

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ
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ENGLISH FOR PHYSICISTS

(Part I)

**Навчальний посібник для студентів I курсу фізичних та
фізико-технічних спеціальностей університету**

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Навчальний посібник призначено для студентів I курсу фізичних та фізико-технічних спеціальностей університету. У посібнику подано граматичний матеріал та технічні тексти з вправами до них, які спрямовані на закріплення лексичних та граматичних навичок. Структура посібника дозволяє обрати оптимальні способи організації роботи для ефективного засвоєння матеріалу та аналітичної обробки інформації.

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Передмова

Навчальний посібник призначений для студентів першого курсу фізичних та фізико-технічних факультетів, які вивчали англійську мову у школі та продовжують вивчати її у вищому навчальному закладі.

Мета посібника – розвинути у студентів навички читання та розуміння оригінальної літератури англійською мовою, письма, реферування й усного мовлення в об’ємі, який передбачає навчальна програма.

Навчальний посібник розрахований на 70 годин аудиторного часу та 30–35 годин самостійної роботи.

Усі наукові тексти було запозичено з оригінальної англійської та американської літератури й незначною мірою адаптовано. Тематика цих текстів відбиралась з урахуванням рівня знань, які студенти одержали у середній школі.

Структура кожного уроку включає в себе граматичні правила (представлені у вигляді таблиць) і вправи для їх закріплення, передтекстові, текстові та післятекстові вправи. Якщо передтекстові вправи (мовні та мовленнєві) підводять студента до розуміння текстової інформації, то післятекстові вправи виконують такі функції: опанування лексико-граматичного матеріалу, застосування його в усному та письмовому мовленні та контроль навичок і вмінь читання й усного мовлення.

Під час роботи з навчальним посібником автори рекомендують проводити як індивідуальні, так і парні та групові вправи, що сприяють розширенню мовленнєвого середовища, а також розвитку усного мовлення.

PART I: General course

UNIT 1

WORDBUILDING: Suffixes -er, -or; -ist, -ian

GRAMMAR: Present Indefinite, Present Continuous

TEXT: What is Physics?

WORDBUILDING

v → n -or, -er: occupation

to drive – driver; to report – reporter

to act – actor; to visit – visitor

to mix – mixer; to react – reactor

Exercise 1. Make nouns from the following verbs and translate them into Ukrainian:

to lead, to write, to read, to visit, to speak, to sleep, to act, to direct, to conduct, to drive, to fight, to mine, to report, to sing, to skate, to swim, to teach, to travel, to sail, to invent, to found, to compose.

n + -ist, -ian = n: *biology – biologist, chemistry – chemist*

library – librarian, Ukraine – Ukrainian

Exercise 2. Make nouns with the help of suffixes - ist, -ian and translate them into Ukrainian:

special, social, art, capital, economy, botany, Italy, science, physics, technic, mathematics, statistics, politics, music, electric, Russia, Hungary, Canada, India.

PRESENT INDEFINITE

Affirmative form		Interrogative form			Negative form		
I We You They	play	Do I we you they play?			I We do not play You (don't) They		
He She It	plays	Does	he she it	play?	He Sh e It	does not (doesn't)	play

SHORT ANSWERS

Affirmative form	Negative form
------------------	---------------

Yes, I we do. you they	No, I we don't you they
Yes, he she does. it	No, he she doesn't. it

Signal words: Always, every day (week, year...), often, normally, usually, sometimes, seldom.

Present Indefinite вживається для вираження звичайної, постійної дії:

He lives in Kyiv.

Він мешкає у Києві.

He comes here at six.

Він приходить сюди о шостій.

Does she speak English well?

Вона добре розмовляє англійською?

Exercise 3. Translate the following sentences into Ukrainian.

1. Does your younger sister go to school? – No, she doesn't.
2. She dances very badly.
3. We drink coffee in the morning.
4. The Earth goes round the Sun.
5. I hate cold.
6. Do you like coffee? – No, I don't.
7. He always comes to school on time.
8. Do you often go to the cinema?
9. I do not understand you at all.
10. The computer does not work.
11. Who helps your mother? – I do.
12. Whose brother goes there?
13. What does your friend do after school? – He usually does his homework.

Exercise 4. Open the brackets choosing the correct form of the verb.

1. When _____ most shops in big cities _____ (to close)?
2. Water _____ (to freeze) at 0 degree Celsius.
3. Olya always _____ (to wear) expensive clothes.
4. My job is interesting. I always _____ (to meet) interesting people.
5. We _____ (not to like) sandwiches.
6. This pair of shoes is expensive. It _____ (to cost) a lot of money.
7. These shoes are cheap. They _____ (to cost) little money.
8. They usually _____ (to have) dinner at 4 o'clock.
9. I never _____ (to watch) television.
10. Sometimes my younger brother _____ (to read) in bed.
11. All sport competitions _____ (to take place) at our stadium.

PRESENT CONTINUOUS

Affirmative form		Interrogative form			Negative form		
I am (I'm) <u>playing</u>		Am I <u>playing</u> ?			I'm not <u>playing</u>		
We You are <u>playing</u> They		Are we you <u>playing</u> ? they			We You are not <u>playing</u> They (aren't)		
He She is <u>playing</u> It		Is	he she it	<u>playing</u> ?	He She It	is not (isn't)	<u>playing</u> ?

SHORT ANSWERS

Affirmative form			Negative form				
Yes,	I	am	No,	I	‘m not	–	
	he she it	is		he she it	‘s not	he she it	isn’t
	we you they	are		we you they	‘re not	we you they	aren’t

Signal words: now, at the moment, currently, still, right now.

***Present Continuous* ВЖИВАЕТСЯ:**

1. Для вираження дії, яка відбувається у **момент розмови**:
*What **are** you **doing** now?* *Що ти зараз робиш?*
*Don't you see I'm **writing** a letter?* *Ти не бачиш, що я пишу листа?*
*They're **playing** football.* *Вони зараз грають у футбол.*
2. Для вираження дії або стану, що триває протягом періоду теперішнього часу, але не обов'язково, щоб він відносився до моменту розмови:
– *Couldn't you lend me the book* – *Ти можеш дати мені книгу,*
you bought yesterday? *яку ти вчора купив?*
– *Sorry, I can't. I'm **reading** it myself.* – *Пробач, ні. Я її ще сам*
читаю.
– *Where **are** you **staying**?* – *Де ти зараз живеш?*
– *I'm **staying** at my friend's.* – *Я живу у друга.*
3. У розмовній мові для вираження запланованих особою дій у майбутньому (особливо з дієсловом **to come, to leave, to stay, to call** і виразами **to have guests; to give a party** і т. п.):

*When **are** you **coming** to see us?*

Коли ви відвідаєте нас?

