctor.
6. We have mathematics today.

7. I have a sister.
8. My friend has French books.
9. They had friends in Kazan.

***Learn the vocabulary.***

Invention – изобретение	Entertainment – развлечение
(Vacuum) tube – вакуумная трубка, электронная лампа	Washing-machine – стиральная машина
Device – прибор, устройство	Dishwasher – посудомоечная машина
Record player – проигрыватель	Central heating system – система цен- трального отопления
Power – мощность, энергия	Sewing machine – швейная машина
Microprocessor – микропроцессор	Food processor – кухонный комбайн
Mean (meant) – значить, означать	Digital – цифровой
Lead to (led) – вести, приводить к	Electric timer – таймер
IC (integrated circuit) – интегральная (интегрированная) схема, цепь	Water heater – водонагреватель
Silicon – кремний	Electric cooker – электроплита
Chip – микросхема, чип	Microwave oven – микроволновая печь
Answerphone facility – автоответчик	Automatic dialing – автодозвон

***Read and translate the text.***

**Electronics in the home**

Electronics began at the start of the twentieth century with the invention of the vacuum tube. The first devices for everyday use were radios, followed by televisions, record players, and tape recorders. These devices were large and used a lot of power.

The invention of the transistor in 1947 meant that much smaller, low-powered devices could be developed. A wide variety of electronic devices such as hi-fi units and portable radios became common in the home.

It was not until 1958 that microelectronics began with the development of ICs (integrated circuits) on silicon chips. This led to a great increase in the use of electron-

ics in everyday items. The introduction of the microprocessor allowed electronics to be used for the control of many common processes.

Microprocessors are now used to control many household items such as automatic washing-machines, dishwashers, central heating systems, sewing machines, and food processors. Electronic timers are found in digital alarm clocks, water heaters, electric cookers, and microwave ovens.

Telephones use electronics to provide automatic dialling and answerphone facilities. New entertainment devices have been developed, such as video recorders and CD (compact disc) players.

In the future, electronics are likely to become even more common in the home as multimedia entertainment systems and computer-controlled robots are developed.

***Task 1. Fill in the gaps in this table with the help of the text.***

<u>Date</u>	<u>Invention</u>	<u>Applications in the home</u>
early 20th century		
	transistor	
1958		automatic washing-machines
future		

***Task 2. Make a list of ways in which you think electronics may be used in the home in the future.***

***Learn the vocabulary.***

Alternating – переменный	Heat – тепло, нагревать
Apply – применять, прилагать	Heater – нагреватель
Application – применение	Occur – происходить
As well as – так же как	Operate – работать
Circuit – схема, цепь	Operator – оператор
Compare (to, with) – сравнивать	Operation – работа

Comparatively – сравнительно	Science – наука
Conduct – проводить (ток)	Scientist – ученый
Conduction = conductivity – проводимость	Scientific – научный
Conductor – проводник	Source [so:s] – источник
Semiconductor – полупроводник	Switch n – выключатель
AC (a.c.) = alternating current – переменный ток	Switch on – включать
DC (d.c.) = direct current – постоянный ток	Switch off – выключать
Define – определять	Thus – таким образом
Definition – определение	Toward(s) – по направлению к
Direct – прямой, направлять	Unit – блок, элемент
Direction – направление	Produce – производить
Directly – прямо	Product – продукт, изделие
Emit – испускать	Production – производство
Emission – эмиссия	Productivity – производительность
Figure (Fig.) – рисунок	Develop – разрабатывать, создавать
Flow – поток, течь	Development – разработка, развитие
	Obtain – получать
	Repel – отталкивать
	Attract – притягивать

***Translate the definitions.***

**Anode** is an electrode for the collection of electrons.

**Cathode** (in electron tubes) is the electrode from which emission takes place.

**Diode** is a device that permits a current to flow through it in only one direction.

**Rectifier** is a device used for the process of rectification.

***Read and translate the text.***

## Diodes

We can define electronics as the study of conduction of electricity in a vacuum, in gases and in semiconductors. The conduction of electricity in a vacuum, for example, occurs in vacuum tubes. Though in some vacuum tubes current flows from one element to the other through a gas.

Every vacuum tube diode has a cathode with a heater and a plate. When the circuit is completed the cathode emits electrons. Negative voltage on the cathode repels the electrons. Positive voltage on the plate attracts the electrons. The current flows through the tube. If a negative voltage is applied to the plate current does not flow. Thus, a diode permits current to flow in only one direction.

A semiconductor diode also conducts current in one direction, but the physical principles, which permit it to do this are different. Diodes are used as rectifiers of alternating voltages, as detectors of radio signals, as switching devices, etc.

### **Оборот There is/are**

Если в русском языке предложение начинается с обстоятельства места (где?), то в английском языке оно начинается с оборота there is/are, а обстоятельство места находится в конце предложения.

Этот оборот обозначает местонахождение, наличие, существование. Он может переводиться словами «есть, существует, находится, имеется, стоит, лежит, висит, присутствует, состоится и т.п.» в зависимости от контекста, или может никак не переводиться. Например:

На заводе много рабочих. – There are many workers at the plant.

There is a good machine-tool in the work-shop. – В цехе есть хороший станок.

В Past Simple этот оборот имеет форму there was / were, а в Future Simple – there will be. Например:

There were two engineers from the works at the meeting yesterday. – Вчера на собрании присутствовали два инженера с завода.

There will be a scientific and technical conference in our university tomorrow.

Завтра в нашем университете состоится научно-техническая конференция.

Отрицательная форма образуется при помощи not:

There are not any students in the classroom. – В аудитории студентов нет.

Вопросительная форма образуется путем изменения порядка слов:

Are there any students in the classroom? – В аудитории есть студенты?

### ***Grammar exercises:***

#### ***1. Translate.***

1. There are several vacant seats in the bus.
2. There are some factories in this region.
3. There is a chair in front of the desk.
4. There are some people in the office.
5. There are some flowers in the living-room.
6. There is a photo on the television.
7. There are some magazines on the table.
8. There are some Chinese students in our class.
9. There is a post box in front of the shop.

#### ***2. Put in is or are.***

1. There ... one window in my room.
2. There ... white curtains on the window.
3. Under the window there ... a desk.
4. There ... a vase on it.
5. There ... three roses in the vase.
6. To the right of the window there ... a lamp.
7. In front of the desk there ... a chair.
8. There ... a computer to the left of the desk and there ... a box of computer discs under the computer.
9. On the wall behind the computer there ... a calendar.
10. There ... two pictures on the wall to the left of the computer.



### **3. Translate.**

1. There was a house on a hill.
2. There was an attic in the house.
3. There was a red roof on the house and a balcony.
4. Downstairs there was a kitchen and a living room.
5. In the kitchen there was a table but there were not any chairs.
6. On the table there were a lot of cups and some saucers.
7. There was a cupboard and there were a lot of mugs in it.
8. In the living room there were two armchairs and a sofa.
9. Upstairs there were two bedrooms.

### **4. Put in was or were.**

1. My living-room ... large.
2. There ... a television set in the room.
3. The television set ... near the window.
4. There ... some magazines on the television set.
5. There ... a table in the room.
6. There ... some newspapers on the table.
7. There ... two armchairs near the door.
8. There ... some books on the radio set.
9. There ... some pictures on the walls.
10. There ... a big thick carpet on the floor.

### **Learn the vocabulary.**

Control <i>n, v</i> [kon'troul] – управление; управлять	Insulation – изоляция
Decrease <i>n, v</i> – уменьшение; умень- шать	Grid [grid] – сетка
Depend (on, upon) – зависеть	Place <i>n, v</i> – место; помещать
Distance – расстояние	Result – результат
Increase <i>n, v</i> – увеличение; увеличи-	Result in – приводить к (кончатся чем-л.)
	Transistor – транзистор

вать	Density – плотность
Insulate – изолировать	Basis – базис, основа
Insulator – диэлектрик, непроводник	Constant – постоянный

***Read and translate the text.***

**Triodes**

In a vacuum-tube triode there are three electrodes: a cathode, a plate and a grid. When heated the cathode emits electrons. Electrons flow from the cathode to the plate.

The grid is placed between the cathode and the plate. It controls the flow of electrons. The closer the grid is to the cathode, the more influence it has on the electron flow.

Even if a small negative voltage is applied to the grid, this results in a large plate current. If a large negative voltage is applied to the grid, the plate current decreases.

For example, the plate voltage is 150 volts. A small negative voltage of 10 volts is applied to the grid. This results in a current flow of 20 m. a. But if the negative voltage on the grid is decreased to 8 volts, this will result in a current of 30 m. a. Due to this property of a triode, it can be used for amplification.

***Revision exercises:***

***1. Translate international words.***

**Nouns** – crystal, group, helium, radiation, radium, valence, uranium

**Adjectives** – central, covalent, cubic, periodic, vertical, economic(al)

**Verbs** – group, radiate, vibrate, bond.

***2. Translate.***

1. while operating; 2. while charging; 3. while forming; 4. while producing; 5. while creating; 6. while insulating; 7. while adding; 8. while increasing; 9. while decreasing

***3. Translate international words.***

**Nouns:** aluminium, atom, computer, dielectric, discussion, generator, germanium, industry, kilowatt, machine, robot, rotor, selenium, steel, structure, temperature, test, turbo-generator.

**Adjectives:** cryogenic, monolithic, proportional.

**Verbs:** circulate, classify, discuss, generate, test.

#### **4. Find English equivalents.**

- a) притяжение – 1. attraction; 2. attractive; 3. attracted
- b) описание – 1. describe; 2. description; 3. described
- c) нагревание – 1. heater; 2. heating; 3. heat
- d) работа – 1. operator; 2. operate; 3. operation
- e) определение – 1. defined; 2. define; 3. definition
- f) проводник – 1. conductor; 2. conductivity; 3. conducted
- g) направление – 1. direct; 2. direction; 3. directly
- h) выпрямление – 1. rectifier; 2. rectified; 3. rectification
- i) изоляция – 1. insulator; 2. insulated; 3. insulation
- j) эмиссия – 1. emission; 2. emit; 3. emitted

#### **5. Translate.**

- a) Он знает ... – 1. He knows ...; 2. He will know ...; 3. He knew ...
- b) Они зарядили ... – 1. They charge ...; 2. They charged ...; 3. They will charge ...
- c) Это не будет зависеть от ... – 1. This will not depend on ...; 2. This does not depend on ...; 3. This did not depend on ...
- d) Мы не брали ... – 1. We did not take ...; 2. We do not take ...; 3. We shall not take...
- e) Зависит ли температура от ...? – 1. Did the temperature depend on ...? 2. Does the temperature depend on ...? 3. Will the temperature depend on ...?

#### **6. Find English equivalents.**

- a) ниже – 1. low; 2. lower; 3. the lowest
- b) самый высокий – 1. the highest; 2. higher; 3. high
- c) ближе – 1. closer; 2. close; 3. the closest

- d) мало – 1. few; 2. fewer; 3. a few
- e) самый хороший – 1. the best; 2. better; 3. good
- f) много – 1. much; 2. more; 3. the most
- g) больше – 1. much; 2. more; 3. the most
- h) легче, проще – 1. easier; 2. the easiest; 3. easy

**7. Open the brackets using verbs in Present, Past или Future Simple.**

1. I (to go) to bed at ten o'clock every day. 2. I (to go) to bed at ten o'clock yesterday. 3. I (to go) to bed at ten o'clock tomorrow. 4. I (not to go) to the cinema every day. 5. I (not to go) to the cinema yesterday. 6. I (not to go) to the cinema tomorrow. 7. You (to watch) TV every day? 8. You (to watch) TV yesterday? 9. You (to watch) TV tomorrow? 10. When you (to leave) home for school every day? 11. When you (to leave) home for school yesterday? 12. When you (to leave) home for school tomorrow? 13. My brother (to go) to work every day. He (to leave) home at a quarter past eight. As the office he (to work) at (to be) near our house, he (to walk) there. He (not to take) a bus. Yesterday he (not to go) to work. Yesterday he (to get) up at nine o'clock. 14. You (to have) a PT lesson yesterday? — No, I ... . 15. What you (to buy) at the shop yesterday? — I (to buy) a book. 16. Yesterday my father (not to read) newspapers because he (to be) very busy. He (to read) newspapers tomorrow. 17. He (to turn) on the television to watch cartoons every morning. 18. He (to turn) on the television to watch cartoons yesterday morning. 19. He (to turn) on the television to watch cartoons tomorrow morning. 20. I always (to go) to the Altai Mountains to visit my relatives there. 21. I (to be) very busy last summer and I (not to go) there. 22. I (not to go) there next year because it (to cost) a lot of money and I can't afford it. 23. They (to enjoy) themselves at the symphony yesterday evening? 24. Who (to take) care of the child in the future? 25. How often you (to go) to the dentist's? 25. We (not to have) very good weather, but we still (to have) a good time during our short stay in London.

**Lesson 2**

## **Времена группы Continuous (Progressive) Active**

Глаголы в формах Continuous употребляются, когда требуется подчеркнуть, что действие продолжается, продолжалось или будет продолжаться в то время, о котором идет речь, т.е. когда нужно выразить действие в процессе его совершения.

### **Present Continuous**

Употребляется для выражения длительного действия, совершаемого в момент речи. Эта форма образуется следующим образом:

To be в настоящем времени (am, is, are) + Participle I смыслового глагола

Глаголы в этой форме переводятся на русский язык глаголами несовершенного вида, иногда с добавлением слова «сейчас»:

They are translating the new article. – Они переводят эту новую статью сейчас.

### **Past Continuous**

Употребляется для выражения действия, которое продолжало совершаться в определенный момент или отрезок времени в прошлом, обозначаемом либо точным указанием момента или отрезка времени, либо другим действием, выраженным глаголом в Past Indefinite. Эта форма образуется следующим образом:

To be в прошедшем времени (was, were) + Participle I смыслового глагола.

Мы работали в лаборатории с 5 до 7 часов. – We were working in the lab from 5 till 7 o'clock.

Он переводил статью, когда я пришел. – He was translating the article when I came.

### **Future Continuous**

Употребляется для выражения действия, которое будет совершаться в определенный момент или отрезок времени в будущем. Образуется:

To be в будущем времени (shall be, will be) + Participle I смыслового глагола.

I shall be reading the book all day long tomorrow. – Я буду читать эту книгу завтра целый день.

Таблица 2

<i>Форма</i>	<i>Present Continuous</i>	<i>Past Continuous</i>	<i>Future Continuous</i>
Утвердительная	They are having an English class.  He is still writing an exercise.	They were having an English class when I came to see them.  He was writing an exercise from 6 till 8 o'clock.	They will be having an English class tomorrow at 9 o'clock.  He will be writing an exercise from 6 till 8 o'clock tomorrow.
Вопросительная	Are they having an English class?  Is he still writing an exercise?	Were they having an English class when I came to see them?  Was he writing an exercise from 6 till 8 o'clock?	Will they be having an English class tomorrow at 9 o'clock?  Will he be writing an exercise from 6 till 8 o'clock tomorrow?
Отрицательная	They aren't having an English class, they are having a Russian class.  He isn't writing an exercise, he's reading a book.	They weren't having an English class when I came to see them, they were having a Russian class.  He wasn't writing an exercise from 6 till 8 o'clock, he was reading a book.	They will not be having an English class tomorrow at 9 o'clock, they will be having a Russian class.  He won't be writing an exercise from 6 till 8 o'clock tomorrow, he'll be reading a book.

Существует целый ряд глаголов, которые не используются в Continuous. Вот некоторые из них: see, hear, want, have (иметь), like, love, hate, think (полагать), understand, taste (быть на вкус), smell (пахнуть).

**Grammar exercises:**

**1. Open the brackets using the verbs in Present, Past and Future Continuous.**

1. I (to write) an English exercise now. 2. I (to write) an English exercise at this time yesterday. 3. My little sister (to sleep) now. 4 My little sister (to sleep) at this time yesterday. 5. My friends (not to do) their homework now. They (to play) volleyball. 6. My friends (not to do) their homework at seven o'clock yesterday. They (to play) volleyball. 8. She (to read) the whole evening yesterday. 7. She (not to read) now. 9. Now she (to go) to school. 10. What you (to do) now? – I (to drink) tea. 11. You (to drink) tea at this time yesterday? – No, I (not to drink) tea at this time yesterday, I (to eat) a banana. 12. My sister is fond of reading. She (to read) the whole evening yesterday, and now she (to read) again. 13. Look! My cat (to play) with a ball. 14. When I went out into the garden, the sun (to shine) and birds (to sing) in the trees. 15. You (to eat) ice cream now? 16. You (to eat) ice cream when I rang you up yesterday? 17. What your father (to do) now? 18. What your father (to do) from eight till nine yesterday? 19. Why she (to cry) now? 20. Why she (to cry) when I saw her yesterday?

**2. Write questions from these words. Use is or are and put the words in order.**

(working / Henry / today?) Is Henry working today?

(what / doing / the students?) What are the students doing?

1. (you / listening / to me?) .....
2. (where / going / your friends?) .....
3. (your grandparents / television / watching?) .....
4. (what / cooking / Liza?) .....
5. (why / you / looking / at me?) .....
6. (coming / the bus?) .....

**3. Complete the questions. Use was/were - ing. Use what /where / why if necessary.**

(you/live) .Where were you living in 1990?

In Moscow.

1. (you/do) ..... at 9 o'clock?

I was reading.

2. (it/rain) ..... when you got up?

No, it was sunny.

3. (Julia/drive) ..... so fast?

Because she was in a hurry.

4. (Jack/wear) ..... a suit yesterday?

No, a T - shirt and jeans.

**4. Put the verb into the past continuous or past simple.**

- A: What were you doing (you/do) when the phone rang (ring)?  
 B: I was watching (watch) television.
1. A: Was Linda busy when you went to see her?  
 B: Yes, she ..... (study).
  2. A: What time ..... (the post / arrive) this morning?  
 B: It .....(come) while I ..... (have) breakfast.
  3. A: Was Mary at work today?  
 B: No, she ..... (not/go) to work. She was ill.
  4. A: How fast ..... (you/drive) when the police ..... (stop) you?  
 B: I don't know exactly but I ..... (not/drive) very fast.
  5. A: ..... (your team / win) the football match yesterday?  
 B: No, the weather was very bad, so we ..... (not/play).
  6. A: How ..... (you/break) the window?  
 B: I .... (play) football. I .... (kick) the ball and it ..... (hit) the window.
  7. A: ..... (you/see) Sue last night?  
 B: Yes, she ..... (wear) a very nice jacket.
  8. A: What ..... (you/do) at 8 o'clock this morning?  
 B: I was washing dishes.
  9. A: I ..... (lose) my key last night.  
 B: How ..... (you/get) into your room?  
 A: I ..... (climb) in through a window.

***Learn the vocabulary.***

Available a – имеющийся	Melt v – таять
Considerable a – значительный	Mention v – упоминать
Copper n – медь	Need v – нуждаться
Desirable a – нужный	Remain v – оставаться
Difficult a – трудный	Resistant a – устойчивый
Either... or ... - либо..., либо	Sheet n – лист
Enormously – чрезвычайно	Silver n – серебро



Enough a – достаточный	Strengthen v – усиливать, укреплять
Estimate v – оценивать	Suitable a – пригодный
Exception n – исключение	Thin a – тонкий
Expensive a – дорогостоящий	Vary v – изменять(ся)
Fibre n – фибра, волокно	Wire n – проволока
Fine a – тонкий	To meet requirements – удовлетво- рять требованиям
Gold n – золото	
Iron n – железо	

***Read and translate the text.***

**Better metals are vital to technological progress**

Since the earliest days the preparation of metals for mechanical use was vital to the advance of civilization.

Gold, silver and copper were the first to be used by a primitive man, as they were found free in nature. Today we know more than sixty-five metals available in large enough quantities to be used in industry.

Metals are mostly solids at ordinary temperatures and possess comparatively high melting points with the exception of mercury. They are for the most part<sup>1</sup> good conductors of heat and electricity, and silver is the best in this respect<sup>2</sup> They can be drawn into fine wires and hammered into thin sheets.

As to<sup>3</sup> their chemical properties the first point to be mentioned is that they vary widely in degree of chemical activity: some are enormously active and others are inert. The Earth contains a large number of metals useful to man. Of all metals to be utilized in industry iron remains by far<sup>4</sup> the most important. Modern industry needs considerable quantities of this metal either in the form of iron or steel.

To get the desirable characteristics in metals or to improve them the art to mix metals and other substances began to develop. The first alloys that were formed in this way were sometimes stronger, tougher, harder and more elastic than the metals of which they were composed. To estimate nowadays how many alloys there exist in the modern world is difficult because their numbers increase daily.

To serve special uses modern metals and alloys must be lighter yet stronger, more corrosion-resistant, more suitable for automated fabrication yet less expensive than those available before.

Scientists are developing new processes and improving old ones in order to produce metals and alloys that will meet the present-day requirements. One of the most interesting purposes is, for instance<sup>5</sup> to make metals stronger, in other words, to strengthen them by reinforcing them with fibres.

Today transportation, communication, farming, construction and manufacturing all depend on the availability of suitable metals and alloys.

*Notes on the text*

1. for the most part — большей частью
2. in this respect — в этом отношении
3. as to — что касается
4. by far — несомненно
5. for instance — например

***Task 1. Answer the questions:***

1. Since what time was the preparation of metals vital to the advance of civilization?
2. What metals did a primitive man use?
3. Why did he use gold, silver and copper?
4. How many metals do we know today?
5. Do metals have low or high melting points?
6. Are they good conductors of heat and electricity?
7. Which metal is the best conductor?
8. Does the Earth contain a large number of metals?
9. What is the most important metal?
10. How are alloys formed?
11. What properties do they possess?
12. How are metals strengthened now?

13. What depends on the availability of suitable metals and alloys?

**Revision exercises:**

**1. Open the brackets using the verbs in Present Simple, Past Simple, Present Continuous, Past Continuous.**

1. We (to have) a postcard from them two days ago. They (to say) they (to have) a marvellous time. 2. While she (to shop) this morning, she (to lose) her money. She (not to know) how. 3. They (to announce) our flight. We (to have) a problem. One of our suitcases (to miss). 4. Who (to speak) there? – I (not to know). 5. He (not to smoke). He (not to smoke) now. When he (to be) at the office yesterday, he (not to smoke), he (to work) hard. 6. When my sister (to wash) her skirt, she (to find) a pound note in the pocket. 7. When you (to learn) German? 8. We (to go) home now because it (to be) late. 9. Who you (to wait) for? 10. Her car (to break) down yesterday while she (to drive) to work. 11. When and where it (to happen)? 12. She always (to wear) nice clothes for work. Today she (to wear) a nice blouse and a dark skirt. 13. What she (to watch) at the moment? 14. I (to see) my friend in the street yesterday, but he (to run) for a bus and he (not to have) time to speak to me. 15. What your son (to do)? – He (to study) computer science. 16. What you (to do) at the weekend?

**2. Open the brackets using the verbs in Present, Past, Future Simple; Present, Past Continuous.**

1. Where your brother (to work)? – He (to work) at an institute. 2. Your grandmother (to sleep) when you (to come) home yesterday? 3. What your brother (to do) tomorrow? 4. I (not to go) to the shop yesterday. I (to go) to the shop tomorrow. 5. Where Kate (to go) when you (to meet) her yesterday? 6. Look at these children: they (to skate) very well. 7. You (to skate) last Sunday? – Yes, we (to skate) the whole day last Sunday. We (to skate) again next Sunday. 8. My brother can skate very well. He (to skate) every Sunday. 9. What you (to do) now? – I (to wash) the dishes. 10. What you (to do) at three o'clock yesterday? – I (to have) din-

ner. 11. You (to have) dinner now? 12. Every day the boss (to enter) the office at nine o'clock. 13. Yesterday the boss (to enter) the office at half past nine. 14. When the boss (to come) tomorrow? 15. At six o'clock yesterday we (to listen) to a very interesting lecture. 16. When I (to enter) the office, the secretary (to type) some letters. 17. My friend (to ring) me up at eight o'clock yesterday. 18. Look! My friends (to play) football. 19. Kate (not to write) letters every day. 20. You (to see) your friend yesterday? 21. Your father (to go) on a business trip last month? 22. What Nick (to do) yesterday? 23. When Nick (to get) up every morning? 24. Where your mother (to go) tomorrow? 25. I (to invite) my friends to come to my place tomorrow. 26. A disco, which (to take) place at the club last weekend, (to keep) people awake half the night.

## Lesson 3

### Многофункциональные слова **it, one (ones), that (those)**

#### Степени сравнения прилагательных и наречий

#### Многофункциональность местоимения **it**

##### 1) личное (подлежащее, дополнение)

Repeat the experiment. It is very important. – Повторите опыт. Он очень важен.

Your solution is correct. – Ваше решение правильно.

Explain it, please. – Объясните его, пожалуйста.

##### 2) указательное (подлежащее).

What is this? – It is a new device. – Что это? – Это новый прибор.

##### 3) безличное (подлежащее)

It is 3 o'clock. – Три часа.

It is cold in the laboratory. – В лаборатории холодно.

It seems this substance has desirable properties. – Кажется, это вещество обладает нужными свойствами.

It is said that he is an experienced engineer. – Говорят, что он опытный инженер.

It is difficult to explain this phenomenon. – Трудно объяснить это явление.

##### 4) усилительное (для выделения отдельных членов предложения)

It is Popov who invented the radio. – Радио изобрел не кто иной, как Попов.

#### Функции и перевод слова **one (ones)**

**One**, стоящее перед личной формой глагола, является формальным подлежащим и указывает на то, что данное предложение является неопределенно-личным. В этом случае на русский язык **one** не переводится, а глагол в личной форме переводят обычно 2-м лицом единственного числа или 3-м лицом множественного числа:

One never knows what he can do. – Никогда не знаешь, что он может сделать.

**One** в форме притяжательного падежа переводится на русский язык местоимением **свой, своя, свое**:

One should always keep one's word. – Надо всегда держать свое слово.

**One** часто употребляется в сочетании с **модальными глаголами**:

One should be careful when working with chemical substances. – Нужно быть осторожным при работе с химическими веществами.

One may work in this laboratory only observing certain rules. – В этой лаборатории можно работать только при соблюдении определенных правил.

**One (мн. ч. ones)** может выступать в качестве **слова-заместителя**, т.е. употребляться для замены ранее упомянутого исчисляемого существительного или существительных. Переводится или словом, которое заменяет, или не переводится совсем:

I haven't got a dictionary. I must buy one. – У меня нет словаря. Я должен купить словарь.

Here are some books. Which ones would you like to take? – Вот несколько книг. Какие (книги) вы хотели бы взять?

Перед **one (ones)** может стоять артикль (**the one**), либо другие определители и определения (**this one, another one, the black ones**). В этом случае на русский язык **one** обычно не переводится:

I don't like this pen, show me another one, please. – Мне не нравится эта ручка, покажите мне другую, пожалуйста.

This article is easier than the one we translated last week. – Эта статья легче, чем та, которую мы переводили на прошлой неделе.

What pencils will you take? – The black ones. – Какие карандаши вы возьмете? — Черные.

### Функции и перевод слова **that (those)**

Функции	Примеры	Перевод
1. That (ед. ч.) – указательное местоимение <u>тот, та, то</u> (иногда <u>этот</u> ), обычно стоит перед существительным.	Give me that textbook, please.	Дайте мне, пожалуйста, тот учебник.
Those (мн. ч.) – <u>те</u>	I like those flowers better.	Те цветы мне нравятся больше.
2. That (of), those (of) – <u>слова-заместители</u> ; они заменяют упомянутое существительное, переводятся или словом, которое заменяют, или совсем не переводятся.	The work of the new device is much more efficient than that of the old one.	Работа нового прибора гораздо более эффективна, чем работа старого.
3. That – относительное местоимение <u>который, -ая, -ое</u> ; после существительного вводит определительное придаточное предложение.	Spaceship can cover distances that are measured in millions of kilometers.	Космические корабли могут покрывать расстояния, которые измеряются миллионами километров.
4. That – союз <u>что</u> , после глагола вводит дополнительное придаточное предложение.	He said that he would do his best to help them.	Он сказал, что сделает все возможное, чтобы помочь им.
5. That – союз <u>то, что</u> , вводит придаточное подлежащее в придаточное сказуемое.	That he failed in his examination did not surprise anybody.	То, что он провалился на экзамене, никого не удивило.

#### **Grammar exercises:**

***1. Translate the sentences, paying attention to it.***

1. It is autumn. It is the 3<sup>rd</sup> of October. It is dark in the morning and it is difficult to get up. 2. It is a new subject. It is very important for our future speciality. We shall study it for two years. It will be our future speciality, but we do not know much about it in the first year. 3. It is known that the knowledge of general engineering subjects is the basis for the study of special subjects. 4. It seems that he works a lot. 5. It is said that the chemistry laboratory of our institute is good. 6. The student finds it difficult to translate such a text without a dictionary. 7. It was not easy to study at the institute. 8. It is important to understand the fundamentals of this science. 9. It was A.S. Popov who invented the radio. 10. It is the knowledge of general engineering subjects that is the basis of engineering training.

***2. Translate the sentences, paying attention to one.***

1. One must study a lot to become an engineer. 2. We must write only one exercise now. 3. Engineer is one of the most important professions, it is the one that is taught at technical institutes. 4. One cannot translate such an article without a dictionary in the first year. 5. One must have a very good knowledge of general engineering subjects to become a good engineer. 6. One must pass all exams well to enter an institute. 7. Last summer I read many English articles, and my friend read some German ones. 8. This summer we shall spend in the country, the last one we spent in the city. 9. We translated many texts, but there is one more text to translate. 10. One can take this journal from the library.

***3. Translate the sentences, paying attention to that.***

1. That student studies in our group. 2. Do you know those girls? They are from our institute. 3. The professor that lectures on mechanics is the dean of our faculty. 4. It is known that the knowledge of general engineering subjects is the basis for the study of special subjects. 5. We know that the study of general engineering subjects is necessary for future engineers. 6. That higher education in this country is excellent is known to everybody. 7. The aim of today's foreign policy is that peace in the world should be permanent. 8. The programme for the first-year students differs from that of the third-year students. 9. There are many interesting articles in this



journal, read those on your speciality. 10. It is the high qualification of future specialists that will determine the scientific and technological progress of any country.

**4. Translate the sentences, paying attention to it, one, that.**

1. It is dark here. Please, turn on the light. 2. It was Gagarin who was the first man to orbit the Earth. 3. Our students study strength of materials. It is a very difficult subject. 4. Mathematics is studied at all technological institutes because every engineer must know it well. 5. It is the most interesting article on this subject. 6. It has become evident that ecological problems can be solved only on the global level. 7. Joint efforts of people throughout the world make it possible to achieve some progress in environment protection. 8. It is the development of robots that will solve some very complex problems of industry. 9. It is evident that research is becoming more specialized now. 10. The use of the new equipment made it possible to minimize the number of workers. 11. It is industrialization that is making ecological problems very serious.

**5. Put in it is (it's) or is it.**

What time is it?

1. We must go now. .... very late.
2. .... true that Tim can fly a helicopter?
3. 'What day ..... today? Sunday?' – 'No, ..... Tuesday.'
4. .... ten kilometers from the airport to the city centre.
5. .... possible to phone you at your office?
6. 'Do you want to walk to the restaurant?' – 'I don't know. How far ..... ?'
7. .... Nina's birthday today. She's 34.
8. I don't believe it! ..... impossible.

**6. Write questions with *How far ... ?***

(here / the station)                      How far is it from here to the station?

1. (the hotel / the beach)                      How.....
2. (New York / Washington)                      .....
3. (your house / the airport)                      .....

**7. Complete the sentences. Choose from the boxes.**

	easy		work in this office
	dangerous		visit different places
It's	nice	to	see you again
	impossible		go out alone
	interesting		make friends
	difficult		get up early

If you go to bed late, it's difficult to get up early in the morning.

1. Hello, Pete. .... How are you?
2. .... There is too much noise.
3. Everybody is very nice at work .....
4. I like travelling .....
5. A lot of cities are not safe ..... at night.

**8. A asks B some questions. Use the information in the box to write B's answers.**

**Use one (not 'a/an...') in the answers.**

- B doesn't need a car
- there's a chemist in Statford Road
- B hasn't got a pen
- B has just had a cup of coffee
- B is going to buy a bicycle
- B hasn't got an umbrella

1. A: Can you lend me a pen?                      B: I'm sorry, I haven't got one.
2. A: Would you like to have a car?            B: No, I don't .....
3. A: Have you got a bicycle?                    B: No, but .....
4. A: Can you lend me an umbrella?            B: I'm sorry but .....
5. A: Would you like a cup of coffee?            B: No, thank you .....
6. A: Is there a chemist near here?            B: Yes, .....

**9. Complete the sentences. Use a/an, one. Use the words in the list.**

Better                      big                      clean                      different                      new                      old

This glass is dirty. Can I have a clean one?

1. I'm going to sell my bike and buy .....
2. That's not a very good picture but this is .....
3. I want today's newspaper. This is .....
4. This box is too small. I need .....
5. Why do we always go to the same restaurant? Let's go to .....

**10. Translate.**

**Example:** Can you compare the operation of a vacuum diode with that of a semiconductor diode? – Ты можешь сравнить действие вакуумного диода с действием полупроводникового диода?

1. Can you compare the operation of a vacuum triode with that of a semiconductor triode?
2. Please, compare the emission of a heated cathode with that of a cold cathode.
3. Compare the weight of a vacuum diode with that of a semiconductor diode.
4. Compare the size of a vacuum triode with that of a semiconductor triode.

**11. Translate.**

**Example:** There are many ways of classifying materials. The one we shall speak about is based on the ability of a material to conduct electricity. – Существует много способов классификации материалов. Тот (способ), о котором мы будем говорить, основан на способности материала проводить электричество.

1. There are many types of robots; the ones, we are going to discuss today, are the robots of the 3<sup>rd</sup> generation.
2. The new computer is more powerful than the one put into service last year.
3. That semiconductor device is more efficient than the one under consideration.

**12. Translate the sentences.**

1. When capacitors are connected in series, the total capacitance is less than that of the smaller capacitor.
2. The amplification factor of a pentode is higher than that of a tetrode or a triode.

Germanium that is free from impurities is called intrinsic germanium.

3. The triode consists of a cathode that emits electrons; a plate or anode that collects the electrons; and a grid that controls the flow of electrons to the plate.
4. The transistor consists of an emitter that supplies electrons, a collector that collects the electrons, and a base that controls the flow of electrons.

### Образование степеней сравнения

Таблица 4

#### Прилагательное (The Adjective)

Прилагательные	Положительная степень	Сравнительная степень	Превосходная степень
Односложные и некоторые двусложные прилагательные	small cold pretty	<b>-er</b> smaller { colder prettier	<b>-est</b> (the) smallest { (the) coldest (the) prettiest
Некоторые двусложные и многосложные прилагательные	active important beautiful	<b>more</b> active <b>more</b> important <b>more</b> beautiful	(the) most active (the) most important (the) most beautiful
Исключения:	good bad many, much little far	better worse more less farther further	(the) best (the) worst (the) most (the) least (the) farthest (the) furthest

Помимо степеней сравнения в английском языке для выражения категории сравнения могут использоваться определенные структуры, такие как **as ... as** и **so ... as**. В этом случае мы используем прилагательные в исходной форме. Например:

He is not so tall as his friend. – Он не такой высокий как его друг.

She is as beautiful as her mother. – Она такая же красивая как ее мама.

Структура **The ... the ...** переводится на русский язык **Чем ... тем ...**

The more interesting the book is, the quicker we read it. – Чем интереснее книга, тем быстрее мы ее читаем.

Таблица 5

### Наречие (The Adverb)

Наречия	Положительная степень	Сравнительная степень	Превосходная степень
Односложные наречия (а также наречие early)	late fast early	<b>-er</b> later faster earlier	<b>-est</b> latest fastest earliest
Многосложные наречия	often slowly	<b>more</b> often <b>more</b> slowly	<b>most</b> often <b>most</b> slowly
Исключения:	well badly much little far	better worse more less {farther further	best worst most least {farthest furthest

## ***Grammar exercises:***

### ***1. Translate the following sentences.***

1. The new cinema in our district is much bigger than the old one. 2. He is one of the most dangerous criminals in the world. 3. Nevsky Prospect is much more beautiful than our street. 4. Our house isn't as big as yours. 5. That's the funniest story I've ever heard. 6. The tram system isn't as reliable as it used to be. 7. What is your height? You are taller than me. 8. She felt as strong as her brother. 9. We started earlier than you. 10. He was more careful than I. 11. This student is the most attentive in our group. 12. I need a warmer coat. 13. He is as tired as you. 14. He was one of the most experienced workers at the factory. 15. Better late than never. 16. She was not so attractive as her mother. 17. His work is not so difficult as mine. 18. He was the eldest in the family. 19. It is easier to swim in the sea than in the river. 20. This is the smallest room in our flat.