*She **is giving** a birthday party tomorrow.*

Вона завтра святкує День народження.

*So you **are leaving** for Kyiv on Saturday?*

Отже, ви плануєте поїхати до Києва у суботу?

4. Для вираження сталої звички або нахилу; у цьому випадку дієслово супроводжується прислівниками **always, constantly, all the time** і виражає незадоволення, нетерпіння:

*You're **always coming** late!*

Ти завжди запізнюєшся!

*He **is constantly getting** into trouble! Він весь час потрапляє у неприємні ситуації!*

5. Сполучення Present Continuous дієслова **to go** з інфінітивом іншого дієслова вживається для вираження наміру здійснити дію в найближчому майбутньому:

*What **are you going to do** with your toys? Що ти збираєшся робити з іграшками?*

*I'm **going to present** them to my little brother.*

Я віддам їх молодшому братику.

!!!Деякі дієслова не вживаються у часах групи Continuous. Звичайно це дієслова, що виражають почуття та емоції. У цьому випадку вживається форма Indefinite:

to be	to see	to desire	to object	to suppose
to possess	to hear	to love	to agree	to recognize
to belong	to smell	to like	to prefer	to remember
to depend	to want	to hate	to know	to understand
to resemble	to wish	to refuse	to believe	

Exercise 5. Translate the following sentences into Ukrainian.

1. He is looking at me. 2. I am not lying to you. 3. They are not working. They are on their holidays. 4. He is reading a book. 5. Are you watching TV at the moment? 6. Please don't make so much noise. I'm studying. 7. Let's go out now. It isn't raining any more. 8. Is Silvia learning English at the moment? 9. What are they doing now? 10. Is he still reading this article? 11. I'm not playing football at the moment. I'm going to play it in an hour. 12. The teacher is explaining a new rule now. 13. You are always dreaming!!! Be realistic!

Exercise 6. Open the brackets choosing the correct form of the verb.

- A. 1. At present Lucy (to work) on her project.
2. Hello! Where you (to go)?
3. I (to cook) meat soup for dinner now.
4. My sister (not to play) the piano now.
5. We (to go) home by car from work now.
6. Margaret (not to write) a letter to her friend now.
7. The plane (to leave) Moscow for London now?
8. I (not to sleep) now.

9. The boys (to play) hockey at the stadium now.
10. What you (to do) now? 11. He (not to read) now.
12. The child (not to learn) the poem by heart now.
13. We (to rebuild) our house.
14. The waiter (to bring) the dessert.
15. She (to look) for a new house to live in.
16. At the moment you (to do) an English exercise.
17. At the moment she (to write) a letter to a client.

B. 1. Look! He (to leave) the house.

2. Quiet please! I (to write) a test.
3. She usually (to walk) to school.
4. But look! Today she (to go) by bike.
5. Every Sunday we (to go) to see my grandparents.
6. He often (to go) to the cinema.
7. We (to play) Monopoly at the moment.
8. The child seldom (to cry).
9. I (not to do) anything at the moment.
10. He (to watch) the news regularly?
11. This (to be) Caroline.
12. Caroline (to have) long blond hair.
13. She usually (to wear) glasses, but now she (to wear) contact lenses.
14. She (to play) basketball every Monday and Thursday.
15. At the moment, the two kids (to sit) on the floor.

16. Jenny usually (to cycle) to school, but today she (to take) the bus because it (to rain).

Exercise 7. Translate the following sentences into English.

1. Пари починаються о 8.00.
2. Він зараз приймає душ.
3. Я вважаю, що він говорить неправду.
4. Про що ти зараз думаєш?
5. Вони не відвідують басейн, вони відвідують секцію баскетболу.
6. Він зараз грає на піаніно чи виконує домашнє завдання?
7. Зараз ми розглядаємо ці факти.
8. Кожного тижня вони відвідують бабусю.
9. Ви володієте двома чи трьома іноземними мовами?
10. Якою мовою він зараз розмовляє?
11. Він п'є каву кожного ранку.
12. Він не любить каву, йому більше подобається чай.
13. Про що ви зараз розмовляєте?
14. Я зазвичай слухаю музику, коли їду до університету.
15. Ви зараз готуєте сніданок?
16. Як правило, ми спочатку ознайомлюємося з новим матеріалом, а потім виконуємо вправи.
17. Де він працює?

18. Майкл дивиться з вікна.
19. Він дуже непунктуальний! Він завжди запізнюється!!!
20. Вона дуже неуважна! Вона завжди розмовляє під час занять!
21. Чому ти завжди перебиваєш мене?

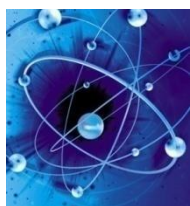
Study the following words and word combinations

attempt, n – спроба
astrophysics, n – астрофізика
black hole, n – чорна діра
branch, n – галузь
building block – будівельний блок
consider, v – вважати, розглядати
continually, adv – безупинно, постійно
cosmology, n – космологія
datum (data, pl), n – дані
deal with, v – мати справу з
development, n – розвиток
definition, n – визначення
depend on, v – залежати від
devise, v – вигадувати, винаходити
divide, v – ділити(ся)
emergence, n – вихід, поява
entire, adj – весь, повний
fascinating, adj – захоплюючий

heat, n, v – теплота, нагрівати
in many respects – у багатьох відношеннях
involve, v – спричиняти, включити
observation, n – спостереження
obtain, v – отримати
overlap, v – частково збігатися; перекривати
perceive, v – відчувати, сприймати
phenomenon (phenomena pl), n – явище
predict, v – провіщати, передрікати
research, n, v – дослідження, досліджувати
scale, n – масштаб
subatomic particle – субатомна частка
uncover, v – виявляти, розкривати причин

Read the following text

WHAT IS PHYSICS?



Physics is one of the most ancient sciences about nature. The word “physics” takes its origin from the Greek word “phewsis” that means nature. It is the science that studies various phenomena in nature: mechanical motion, heat, sound, electricity, magnetism, light etc.

Physics is the truly universal science. It is the rational development of experiments, observations and theories that explain the fundamental structure of all we perceive. From the smallest subatomic particle to the entire Universe, Physics uncovers a picture of the world that is continually changing. The development of other sciences depends in many respects on the knowledge of physical phenomena. For example chemists often use the quantum theory in their researches that was developed by physicists in the 1920's. In medicine, biology, and geology scientists use data obtained by physicists.

Physics divides itself very naturally into two great branches, **experimental physics** and **theoretical physics**. The former is **the science of making observations and devising experiments** which give us accurate knowledge of the actual behaviour of

natural phenomena. On the basis of experimental facts **theoretical physics formulates laws and predicts the behaviour of natural phenomena.**

A physicist usually specializes within one area of physics, though many disciplines overlap. Below there are a few examples of the different areas of physics, with very general definitions.