### ***2. Open the brackets using adjectives in proper form.***

1. We should eat (healthy) food. 2. Today the streets aren't as (clean) as they used to be. 3. It's (bad) mistake he has ever made. 4. This man is (tall) than that one. 5. Asia is (large) than Australia. 6. The Volga is (short) than the Mississippi. 7. Which building is the (high) in Moscow? 8. Mary is a (good) student than Lucy. 9. The Alps are (high) than the Urals. 10. This garden is the (beautiful) in our town. 11. She speaks Italian (good) than English. 12. Is the word "newspaper" (long) than the word "book"? 13. The Thames is (short) than the Volga. 14. The Arctic Ocean is (cold) than the Indian Ocean. 15. Chinese is (difficult) than English. 16. Spanish is (easy) than German. 17. She is not so (busy) as I am. 18. It is as (cold) today as it was yesterday. 19. She is not so (fond) of sports as my brother is. 20. Today the weather is (cold) than it was yesterday. 21. This book is (interesting) of all I have read this year. 22. January is the (cold) month of the year. 23. My sister speaks English (bad) than I do. 24. Which is the (hot) month of the year? 25. Which is the (beautiful) place in this part of the country? 26. This good-looking girl is the (good) student in our group.

### **Learn the vocabulary.**

Bond [bond] – связь	Relatively – относительно
Create [kri:'eit] – создавать	Should – следует (совет)
Creation – создание	It should be added – Следует добавить
Due to – благодаря (чему-то)	Similar – подобный
Either – любой	Solid – твердое тело; твердый
Either ... or – либо...либо; или...или	Table – таблица
Employ – использовать	Force n – сила
Equip [i'kwip] – оборудовать	Represent – изображать, представлять
Equipment – оборудование	State – состояние
Lattice – решетка	Perform – выполнять
Quantity – количество	As follows – следующие, как следует ниже
Phenomenon – явление	Compound – соединение
Phenomena (pl) – явления	Charge – заряд
Pure – чистый, без примеси	Particle – частица
Impure – с примесью	Readily – с готовностью
Impurity – примесь	
Relative – относительный	

### ***Task 1. Translate the following international words before reading the texts.***

Association, centre, characteristic, colleague, conference, contact, cooperation, fundamentals, international, mass, neutron, orbit, proton, reaction, reactor, specialist, sphere, synthetics, system, technician, theory, university, valency = valence;

Biology, geology, medicine, physics;

Characteristic, chemical, electrical, electronic, elementary, experimental, fundamental, official, practical, socialist, theoretical, unique;

Experimentally, fundamentally, officially, practically, theoretically;

Cooperate, orbit, theorize, contact.

### ***Read and translate the text.***

## **Classifying materials**

There are many ways of classifying materials. The one we shall use here is based on the ability of a material to conduct electricity. It is known that conduction takes place as a result of the motion of charged particles, usually electrons.

The ability of any material to conduct electricity is directly proportional to the number of charged particles inside the material that can be set in motion. Materials (for example metals), that have relatively large numbers of free electrons, readily conduct electric current and are called conductors.

Other materials having very few (or no) free electrons do not readily conduct electric current under normal conditions (условие) and are called insulators. It should be realized<sup>1</sup> that the terms 'conductor' and 'insulator' are not absolute, that is<sup>2</sup> some conductors do not conduct as well as other conductors, while some insulators do not insulate as well as other insulators.

### *Notes on the text*

1. it should be realized – следует учесть
2. that is – то есть

### ***Read and translate the text.***

## **The Simplest Atom**

The simplest atom is that of the element hydrogen and it consists merely of a single proton in a nucleus and a single electron in orbit around it.

The helium atom is the next simplest atom and consists of a nucleus containing two protons and two neutrons, with two electrons orbiting around it.

For an electron to be able to move<sup>1</sup> around a nucleus, it must have a force exerted on it and pulling it towards the nucleus. This force is the electrical attractive force exerted by the positive nucleus on the negative electron.

### *Notes on the text*

<sup>1</sup> For an electron to be able to move — для того чтобы электрон мог двигаться

### ***Task 2. Find the key words in the texts.***



## ***Revision exercises:***

### ***1. Define the parts of speech.***

1. readjustment, 2. periodic, 3. rapidity, 4. resentment, 5. chemical, 6. chemically, 7. realize, 8. receiver, 9. careful, 10. statement, 11. localize, 12. generalize, 13. relatively, 14. relation, 15. identical, 16. creation, 17. atomic, 18. resentful, 19. identification, 20. carbonize, 21. specially, 22. speciality, 23. vaporize, 24. imperfection, 25. doubtful, 26. displacement.

### ***2. Translate the participles.***

Following, performing, taking place, having, forming, employing, creating, saying, including, providing, obtaining.

### ***3. Translate the nouns.***

amplify – усиливать; amplifier – ...  
conduct – проводить (ток); conductor – ...  
detect – детектировать, выпрямлять; detector – ...  
control – управлять; controller – ...  
divide – делить; divider – ...  
learn – учить; learner – ...  
operate – приводить в действие; operator – ...  
heat – нагревать; heater – ...  
insulate – изолировать; insulator – ...  
emit – испускать; emitter – ...  
direct – направлять; director – ...  
use – использовать; user – ...  
rectify – выпрямлять (ток); rectifier – ...

### ***4. Translate the sentences.***

1. This layer is thicker than that one.
2. This impurity is better than that one.
3. Our laboratory is larger than this one.
4. This metal is harder than that one.

### ***5. Translate the sentences.***

1. The farther the grid is from the cathode, the more the plate current is.
2. The wider the distance between the grid wires, the more the plate current is.
3. The higher the temperature, the lower the conductivity of a metallic conductor.
4. The lower the temperature, the better the conductivity of a metallic conductor.

**6. Translate the sentences, paying attention to it, one, that.**

1. The problem that has become the most important one is the problem of pollution. 2. One can easily understand why the profession of an engineer requires a special college training. 3. The new technologies that are being developed must be connected with traditional ones. 4. That air and water pollution by industrialization is reaching dangerous levels is realized by everyone. 5. It is the invention of an engine that started the first industrial revolution. 6. The main purpose of education is that graduates must be able to work with the technology of tomorrow. 7. The education in Oxford and Cambridge is different in many ways from that in other universities. 8. We discussed the first industrial revolution, the one that took place some centuries ago. 9. New robots will have several manipulators that will carry out many functions. 10. That computers and robots are important for industrial uses is well known to scientists and engineers. 11. One must realize that the increasing number of cars brings about considerable pollution of the air. 12. It is the growth of industrialization that is changing the climate of the planet. 13. The essential feature of higher education in this country is that it combines theory with practice. 14. The simplest materials are those which have only one kind of atoms. 15. That the Earth is round was unknown for a long time. 16. It is found that the labour (труд) of a man with secondary education is 108 per cent more efficient than that of a man without that education. Moreover, the work of a university or college graduate is 300 per cent more efficient than that of a specialist with secondary education.

**7. Open the brackets using adjectives in proper form.**

1. Her eyes are (grey) than mine. 2. He was the (fat) man in the village. 3. As he went on, the box became (heavy) and (heavy). 4. My sister is the (tall) girl in her class. 5. Who is the (attentive) student in your group? 6. It is autumn.

Every day the air becomes (cold), the leaves (yellow). 7. This is the (beautiful) view I have ever seen in my life. 8. Your handwriting is now (good) than it was last year; but still it is not so (good) as Nick's handwriting. Nick has a (good) handwriting than you. And of course Nellie has the (good) handwriting of all. 9. Oil is (light) than water. 10. We shall wait for a (dry) day to go on the excursion. 11. A bus is (fast) than a tram. 12. Take some of these sweets: they are very (nice). They are (nice) than the sweets in that box. 13. He clearly did not like the explanation, and as he listened to it, he became (angry) and (angry). 14. He worked (hard) and (hard) as the end of the term came nearer. 15. The (tall) trees in the world grow in California. 16. Please be (careful) next time and don't spill the milk again. 17. Bobby was a (quiet) child. He was (quiet) than his sister.

**8. Translate the following sentences.**

1. Это самая ценная картина в Русском музее. 2. Мой компьютер не такой новый, как компьютер моего друга. 3. Наши экзамены гораздо труднее, чем ваши. 4. Здание Московского университета самое высокое в столице. 5. Наш город не такой большой, как Киев, но он такой же красивый. 6. Невский проспект – одна из самых красивых улиц Санкт-Петербурга. 7. Кто самый младший ученик в нашей группе? – Петров. Но он самый высокий. 8. Грамматика английского языка трудная, но английское произношение труднее. 9. Магазины на нашей улице больше, чем магазины на вашей улице. 10. Наш телевизор такой же хороший, как этот. 11. Эта комната светлее той. 12. Погода сегодня хуже, чем вчера. Сегодня холоднее, и идет дождь. 13. Моя комната не такая большая, как комната моей подруги, но она светлее и теплее. 14. Какая из этих книг самая интересная? 15. Ноябрь – не такой холодный месяц, как январь. 16. Мой отец – очень занятый человек. 17. Крым – одно из самых лучших мест для отдыха. 18. Сегодня он чувствует себя гораздо лучше.

## Lesson 4

### Времена группы Perfect Active

Глаголы в формах Perfect указывают, что действие закончено или закончится к определенному моменту времени в настоящем, прошедшем или будущем.

Глаголы в формах Perfect обычно (хотя и не всегда) переводятся на русский язык глаголами в форме прошедшего или будущего времени совершенного вида, чем подчеркивается завершенность действия. Нас интересует не время совершения действия, а результат или его отсутствие.

**Present Perfect Active** употребляется:

1) Для выражения завершенного действия, когда время действия не указано.

I have seen a new film. – Я видел новый фильм.

2) С обстоятельствами, выражающими период времени, не закончившийся до момента речи (today, this week, this month, this year).

They have completed the work this week. – Они закончили работу на этой неделе.

3) С наречиями неопределенного времени:

Ever	когда-либо	already	уже
just	только что	never	никогда
not yet	ещё нет	recently = lately	недавно

В этом случае глагол в форме Present Perfect обычно переводится на русский язык глаголом несовершенного вида.

I have never read that book. – Я никогда не читал той книги.

He has been to London many times. – Он много раз бывал в Лондоне.

4) Для обозначения действия, начавшегося в прошлом и продолжающегося в настоящем, со словами since (с; с тех пор как) и for (в течение); в этом случае глагол в форме Present Perfect обычно переводится на русский язык глаголом в настоящем времени.

I have known him since 1990. – Я знаю его с 1990 года.

He has lived here for many years. – Он живет здесь уже много лет.

Формы глагола в **Present Perfect Active** образуются следующим образом:

To have в настоящем времени (has, have) + Participle II смыслового глагола

**Past Perfect Active** употребляется для выражения действия, закончившегося до начала другого действия или до указанного момента в прошлом.

He had already sent the letter when I came to see him. – Он уже отправил письмо, когда я пришел к нему.

Формы глагола в **Past Perfect Active** образуются при помощи вспомогательного глагола to have в прошедшем времени (had) и Participle II смыслового глагола.

**Future Perfect Active** употребляется для выражения действия, которое закончится до начала другого действия или до указанного момента в будущем.

They will have returned before you come home. – Они возвратятся до того, как вы придете домой.

Формы глагола в **Future Perfect Active** образуются при помощи вспомогательного глагола to have в будущем времени – will have (shall have) + Participle II смыслового глагола.

*Таблица 6*

**Таблица времен группы Perfect Active**

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

			evening.
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### **Времена группы Perfect Continuous**

to have been + Participle I

Времена группы Perfect Continuous выражают длительное действие и переводятся на русский язык глаголом несовершенного вида в настоящем, прошедшем или будущем времени соответственно.

Времена группы Perfect Continuous образуются при помощи вспомогательного глагола to be в соответствующей форме Present, Past или Future Perfect и Participle I смыслового глагола.

Отрицательная и вопросительная формы образуются так же, как и в других сложных временах.

#### **The Present Perfect Continuous Tense**

have (has) been + Participle I

Present Perfect Continuous выражает длительное действие, начавшееся до момента речи и все еще продолжающееся в момент речи. Present Perfect Continuous переводится на русский язык глаголом в настоящем времени часто с добавлением наречия уже:

He has been working at this problem for two years. – Он работает над этой проблемой уже два года.

#### **The Past Perfect Continuous Tense**

had been + Participle I

Past Perfect Continuous выражает длительное действие, протекавшее до указанного момента в прошлом и часто продолжавшееся и после этого момента:

We had been conducting this experiment for two hours before you came. – Мы проводили этот опыт в течение двух часов, до того как вы пришли.

#### **The Future Perfect Continuous Tense**

shall (will) + have been + Participle I

Future Perfect Continuous выражает длительное будущее действие, которое

начнется ранее другого будущего действия или момента и будет еще совершаться в момент его наступления:

When I return to the laboratory, my friends will have been working there for several hours. – Когда я вернусь в лабораторию, мои друзья уже будут работать там в течение нескольких часов.

Глаголы, которые не используются в Continuous, не используются и в Perfect Continuous. В этом случае мы используем Perfect.

При употреблении времен группы Perfect Continuous всегда указывается, как долго совершается, совершалось или будет совершаться действие. Сравните:

Таблица 7

Временная форма	Пример	Перевод
Present Perfect Continuous	We have been making this experiment for three hours.	Мы проводим опыт уже три часа.
Present Continuous	We are making an interesting experiment now.	Мы сейчас проводим интересный опыт.
Past Perfect Continuous	I had been working at my report for a long time when my friend came.	Я уже долго работал над докладом, когда пришел мой друг.
Past Continuous	I was working at my report when my friend came.	Я работал над докладом, когда пришел мой друг.

Времена группы Perfect Continuous не имеют формы страдательного залога.

**Grammar exercises:**

**1. Complete the sentences with a verb from the list using present perfect.**

Break buy decide forget go go invite see not/see take tell

Can I have this newspaper? – Yes, I've finished with it.

1. I ..... some new shoes. Do you want to see them?
2. Where is Linda ? – She ..... out.

3. I'm looking for Nina. .... you ..... her?
4. Look! Somebody ..... that window.
5. Does Olga know that you're going away? – Yes, I ..... her.
6. I can't find my umbrella. Somebody ..... it.
7. I'm looking for Nick. Where ..... he ..... ?
8. I know that man but I ..... his name.
9. Bob is having a party tonight. He ..... a lot of people.
10. What are you going to do? ..... you ..... ?
11. Where are my glasses? – I don't know. I ..... them.

**2. Complete the sentences. Use already + present perfect.**

- |   |                       |
|---|-----------------------|
| What time is John arriving?               | He's already arrived. |
| 1. Do Liz and Peter want to see the film? | No, they ..... it.    |
| 2. Don't forget to phone Bill.            | I .....               |
| 3. When is Sarah going away?              | She .....             |
| 4. Do you want to read the journal?       | I .....               |
| 5. When does Liz start her new job?       | She .....             |

**3. Write questions with yet using present perfect.**

Your friend has got a new job. Perhaps she has started it. You ask her: Have you started your new job yet ?

1. Your friend has some new neighbours. Perhaps he has met them. You ask him:  
..... you ..... ?
2. Your friend must write a letter. Perhaps she has written it now. You ask her:  
..... ?
3. Tim was trying to sell his car. Perhaps he has sold it now. You ask a friend about Tom: ..... ?

**4. You are asking Ann questions beginning Have you ever... ? Write the questions.**

(Paris ?) Have you ever been to Paris ?                      No, never.



- |                                    |                   |
|------------------------------------|-------------------|
| 1. (play / golf ?) Have you .....  | Yes, many times.  |
| 2. (Austria ?) Have .....          | No, never.        |
| 3. (lose / your key ?) .....       | Yes, once.        |
| 4. (fly / in a helicopter ?) ..... | No, never.        |
| 5. (eat / French food ?) .....     | Yes, a few times. |
| 6. (Los Angeles ?) .....           | Yes, twice.       |
| 7. (drive / a lorry ?) .....       | No, never.        |
| 8. (break / your arm ?) .....      | Yes, once.        |

**5. Put in gone or been.**

Bob is on holiday at the moment. He's gone to Italy.

- Where's Jane ? – She's not here. I think she's ..... to the office.
- Hello, Sarah. Where have you ..... ? Have you ..... to the bank?
- Have you ever ..... to India ? – No, never.
- My parents aren't at home this evening. They've ..... out.
- There's a new cinema in town. Have you ..... to it ?
- Olga knows London well. She's ..... there many times.
- Ann was here earlier but I think she' ..... now.

**6. Use the words in brackets (...) to answer the questions.**

- |                                 |                 |                               |
|---------------------------------|-----------------|-------------------------------|
| Have you seen Nina ?            | (7 minutes ago) | Yes, I saw her 7 minutes ago. |
| Have you started your new job ? | (last month)    | Yes, I ..... last month.      |
| Have your friends arrived?      | (at 6 o'clock)  | Yes, they .....               |
| Has Sue gone away ?             | (on Monday)     | Yes, .....                    |
| Have you worn your new shoes?   | (yesterday)     | Yes, .....                    |

**7. Past Simple or Present perfect? Correct the verbs that are wrong. (The verbs are underlined.)**

- |  |                       |
|--|-----------------------|
| I've lost my key. I can't find it.       | Right.                |
| Have you seen Lena yesterday?            | Wrong: Did you see... |
| 1. I've finished my work at 4 o'clock.   | .....                 |
| 2. I'm ready now. I've finished my work. | .....                 |

3. What time have you finished your .....  
work? .....
4. Liz isn't here. She's gone out. ....
5. Nick's grandfather has died in 1998. ....
6. Where have you been last night? .....

**8. Read the situations and write sentences ending with before. Use the verb given in brackets in Past Perfect.**

The man sitting next to me on the plane was very nervous. It was his first flight.

(fly) He had never flown before. Or: He hadn't flown before.

1. A girl walked into the room. She was a complete stranger to me.  
(see) I ..... before.
2. Sally played tennis yesterday. She wasn't very good at it because it was her first game.  
(play) He .....
3. Last year we went to Germany. It was our first time there.  
(be) We .....

**9. Read the situations and complete the sentences.**

The rain started three hours ago. It's still raining now. It has been raining for three hours.

1. We started waiting for the tram 25 minutes ago. We're still waiting now.  
We ..... for 25 minutes.
2. I started French classes in November. I'm still learning French now.  
I ..... since November.
3. Linda began looking for a job five months ago. She's still looking now.  
..... for five months.
4. Mike started working in Cardiff on 20 February. He's still working there now.  
..... since 20 February.
5. Years ago I started writing to a pen friend. We still write to each other regularly now. We ..... for years.