For example, **astrophysics** and **cosmology** are areas of physics that involve the attempt to understand questions about life within a massive cosmological scale. *These sciences deal with and study black holes and supernovas. It is the aim of these branches of physics to find out how stars are born, the nature of galaxies and even the beginnings of the universe.*

Atomic and nuclear physics have many other subdisciplines, but all in one way or another *deal with understanding of the building block of the universe – the atom.* Atomic and nuclear physics also have a direct influence on the emergence of **quantum physics**. This is the branch of physics that is considered the most exciting and fascinating as *it attempts to discover how the whole universe works by unlocking the most fundamental levels of matter.* **Geophysics** is the branch of physics that *studies different forces like electromagnetism and seismic and radioactive phenomena.*

The field of physics lies behind all of our technology. No brief summary could do justice to the topic. As you study physics do not become too distracted by the pretty stones you find. Also do not become discouraged if you trip over a few. Remember you want to see the entire house.

Your door is open. Welcome.

Exercise 8. Translate the following word combinations and sentences into Ukrainian.

We are considering this fact now; building blocks; areas of physics that involve the attempt to understand these questions; theories that explain the fundamental structure of all we perceive; physical phenomena; all the local forecasters are predicting rain for today; in a large scale; this research is very important; physics uncovers a picture of the world; it has a direct influence on the emergence; this is one of the most fascinating branches of physics; I heat the vegetables in the microwave; in many respects they are right; the equator divides the Earth into two hemispheres; they are devising a new method for converting sunlight into electricity; general definitions; this science deals with; data obtained by physicists; the world that is continually changing.

Exercise 9. Match the words (1–10) with their definitions (a–l). There are two definitions that you do not need to use.

- | | |
|-------------------|--|
| 1. building block | a. to plan to obtain, to invent |
| 2. devise | b. the act or an instance of appearance |
| 3. divide | c. to become warm or hot |
| 4. emergence | d. the relation between the real size of something and its size on a map, model or diagram |
| 5. heat | e. all space, including all the stars and planets |
| 6. origin | f. the collecting of information about a particular subject |
| 7. phenomenon | g. to separate into two or more parts, areas, or groups |
| 8. predict | h. the smallest particles composing nucleons and atoms |

9. research
10. scale

- i. the point at which something begins
- something essential on which a larger entity is based
- j. an observable fact or event
- k. to make or fabricate; to invent; to originate
- l. to foretell on the basis of scientific reason

Exercise 10. Give the Ukrainian equivalents to the expressions.

To take its origin from; to study various phenomena in nature; truly universal science; to explain the fundamental structure of all we perceive; the entire Universe; to depend in many respects on the knowledge; to use the quantum theory in researches; within a massive cosmological scale; to have many other subdisciplines; to deal with understanding; the most exciting and fascinating; to lie behind all of our technology.

Exercise 11. Tell if the following statements are true or false. Prove your point of view.

1. Physics studies only natural phenomena that don't deal with everyday life.
2. Physical laws and theories explain everything we see.
3. Physics doesn't play any role in the development of other sciences.
4. The world is constantly changing and Physics is ready to explain these changes.
5. Experimental physicists perform their experiments on the base of theoretical physical predictions.
6. Every physicist has deep knowledge in all branches of physics.
7. The main purpose of astrophysics is to study the building block of the universe.
8. Nuclear physics deals with the study of the atom.
9. Quantum physics is the forerunner of nuclear physics.
10. Geophysics concentrates on studying of the electromagnetism and seismic and radioactive phenomena.

Exercise 12. Change the following statements to questions and translate them.

1. Physics deals with relation between matter and energy.
2. Both chemistry and physics deal with matter.
3. We are learning Newton's laws.
4. The scientists are planning experiments with their students.
5. The chemical properties of molecules depend on their composition.
6. They are measuring distance now.
7. Tom works in this laboratory every Friday.
8. Tom is working in the laboratory.
9. Physicists use many different units of measurement in their researches.
10. I'm reading an article about black holes now.
11. I do my homework after my double-periods in University.
12. I'm solving a difficult problem now.
13. Chemical reactions indicate that the molecules are composed of smaller units, or atoms.

14. Astronomers use three kinds of time.
15. A physicist usually specializes within one area of physics.
16. Astrophysics and cosmology deal with the study of black holes and supernovas.
17. Physics uncovers a picture of the world that is continually changing.
18. On the basis of experimental facts theoretical physics formulates laws and predicts the behaviour of natural phenomena.
19. We are talking about our research.

Exercise 13. Find the words with the same meaning.

entire	fractional, total, indirect, common
divide	split, multiply, devise, change
perceive	split, share, understand, see
consider	regard, think, divide, misuse
discipline	subject, order, behaviour, training
matter	thing, phenomenon, substance, data
emergence	glad, multiple, appearance, individual
discouraged	optimistic, pessimistic, upset, calm

Exercise 14. Complete the following sentences with the words according to the text.

Physics is one of the most _____ sciences about nature. It is the science that studies _____ phenomena in nature: mechanical _____, heat, _____, electricity, magnetism, light etc.

Physics is the _____ universal science. It is the rational development of experiments, _____ and _____ that explain the fundamental structure of all we _____. The development of other sciences depends _____ on the knowledge of physical _____. For example _____ often use the quantum theory in their _____ that was developed by physicists in the 1920's. In medicine, biology, and geology scientists use _____ obtained by physicists.

Physics _____ itself very naturally into two great _____, experimental physics and theoretical physics. The former is the science of making observations and devising experiments which give us _____ knowledge of the actual behaviour of natural phenomena. On the basis of experimental facts theoretical physics _____ laws and predicts the _____ of natural phenomena.

Astrophysics and _____ are areas of physics that involve the _____ to understand questions about life within a massive cosmological _____. This science deals and studies _____ and _____. Atomic and nuclear physics has many other _____, but all in one way or another _____ understanding of the building block of the universe – _____.

Exercise 15. Translate the following sentences into English.

1. У своїх вимірах учені використовують метричну систему.
2. Атоми є будівельними блоками будь-якої речовини.
3. Ми зараз розглядаємо ваше прохання.
4. Чорні діри – астрофізичні об'єкти, які створюють дуже велику силу тяжіння.
5. Фізика розкриває походження багатьох природних явищ.

6. Вивчення яких явищ включає у себе ця галузь фізики?
7. Вони зараз працюють у лабораторії або слухають лекцію професора?
8. Це дуже захоплююче явище.
9. Теорії фізики пояснюють все, що ми відчуваємо.
10. Ти знаєш, як розв'язати цю задачу?
11. Протягом тисячоліть людство знає чотири форми речовини: тверду, рідку, газоподібну та плазму.
12. Сонце, зірки та блискавка являють собою також плазму.
13. Фізика поділяється на декілька галузей: ядерну фізику, фізику плазми, астрофізику, радіофізику та інші.
14. Не чіпай його! Він обговорює важливе питання зі своїм керівником.