**10. Read the situations and make sentences from the words in brackets.**

I was very tired when I arrived home.

(I / work / hard / all day)      I had been working hard all day.

1. Two men came into the house. They had a football and they were both very tired. (they / play / football) .....
2. There was nobody in the room but there was a smell of cigarettes. (somebody / smoke / in the room) .....
3. Alice woke up in the middle of the night. She was frightened and didn't know where she was. (she / dream) .....
4. When I got home, Mary was sitting in front of the TV. She had just turned it off. (she / watch / TV) .....

**11. Make questions with How long ... ?**

Jimmy is on holiday.      How long has he been on holiday ?

1. Nick and Julia are in Mexico.      How lon .....
2. I know Olga .      How long ..... you .....
3. Linda is learning Spanish.      .....
4. My sister lives in Australia.      .....
5. I'm an engineer.      .....
6. It is snowing.      .....

**12. Complete the sentences with for or since.**

Jenny is in Scotland now. She arrived there five days ago. She has been there for five days.

1. John is here. He arrived here on Friday. He has .....
2. It's raining. It started an hour ago. It's been .....
3. I know Sally. I first met her three years ago. I've .....
4. I have a camera. I bought it in 2003. I've .....
5. They are married. They got married four months ago. They've .....
6. Jill is studying chemistry at university. She started two years ago. She has ....
7. Dima plays the guitar. He started when he was nine years old. Dima has .....

**13. Put the verb into the correct form: will be (do)ing or will have (done).**

Don't phone me between 6 and 7. We'll be having (we / have) dinner then.

1. Phone me after 7 o'clock ..... (we / finish) dinner by then.
2. Tomorrow afternoon we're going to play tennis from 4 o'clock until 5.30. So at 5 o'clock ..... (we / play) tennis.
3. A: Can we meet tomorrow morning?  
B: Not in the morning ..... (I / work).
4. B has to go to a meeting which begins at 11 o'clock. It will last about an hour.  
A: Will you be free at 12.30?  
B: Yes, ..... (the meeting / finish) by that time.
5. Tony is on holiday and he is spending his money very quickly. If he continues like this, ..... (he / spend) all his money before the end of his holiday.
6. Sue came to Britain from the USA nearly two years ago. Next Tuesday it will be exactly two years. So on Tuesday, ..... (he / be) in Britain for exactly two years.
7. Do you think ..... (you / still / do) the same job in eight years' time?
8. Jack is from Ireland. He is traveling around Europe at the moment. So far he has traveled about 1,000 miles. By the end of the trip ..... (he / travel) more than 3,000 miles.
9. If you need to contact me, ..... (I / stay) at the Richmond Arms Hotel until Saturday.
10. A: ..... (you / see) Liza tomorrow?  
B: Yes, probably. Why?  
A: I borrowed this journal from her. Can you give it back to her?

***Read and translate the text. Find the sentences in Perfect.***

**Marie Curie and the Discovery of Radium**

Marie Curie was born in Warsaw on 7 November, 1867. Her father was a teacher of science and mathematics in a school in the town, and from him little Marie Sklodowska – which was her Polish name – learned her first lessons in science<sup>1</sup>. Marie's wish was to study at the Sorbonne in Paris, and after many years of waiting

she finally left her native land in 1891.

In Paris Marie began a course of hard study and simple living. She determined to work for two Master's degrees – one in Physics, the other in Mathematics. Thus she had to work twice as hard as the ordinary student. Yet she had scarcely enough money to live on. She lived in the poorest quarter of Paris. Night after night, after her hard day's work at the University, she got to her poorly furnished room and worked at her books steadily for hours. Sometimes she had no more than a bag of cherries. Though she was often weak and ill, she worked in this way for four years. She had chosen her course and nothing could turn her from it.

Among the many scientists Marie met and worked with in Paris was Pierre Curie. Pierre Curie, born in 1859 in Paris, was the son of a doctor, and from early childhood he had been fascinated by science. At sixteen he was a Bachelor of Science, and he took his Master's degree in Physics when he was eighteen. When he met Marie Sklodowska he was thirty-five years old and was famous throughout Europe for his discoveries in magnetism. But in spite of the honour he had brought to France by his discoveries, French Government could only give him a very little salary as a reward, and the University of Paris refused him a laboratory of his own for his researches.

Pierre Curie and Marie Sklodowska, both of whom loved science more than anything else, very soon became the closest friends. They worked together constantly and discussed many problems of their researches. After little more than a year they fell in love with each other, and in 1895 Marie Sklodowska became Mme. Curie. Theirs was not only to be a very happy marriage but also one of the greatest scientific partnerships.

Marie had been the greatest woman-scientist of her day but she was a mother too, a very loving one. There were their two little girls, Irene and Eve.

By this time Mme. Curie had obtained her Master's degree in Physics and Mathematics, and was busy with researches on steel. She now wished to obtain a Doctor's degree. For this it was necessary to offer to the examiners a special study, called a thesis.

For some time Pierre Curie had been interested in the work of a French scien-

tist named Becquerel. There is a rare metal called uranium which, as Becquerel discovered, emits rays very much like X-rays. These rays made marks on a photographic plate when it was wrapped in black paper. The Curies got interested in these rays of uranium. What caused them? How strong were they? There were many such questions that puzzled Marie Curie and her husband. Here, they decided, was the very subject for Marie's Doctor's thesis.

The research was carried out under great difficulty. Mme. Curie had to use an old store-room at the University as her laboratory – she was refused a better room. It was cold, there was no proper apparatus and very little space for research work. Soon she discovered that the rays of uranium were like no other known rays.

Marie Curie wanted to find out if other chemical substances might emit similar rays. So she began to examine every known chemical substance. Once after repeating her experiments time after time she found that a mineral called pitchblende<sup>2</sup> emitted much more powerful rays than any she had already found.

Now, an element is a chemical substance which so far as is known cannot be split up into other substances. As Mme. Curie had examined every known chemical element and none of them had emitted such powerful rays as pitchblende she could only decide that this mineral must contain some new element.

Scientists had declared that every element was already known to them. But all Mme. Curie's experiments pointed that it was not so. Pitchblende must contain some new and unknown element. There was no other explanation for the powerful rays which it emitted. At that moment Pierre Curie stopped his own investigations on the physics of crystals and joined his wife in her effort to find those more active unknown chemical elements.

Scientists call the property of giving out such rays "radioactivity", and Mme. Curie decided to call the new element "radium", because it was more strongly radioactive than any known metal.

It is known now that Mme. Curie has given the real basis for the industrial methods of separating radium and other elements from the pitchblende and from other minerals.

In 1903 Marie and Pierre together with Henry Becquerel were awarded the Nobel Prize in Physics.

In 1911 Marie received the Nobel Prize in Chemistry. But the second prize went to her alone for in 1908 Pierre had died tragically in a traffic accident.

Mme. Sklodowska-Curie, the leading woman-scientist, the greatest woman of her generation, has become the first person to receive a Nobel Prize twice.

*Notes to the text*

<sup>1</sup> science – зд. естественные науки

<sup>2</sup> pitchblende – уранит (урановая смолка)

**Task. Answer the questions to the text:**

1. In what country was Marie Curie born?
2. Who was her first teacher in science?
3. How old was Marie when she left her native land?
4. In what country did she study when a student?
5. How did she work?
6. How old was Marie when she met Pierre Curie?
7. How many years was Pierre older?
8. What can you say about Pierre's youth?
9. What was he famous for?
10. What was Marie interested in?
11. What did Becquerel discover?
12. What was the subject for Marie's Doctor's thesis?
13. What did the scientists declare?
14. Why did Marie Curie call the new element "radium"?
15. How old was Pierre Curie when he tragically died?
16. How many children did the Curies have?

**Revision exercises:**

**1. Read and translate nouns and adjectives.**

**Example:** motion – движение; motionless – неподвижный.

1. limit – предел; limitless – ...
2. wire – проволока; wireless – ...
3. use – польза; useless – ...
4. form – форма; formless – ...
5. water – вода; waterless – ...
6. power – сила, энергия; powerless – ...
7. time – время; timeless – ...

## **2. Define the parts of speech:**

1. combination, 2. carefully, 3. acceptor, 4. radioactivity, 5. negatively, 6. thermionic, 7. plentiful, 8. charged, 9. aquatic, 10. conductor, 11. conductivity, 12. simplification, 13. harmonic, 14. density, 15. capacitor, 16. thoughtful, 17. readily, 18. junction, 19. instantly, 20. acoustic, 21. positively, 22. carrier, 23. gasification, 24. carried, 25. static, 26. protection, 27. emitted, 28. gravimetric.

## **3. Open the brackets using the verbs in Present Perfect или Past Simple.**

1. I (not yet to eat) today. 2. He (not to eat) yesterday. 3. You (to play) the piano yesterday? 4. You (to play) the piano today? 5. What you (to prepare) for today? 6. Look at this birdhouse. Mike (to make) it himself. He (to make) it last Sunday. 7. Where you (to put) my pen? I cannot find it. 8. You (to see) Mary today? 9. When you (to see) Mary? – I (to see) her last week. 10. Your mother (to promise) to take you to the theatre? 11. Look at my new dress! I (to make) it myself. 12. He is not at school today, he (to fall) ill. – When he (to fall) ill? – He (to fall) ill yesterday. 13. I already (to do) my homework. Now I can go for a walk. 14. I (to do) my homework yesterday. 15. He just (to come) home. 16. He (to come) home a minute ago. 17. Nick (to play) football yesterday. 18. She already (to come) from school. Now she is doing her homework. 19. I (to read) this book last year. 20. I (to read) this book this year. 21. I never (to be) to Washington. 22. You ever (to be) to New York? 23. You ever (to see) the eruption of a volcano? 24. I (to invite) Linda to the party. When you (to see) her? – I (not to see) her for ages. I (to call) her an hour ago.



**4. Open the brackets using the verbs in Present Perfect, Present Simple, Present Continuous, Past Simple and Past Continuous.**

1. With whom you (to discuss) this question yesterday? 2. I (to see) this film this week. I like it very much. 3. When I (to enter) the kitchen, I (to see) that my mother (to stand) at the table and (to cut) some cabbage. She (to cook) dinner. 4. As soon as I (to hear) a cry, I (to run) out of the room and (to see) that a child (to lie) on the ground and (to cry). "What (to happen)? Why you (to cry)? You (to hurt) yourself?" I asked. 5. They (to go) to the Hermitage last week. 6. They (to be) to the Hermitage twice this week. 7. After school yesterday he (to come) home, (to have) dinner, (to read) an article from the latest magazine and (to begin) doing his homework. 8. When your friend (to return) from the south? – She (to return) yesterday. – You (to go) to the station to meet her? – No, I ..., I (to be) too busy. 9. Your brother (to return) from the north? – Yes, he (to come) a few days ago. 10. You (to be) to the Crimea? When you (to be) there? – I (to be) there in 1993. 11. Where (to be) your brother? – He just (to come) home. He (to take) a shower in the bathroom now. 12. As soon as I (to see) him, I (to understand) that he (to work) hard. He (to write) something and (not to notice) anything. 13. When I (to come) home yesterday, the children (to run) and (to sing) merrily. "We (to learn) a new song!" they cried. 14. When the young man (to enter) the room, she (to look) at him in surprise. "What you (to want) to tell me?" she (to say). "Why you (to come)?" 15. It (to rain) hard when I (to leave) home yesterday, so I (to return), (to put) on my raincoat and (to start) again. 16. You (to work) right now? – Yes, I (to prepare) for the English exams. 17. Have a look! That (to be) the Golden Gate Bridge on your left. – Oh, it (to be) beautiful. I just (to take) a picture of it. 18. Where you (to learn) the news? 19. They already (to think) of everything? They (to buy) a lot of food? – Yes, Mark just (to order) ten bottles of Coke and four kinds of mineral water. He (to mention) peanuts, but he (not to order) any. He (to think) of tea and fancy cakes. The shop (to charge) everything to Mark's credit card. 20. Why you (to shiver)? – I (to shiver) because I (to be) cold. 21. I (to sprain) my ankle again. 22. A world-famous violinist (to play) on tonight's concert. 23. The children (to play) with their train set the whole evening yesterday.

### **5. Open the brackets using the verbs in proper tenses.**

1. What you (to read)? – I (to read) a magazine. – How long you (to read) it? – I (to read) it for half an hour. 2. She (to live) in Moscow for ten years when her sister (to come) to live with her. 3. Our teacher (to come). Now he (to speak) with our monitor. 4. They (to speak) when I (to look) at them. 5. What you (to do) here? – I (to prepare) for my report. – How long you (to prepare) for it? – Oh, I (to work) since morning. 6. He (to teach) at school for five years when the war (to break) out. 7. She (to study) English since last year. 8. You ever (to be) to London? – Yes, I (to be) there last summer. 9. What your friend (to do) now? – She (to have) dinner. She usually (to have) dinner at this time. 10. I (to buy) a new dress. I (to show) it to you tomorrow when you (to come) to my place. 11. So you begin working tomorrow! And who (to take) care of your children when you (to go) to work? 12. Hello, Peter! Where you (to go)? – I (to go) to the library. 13. I (to walk) about an hour when I (to see) a little house not far from the river. 14. When he (to read) the newspaper, he (to give) it to his brother. 15. He (to leave) for Rostov in 1990 and since then he (to live) there. 16. At this time tomorrow we (to discuss) your report. 17. Now she (to read) the book which I (to give) her yesterday.

### **6. Translate the sentences using the proper tense.**

1. Он был счастлив: он написал отличное сочинение. 2. Я ищу тебя весь вечер. 3. Я вдруг вспомнил, что ничего не ел с утра. 4. К счастью, дождь уже перестал, когда мы вышли. 5. Сколько лет вы работаете в этой школе? 6. В одиннадцать часов мы еще работали. 7. В одиннадцать часов мы уже работали три часа. 8. Я уже три раза говорил тебе, что надо переписать упражнение. 9. Я уже целый час читал после обеда, когда пришел папа. 10. Я не приду. Я буду писать сочинение весь вечер. 11. Где ты был с прошлой пятницы? 12. Я уже две недели живу у друзей. 13. Я уже две недели жил у друзей, когда получил письмо. 14. Сколько дней вы уже читаете эту книгу? 15. Только когда она была в поезде, она вспомнила, что оставила книгу дома. 16. Они живут в этом доме уже пять лет. 17. Моя сестра была больна уже несколько дней, когда я узнала об этом. 18. Ты знал, что он не написал сочинение? 19. Мы не получа-

ем от нее писем уже несколько месяцев.20.Сколько лет вы уже работаете на этом заводе? 21.Он уже ушел, когда Лейла включила радио. 22.Я работаю над этой проблемой уже три месяца. 23. Вы должны отдохнуть. Вы слишком много работали сегодня.

## Lesson 5

### Modal Verbs (Модальные глаголы)

Глаголы **can, may, must** являются модальными глаголами; они не обозначают действия, а выражают отношение к нему, т. е. возможность, вероятность или необходимость совершения действия. Само действие выражается инфинитивом смыслового глагола без частицы **to**, следующим за модальным глаголом.

Глагол **can** выражает возможность, способность и разрешение совершить действие и переводится на русский язык глаголами “могу” (может, можешь и т. д.), “умею” (умеет, умеешь и т.д.), “можете” (вам разрешено) и т. п.

Глагол **may** выражает разрешение или предположение и переводится “могу, можно, возможно”.

Глагол **must** выражает необходимость, обязательность или вероятность совершения действия и переводится словами “должен, нужно, надо, вероятно”.

We can determine the pressure of our atmosphere with the help of a barometer.

You may use this instrument in your experiments.

They must provide us with all necessary data.

Мы можем определить давление атмосферы с помощью барометра.

Вы можете (вам разрешено) пользоваться этим прибором во время опытов.

Они должны снабдить нас всеми необходимыми данными.

Для образования отрицательной формы после модального глагола ставится отрицательная частица **not**.

**Примечание:** Отрицание **not** с глаголом **can** пишется слитно: **cannot**.

Для образования вопросительной формы модальный глагол ставится перед подлежащим:

She cannot translate this text without a dictionary. – Она не может перевести этот текст без словаря.

Must you take part in this work? – Вы должны принимать участие в этой работе?

Yes, I must. – Да, должен.

No, I need not (needn't). – Нет, не должен (мне не нужно)

### Примечания:

Для выражения необходимости (не нужно, не надо) в отрицательной форме употребляется глагол **needn't**.

You needn't come here.

He needn't have done it.

В ответе на вопрос, начинающийся с **may**, употребляется глагол **mustn't** в значении запрещается:

May I take this book? – Можно мне взять эту книгу?

No, you mustn't. I need it myself. – Нет. Она мне нужна самому.

Глагол **can** в прошедшем времени имеет форму **could**.

Глагол **may** имеет форму прошедшего времени **might**, которая употребляется в соответствии с правилом согласования времен, а также для образования сослагательного наклонения.

Глагол **must** не имеет формы прошедшего времени.

### Эквиваленты модальных глаголов.

У модальных глаголов **can**, **may** и **must** есть эквиваленты, которые употребляются наряду с соответствующими модальными глаголами и, кроме того, используются взамен отсутствующих временных форм этих модальных глаголов.

Когда речь идет о необходимости совершения действия в силу предварительной договоренности или заранее намеченного плана или расписания, употребляется глагол **to be** с последующим инфинитивом основного глагола. Глагол **to be** в модальном значении употребляется в настоящем или прошедшем времени группы Indefinite; для выражения действия в будущем употребляется настоящее время глагола **to be**.

## Модальные глаголы и их эквиваленты

Present Indefinite	Past Indefinite	Future Indefinite
can am } is } able to are }	could was } were } able to	— shall / will be able to
may am } is } allowed to are }	might was } were } allowed to	— shall / will be allowed to
must have to has to	had to	shall / will have to
am } is } to are }	was } were } to	shall / will be to

Old machinery is to be replaced next month. – Старые машины должны быть заменены в следующем месяце.

They were to discuss the plan of their research work at the last meeting. – Они должны были обсуждать план научно-исследовательской работы на прошлом заседании.

Глагол **shall** используется для выражения запроса о необходимости совершения действия. В этом случае он либо никак не переводится, либо переводится словом “нужно ли”:

Shall I open the window? – (Нужно ли) мне открыть окно?

Shall I read or translate the text? – (Нужно ли) мне читать или переводить текст?