Exercise 16. Retell the text «WHAT IS PHYSICS?»

UNIT 2

WORDBUILDING: Suffixes -able, -ible; -ful, -less

GRAMMAR: Past Indefinite, Past Continuous

TEXT : Galileo's Experiments

WORDBUILDING

v → adj -able *to understand – understandable*
 -ible *to compress – compressible*

Exercise 1. Make adjectives from the following verbs and translate them into Ukrainian:

to change, to convert, to prevent, to break, to compare, to desire, to profit, to read, to comfort, to respect, to expect, to rely, to move, to eat.

n → adj -ful *care – careful, meaning – meaningful*
 -less *brain – brainless, weight – weightless*

Exercise 2. Make adjectives with the help of suffixes -ful, -less and translate them into Ukrainian:

beauty, thank, hope, doubt, aim, use, shape, fruit, power, thought, harm, colour, event, help, taste, odour, water.

PAST INDEFINITE

Affirmative form		Interrogative form		Negative form	
I	played	I	Did it play?	I	did not play (didn't)
He		he		He	
She		she		She	
It		it		It	
We		we		We	
You		you		You	
They		they		They	

!!! Деякі дієслова мають неправильну форму дієслова у стверджувальних реченнях:

To read – read

To write – wrote

To go – went

To see – saw

Список неправильних дієслів подається у додатку "Irregular Verbs".

SHORT ANSWERS

Affirmative form			Negative form		
Yes,	I	did	I	No,	did not (didn't)
	he		he		
	she		she		
	it		it		
	we		we		
	you		you		
	they		they		

Зверніть увагу!!!

1. Якщо слово закінчується на приголосну та літеру “y”, то перед закінченням –ed літера “y” змінюється на “i” (to try - I tried).
2. Літера “y” не змінюється, якщо слово закінчується на голосну + “y” (to play - I played).
3. Якщо слово закінчується на голосну + приголосну, приголосний подвоюється (to stop – I stopped).

Signal words: *yesterday, a week (month, year) ago, last week (month, year), in 2012.*

Past Simple *вживається:*

1. Для вираження дії, що регулярно відбувалася у минулому:

*Last winter I **spent** a lot of time in the library.*

Минулої зими я проводив багато часу в бібліотеці.

*While she **was** in London, she **wrote** us letters every week.*

Коли вона була в Лондоні, вона писала нам листи щотижня.

2. Для вираження факту в минулому:

*What **did** you **say**?*

Що ви сказали?

*The negotiations **ended** last week.*

Переговори закінчилися минулого тижня.

3. Для вираження послідовності минулих дій:

*He **came** to the table, **took** a pen and **started** writing.*

Він підійшов до столу, взяв ручку і почав писати.

Exercise 3. Translate the following sentences into Ukrainian.

1. I **saw** a movie yesterday. 2. I **didn't see** a film yesterday. 3. Last year, I **traveled** to France. 4. Last year, I **didn't travel** to England. 5. **Did** you **have** dinner last night? 6. She **washed** her car. 7. He **didn't wash** his car. 8. I **finished** work, **walked** to the beach, and **found** a nice place to swim. 9. He **arrived** from the airport at 10:00, **checked** into the hotel at 11:00, and **met** the others at 12:00. 10. **Did** you **add** flour, **pour** in the milk, and then **add** the eggs? 11. I **lived** in Brazil for two years. 12. Shauna **studied** Japanese for five years. 13. They **sat** at the beach all day. 14. They **did not stay** at the party the entire time. 15. I **studied** French when I was a child. 16. She **was** shy as a child, but now

she is very outgoing. 17. He **didn't like** tomatoes before. 18. **When I paid her one dollar**, she answered my question.

Exercise 4. Open the brackets choosing the correct form of the verb.

- A.** 1. Tom _____ (to repair) the car.
 2. She _____ (to go) to the door.
 3. You _____ (to see) that car?
 4. We _____ (to sing) at the concert.
 5. John _____ (to drive) to London on Monday
 6. We _____ (not to be) late.
 7. First I _____ (to get up), then I _____ (to have) breakfast.
 8. We _____ (not to play) football yesterday.
 9. We _____ (to see) Rose in town a few days ago.
 10. It was cold, so I _____ (to shut) the window.
 11. They _____ (not to be) able to come because they _____ (to be) so busy.
 12. We all _____ (to leave) the party at 11 o'clock.
 13. This house _____ (to cost) £ 35,000 in 2005.
 14. I _____ (not to enjoy) the film.

B. One day the hare and the tortoise _____ (to decide) to have a race. The hare _____ (to know) that he _____ (can) run faster than the tortoise. But the tortoise _____ (to be) more intelligent than the hare. 'Yes, I'll race you,' _____ (to say) the clever tortoise. The tortoise _____ (to have) a clever plan. He _____ (to find) his brothers and sisters and he _____ (to tell) them to wait in different places along the path of the race. So they all _____ (to hide) behind the trees along the path. The race _____ (to begin)! The tortoise _____ (to run) as fast as possible. But the hare _____ (to be) faster, of course. 'This will be a very easy race', _____ (to think) the hare. So the hare _____ (to decide) to have a rest, and he quickly _____ (to fall) asleep at the side of the road. Suddenly, the hare _____ (to wake up) and he _____ (to see) a tortoise ahead of him! 'How he _____ (to get) ahead of me?' the hare _____ (to ask) himself. In fact, it _____ (to be) not his friend the tortoise: it _____ (to be) the tortoise's sister. But to a hare, all tortoises look the same. The hare _____ (to run) past the tortoise easily. Soon, he _____ (can't) see the tortoise, so he _____ (to sit) down and he _____ (to have) another rest. Then the hare _____ (to get up) and continued the race. But - as the hare happily _____ (to come) around the last corner before the finish line - his friend the tortoise _____ (to cross) the line and _____ (to win) the race!

PAST CONTINUOUS

Affirmative form	Interrogative form	Negative form
I He She was <u>playing</u> It	I he Was she <u>playing</u> ? It	I He was <u>not playing</u> She (wasn't) It
We	we	We

You were playing They	Were you playing? they	You were not playing They (weren't)
--	---	--

Signal words: *while, at ... o'clock, still*

Past Continuous виражає тривалу дію, яка відбувалася протягом якогось моменту або періоду в минулому. На час дії звичайно вказують обставинні слова або підрядні речення.

It was snowing all day yesterday.

Учора весь день ішов сніг.

What were you doing,

Що ти робив,

when I rang you up yesterday?

коли я вчора подзвонив тобі?

Exercise 5. Translate the following sentences into Ukrainian.

1. They were not playing football. 2. You **were studying** when she called. 3. What **were** you **doing** when you broke your leg? 4. While I **was writing** the email, the computer suddenly went off. 5. What **were** you **doing** when the earthquake started? 6. Sammy **was waiting** for us when we got off the plane. 7. What **were** you **reading** when I entered? 8. Last night at 6 PM, I **was having** dinner. 9. I **was studying** while he **was making** dinner. 10. What **were** you **doing** while you **were waiting**? 11. Thomas **wasn't working**, and I **wasn't working** either.

Exercise 6. Open the brackets choosing the correct form of the verb.

1. I _____ (to listen) to my iPod, so I _____ (not to hear) the fire alarm. 2. While John _____ (to sleep) last night, someone _____ (to steal) his car. 3. I _____ (to watch) TV when she _____ (to call). 4. When the phone _____ (to ring), she _____ (to write) a letter. 5. You _____ (not to listen) to me when I _____ (to tell) you to turn the oven off. 6. Yesterday at this time, I _____ (to sit) at my desk at work. 7. While Ellen _____ (to read), Tim _____ (to watch) television. 8. You _____ (to listen) while he _____ (to talk)? 9. When I _____ (to walk) into the office, several people _____ (to type), some _____ (to talk) on the phones 10. They _____ (to begin) at 10 o'clock and _____ (to finish) at 11.30. So, at 10.30 they _____ (to play) tennis.

Exercise 7. Translate the following sentences into English.

- A) 1. Що ти робив учора о 5? – Готувався до заняття.
2. Як ви себе почували вчора? – Дякую, добре.
3. Хто до вас учора приїжджав? – Родичі.
4. Куди ти йшов, коли ми зустрілися? – У кіно.
5. Я дивився телевізор, коли вони подзвонили.
6. Я приймала душ, коли у двері подзвонили.
7. Поки мама готувала вечерю, ми прибирали у квартирі.

8. Телевізор працював, але ніхто його не дивився.
9. Учора біля університету я бачив Сашка. Але він мене не помітив. Він розмовляв з друзями.
10. Вона вже чекала на мене, коли я прийшла.
11. Коли я був малим, я хотів бути водієм автобуса.
12. Коли діти повернулися з прогулянки, ми пішли вечеряти.
- В) 1. Я бачив тебе учора в парку. Ти гуляв з дитиною.
2. Ми їдемо у відпустку через тиждень.
3. Ти мене шукаєш? – Так, мені потрібно поговорити з тобою.
3. Зараз вона малює у сусідній кімнаті.
4. Учора вона багато малювала.
5. Учора вона намалювала чудову картину.
6. Звичайно ми починаємо працювати о 9.00, але сьогодні директор попросив нас прийти о 8.00.
7. Чому він не склав іспит учора? – Він себе погано почував.
8. Послухай! Якою мовою вони зараз розмовляють?
9. Мій батько розмовляє французькою, англійською та китайською.
10. Я зараз снідаю. Почекай, будь ласка.
11. Нік сидів за комп'ютером та писав листа своїм друзям. Його мама у цей час розмовляла по телефону.
12. Він сказав, що о 12.00 він ще складав іспит.
13. Коли ми прийшли до них, вони щось жваво обговорювали.
14. Він їхав дуже швидко.

Study the following words and word combinations

apparent, adj – очевидний,
безсумнівний
attract, v – притягувати,
залучати
challenge, v – кидати виклик,
ставити під сумнів
conclusion, n – висновок,
підсумок
contradict, v – протирічити,
суперечити
cover, v – пробігати, покривати
crumple, v – м'ятися, зім'яти

device, n – прилад, устрій
drop, v – падати, опадати
evacuated, adj – відкачаний
friction, n – тертя
inclined adj – схильний
inconsistency, n –
непослідовність,
суперечність
height, n – висота
leaning, adj – під нахилом
measure, v – вимірювати
plane, n – площа

reasoning, n – міркування
relation, n – зв'язок
roll down, v – скачуватися
simultaneously, adv –
одночасно
spigot, n – втулка, кран, пробка
strike, v – бити

successive, adj – наступний,
послідовний
time, v – засікати час
turn off, v – виключити
turn on, v – включити
velocity, n – швидкість

Read the following text

GALILEO'S EXPERIMENTS

In the absence of *friction*, all bodies, large and small, fall with the same *acceleration*. This law of falling bodies is a *physical paradox* for it contradicts the conclusion a person may come from *general observations*. That's why centuries ago the great philosopher Aristotle taught that heavy bodies fall proportionately faster than lighter bodies.

The question of falling bodies *challenged* also other scientists. In the XVI-th century it was Galileo who was thinking over the question of falling bodies. He found *apparent inconsistencies* in Aristotle's thinking. At tests, he dropped various kinds of objects from different levels of *the leaning tower of Pisa* and timed their fall and measured their *velocities*.



Once Galileo *attracted* a lot of people to the leaning tower. From the top he dropped two stones, one large and one small. These two bodies fell side by side and struck the ground together. That was the beginning of a *new era in science*. The importance of Galileo's many experiments is not in the fact that they demonstrated the mistakes of Aristotle's reasoning, but that they gave the world a *new scientific method*, the method of experimentation.

It is easy to repeat Galileo's experiment. Take a coin and a small piece of paper and drop them *simultaneously* from the same *height* to the floor. The coin will fall down fast, while the piece of paper will be in the air for a much longer period of time. If you *crumple* the piece of paper and roll it into a little ball, it will fall almost as fast as the coin. But if you have a long glass *cylinder evacuated of air*, you will see that a coin and uncrumpled piece of paper will fall inside the cylinder at exactly the same speed.

The next step that Galileo took in the study of falling bodies was to find a *mathematical relation* between the time which the fall takes and the distance which it covers. *Since* the free fall is too fast and the human eye cannot observe it in detail, and since Galileo didn't have such modern devices as we have now he let the balls of different material roll down an *inclined plane* instead of falling straight down. To measure time he used a *water clock*, a device with *spigot* that could be turned on and off. Galileo worked *the successive position* of the objects which were rolling down an inclined plane *at equal intervals of time*.

Exercise 8. Give the Ukrainian equivalents to the expressions.

In the absence of friction, falling bodies, it contradicts, come from general observations, challenged other scientists, apparent inconsistencies, leaning tower, to measure their velocities, to attract a lot of people, Aristotle's reasoning, drop them simultaneously, to crumple the piece of paper, modern devices, inclined plane, equal intervals of time.