Глаголы **should** и **ought** употребляются для выражения морального долга или совета и переводятся “должен, следует”. Являясь модальным глаголом, **should** употребляется со всеми лицами единственного и множественного числа.

Глагол **ought** употребляется во всех лицах единственного и множественного числа. Инфинитив смыслового глагола после глагола **ought** употребляется с частицей **to**:

Atom should serve peaceful purposes. – Атом должен служить мирным целям.

You ought to be careful when experimenting with this substance. – Вы должны быть осторожны, проводя опыты (экспериментируя) с этим веществом. Глагол **should** в модальном значении часто употребляется в инструкциях:

These machines should be handled with great care. – С этими машинами следует обращаться с большой осторожностью.

Итак, в английском языке следующие глаголы выражают долженствование:

Must – должен, нужно, необходимо

to have to – должен, нужно

should

ought to – } следовало бы, следует, (реже: должен)

### **Употребление модальных глаголов в сочетании с инфинитивом страдательного залога.**

Инфинитив страдательного залога Indefinite Passive после модальных глаголов **can, may, must и should** переводится неопределенной формой глагола:

Today lathes can be found in any shop. – В настоящее время токарные станки можно найти в любом цехе.

The plan of producing a new kind of polymers should be fulfilled as soon as possible. – План выпуска новых полимеров следует выполнить как можно скорее.

В отрицательной форме модальные глаголы *can* и *may* с инфинитивом страдательного залога переводятся “нельзя”, *must, should* – “не следует”.

*This device may not be switched on here.* – Этот прибор нельзя здесь включать.

*The batteries should not be kept uncharged.* – Батареи не следует держать разряженными.

Употребление модальных глаголов в сочетании с перфектным инфинитивом (*Indefinite Perfect*).

*Must* в сочетании с перфектным инфинитивом выражает предположение, относящееся к прошлому, и переводится “должно быть, вероятно”:

*Originally the Earth’s temperature must have been extremely high.* – Вначале температура Земли была, вероятно, чрезвычайно высокой.

*May* также выражает предположение, но переводится “возможно”:

*He may have finished his experiment, but we don’t know about it yet.* – Он, возможно, закончил свой опыт, но мы еще ничего об этом не знаем.

*Could, should, might, ought* в сочетании с перфектным инфинитивом употребляются для выражения действия, которое могло бы произойти, но не произошло: *You could have done this work yourself.* – Вы могли бы сделать эту работу сами (но не сделали).

*They should have tested the new equipment.* – Они должны были проверить новое оборудование (но не проверили).

*The student ought to have been careful while working with this instrument. Now the instrument is broken.* – Студенту следовало быть осторожным, работая с этим прибором. Теперь прибор сломан.



**Grammar exercises:**

**1. Translate the following sentences. Pay attention to the different ways of expressing modality.**

1. In scientific work we must measure in units of the metric system.
2. One should turn off the gas when one leaves home.
3. This part is very complex and the worker has to use special tools to cut it.

	<b>to have to</b>
<b>must</b>	<b>ought to</b>
	<b>to be to</b>
	<b>should</b>

4. We ought to say that the discovery of atomic energy is as important as the discovery of fire.
5. We should be prepared for scientific study of life on other planets.
6. Atom must serve mankind.
7. The lecture is to begin at 6 o'clock. We ought to come in time.
8. You were to replace the tool by another one, why didn't you do it?
9. The engineer will have to improve the accuracy of this machine tool.
10. He had to work hard before he was able to submit his paper to a scientific journal.
11. The use of new machinery should increase the output of coal by 25 per cent per month.

**2. Translate paying attention to the meaning of the word "one":**

1. The idea of automation is **one** of the most important ideas for modern industry.
2. He knew that no **one** could help him.
3. Our old laboratory equipment was much worse than the new **one**.
4. Due to radioactive elements **one** can measure the thickness of various materials.
5. **One** should always inspect the machine tool before he turns it on.
6. **One** cannot read such technical papers without a dictionary.
7. The new power stations are much more powerful than the old **ones**.

8. **One** must know that these rays produce a harmful effect on man.
9. **One** should always be careful when **one** operates this machine tool.
10. **One** can easily regulate the speed of this machine.

**3. Choose the right translation of the modal verbs.**

1. You may use the new devices for your research.
2. The solar batteries must heat and light homes.
3. They could visit this new automation shop.

**a) должны; b) можете; c) могли; d) сможете**

**4. Replace the words in brackets by the equivalents of modal verbs.**

1. You (должны) to replace this old lathe.
2. In future we (сможем) to use solar energy more effectively.
3. They (было разрешено) to test the machine tool.
4. The students (смогли) to make the experiment.

**a) were allowed; b) will be able; c) have; d) were able; e) were**

**5. Replace the equivalents by the modal verbs.**

1. They are allowed to replace the old equipment.
2. They have to replace the old equipment.
3. They were able to replace the old equipment.

**a) must; b) could; c) may; d) might**

**6. Translate.**

1. Who can translate this sentence?
2. You can go to Leningrad by train or by airplane.
3. Could you speak English a year ago?
4. I hope they will be able to reach the village before it is dark.
5. You may go away now, I shall finish the work myself.
6. Every engineer must know at least one foreign language.
7. Your son must stay in bed because he is still ill.
8. You should take a taxi if you don't want to be late for the concert.
9. Students are not allowed to smoke in the classrooms.
10. He was not allowed to enter the concert hall after the third bell.

11. As he received a bad mark, he had to go over the material again.
12. We were to meet at the station at six.
13. He was to stay at the office until the report was ready.
14. You will have to repeat the material of the lectures before the examination.
15. We were to send his letter of recommendation by air mail.
16. You should try to find out all the essential facts connected with his work in the Antarctic.
17. The team of experts is to study the present situation in the country.
18. Do you know the student who is to make a report at our next meeting?
19. You should influence your friend. He is not studying the way he should.
20. All the students of our group should be present at the meeting.

***7. Translate the sentences paying attention to the different meanings of the verbs to be and to have.***

1. Mathematics **is** of great importance for engineers. Every technical student **is to** study it for some years.
2. The accuracy of these automatic machines **is** very high. These machines **are to** replace the old equipment of our shop.
3. Atom **is** a great force. It **is to** serve mankind.
4. The students **are** not at the laboratory. They **are to** be at the laboratory at 6 o'clock.
5. Due to the Sun people **have** immense supplies of energy. We **have to** build special solar stations to convert solar energy into electrical one.
6. He **had** much work. He **had to** work hard to improve his project.
7. As these machines **will have** a device which is necessary for automatic measurements and inspection, the workers will use these machines in their work.
8. Physicists **have** a great many of very important problems. They **have to** place the atom completely at the service of man.

***Learn the vocabulary.***

Accuracy n – точность	Alloy n – сплав
Machine tool n – станок	Condition n – условие
Main a – главный	Cut (cut) v – резать
Mount v – помещать, устанавливать	Direct v – управлять
Multipurpose a – многоцелевой	Drill v – сверлить
Outline n – очертание, конфигурация	Equip v – оснащать
Part n – деталь	Fast a – быстрый
Precise a – точный	Flexible a – гибкий
Produce v – производить	Handle v – управлять
Similar a – подобный	Hard a – твердый
Steel n – сталь	Hold (held) v – держать
Switch v – переключать	House v – вмещать
Thread v – делать нарезку резьбы	Improve v – улучшать
Tool n – резец	Increase v – увеличивать
Turn n – точить	Lathe n – токарный станок
Workshop n – цех	

***Read and translate the text.***

**Machine Tools – a Measure of Man's Progress**

The variety and combinations of machine tools today are unlimited. Some of them are very small and can be mounted on a work-bench<sup>1</sup> but others are so large that we have to construct special buildings to house them.

There are some basic operations at any workshop. They are turning, drilling, threading, etc. The main machine tool of such a workshop is the multipurpose lathe. What is a lathe? It is a power-driven machine<sup>2</sup> with special tools which can cut or form metal parts. The metal that cuts another metal must be very hard and so tools should be made of very hard steel alloys. The tool itself is very small in comparison with the mechanism that is to direct it.

Technological progress improves accuracy of machine tools. Today's equipment can produce parts with very high accuracy. One can find a number of<sup>3</sup> machine

tools that can measure and inspect their production themselves – machine tools that are to handle the parts mechanically and automatically.

Such machines can hold the parts which are to be measured and are able to indicate precise measurements themselves. A great many of such "clever" machines can be found today in our industry.

Since machine tools become faster and more complex, automatic measurements and inspection ought to be of greater importance. Automation is one of the main factors of engineering progress.

Flexible production lines form the basis for automated workshops. The main principle of such a flexible line is the fact that it can be switched over from one product to another, which has a similar structure but a different outline, almost instantaneously. It is equally efficient in conditions of both mass and small-batch production<sup>4</sup> and will serve to increase the productivity.

*Notes on the text*

<sup>1</sup> work-bench – верстак

<sup>2</sup> power-driven machine – станок с механическим приводом

<sup>3</sup> a number of – ряд, несколько

<sup>4</sup> small-batch production – производство маленьких партий продукции

***Task 1. Find modal verbs and their equivalents in the text.***

***Task 2. Answer the questions:***

1. What types of machine tools are there nowadays?
2. What are the basic operations at a workshop?
3. What is a lathe?
4. Why must tools be made of very hard steels and alloys?
5. Is the tool itself big or small?
6. What improves the accuracy of machine tools?
7. What is one of the main factors of engineering progress?
8. What forms the basis for automated workshops?
9. What is the main principle of a flexible line?

***Read and translate the text.***

### **Compounds and Elements**

All the substances which occur in nature consist of one or more basic elements; a substance containing more than one element is known as a compound.

An element is a substance that can neither be decomposed (broken into a number of other substances) by ordinary chemical action, or made by a chemical union of a number of other substances.

A compound consists of two or more different elements in combination and has properties different from the properties of its constituent parts. Water, for example, is a compound of oxygen and hydrogen.

A molecule is the smallest amount of a substance that can retain the characteristic properties of that substance and may consist, for example, of two atoms of hydrogen and two atoms of oxygen for hydrogen peroxide, of one atom of oxygen and one atom of carbon for carbon monoxide and of two atoms of oxygen and one atom of carbon for carbon dioxide.

An atom is the smallest unit of which a chemical element is built. The atoms of any particular element all have the same average mass and this average mass differs from the average mass of the atoms of any other element.

***Task 1. Find the key words in the text.***

***Task 2. Make up your own questions to the text.***

***Revision exercises:***

***1. Read and translate the adjectives:***

1. peace – мир; peaceful – ...
2. use – польза; useful – ...
3. beauty – красота; beautiful – ...
4. care – осторожность; careful – ...
5. meaning – значение; meaningful – ...
6. success – успех; successful – ...

## **2. Read and translate the adverbs:**

1. absolute – абсолютный; absolutely – ...
2. comparative – сравнительный; comparatively – ...
3. direct – прямой; directly – ...
4. easy – легкий; easily – ...
5. normal – нормальный; normally – ...
6. practical – практический; practically – ...
7. ready – легкий; readily – ...
8. relative – относительный; relatively – ...
9. usual – обычный; usually – ...

## **3. Fill in the gaps using modal verbs.**

1. Nina is ill. She ... stay in bed.
2. Drivers ... stop when they see the red light.
3. Betty asked: " ... I open the window?"
4. Betty asked her father: " ... I go to the concert tonight?" Her father said, "Yes, you ... go."
5. Mary is free tonight. She ... go to the dance.
6. Alec will have an English lesson tomorrow. He ... study tonight.
7. Mark is a good student. He ... speak English well.
8. There is no ink in my pen. ... I write with a pencil?
9. My friend gave me an interesting book to read. She said, "You ... keep it for seven days."
10. You ... do what the doctor says.
11. You ... study much if you want to pass the examination well.
12. You ... not smoke in the dining-room.
13. Little children ... go to bed early.
14. If you are ill, you ... consult a doctor.

**4. Translate the sentences using modal verbs (can, can't, may, must, to have to, to be able to).**

1. Я не могу найти свои часы. – Может быть, вы оставили их на работе. – Нет, я не могла оставить их на работе: я никогда не снимаю их с руки.
2. Вы сможете поговорить с ним завтра?
3. Я, должно быть, заблудилась. Вы не можете мне сказать, как пройти к Эрмитажу?
4. Мне пришлось прочесть массу книг, когда я готовилась к докладу.
5. Я не мог вспомнить последние строчки сонета, и мне пришлось специально звонить своему другу.
6. Я должна купить торт сегодня.
7. Мой брат не умеет говорить по-английски.
8. Моя сестра умеет говорить по-немецки.
9. Можно, я посмотрю вашу фотографию?
10. Вы можете показать мне свою фотографию?
11. Не может быть, что ему сорок лет: он выглядит гораздо моложе.
12. Не может быть, что он забыл прийти. Он, должно быть, был очень занят.
13. Мы, может быть, поедем за город, если будет хорошая погода.
14. Если сестра не купит мне кофе, мне придется идти в магазин самой.



## Lesson 6

### Future-in-the-Past (Будущее в прошедшем)

В русском языке мы употребляем будущее время глагола, не задумываясь о том, в каком времени ведется повествование в целом, употребляется ли будущее время в главном или придаточном предложении, и даже о том, совпадает ли это грамматическое время с реальным. Возьмите два предложения:

Он будет лечиться в Крыму.

В 1941 году мы были уверены, что победа будет за нами.

В обоих предложениях мы видим «будет», хотя в первом случае речь идет о реальном будущем, а во втором случае – об условном будущем, так как 1945 год (год победы) является будущим лишь в отношении 1941 года, но прошлым по отношению к нашему времени.

В английском языке для этого относительного будущего есть особая форма, называемая Future-in-the-Past, т.е. “будущее в прошедшем”. От простых будущих времен оно отличается лишь тем, что настоящее время вспомогательных глаголов *shall*, *will* заменяется соответственно их прошедшим временем *should*, *would*.

**Will – would**

**Shall – should**

Таблица 9

	<b>Future</b>	<b>Future – in – the – Past</b>
Simple	Shall/will go	Should/would go
Continuous	Shall/will be going	Should/would be going
Perfect	Shall/will have gone	Should/would have gone
Perfect-continuous	Shall/will have been going	Should/would have been going

We knew that Nick **would go** to the mountains the next month. – Мы знали, что Ник поедет в горы в следующем месяце.

We knew that Nick **would be doing** exercises at that time the next day. – Мы знали, что Ник будет выполнять упражнения завтра в это время.

We knew that Nick **would have finished** the work by 3 p.m. the next they. – Мы знали, что Ник закончит эту работу к трем часам завтра.

We knew that Nick **would have been reading** the book for 2 months by the following week. – Мы знали, что Ник будет читать эту книгу уже 2 месяца к следующей неделе.

### ***Grammar exercises:***

#### ***1. Read and translate.***

The teacher told me that next lesson would not be difficult. They said that the boiler would be soon made. I thought that I should get the book in their library. I did not know that your father would come. I thought they would help me.

#### ***2. Open the brackets using the verbs in Future Simple или Future-in-the Past Simple.***

1. I know we (not to be) late. 2. I knew we (not to be) late. 3. I want to know whether he (to be) at home. 4. I wanted to know whether he (to be) at home. 5. "When you (to be) ready?" he asked. 6. He asked when I (to be) ready. 7. I can't say whether Bob (to do) the work perfectly, but he (to do) his best. 8. He asked me whether he (to see) Olga there. 9. Are you sure that we (to have) time to do that? 10. I was afraid he (to say): "I don't think I (to be) able to come." 11. I did not know what he (to speak) about.

#### ***3. Open the brackets using the verbs in Future Simple или Future-in-the Past Simple.***

1. I know we (not to be) late. 2. I knew we (not to be) late. 3. I want to know whether he (to be) at home. 4. I wanted to know whether he (to be) at home. 5. "When you (to be) ready?" he asked. 6. He asked when I (to be) ready. 7. I can't

say whether Bob (to do) the work perfectly, but he (to do) his best. 8. He asked me whether he (to see) Olga there. 9. Are you sure that we (to have) time to do that? 10. I was afraid he (to say): "I don't think I (to be) able to come." 11. I did not know what he (to speak) about.

### **Страдательный залог (to be + Participle II)**

Страдательный залог показывает, что подлежащее пассивно, т. е. оно подвергается воздействию со стороны другого лица или предмета.

Страдательный залог широко употребляется для научных описаний, для описаний технических процессов, в отчетах, объявлениях и т. д.

Страдательный залог времен группы Indefinite образуется при помощи вспомогательного глагола to be в соответствующем времени Indefinite и Participle II (III форма) смыслового глагола. Показателем времени, лица и числа является вспомогательный глагол to be. Смысловой глагол в форме причастия прошедшего времени (Participle II) не изменяется.

The tools are made of steel. – Эти инструменты делаются (изготавливаются) из стали.

The tools were made of steel. – Эти инструменты были изготовлены из стали.

The tools will be made of steel. – Эти инструменты будут изготовлены из стали.

Сказуемое в страдательном залоге может переводиться тремя способами:

1) сочетанием глагола **быть** (в прошедшем и будущем времени) и краткой формой причастия страдательного залога:

The article was written. – Статья была написана.

The article will be written. – Статья будет написана.

Глагол-связка **быть** в настоящем времени в русском языке опускается:

The article is written. – Статья написана.

2) возвратным глаголом с окончанием -ся, -сь:

Houses will be built here. – Здесь будут строиться дома.

3) неопределенно-личной формой глагола (3-е лицо множественного чис-

ла):

The paper was translated a week ago. – Эту статью перевели неделю назад.

В отрицательной форме отрицание not ставится после глагола to be.

В вопросительной форме глагол to be ставится перед подлежащим.

При наличии двух вспомогательных глаголов отрицание not ставится после первого глагола, а в вопросительной форме перед подлежащим ставится первый вспомогательный глагол.

The article is written. – The article will be written.

The article is not written. – The article will not be written.

Is the article written? – Will the article be written?

Если в предложении говорится о лице или предмете, воздействующем на подлежащее, которое выражено существительным (или местоимением) с предлогом by, то возможен перевод:

1) глаголом в страдательном залоге или

2) глаголом в действительном залоге.

Причем в последнем случае это лицо или предмет становится подлежащим русского предложения.

The plan was changed by the engineer. – План был изменен инженером.  
(Инженер изменил план.)

### **Особенности перевода подлежащего.**

Подлежащее английского предложения при сказуемом в страдательном залоге может переводиться на русский язык существительным (или местоимением) в именительном падеже и во всех косвенных падежах:

The house was built by a new method. – Дом (им. п.) был построен новым методом.