An apparent advantage; the gravitational pull of the earth attracts objects to it; a book that challenges established beliefs; come to a conclusion; the facts contradicted his theory; they covered 60 miles in two days; she crumpled the paper in her hand; to drop stones; evacuated air; an inclined plane; many inconsistencies in the theory; the inch measures length; he measures his words with caution; deduction is the reasoning from the general to the particular; internal relation; internal relation; roll down a mountain; a spigot is a regulator for controlling the inch measures length; lightning struck the tree; on three successive days; turn that light off!; turn on the music!

Exercise 9. Find in the text antonyms for the following words.

Presence, to support, particular, light, ending, slow, answer, ancient, same, reject.

Exercise 10. Make the following sentences interrogative.

1. In the absence of friction, all bodies fall with the same acceleration.
2. Aristotle taught that heavy bodies fall proportionately faster than lighter bodies.
3. It was Galileo who was thinking over the question of falling bodies.
4. Galileo found apparent inconsistencies in Aristotle's thinking.
5. Galileo's many experiments gave the world a new scientific method, the method of experimentation.
6. To measure time he used a water clock.
7. Galileo worked the successive position of the objects which were rolling down an inclined plane at equal intervals of time.

Exercise 11. For the statements choose "True" if the statement is true according to the text, "False" if the statement is false

1. Friction doesn't influence on the acceleration of falling bodies.
2. Galileo supported Aristotle's reasoning.
3. Galileo never showed the result of his experiments to anybody.
4. The scientist performed his experiments only at home.
5. Galileo implemented the method of experimentation.
6. Everybody can perform the experiment described in the text.
7. The coin falls much faster than a crumpled piece of paper.
8. In the cylinder evacuated of air the coin and the paper will fall simultaneously.
9. Galileo discovered the mathematical relation between the mass of a body and the time which it takes to fall.
10. Galileo used some devices in his experiments.

Exercise 12. Complete the following sentences according to the text.

1. This law of falling bodies is a _____ because it _____. 2. That's why centuries ago the great philosopher Aristotle taught that heavy bodies fall _____. 3. The question of falling bodies _____. 4. In the XVI-th century it was Galileo who _____. 5. Galileo found _____. 6. Galileo dropped _____. 7. The importance of Galileo's many experiments is _____. 8. The coin will fall down fast, while _____. 9. The next step that Galileo took in the study of falling bodies was _____. 10. To measure time he used _____.

Exercise 13. Match the words (1–12) with their definitions (a–n). There are two definitions that you do not need to use.

- | | |
|-----------------|---|
| 1. apparent | a. the process of watching something or someone carefully for a period of time |
| 2. absence | b. machine or tool that does a special job |
| 3. acceleration | c. knowledge about the world, especially based on examining, testing, and proving facts |
| 4. observation | d. an object that is separate from other objects |
| 5. body | e. the rate at which the speed of an object increases |
| 6. science | f. an opinion or statement that is incorrect |
| 7. mistake | g. considered independently |
| 8. experiment | h. a shape, object, or container with circular ends and long straight sides |
| 9. air | i. the lack of something or the fact that it does not exist |
| 10. cylinder | j. a scientific test done to find out how something reacts under certain conditions |
| 11. material | k. to make or become greater in size |
| 12. device | l. the mixture of gases around the Earth, that we breathe |
| | m. easy to notice, obvious |
| | n. a solid substance such as wood, plastic, or metal |

Exercise 14. Translate the following sentences into English.

1. Магніт притягує залізо.
2. За допомогою похилої площини можна збільшити силу.
3. Безсумнівною перевагою цього приладу є простота у використанні.
4. Як нагріти метал, якщо він у скляному балоні з відкачаним повітрям?
5. У цій теорії багато суперечностей.
6. Учора у нас була лабораторна робота на тему «Дослідження послідовного та паралельного сполучення провідників».
7. Чи завжди блискавка б'є у найвищі точки (дерева, стовпи)?
8. Послідовний перехід від легкого до складного сприяє кращому розумінню матеріалу.
9. Увімкни телевізор, будь ласка.

10. Індукція – це міркування від конкретного до загального.
11. Для дослідження складних об'єктів необхідно одночасно вимірювати багато фізичних величин.
12. Створення телескопа й астрономічні відкриття принесли Галілею широку популярність.
13. Галілей також досліджував природу світла, кольору, займався питаннями фізичної оптики.

UNIT 3

WORDBUILDING: Conversion; the change of stress in some nouns and verbs

GRAMMAR: Future Indefinite, Future Continuous

TEXT: Is the Earth getting hotter?

WORDBUILDING

n → v: *a play – to play; a doctor – to doctor*
 water – to water; a tie – to tie
 trouble – to trouble; work – to work
 a master – to master; a house – to house

Exercise 1. Make verbs from the following nouns. Translate them into Ukrainian:

Turn, smile, smoke, snow, start, stay, step, stop, study, talk, visit, rest, air, paper, cover, handle, cause, watch, act, address, answer, brush, clean, cross, crowd, wave, wish, work, dance, doubt, dress, end, fight, help, hope, joke, laugh, lift, light, love, mind, paper, pencil, place, plan, play, post, reply, report, return, sail, show.

Exercise 2. Read the following words paying attention to the stress. Translate them into Ukrainian:

An accent [ˈæks(ə)nt] – to accent [əkˈsent], a contract [ˈkɒntrækt] – to contract [kənˈtrækt], a content [ˈkɒntent] – to content [kənˈtent], a contest [ˈkɒntest] – to contest [kənˈtest], a convict [ˈkɒnvɪkt] – to convict [kənˈvɪkt], a perfect [ˈpɜːfɪkt] – to perfect [pəˈfekt], a record [ˈrekɔːd] – to record [rɪˈkɔːd], export [ˈeksɜːt] – to export [ɪkˈspɜːt], a present [ˈprez(ə)nt] – to present [priˈzent], a contact [ˈkɒntækt] – to contact [ˈkɒntækt, kənˈtækt], contrast [ˈkɒntrɑːst] – to contrast [kənˈtrɑːst], an increase [ˈɪŋkriːs] – to increase [ɪnˈkriːs], a decrease [ˈdiːkriːs] – to decrease [diːˈkriːs], an object [ˈɒbdʒ|ekt, -ˈɒbdʒɪkt] – to object [əbˈdʒekt], a subject [ˈsʌbdʒɪkt] – to subject [səbˈdʒekt], a process [ˈprəʊsəs] – to process [prəˈses], affect [ˈæfekt] – to affect [əˈfekt].

FUTURE INDEFINITE

Affirmative form		Interrogative form			Negative form	
I, we he, she, it You, they	will play	Will	I, we He, she, it You, they	play	I, we He, she, it You, they	won't play
SHORT ANSWER						
Yes, I, we					No, I, we	

he, she it, you will they		he, she won't. it, you they
--------------------------------------	--	--

The Future Indefinite Tense вживається для позначення:

1. Дії у майбутньому:

*The Mayor **will open** a new stadium tomorrow.* Завтра голова відкриє новий стадіон.