He was seen in the laboratory two hours ago. – Его (вин. п.) видели в лаборатории два часа назад.

He was given a new job to do. – Ему (дат. п.) поручили выполнить новую работу.

Если за сказуемым в страдательном залоге следует предлог, относящийся

к глаголу, то подлежащее английского предложения, как правило, переводится существительным (или местоимением) с предлогом, который ставится перед ним:

The design of the house was much worked at. – Над проектом этого дома много работали.

This engineer can be relied upon. – На этого инженера можно положиться.

The scientist's works are often referred to. – На труды этого ученого часто ссылаются.

Такие страдательные обороты возможны только с некоторыми глаголами.

Наиболее употребительные из них:

To act on (upon) – влиять, воздействовать на

To deal with – иметь дело с, рассматривать

To experiment on (upon) – экспериментировать над

To insist on – настаивать на

To look at – смотреть на

To refer to – ссылаться на

To rely on (upon) – полагаться на

To send for – посылать за

To speak about (of) – говорить о

To work at – работать над

**У некоторых глаголов предлог не переводится:**

To comment on (upon) – комментировать, рецензировать

To listen to – слушать

To look for – искать

To look upon – считать, рассматривать

После этих глаголов предложное косвенное дополнение в действительном залоге может стать подлежащим страдательного залога:

We looked for the device everywhere. – Мы искали этот прибор всюду.  
(предложное косв., доп .)

The device was looked for everywhere. – Этот прибор искали повсюду.

(подлеж.)

В английском языке имеется ряд глаголов, которые требуют после себя прямого дополнения, в то время как соответствующие русские глаголы требуют после себя косвенного дополнения с предлогом:

To influence ( to affect ) – влиять на

To follow – следовать за

The lively discussion followed the report. – За докладом последовала оживленная дискуссия.

The report was followed by a lively discussion.

Подлежащее английского предложения при сказуемом в страдательном залоге может переводиться на русский язык существительным (или местоимением) во всех падежах, кроме родительного.

*Таблица 10*

### **The Passive Voice (пассивный залог)**

	<b>Indefinite (to be + Participle II)</b>	<b>Continuous (to be +being + Participle II)</b>	<b>Perfect (to have +been+ Partici- ple II)</b>
Present	The letter is translated. Is the letter translated? The letter isn't translated.	The letter is being translated. Is the letter being translated? The letter isn't being translated.	The letter has been translated. Has the letter been translated? The letter hasn't been translated.
Past	The letter was translated. Was the letter translated? The letter wasn't translated.	The letter was being translated. Was the letter being translated? The letter wasn't being translated.	The letter had been 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.		The letter will have been translated. Will the letter have been translated? The letter won't have been translated.
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**Grammar exercises:**

**1. Write questions using the passive. Some are present and some are past.**

Ask about the telephone. (when/invent?) When was the telephone invented?

1. Ask about glass. (how/make?)                      How .....
2. Ask about Australia. (when/discover?)                      .....
3. Ask about silver. (what/use for?)                      .....
4. Ask about television. (when/invent?)                      .....

**2. Write sentences from the words in brackets. (Sentences 1-6 are present, 7-13 past).**

- |  |                                   |
|--|-----------------------------------|
| (the office / clean / every day)             | The office is cleaned every day.  |
| 1. (these rooms / clean / every day?)        | .....                             |
| 2. (glass / make / from sand)                | .....                             |
| 3. (stamps / sell / in a post office)        | .....                             |
| 4. (this room / not / use / very often)      | .....                             |
| 5. (we / allow / to park here?)              | .....                             |
| 6. (how / this word / pronounce?)            | .....                             |
| (the office / clean / yesterday)             | The office was cleaned yesterday. |
| 7. (the house / paint / last month)          | .....                             |
| 8. (three people / injure / in the accident) | .....                             |
| 9. (my bicycle / steal / a few days ago)     | .....                             |
| 10.(when / this bridge / build?)             | .....                             |
| 11.(you / invite / to the party last week?)  | .....                             |
| 12.(how / these windows / break?)            | .....                             |

13. (I / not / wake up / by the noise) .....

**3. Correct these sentences.**

(This house built) 100 years ago. This house was built .....

1. Football plays in most countries of the world. ....
2. Why did the letter send to the wrong address? .....
3. A garage is a place where cars repair. ....
4. Where are you born? .....
5. How many languages are speaking in Switzerland? .....
6. Somebody broke into our house but nothing stolen. ....
7. When was invented the bicycle? .....

**4. Complete the sentences. Use the passive (present or past) of these verbs:**

clean      damage      find      give      invite      make x 2      show  
steal      take

The room is cleaned every day.

1. I saw an accident yesterday. Two people ... to hospital.
2. Paper ..... of wood.
3. There was a fire at the hotel last week. Two of the rooms .....
4. 'Where did you get this picture?' 'It ..... to me by a friend of mine.'
5. Many American programmes ..... on British television.
6. 'Did Jim and Sue go to the wedding?' 'No. They ..... but they didn't go.'
7. 'How old is this film?' 'It ..... in 1965.'
8. My car ..... last week but the next day it ..... by the police.

**5. Use the words in brackets to complete the sentences.**

1. I can't use my office at the moment. It is being painted. (paint)
2. We didn't go to the party. We ..... weren't invited. (not/invite).
3. The washing machine was broken but it's OK now. It ..... (repair).
4. The washing machine ..... (repair) yesterday afternoon.
5. How old are these houses? When ..... (they/build)?
6. A: ..... (the computer / use) at the moment?  
B: Yes, Julia is using it.



7. I've never seen these flowers before. What ..... (they/call)?
8. Some tree ..... (blow) down in the storm last night.
9. The bridge is closed at the moment. It ..... (damage) last week and it ..... (not/repair) yet.

### ***Learn the vocabulary***

Consist (of) – состоять (из)	Outer – внешний
Contain – содержать	Possible – возможный
Container – контейнер	Impossible – невозможный
Divide (into) – делить (на)	Possibly – возможно
Inner – внутренний	Possibility – возможность
Nucleus – ядро	Several – несколько
Nuclei – ядра	Shell – оболочка
Nuclear – ядерный	Substance – вещество

### ***Read and translate.***

#### **Matter**

Matter consists of one or more elements. Elements are substances that cannot be divided into other substances. An atom is the smallest particle of an element, which has all the properties of the element and can take part in chemical reactions.

In each atom there is a nucleus, containing a number of protons (each proton has a positive electrical charge) and a number of neutrons, having no electrical charge. The nucleus is surrounded by a number of electrons. Each electron has a negative electrical charge. The electrons orbit around the nucleus. An atom has as many protons as it has electrons. This results in a zero electrical charge of the atom. Electrons orbit around the nucleus in one of the several possible orbits. These orbits are called shells.

In a silicon atom there are fourteen protons in the nucleus. Fourteen electrons orbit around the nucleus in three orbits. The first or inner shell contains two electrons and cannot hold any more electrons. In the second shell there are eight electrons. It

cannot hold additional electrons either. In the third shell there are only four electrons. This shell can hold more electrons. The outer shell of any atom is called its valence shell. The number of electrons in the valence shell is known as the valency of the atom.

***Read and translate.***

### **Conductors, Semiconductors and Insulators**

Materials can be classed in three groups according to their electrical properties – conductors, semiconductors and insulators. Metals such as silver, copper, and aluminium have many free electrons. This makes it easy for current to flow through them. Therefore, these metals are called conductors.

Materials such as glass, rubber, and many plastics have practically no free electrons. This makes it very difficult for current to flow through them. These materials are known as insulators and are used in many fields ranging from the covering on conductors to the dielectric in capacitors.

***Read and translate.***

### **London's Underground**

Bands were playing and the gentlemen in hats were preparing to make speeches about their great achievement. They made the first underground railway travel in the world – a distance of almost four miles.

It was the year 1863 and on that first historic day 30,000 Londoners used this new and strange way of travel. Now more than a hundred years later the London Underground carries more than a million passengers every day. The total 56 number of passengers carried by the London Underground each year is enormous, and it is constantly growing.

In the early days the trains were driven by steam locomotives which burnt coal. It is said that the train staff and porters asked permission to grow beards and moustaches – as an early form of smog mask.

Now the atmosphere "underground" is considered even better than that outside

as germs cannot grow in the dry air – and the trains, of course, are electric.

The deep tunneling came later, in 1890. Tunneling a tube through miles of clay, and sometimes sand and gravel is no easy task, and it was James Henry Greathead who developed the method which was to make most of London's tube tunnels possible.

London transport's experience with tunnels brought them another record. One of the longest continuous railway tunnel in the world is the 17 1/2 mile tunnel on the Northern line.

There are numerous escalators which help to keep the traffic moving. The first was installed in 1911. One of them at Leicester Square is over 80 feet in length. On long escalators the speed is changeable. The "up" escalator runs at full speed when carrying passengers, but when empty it runs at half speed. Many of the new escalators have automatic control making a more frequent service throughout the day possible.

Safety was always one of the main concerns of London transport. In spite of the fact that trains often follow each other within seconds, it is said that the London Underground is the safest form of transport in the world. Automatic signalling is operated by the trains themselves. A programme machine controls routes: if changes are necessary, they are made automatically and with lightning speed. No accidents can happen through human weakness.

New automatic driving systems are now being used. The air in the Underground is changed every quarter of an hour, and the temperature all year round is maintained at 69 – 79 degrees Fahrenheit.

Though the quality of service is high there is still significant overcrowding on certain lines at peak periods. This problem is being discussed and additional improvement of service is planned for the future.

A number of station modernization schemes are being completed. The aim is to provide a more attractive environment for the passengers. The usage of modern materials makes maintenance easier. This modernization is coordinated with the renewal of lifts and escalators and the introduction of new ticketing machines. The fare in the

Underground depends on the distance, but the lowest is 50 pence.

The Underground is becoming much cleaner and brighter and therefore more pleasant to use, carrying more passengers than at any time in its long history.

Crime levels in London are generally reflected by crime levels on London's transport. According to the statistics the crime level in the Underground is rather high. To ensure safety of passengers and the staff the transport authorities added more police officers to the Underground System to guarantee as much protection as possible.

**Task 1. Agree or disagree using *That's right ...*, or *That's wrong ...* .**

**Example:** a) If changes are necessary, they are made automatically with lighting speed. That's right, according to the text if changes are necessary they are made automatically with lighting speed. b) Safety signalling will be controlled by the drivers themselves. That's wrong, according to the text safety signalling will be controlled by coded electrical impulses.

1. It was fifty years ago that Londoners used a new way of travel. 2. The first underground travel in the world took place in 1863 in London. 3. The London Underground is not a very safe form of transport. 4. People who made the first underground travel did not consider it a great achievement. 5. In the early days the trains were driven by electricity. 6. The first escalator was installed 30 years ago. 7. The first trains were driven by steam locomotives. 8. The first escalator was installed in 1911. 9. The temperature in the Underground is very changeable. 10. The deep-level tubes came in 1890. 11. On long escalators the speed is not changeable. 12. The trains follow each other within seconds. 13. The temperature is maintained at 40 degrees by Fahrenheit.

**Task 2. Find in the text *Passive constructions*.**

**Revision exercises:**

**1. Translate words with prefix 'super-', which in Russian means 'сверх-', 'непе-', 'супер-', 'ультра-'.**

Conductivity – проводимость; superconductivity – ...

Heated – нагретый; superheated – ...

Tension – напряжение; supertension – ...

Cooling – охлаждение; supercooling – ...

Critical – критический; supercritical – ...

Efficiency – эффективность; superefficiency – ...

Saturation – насыщение; supersaturation – ...

Sensitive – чувствительный; supersensitive – ...

Sound – звук; supersound – ...

## **2. Translate.**

Hard – твердый, крепкий; harden – ...

Strength – прочность, сила; strengthen – ...

Broad – широкий; broaden – ...

Wide – широкий; widen – ...

Tight – плотный; tighten – ...

Rough – неровный, грубый; roughen – ...

## **3. There + to be**

1. There were several empty seats in the bus when I got into it. 2. There is a great number of goods that can be transported by air. 3. There is no fear of damaging the machine if it is properly maintained. 4. There was no chance of getting tickets for this concert. 5. There are very powerful cranes for unloading ships in this port. 6. There was still some hope of reaching the destination in time. 7. There are some factories to be rebuilt in this region. 8. Is there any demand for the tubes of that size? 9. There are no reasons for his being late. 10. There are always some problems to be solved. 11. There have been several bad accidents at this corner recently. 12. There has been an increased demand for this kind of goods. 13. There were plenty of furnished flats and furnished houses in the village now. 14. There is a place where two streets cross. There are lights in the middle of the crossing. If there is a red light drivers of cars and buses must stop. Then they must wait until the red light changes to

green. Sometimes there is a yellow light between the red and the green. It means that you must stop and wait until it changes to green.

#### ***4. Degrees of comparison***

1. He thought he was the happiest man in the world. 2. Mayakovsky is one of the most talented Soviet poets. 3. The new car is more comfortable than the previous one. 4. His radio set is not so powerful as mine. 5. The Neva is wider and deeper than the Moskva River. 6. Last year he spent less time on English than this year. 7. The sooner they finish the construction of the plant the better. 8. The book is not so interesting as you think. 9. The more time you spend in the open air the sooner you will recover after your illness. 10. He has much more free time than I have. 11. Tom runs fast. Dick runs faster, but Harry runs fastest. 12. This road is the worst I've ever travelled over. 13. If you listen to the teacher more attentively you understand better. 14. Do you think people read more books twenty years ago than they do today? 15. Tennis and football are the games I like best. 16. This is the hottest day we have had for several weeks. 17. Smiles is the longest word in the English language because there is a mile between two "s". 18. Yesterday was hotter than any other day we had this summer.

#### ***5. Indefinite Active and Passive***

1. At last he returned to his native country to the little town where his childhood was spent. 2. The latest surgical instruments were used during this unique operation. 3. The trouble is that this student does not work properly at his English. 4. Before the experiment the substances are mixed in a large cup. 5. The commission will consider this offer carefully before accepting it. 6. In spite of the fact that the report was short, it covered the subject completely. 7. This instrument is preferred to all others because of its great reliability. 8. The doctor said that an urgent operation was needed. 9. They will do everything in their power to help us. 10. I hope we shall never deal with this matter again. 11. The last experimental results were constantly referred to by the professor. 12. This airplane crosses the Atlantic in about 10 hours. 13. The Houses of Parliament are situated in Westminster.

#### ***6. Modal verbs and their equivalents***

1. He is to go to the Far East on business. 2. When are we to visit the laboratories of the Institute? 3. He has to investigate a series of accidents that occurred in the locality for a period of three months. 4. We had to find a safe place for the pictures. 5. I shall have to take a local train. 6. You should follow all the important scientific researches in your field. 7. He was allowed to use the mobile equipment. 8. You needn't keep your activities in secret. 9. You can see this old film in one cinema only. 10. The laboratory was to make important scientific experiments in a very short time. 11. The talks were to be attended by the representatives of fifteen European countries. 12. We shall be able to see a number of Chaplin's films in September. 13. You are to write your name at the top of the paper. 14. If you want to know English you have to work hard. 15. We had to walk home because the last bus had gone. 16. I'll have to come to the Institute at 8 o'clock tomorrow. 17. The teacher will have to explain this difficulty.

### ***7. Continuous Active and Passive***

1. When he met me I was going to the Institute and had little time to talk to him. 2. "What's your little brother doing?" "He is still sleeping." 3. She was sitting there doing nothing. 4. Next Monday we'll be working only five hours. 5. The construction of the road was being completed when the commission arrived. 6. The new engine is being tested in the laboratory. 7. Automation is being increasingly used in all the branches of our industry. 8. The child is being looked for everywhere. 9. A new research is being carried out successfully. 10. When I come home the family will be watching the TV programme. 11. A new hydroelectric station was being built when we came there to have practice. 12. Scientists are studying the currents of the Pacific Ocean. 13. I want to know what new books are being published. 14. He cut himself while he was repairing his car. 15. What subjects is he studying and which subject does he like best?

### ***8. Perfect Active and Passive***

1. He has never been there. 2. When you see him next, he will have passed the last exam. 3. By that time we had already changed our plans. 4. He decided to become a writer only when his first story had been published. 5. No one came in here

since we have been here. 6. He has been shown her photo. 7. He told me that he had never been to doctors. 8. The boy has never been told the truth. 9. The papers have not yet been sent. 10. It's a long time since I have visited that town. 11. By that time the story had been long forgotten even by the storyteller himself. 12. The better results have not been obtained yet. 13. The street has been widened. 14. The light has just changed from green to red. 15. I have not made my plans yet. 16. Several attempts have been made recently to produce artificial rain. 17. Have you ever seen a bull-fight? 18. Have you ever travelled by air? – Yes, I have often travelled by air. A month ago I flew to the Caucasus.

### ***9. Sequence of tenses***

1. He said that by the year 2000 the number of skiers in the world would reach 75 million. 2. He asked me if I knew about the largest contracts concluded by the firm. 3. We didn't know whether our plan would bring us success. 4. They wanted to know what our present research was centred upon. 5. He asked if the car-manufacturing plant had expanded its international operations. 6. He reported that the firm was holding talks about possible construction of an automobile plant in that district. 7. I thought that the organization had already started its work. 8. He added that he could show us the collection of mail stamps his father had started to collect in his college days. 9. He said he was no longer interested in the discussion of that problem. 10. It was announced that the expedition had already left for the Kurils. 11. He asked me whether I had known about the planning and fulfilment of his mission. 12. I was told, that you were good at mathematics. 13. Tom said he knew a man who was an automobile engineer. 14. The student said that the exercise had many sentences and added that he would do it in half an hour. 15. The engineer said that he didn't think that the office work would be interesting for him. 16. The mechanic asked me if the car had been damaged.

### ***10. Some, any, no.***

1. There was no water left in the radiator, so we had to stop and refill it. 2. Any engineer who has worked long enough in this field can give this information. 3. I cannot consult just any person, I need someone who is an expert on the problem and



who has had enough experience. 4. He said he had no wish to read detective stories. 5. I don't want to have any argument. The matter is clear enough for me. 6. He makes no attempts to establish any contacts with our group, so I understand he got no such orders. 7. No explanation was given to him why the experiment had been stopped. 8. The scientists believe that there is practically no atmosphere on the Moon. 9. You've got absolutely no ground for saying so. 10. The station master said that no trains had arrived at the station during the night because of the heavy snow storms in the mountains. 11. It was clear that no person could do this work alone. 12. None of the young men seemed to enjoy the film. 13. No discovery can be made without wide experimentation. 14. Any moving object will continue to move in a straight line unless it is stopped by some other force.

***11. Read and translate:***

1. Automation, telemechanics and computing techniques are being introduced in traffic control to restrict transport indiscipline. 2. In countries of high motorization air pollution has become problem number one. 3. Research laboratory has carried out the investigation into the circumstances of the accidents; aspects examined included the effect of weather, darkness, lighting of streets, speed limits, and the consumption of alcohol. 4. To increase the power output the two smaller engines were equipped with larger inlet valves. This modification was made to enable the engines to cope with the extra weight and size of the models. 5. "Rubber is an elastic substance made from the juice of certain trees and used for making balls, tyres, etc." This definition is given by an English Reader's Dictionary. 6. The communique issued at the end of the talks between the two countries called for the increase in trade cooperation. 7. Wonderful prospects will be opened up to mankind when we learn to convert solar energy into electricity with high efficiency. 8. Radio has found universal recognition and application in a comparatively short period of time. 9. The ride to the city has taken 1 1/2 hours altogether. 10. The consequences of the pollution of the atmosphere by different by-products are being carefully studied. 11. The trend toward restricting the speed of motor cars is becoming more and more evident in many countries. 12. One should remember that the efficiency of transport system depends on many factors.



## Supplementary Reading

### Tomorrow's Transport

Will the strips move at the same or at different speeds?

What will cities of the future look like? Town planners are thinking of new methods of construction and transportation.

What will city transport be like in 20 or 30 years? The moving pavement is one possibility. It consists of several strips moving along at different speeds. These escalators are moving in both directions along all streets. On reaching his destination the passenger steps over the slower strip and there to terra firma (неподвижная земля).

For convenience these moving pavements may be supplied with chairs, benches, vending machines selling soft drinks, ice-cream, candy and so on.

What kind of transport will be forced out?

The first lines of such moving pavements should appear in the streets which have the heaviest traffic and are the most dangerous for pedestrians. In the beginning they will replace the older forms of city traffic only in certain streets, but then they will appear in a single system serving the centre of the city. Buses, trolley-buses and motor-cars will be forced out as the trams are forced out of the centre of many cities now.

What kind of cars shall we have in future?

What will the car of the future be like? It probably won't be red. Our response to colours isn't always the same. If you want people to stop when they see a car in front of them, yellow is probably the best. When you go for a drive in the car of tomorrow you will certainly know more about the road in front of you. Your car radio will tell you about the next corner before you can see it. It will pick this up from a wire under the road. When you stop quickly, the light that tells the man behind you to be careful will spread across the car. At the same time a bag in front of you will fill up with air to stop you hitting your head on the window.

What will the car of the future run on? Not petrol, which is dirty and noisy. In future we'll probably have electric cars. As a rule the electric car can only make a short journey before going back to the garage. Or steam cars. That too would be quiet

and clean. But in England there is a farmer who has invented a car that runs on manure and he drives to London in it every week.

What are the advantages of a tube system?

Trains of the Future. What about long-distance travel? Consider the "tube-train" suspended and propelled by compressed air. It may carry passengers on trips at 350 miles an hour. This idea is materialised in a 12-foot long model of a strange new aluminium torpedo train. The full-size train will run through an 18 foot-diameter metal tube, while big propellers pump the air from the front to the rear. A tube system has many advantages: a tube train makes little noise; a tube can be suspended, buried (зд. подземный) or even run through buildings.

### **From Dictionaries of Electronics**

A TRIODE is an electron tube with three electrodes namely a cathode, control grid and anode. This was the first amplifying tube and was invented by Lee de Forest in 1905 when he placed a grid in a diode. By suitably biasing the grid<sup>1</sup> with respect to the cathode it is possible to control the density of the electron stream from the cathode which reaches the anode. Thus the grid voltage controls the anode current.

A GRID is an electrode placed between the cathode and the anode of an electron tube and through the interstices of which the main electron stream of the tube passes.

An ELECTRON TUBE is a general term for an evacuated or gas-filled envelope, containing electrodes and in which conduction occurs by virtue of<sup>2</sup> electrons or ions which move in a controlled manner according to the voltages or currents applied to the electrodes.

CONDUCTIVITY is a term expressing the ability of a material to carry an electric current. The conductivity of metals, for example, is better, i.e. higher than that of non-metals.

*Notes to the text*

<sup>1</sup> by suitably biasing the grid – соответственно изменяя (букв. смещая) напряжение на сетке

<sup>2</sup> by virtue of – благодаря

### **In Retro Style**

Strange as it may seem<sup>1</sup>, but early in this century electric bulbs lasted longer<sup>2</sup> than now. The secret is simple – a direct current was used at that time for lighting (освещение). Direct current helped to wear out refractory metal less. This suggested American engineers the idea to return to the old principle but naturally on a modern basis.

They developed a bulb with the filament to which a miniature circuit with a diode was successively hooked up<sup>3</sup>. This diode converts standard alternating current (AC) into pulsating constant current (DC). The losses of lighting power are compensated by a mirror reflector, installed as close as possible to the spiral bulb, and the bulb's service life has increased 80 times.

#### *Notes to the text*

<sup>1</sup> as it may seem – как может показаться

<sup>2</sup> lasted longer – служили дольше

<sup>3</sup> was successively hooked up – был подключен последовательно

### **The two Semiconductor Materials**

The two semiconductor materials used in the manufacture of semiconductor devices, such as diodes and transistors, are germanium and silicon. Both these materials fall into group IV of the Periodic Table of Elements. An atom of either substance may be represented by a central core having a positive charge and surrounded by orbiting electrons, each having a negative charge.

In its solid state silicon forms crystals of the diamond type, i. e. it forms a cubic lattice in which all the atoms except those at the surface are equidistant from their immediately neighbouring<sup>1</sup> atoms.

A study of crystal structures shows that the greatest number of atoms that can be neighbours to a particular atom at an equal distance away from that atom and yet

be equidistant from one another is four. Hence each atom in a silicon crystal has four neighbouring atoms.

In the crystal lattice each atom employs its four valence electrons to form covalent bonds with its four neighbouring atoms; each bond consists of two electrons, one from each atom. Each pair of electrons orbits around both its parent atom and <sup>2</sup> a neighbouring atom.

*Notes to the text*

<sup>1</sup> immediately neighbouring – находящийся непосредственно рядом

<sup>2</sup> both ... and – как ... так и

## **Semiconductors**

Semiconductors are solids whose resistivity lies between those of electrical conductors and insulators. Semiconductors are used in computers, in radio and TV receivers, and in other electronic products.

Semiconductor devices perform many control functions. They may be used as rectifiers, amplifiers, detectors, oscillators and switching elements. Some characteristics, which make the semiconductors such an attractive member of the electronics family, are as follows:

1. Semiconductors are small and light in weight.
2. Semiconductors are solids. There is therefore little chance that elements will vibrate. Element vibration in vacuum tubes was the cause of microphonics.
3. Semiconductors require little power and radiate less heat than tubes. They do not need warm up time and operate as soon as power is applied.
4. Semiconductors do not undergo (подвергаться) the chemical deterioration (порча) which occurs in tube cathodes.

The deterioration of tube cathodes eventually results in unacceptable tube performance.

Silicon is the material of which most semiconductor devices are presently constructed.

## Appendix 1

### Необходимый лексический минимум

#### Verbs

To act – действовать	To look – смотреть
To answer – отвечать	To love – любить
To ask – спрашивать	To open – открывать
To be (was/were, been) – быть	To play – играть
To be born – родиться	To prepare – готовить
To become – становиться	To put – класть
To begin – начинать	To rain – идет дождь
To buy – покупать	To read – читать
To close – закрывать	To repeat – повторять
To come – приходить	To say – сказать
To continue – продолжать	To see – видеть
To declare – объявлять	To sit – сидеть
To do – делать	To skate – кататься на коньках
To dress – одевать	To ski – кататься на лыжах
To drink – пить	To sleep – спать
To eat – есть	To speak – говорить
To excuse – извинять	To spend – проводить, тратить
To get (got) up – вставать	To stand – стоять
To give – давать	To study – изучать
To go – идти	To take – брать
To have – иметь	To tell – рассказывать
To hear – слышать	To thank – благодарить
To help – помогать	To translate – переводить
To know – знать	To travel – ездить, путешествовать
To learn – учить	To understand – понимать
To like – любить, нравиться	To want – хотеть

To live – жить

To listen – слушать

To walk – ходить пешком

To wash – мыть

### Question words

What? – что?

Whom? – кого, кому?

Whose? – чей?

Which? – который?

Why? – почему?

How many? – сколько?

How much? – сколько?

How long? – как долго?

How often? – как часто?

Who? – кто?

What colour? – какого цвета?

What kind/sort of? – какого вида?

### Nouns

Afternoon – полдень

Animal – животное

Answer – ответ

April – апрель

Arm – рука

August – август

Autumn – осень

Body – тело

Building – здание

Child – ребенок

Children – дети

Cinema – кино

City – город

Coat – пальто

Comrade – товарищ

Corner – угол

Country – страна

Date – число

July – июль

June – июнь

Letter – письмо

Library – библиотека

Life – жизнь

Light – свет

March – март

May – май

Mistake – ошибка

Month – месяц

North – север

Notebook – тетрадь

November – ноябрь

October – октябрь

Page – страница

Paper – бумага

Peace – мир

Question – вопрос



December – декабрь  
Dictionary – словарь  
Dining room – столовая  
Duty – долг  
East – восток  
For example – например  
Exercise – упражнение  
Farm – ферма  
Farmer – фермер  
February – февраль  
Floor – пол  
Freedom – свобода  
Friday – пятница  
Glass – стекло, стакан  
Ground – земля  
Hall – зал  
Head – голова  
Holiday – каникулы  
Horse – лошадь  
Ice – лед  
Ink – чернила  
January – январь

Reader – читатель  
River – река  
Saturday – суббота  
Schoolchildren – школьники  
Sea – море  
September – сентябрь  
Skating – ring  
South – юг  
Square – площадь  
Summer – лето  
Sunday – воскресенье  
Thing – вещь  
Tram – трамвай  
Tuesday – вторник  
Walk – прогулка  
Watch – часы  
West – запад  
Winter – зима  
Word – мир  
Worker – рабочий  
Writer – писатель  
Year – год

### **Adjectives**

Absent – отсутствующий  
Dark – темный  
Different – различный  
Difficult – трудный  
Famous – известный  
Great – великий

Next – следующий  
Open – открытый  
Poor – бедный  
Ready to be ready – готовый  
Rich – богатый  
Right – правильный

Hot – жаркий

Ill/to be ill – болеть

Last – последний

Short – короткий

Warm – теплый

Again – снова

Ago – назад

Far – далеко

Here – здесь

Inside – внутри

Many, much – много

Never – никогда

### **Adverbs**

Quickly – быстро

There – там

Tomorrow – завтра

Yesterday – вчера

Very – очень

Well – хорошо

### **Prepositions**

According (to) – согласно, по

Across – поперек, через

Against – против

Along – вдоль, по

Among – среди

Around – вокруг

At – о, около

Before – перед

Behind – сзади

Below – под

Besides – кроме

Beyond – по ту сторону, вне

Despite – несмотря на

Except – кроме

Inside – внутри

Into – в, внутрь

Like – подобно, как

Of – из, изнутри

Off – с, от

Out (of) – под

Outside – вне, за пределом

Past – мимо

Per – в, на, за, с

Prior to go – перед

Regardless of – независимо от

Round – кругом, вокруг

Since – со времени, с

Through – через, сквозь

Throughout – на всем протяжении

Till – до

## Appendix 2

### Grammar Tables

#### Грамматический справочник в таблицах

#### Имя существительное (The Noun)

#### Образование множественного числа

1. – s: boy – boys, chair – chairs, car – cars, sofa – sofas, cat – cats

2. – es: lady – ladies, city – cities

после -ch, -ss, -x, -sh: watch – watches, box – boxes

после -o: potatoes

*Исключения:* photos, metros, zeros, pianos

*Таблица 1*

#### Исключения

man – men	goose – geese
woman – women	tooth – teeth
child – children	foot – feet
ox – oxen	person – people
mouse – mice	

*Таблица 2*

#### Существительные, имеющие разные значения в форме ед. и мн. числа

custom – обычай	customs – таможня
damage – повреждение	damages – убытки
pain – боль	pains – старания, усилия
people – люди	peoples – народы
quarter – четверть	quarters – помещение, жилье
work – работа	works – завод

Таблица 3

**Существительные, употребляющиеся только**

В единственном числе	Во множественном числе
success – успех	binocular – бинокль
advice – совет, советы	clothes – одежда
accommodation – помещение (я)	goods – товар, товары
equipment – оборудование	scales – весы
evidence – показание, показания	spectacles – очки
hair – волос, волосы	trousers – брюки
furniture – мебель	
information – информация	
knowledge – знание, знания	
mail – почта	
money – деньги	
news – новость, новости	
time – время	

Таблица 4

**Образование притяжательной формы**

Единственное число	Притяжательная форма единствен- ного числа	Множественное число	Притяжательная форма множест- венного числа
student	student's	students	students'
boy	boy's	boys	boys'
friend	friend's	friends	friends'
child	child's	children	children's

## The Article

Таблица 5

### Сравнительная таблица употребления артиклей с существительными в единственном числе.

A, an (неопределенный)	The (определенный)
<p>Относится к классу; имеет значение «один из», «любой», «какой-то», «всякий»:</p> <p>A student entered the classroom. – (Какой-то) студент вошел в класс.</p> <p>Употребляется перед существительными, упомянутыми впервые:</p> <p>I've noticed a tool not far from our work-bench. – Недалеко от нашего верстака я заметил инструмент.</p> <p>Употребляется перед существительными, выполняющими функцию именной части сказуемого:</p> <p>He is an engineer.</p> <p>Употребляется с существительным, выражающим в единичном понятии общее (соответствует русскому слову «любой»):</p> <p>Have you got a voltmeter?</p> <p>У вас есть вольтметр?</p>	<p>Выделяет какой-либо предмет (лицо) из класса ему подобных; имеет значение «этот»:</p> <p>The student who entered the classroom is my friend. – Студент, который вошел в класс, мой друг.</p> <p>Употребляется перед существительными, повторно упомянутыми:</p> <p>I've noticed a tool not far from our work-bench. The tool was absolutely new. – Недалеко от нашего верстака я заметил инструмент. Инструмент был совершенно новым.</p> <p>Употребляется с существительными, обозначающими предмет, единственный в своем роде:</p> <p>the moon, the earth, the sun</p> <p>Употребляется с существительным, обозначающим предмет, который выражает в единичном понятии общее:</p> <p>The voltmeter is a measuring instrument.</p> <p>Вольтметр – это измерительный прибор.</p>

### Употребление определенного артикля с именами собственными

Употребление	Примеры
1. перед именем собственным, обозначающим всю семью	the Browns (семья Браунов)
2. перед названиями некоторых стран, преимущественно тех, в названия которых входят слова: state, republic, union	the Russian Federation , the USA (the United States of America), the United Kingdom, the Netherlands
3. перед названиями морей, океанов, рек, заливов, проливов, каналов, горных хребтов, групп островов	the Northern Sea , the Atlantic (Ocean), the Mississippi, the Urals, the Azores
4. перед названиями судов, поездов, самолетов, гостиниц, газет, журналов	the m/v <i>Star</i> the <i>National</i> Hotel, the <i>Times</i>
5. перед названиями сторон света	the North, the South, the East, the West

### Артикль не употребляется

1. перед именами существительными собственными	Helen, St. Petersburg, France, Oxford Street
2. перед существительными во множественном числе, перед которыми в ед. числе стоит неопределенный артикль	An interesting film is on at our cinema. Interesting films are on at our cinema.
3. перед абстрактными существительными; перед названием вещества, если речь не идет о каком-либо конкретном количестве	His work gives him satisfaction. Oil is difficult to transport.
4. перед неисчисляемыми существительными (information, news, advice, money, equipment и т. д.), если при них нет ограничивающего определения	This is important information.

5.перед существительными, обозначающими титулы, звания, форму обращения	Captain Volkov, Mr Smith, Professor Green
6.перед именами существительными, обозначающими названия дней и месяцев	on Monday, in January
7.перед существительным, определяемым словами next (будущий) и last (прошлый), если существительное обозначает время, или перед количественными числительными	last week, next year; но: the last week of the year; World War II; room No. 5
8.перед названиями наук	I like physics.
9.в некоторых сочетаниях существительного с предлогом	to go by ship/train; on deck; to go on foot; to be on holiday; to go on business; from year to year и др.

**Неопределенный артикль a/an** используется перед исчисляемыми именами существительными в единственном числе, когда мы говорим о предмете как представителе целого класса предметов, одном из многих.

My friend is **an** engineer.

I live in **a** flat.

**Определенный артикль the** используется как перед исчисляемыми, так и перед неисчисляемыми именами существительными, как в единственном, так и во множественном числе, когда мы имеем в виду определенный предмет, или сообщаем о нем дополнительную, конкретизирующую информацию.

## Местоимение (The Pronoun)

Таблица 8

### Личные и притяжательные местоимения

Личные в именительном падеже	Объектный падеж личных местоимений	Притяжательные местоимения	Абсолютная степень притяжательных местоимений
I	me	my	mine
you	you	your	yours
he	him	his	his
she	her	her	hers
it	it	its	its
we	us	our	ours
you	you	your	yours
they	them	their	theirs

### Местоимения *some, any, no*

*Some, any* используются только с неисчисляемыми существительными, или с исчисляемыми во множественном числе. Переводятся несколько, сколько-нибудь, какое-то количество. *No* – нисколько, нет.

*Some* используется в утвердительных предложениях.

*Any* в вопросительных и отрицательных.

She has some friends.

Does she have any friends?

She doesn't have any friends. *Or* She has no friends.

*Some* может использоваться в вопросительных предложениях, если это просьба об услуге или ее предложение:

Would you like some coffee?

Can I have some apples?