2. Наміру у майбутньому, що було прийнято спонтанно у момент говоріння

Are you going shopping? I'll go with you! *Ти йдеш за покупками? Я піду з тобою!*

ЗАПАМ'ЯТАЙТЕ! У реченнях з реальною умовою (в складнопідрядних реченнях) після сполучників **if, when, until, before, as soon as**, etc. вживається, Present Indefinite замість Future Indefinite; в головному реченні зберігається Future Indefinite.

*We will telephone you **as soon as** we come home.*

Exercise 3. Translate the following sentences into Ukrainian.

1. Wait, I will help you. 2. He will probably come back tomorrow. 3. He will certainly come to see us. 4. I'm afraid the rain won't stop soon. 5. I think I'll pass the exam. 6. Will you be my friend? 7. I will meet you and tell you the whole story. 8. I will visit you a few times while I'm in London. 9. He won't return tomorrow. 10. No, I won't talk to him this evening. 11. Will you see her sister this weekend?

Exercise 4. Reconstruct the sentences.

1. I / answer / will / the question/ not
2. she / read / the / will / book?
3. will / they / drink / beer/ not
4. not / we / send/ will / the / postcard?
5. will / Vanessa / catch / the / not / ball.
6. James / will / open / the door/ not
7. they / not/ will / eat / fish
8. the / will / not /computer / crash?
9. she / give / him / the / not / will / apple.

Exercise 5. Make the following sentences negative and interrogative.

1. He will return tomorrow.
2. He'll finish the work at 7.
3. My sisters will give me books to read.
4. They will often come here.
5. We will answer the letter at seven o'clock.
6. He will ring you up and tell you everything.

7. He will be tired after his work.

FUTURE CONTINUOUS

Affirmative form			Interrogative form			Negative form	
I, we He, she, it You they	will be	playing	Will	I, we He, she, it You they	be playing	I, we He, she, it You they	won't be playing
SHORT ANSWER							
Yes, I, we he, she will it, you they						No, I, we he, she won't it, you they	

Future Continuous означає тривалу дію, яка відбувається в якийсь момент або період у майбутньому. На час дії можуть вказувати обставинні слова або контекст. За винятком деяких готових виразів з дієсловами **to expect, to stay, to see** та ін. (див. приклади нижче) цей час вживається досить рідко як у розмовній мові, так і в писемній.

<i>I'll be expecting you at 4 o'clock sharp.</i>	<i>Я буду чекати на тебе рівно о 4.</i>
<i>When my train arrives, my parents will be waiting for me.</i>	<i>Коли мій потяг приїде, батьки вже будуть чекати на мене.</i>
<i>It's no use trying to see him at 10. He will be giving a lesson at that time.</i>	<i>Немає сенсу намагатися побачити його о 10. У цей час він буде проводити заняття.</i>

!!! ЗВЕРНІТЬ УВАГУ НА ТЕ, ЩО:

- У розмовній мові для вираження запланованих особою дій у майбутньому (особливо з дієсловом **to come, to leave, to stay, to call** і виразами **to have guests; to give a party** і т. п.) вживається **Present Continuous**:
*When **are you coming** to see us? Коли ви відвідаєте нас?*
- Словосполучення *to be going to do smth* українською перекладається як «збиратися щось зробити»
*Are you **going to** read this book? Ти збираєшся читати цю книгу?*
*I'm **not going** to think about it! Я не буду про це думати!*

3. Для постійного розкладу (транспорту, занять тощо) вживають **Present Indefinite**:

*The train **arrives** at 7.00 tomorrow*

Потяг прибуває завтра о 7.00.

Exercise 6. Translate the following sentences into Ukrainian.

1. This time next week I'll be on holiday. I'll be lying on the beach or swimming in the sea.
2. Don't phone between 4 and 5. We'll be studying.
3. I'll be waiting for you at 8 o'clock tomorrow.
4. At 5 o'clock tomorrow, he will be in his office. He will be working.
5. When I come, they will be playing.
6. While he's reading the book, I'll be watching TV.
7. I'll be reading the whole day tomorrow.
8. He'll be preparing for his examination in July.
9. I will be watching TV when she arrives tonight.
10. He will be studying tonight, so he will not see Jennifer when she arrives.

Exercise 7. Open the brackets choosing the correct form of the verb.

If possible, use Future.

- A.**
1. At midnight we _____ (sleep).
 2. This time next week we _____ (sit) at the beach.
 3. At nine I _____ (watch) the news.
 4. Tonight we _____ (cram up) for our English test.
 5. They _____ (dance) all night.
 6. He _____ (not / play) all afternoon.
 7. I _____ (not / work) all day.
 8. You _____ (eat / you) at six?
 9. _____ (drive / she) to London?
 10. _____ (fight / they) again?
- B.**
1. I love London. I _____ (probably to go) there next year.
 2. Our train _____ (to leave) at 5:50.
 3. This is my last day here. I _____ (to go) back to the USA tomorrow.
 4. What _____ (to wear) you at the party tonight?
 5. Hurry up! The lesson _____ (to begin) in 10 minutes.
 6. Look at these big black clouds! It _____ (to rain).
 7. If he _____ (to study) hard, he _____ (to pass) the exams.
 8. If we _____ (to catch) the 10.15 train, we _____ (to arrive) on time.
 9. If you _____ (not to get) the ticket, what you _____ (to do)?
 10. If I _____ (to see) him, I _____ (to tell) him.
 11. When I _____ (to finish) doing my homework, I _____ (to go out) with my friends.
 12. When the party _____ (to be) over, we _____ (to clean) the house.
 13. Before I _____ (to go) to England, I _____ (to book) a room.
 14. After her sister _____ (to cook) dinner, they _____ (to invite) their friends.

15. My father _____ (to buy) a new car after he _____ (to save) enough money. 16. What you _____ (to do) after you _____ (to finish) this course?
17. Don't worry. I _____ (to phone) you as soon as I _____ (to arrive) at Paris.
18. They _____ (not to start) the match until the rain _____ (to stop).
19. I _____ (to have) to finish the reports before the manager _____ (to call).
20. She _____ (not to eat) anything until the doctor _____ (to tell) her.
21. You can go out. I _____ (to wait) until she _____ (to call).

Exercise 8. Make the following sentences negative and interrogative.

1. I'm going to work all day.
2. At ten we'll be having a meeting.
3. He'll be preparing his report all the evening.
4. They will be driving to Kyiv.
5. I'm going to do exercises.

Exercise 9. Translate the following sentences into English.