**Местоимения, производные от some, any, no, every**

	-thing	-body	-where	-one
some	something что-то что-нибудь	somebody кто-то кто-нибудь	somewhere где-то где-нибудь	someone кто-то кто-нибудь
any	anything что-то что-нибудь	anybody кто-то кто-нибудь	anywhere где-то где-нибудь	anyone кто-то кто-нибудь
no	nothing ничто ничего	nobody никто никого	nowhere нигде никуда	no one никто никого
every	everything все	everybody все каждый	everywhere езде повсюду	everyone каждый все

**Указательные местоимения this, that, these, those**

This – этот, эта, это

These – эти

That – тот, та, то

Those – те

## Имя числительное (the Numeral)

*Таблица 10*

### Образование количественных числительных

1 – 12	13 – 19 (+ teen)	20 – 99 (+ty)	100 и более
1 one			100 a (one) hundred
2 two		20 twenty	200 two hundred
3 three	13 thirteen	30 thirty	354 three hundred and
4 four	14 fourteen	40 forty	fifty-four
5 five	15 fifteen	50 fifty	1,000 a (one) thousand
6 six	16 sixteen	60 sixty	2,450 two thousand four
7 seven	17 seventeen	70 seventy	hundred and fifty
8 eight	18 eighteen	80 eighty	1,000,000 a (one) million
9 nine	19 nineteen	90 ninety	
10 ten		95 ninety-five	
11 eleven			
12 twelve			

*Таблица 11*

### Образование порядковых числительных

1 first	13 thirteenth
2 second	14 fourteenth
3 third	15 fifteenth
4 fourth	20 twentieth
5 fifth	21 twenty-first
6 sixth	22 twenty-second
7 seventh	30 thirtieth
8 eighth	87 eighty-seventh
9 ninth	90 ninetieth

10 tenth	100th one hundredth
11 eleventh	3,000 three thousandth
12 twelfth	1,000,000 one millionth

*Таблица 12*

### **Чтение дробных и смешанных величин**

1/3	one third
3 4/5	three and four fifth
7/8 foot	seven eighth of a foot
1/2	one (a) half
1/4	one (a) quarter
2.5	two point half
0.5	point five

## **Глагол (The Verb)**

### **Некоторые обозначения**

V<sub>1</sub> – первая форма глагола (инфинитив без частицы “to”).

V<sub>2</sub> – вторая форма глагола (V-ed правильных глаголов или вторая колонка в таблице неправильных глаголов).

V<sub>3</sub> – третья форма глагола (V-ed правильных глаголов или третья колонка в таблице неправильных глаголов).

V<sub>4</sub> – четвертая форма глагола или причастие I или V-ing.

### **The Imperative Mood (Повелительное наклонение)**

Повелительное наклонение в английском языке образуется при помощи первой формы глагола (V<sub>1</sub>). Отрицательная форма – при помощи добавления перед первой формой глагола don't.

Open the door. – Откройте дверь.

Don't open the door. – Не открывайте дверь.

### Модальные глаголы (Modal Verbs)

Возможность, физическая / умственная, способность	Оттенки значения	Глаголы	Перевод
	Физическая, умственная способность	Can, be able to	Мочь, быть способным
	Возможность (в силу об- стоятельства)	Can (may)	Мочь, иметь возмоз- жность
	Возможность (благодаря разрешению)	Can, may	Можно (мочь)
	Невозможность (в силу запрета)	Mustn't, not to be to, may not	Ни в коем случае нельзя
Долг, необходимость	Моральный долг, мо- ральная обязанность, не- обходимость	Must	Должен
	Необходимость (в силу обстоятельств)	To have to	Должен, вынужден, при- ходится
	Совет, рекомендация	Should, ought to	Следует, должен
	Запланированная необхо- димость	To be to, shall	Должен, обязан
	Отсутствие необходи- мости	Needn't not to have to, shouldn't, oughtn't	Не должен, не нужно, не следует
Разная степень уверенности	Почти полная уверен- ность	Must	Должно быть, вероятно, очевидно
	Неуверенность, незнание	May	Может быть (но я не знаю), пожалуй
	Предположение с боль- шой степенью сомнения	Might, could	Может быть и так, но вряд ли ...
	удивление, неверие	Can't	Возможно ли? Неужели? Не может быть?
	Уверенность в невозмож- ности	Couldn't	Не может быть, не мог

## Active Voice

### (Действительный залог)

Выражает действия, совершаемые самим предметом.

*Таблица 14*

Tense	Present	Past	Future
<b>Simple</b> <b>(Indefinite)</b> <b>факты, повто-</b> <b>ряющиеся дей-</b> <b>ствия</b>	Every day, usually V <sub>1</sub> swim, go He, she, it V <sub>1</sub> + s ? do, does -- don't, doesn't He goes to work. Does he go to work? He doesn't go to work.	Yesterday, ago, last week V <sub>2</sub> (V <sub>ed</sub> ) ? Did -- didn't He went to work. Did he go to work? He didn't go to work.	Tomorrow, next day, in 2 days Will + V <sub>1</sub> Shall (I, we)+ V <sub>1</sub> -- won't, shan't He will go to work. Will he go to work? He won't go to work.
<b>Continuous</b> <b>(действия, про-</b> <b>исходящие в</b> <b>точно указан-</b> <b>ный момент)</b>	Now, at the moment, Look! Am Is + V <sub>ing</sub> Are He is going to work. Is he going to work? He isn't go to work.	Yesterday at this time Was (ед. ч.) Were + V <sub>ing</sub> He was going to work. Was he going to work? He wasn't going to work.	Tomorrow from 5 till 6 Will Shall be + V <sub>ing</sub> He will be going to work. Will he be going to work? He won't be going to work.
<b>Perfect</b> <b>(действия,</b> <b>предшествую-</b> <b>щие указанно-</b> <b>му моменту</b> <b>или действию)</b> <b>have +</b> <b>Participle II</b>	Already, just, ever Have + V <sub>3</sub> (V <sub>ed</sub> ) Has (He, she, it) He has gone to work. Has he gone to work? He hasn't gone to work.	By last week Had + V <sub>3</sub> (V <sub>ed</sub> ) He had gone to work. Had he gone to work? He hadn't gone to work.	By next week Will Shall have + V <sub>3</sub> (V <sub>ed</sub> ) He will have gone to work. Will he have gone to work? He won't have gone to work.

## Passive Voice

### (Страдательный залог)

Страдательный залог в английском языке употребляется тогда, когда внимание говорящего сосредоточено не на субъекте, а на объекте действия. Глагол в страдательном залоге показывает, что подлежащее подвергается действию, а не само его выполняет. Сравните:

The worker started the machine-tool. – Рабочий включил станок.

The machine-tool was started by the worker. – Станок был включен рабочим.

*Таблица 14*

### Времена в Passive Voice

Tenses	Present	Past	Future	Future in-the-Past
<b>Simple (Indefinite)</b>	Am Is + V <sub>3</sub> Are Letters <b>are written</b> every day	Was (ед. ч.) Were + V <sub>3</sub>  The letter <b>was written</b> yesterday	Will Shall be + V <sub>3</sub>  The letter <b>will be written</b> tomorrow	(He said that) the letter <b>would be written</b> the next day
<b>Continuous (Progressive)</b>	Am Is + being + V <sub>3</sub> Are The letter <b>is being written</b> now.	Was (ед. ч.) Were + being + V <sub>3</sub>  The letter <b>was being written</b> at 5 o'clock yesterday.		
<b>Perfect</b>	Have (Has)+ been + V <sub>3</sub> (V <sub>ed</sub> ) The letter <b>has already been written</b>	Had + been + V <sub>3</sub> (V <sub>ed</sub> ) The letter <b>had been written</b> by 5 o'clock yesterday	Will/Shall have + been + V <sub>3</sub> The letter <b>will have been written</b> by 5 o'clock tomorrow	(He said that) the letter <b>would have been written</b> by 5 o'clock the next day

## Чтение хронологических дат

Таблица 15

1989 г.	nineteen eighty-nine
1800 г.	eighteen hundred
in 1970	in nineteen seventy
7th November, 1917 November, 7th, 1917	the seventh of November, nineteen seventeen November the seventh, nineteen seventeen

## Наиболее употребительные предлоги

### Предлоги, обозначающие движение

Таблица 16

То - в, к, на	Let's go to the cinema. When will the ship come to the port? Have they returned to Odessa? Но: to go (come, return) home to come (return) here to go there
From – из, с, у, от	When did you come from Moscow? The wind is from the North. Take this book from Peter.
Into – в (внутри)	Put the book into the bag.
out of – из (изнутри)	Take the book out of the bag.



## Предлоги, обозначающие место

Таблица 17

At - на, у, в	The students are at the lesson. I am sitting at the table.
In - в, на	The book is in the bag. I live in Sedov Street.
On - на	The map is on the wall.

## Предлоги, обозначающие время

Таблица 18

In – в, через	in May, in 1980, in summer, in two hours, in three days <b>Запомните:</b> in the morning — утром, in the afternoon — днем, in the evening — вечером
at – в	He gets up at 7 o'clock. <b>Запомните:</b> at midnight — в полночь at weekend — в выходные дни
On – (с днями недели, с датами)	We have our days off on Sundays. My birthday is on the 1st of June.
For – в течение	I have known him for 5 years.

## Предлоги, выполняющие функции падежей

*Таблица 19*

Падеж	Предлоги	Примеры
Родительный	of	Our port of call is Riga.
Дательный	to, for	Give this book to me, please. Do it for me.
Творительный	by, with	This poem has been translated by S. Marshak. Our ship is equipped with modern navigational instruments.
Предложный	about	Tell us about your last voyage, please.

## Словообразование (Word Formation)

### Суффиксы

*Таблица 20*

Суффиксы	Словообразование
1. существительных	
-ance (-ence)	to perform – performance
-er (-or)	to work – worker
-ing	to act – acting
-t(ion)	to construct – construction
-ism	social – socialism
-ist	social – socialist
-(i) ty	active – activity
-ness	happy – happiness
-ment	to establish – establishment

2. прилагательных	
-able (-ible)	to enjoy – enjoyable
-an (-ian)	Russia – Russian
-ant (-ent)	to differ – different
-al	continent – continental
-ful	help – helpful
-ic	hero – heroic
-ish	grey – greyish
-ive	to act – active
-less	help – helpless
-ous	danger – dangerous
-y	storm – stormy
3. глаголов	
-ize (-ise)	to organize (organise)
-en	wide – widen
-fy	purify
4. наречий	
-ly	late – lately

### Приставки

Таблица 21

Приставки	Словообразование
un-	necessary – unnecessary
in- (im-, il-, ir-)	correct – incorrect (polite – impolite)
re-	to read – to reread
dis-	to like – to dislike
mis-	to understand – to misunderstand

## Список некоторых географических названий

Таблица 22

Continents	Континенты
Africa	Африка
North America	Северная Америка
South America	Южная Америка
The Antarctic	Антарктида
Asia	Азия
Europe	Европа
Australia	Австралия
Oceans	Океаны
The Arctic Ocean	Северный Ледовитый океан
The Atlantic Ocean	Атлантический океан
The Indian Ocean	Индийский океан
The Pacific Ocean	Тихий океан

## Названия некоторых стран, национальностей и языков

Таблица 23

Страна	Национальность	Язык
Belgium <i>Бельгия</i>	the Belgians <i>бельгийцы</i>	French <i>французский</i>
Bulgaria <i>Болгария</i>	the Bulgarians <i>болгары</i>	Bulgarian <i>болгарский</i>
Czech Republic <i>Чехия</i>	the Czechs <i>чехи</i>	Czech <i>чешский</i>
Denmark <i>Дания</i>	the Danes <i>датчане</i>	Danish <i>датский</i>
England <i>Англия</i>	the English <i>англичане</i>	English <i>английский</i>
Finland <i>Финляндия</i>	the Finns <i>финны</i>	Finnish <i>финский</i>
France <i>Франция</i>	the French <i>французы</i>	French <i>французский</i>

Hungary <i>Венгрия</i>	the Hungarians <i>венгры</i>	Hungarian <i>венгерский</i>
Ireland <i>Ирландия</i>	the Irish <i>ирландцы</i>	Irish <i>ирландский</i>
Italy <i>Италия</i>	the Italians <i>итальянцы</i>	Italian <i>итальянский</i>
Japan <i>Япония</i>	the Japanese <i>японцы</i>	Japanese <i>японский</i>
the Netherlands <i>Нидерланды</i>	the Dutch <i>голландцы</i>	Dutch <i>голландский</i>
Norway <i>Норвегия</i>	the Norwegians <i>норвежцы</i>	Norwegian <i>норвежский</i>
Poland <i>Польша</i>	the Poles <i>поляки</i>	Polish <i>польский</i>
Roumania <i>Румыния</i>	the Romanians <i>румыны</i>	Rumanian <i>румынский</i>
Spain <i>Испания</i>	the Spaniards <i>испанцы</i>	Spanish <i>испанский</i>
Sweden <i>Швеция</i>	the Swedes <i>шведы</i>	Swedish <i>шведский</i>
the United States of America (the USA) <i>Соединенные Штаты Америки</i>	the Americans <i>американцы</i>	English <i>английский</i>

## Appendix 3

### List of abbreviations

- A.C. = (a.c.) = alternating current = переменный ток
- a.f. = audio frequency = звуковая частота
- A.F.C. = automatic frequency control = автоматическая подстройка частоты (АПЧ)
- a.m. = ante meridiem = до полудня
- C. — Centigrade or Celsius = градус Цельсия
- cm.p.s. = centimetres per second = см/сек
- c.p. = candle power = свеча
- c.p.s. = cycles per second = герц
- db. = decibel = децибел
- D.C. (d.c.) = direct current = постоянный ток
- dia = diameter = диаметр
- dm. = decimetre = дециметр
- e.g. = exempli gratia = for example, for instance = например
- emf. = electromotive force = электродвижущая сила
- etc. = and so on, and so forth = и так далее, и тому подобное
- F. = farad = 1 фарада, =; Fahrenheit —1 градус Фаренгейта
- ft. = foot = фут
- g. = gramme = грамм
- h.f. = high frequency = высокая частота
- hi-fi = high fidelity = высокая точность (звуковоспроизведения)
- h.p. = horsepower = лошадиная сила h.p. = high pressure = высокое давление
- hr. = hour = час
- h.v. = high voltage = высокое напряжение
- i.e. = id est = that is = то есть
- i.f. = intermediate frequency = промежуточная частота
- Kc/s = kilocycles per second = килогерц в секунду
- kg = kilogramme = килограмм

Kw-hr = kilowatt-hour = киловатт-час  
j = joule = джоуль  
lb = pound = фунт  
lit = litre = литр  
lm = lumen = люмен  
l.p. = low pressure = низкое давление  
l.v. = low voltage = низкое напряжение  
m. = metre = метр  
m. = micro = микро  
mi = mile = миля  
min. = minute = минута  
No; Nos. = number(s) = номер (а)  
pc., pcs. = piece(s) = штука (-и)  
p.m. = post meridiem = по полудни  
P.d. = potential difference = разность потенциалов  
p.s.f. = pounds per square foot = фунтов на кв. фут  
p.s.i. = pounds per square inch = фунтов на кв. дюйм  
Qty = quantity = количество  
rev. = revolution = оборот  
r.f. = radio frequency = высокая частота  
r.p.m.(s) = revolutions per minute (second) = оборотов в минуту (секунду)  
sc. = scale = шкала  
sec. = second = секунда  
sq.in. = square inch = квадратный дюйм  
s.w. = specific weight = удельный вес  
t. = ton = тонна  
v. = volt = Вольт  
v.f. = video frequency = видеочастота  
viz. = namely = именно  
vs. = versus = против

v.v. = variable voltage = переменное (регулируемое) напряжение

v.v. = vice versa = наоборот

W. = watt = ватт

w.g. = wire gauge = проволочный калибр

yd. = yard = ярд



## Список неправильных глаголов

awake	awoke	awaked, awoke	будить
be	was/were	been	быть
become	became	become	становиться
begin	began	begun	начинать
blow	blew	blown	дуть
break	broke	broken	ломать
bring	brought	brought	приносить
build	built	built	строить
burn	burnt	burnt	гореть
can	could	been able	мочь, быть способным
choose	chose	chosen	выбирать
come	came	come	приходить
cut	cut	cut	резать
do	did	done	делать
dream	dreamt	dreamt	мечтать
drive	drove	driven	вести ( <i>машину</i> )
eat	ate	eaten	есть
fall	fell	fallen	падать
feed	fed	fed	кормить
feel	felt	felt	чувствовать
fight	fought	fought	бороться, сражаться
find	found	found	находить
fly	flew	flown	летать
forget	forgot	forgotten	забывать
freeze	froze	frozen	замерзать
get	got	got	получать
give	gave	given	давать
go	went	gone	идти
grow	grew	grown	расти
have	had	had	иметь
hear	heard	heard	слышать
hold	held	held	держать
hurt	hurt	hurt	причинять боль
keep	kept	kept	хранить
know	knew	known	знать
lay	laid	laid	класть
lead	led	led	вести
learn	learnt	learnt	изучать
leave	left	left	покидать
let	let	let	разрешать
lie	lay	lain	лежать
lose	lost	lost	терять

make	made	made	делать
mean	meant	meant	значить
meet	met	met	встречать
pay	paid	paid	платить
put	put	put	класть
read	read	read	читать
rise	rose	risen	подниматься
run	ran	run	бежать
say	said	said	сказать
spend	spent	spent	тратить
stand	stood	stood	стоять
strike	struck	struck	ударять
swell	swelled	swollen	раздуваться
swim	swam	swum	плавать
swing	swung	swung	качать
take	took	taken	брать
teach	taught	taught	учить
tear	tore	torn	рвать
tell	told	told	рассказывать
think	thought	thought	думать
throw	threw	thrown	бросать
understand	understood	understood	понимать
win	won	won	выигрывать
write	wrote	written	писать

## **Synonyms**

To get – to obtain, to reach, to gain

To occur – to happen, to take place

Flow – stream

To apply – to use, to utilize, to consume

Substance – matter

Device – instrument, appliance, gadget

Big – huge, enormous, great

Quick – rapid

Different -- variable

To start – to begin

## **Opposites**

To increase – to decrease

To attract – to repel

To heat – to cool

Inner – outer

Constant – variable

Similar – different

To start – to finish, to terminate, to end, to complete

## **Derivatives**

To operate – operator, operation, operative

To insulate – insulator, insulation

To produce – producer, production, product, productive, productivity

Science – scientific, scientist

To conduct – conduction, conductor, conductivity, superconductivity, semiconductor

To develop – development

Direct – direction, directly

Power – powerful

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## Оглавление

Lesson 1 (Глагол to be, времена группы Indefinite(Simple) Active )

Lesson 2 (...)

Lesson 3

Lesson 4

Lesson 5

Lesson 6

Тексты для дополнительного чтения

Appendix 1 (...)

Appendix 2

Appendix 3

Список синонимов, антонимов, производных

Список неправильных глаголов

Список литературы

Солонщикова Татьяна Владимировна

Теплых Людмила Владимировна

Английский язык

Учебное пособие

Ответственный за выпуск ...

Технический редактор ...