1. Через 10 хвилин наш літак перетне екватор.
2. Завтра зранку я буду працювати.
3. Добре, я прийду о 8.
4. У цей час вони завтра презентуватимуть свою доповідь на конференції.
5. Що ти збираєшся робити сьогодні увечері?
6. Я не збираюсь вам нічого розповідати! Це секрет!
7. Що ти плануєш робити у п'ятницю?
8. Ти зможеш допомогти мені?
9. Слухай! Я тобі усе розповім.
10. Автобус відправляється о 8.30.
11. Завтра увечері я буду лежати на дивані і дивитися телевізор.
12. У нашому університеті пари починаються о 8.00, але на деяких факультетах о 8.30.
13. Ми плануємо поїхати у Київ. Ти з нами?
14. Ти про нього більше не почувеш. Він переїхав до іншої країни.
15. На вихідних ми їдемо у ліс. Поїхали з нами.

Study the following words and word combinations

absorb, v – поглинати
add, v – додавати, підсумувати
affect, v – впливати, уражати
alter, v – змінювати, переробляти
amount, n – кількість
cause, v – зумовити, спричиняти
caution, n – обачність, попередження
certain, adj – визначений, деякий
consequence, n – наслідок, слідство

contingency, n – випадок
convince, v – переконувати, запевняти
decline, v – знижуватися, відмовляти
disrupt, v – розірвати, руйнувати
elevate, v – підвищувати
expect, v – очікувати
flood, v – затоплювати
fossil fuel, n – корисні копалини

greenhouse effect, n – парниковий ефект
huge, adj – могутній, величезний
improve, v – поліпшувати
interpret, v – розуміти, пояснювати
latitude, n – широта
lengthen, v – продовжуватись, тягнутися
melt, v – танути, розплавляти
penetrate, v – пронизувати, проникати

predict, v – передбачити, провіщати
release, n, v – випуск, випускати
research, n – дослідження
rise, v – вставати, збільшитися
shift, n – зміна
sound, v – звучати
speculate, v – роздумувати, міркувати
turn into, v – перетворитися
warm, v – нагрівати
apocalypse – кінець світу

Read the following text

IS THE EARTH GETTING HOTTER?



It sounded like nature's own apocalypse. "The earth's temperature would rise, melting the icecaps, raising the seas, flooding the land. Arisona would turn into a "rain forest" and the agricultural Midwest would become a desert". At least, that was how weathermen interpreted researches of some environmentalists on the "greenhouse effect" that would begin altering the earth's climate since the 1990s. The environmentalists predicted "catastrophic consequences" if contingency plans weren't made with a "sense of urgency".

Fortunately, the news improved later when the National Academy of Sciences said that although the greenhouse effect was very real, "cautions not panic" was in order.

In fact, the science of the phenomenon is more interesting than frightening. The greenhouse effect results when CO_2 and certain other gases in the atmosphere allow the sun's ultraviolet rays to penetrate and warm the earth but then absorb the infrared energy the earth radiates back into space – much as glass in a greenhouse does – forming a kind of "thermal blanket" around the planet. When huge amount of fossil fuels burns, it releases CO_2 into the atmosphere. And continued use of coal and other fossil fuels is expected to double the concentration of CO_2 by the year 2050, elevating the earth's temperature. The greenhouse effect will mean much more than hotter summers and milder winters. It may alter rainfall, affect crop yields and eventually – as glaciers begin to melt – raise the level of the sea.

But the environmentalists predict that the temperature change will be greater in the Polar Regions than near the equator. In general, they speculate that snowfall will begin later, the growing season will lengthen and higher latitudes will get less rain. Scientists say that the sea level will probably rise at least two feet before the year 2100, which could flood some of major ports of the world, disrupt transportation network, alter ecosystems and cause major shifts in land development patterns.

However, not all experts are convinced that the heat is coming. Some think that the use of primary energy sources such as coal could decline 60 per cent by 2050 and, perhaps, the opposite scenario is true. If the rate of fossil-fuel use is going down, the amount of CO_2 we add to the air is getting less every year.

Exercise 10. Translate the following word combinations and sentences.

1. Plants absorb carbon dioxide.
2. If you add three and four you get seven.
3. Both buildings were badly affected by the fire.
4. We had to alter some of our plans.
5. He paid regular amounts of money to a charity.
6. I hoped the children didn't cause you too much trouble.
7. We need to proceed with caution.

8. Certain details in this article must be précised.
9. You must be able to deal with all possible contingencies.
10. I hope this will convince you to change your mind.
11. His interest in the project declined last week.
12. A heavy fall of snow disrupted the city's transport system.
13. They want to elevate the status of physicists.
14. We are expecting a lot of applicants for the job.
15. Our washing machine broke down yesterday and flooded the kitchen.
16. Fuels such as gas, coal and oil are fossil fuel.
17. An increase in the amount of carbon dioxide and other gases in the atmosphere is called greenhouse effect
18. They live in a huge house.
19. He did a lot to improve working conditions.
20. It's difficult to interpret these statistics without knowing how they were obtained.
21. At these latitudes the sun does not rise at all on winter days.
22. There is a plan to lengthen the three-year course to four years.
23. The snow usually melts by mid March.
24. Amazingly, the bullet did not penetrate his brain.

Exercise 11. Find English equivalents for the following words and word combinations.

Температура землі зростатиме, новини стали кращими, дозволяє ультрафіолетовому випромінюванню проникати та нагрівати поверхню, велика кількість природних копалин, що утворює «термічну ковдру» довкола планети, випускає CO_2 в атмосферу, тривале використання, очікують подвоєння концентрації CO_2 до 2050 р., льодовики починають танути, експерти переконані.

Exercise 12. Find in the text antonyms for the following words.

To fall, to freeze, to finish, unfortunately, to forbid, tiny, to cease, far from, to increase.

Exercise 13. Fill in the gaps with the words given at the right side. There are two words you don't need.

1. The earth's temperature would _____, melting the icecaps	consequences
2. At least, that was how weathermen _____ researches of some environmentalists on the "greenhouse effect"	huge
3. The environmentalists predicted "catastrophic _____"	to penetrate
4. CO_2 and certain other gases in the atmosphere allow the sun's ultraviolet rays _____ and warm	to melt
5. Continued use of coal and other fossil fuels is _____ to double the concentration of CO_2	alter

6. Scientists say that the sea level will probably rise at least two feet before the year 2100, and could _____ transportation network	convinced
7. _____ could _____ ecosystems	shift
8. However not all experts are _____ that the heat is coming	rise
9. Some think that the use of primary energy sources such as coal could _____ 60 per cent by 2050	disrupt
	decline
	expected
	interpreted

Exercise 14. Make the following sentences interrogative.

1. The greenhouse effect results when CO_2 and certain other gases in the atmosphere allow the sun's ultraviolet rays to penetrate and warm the earth but then absorb the infrared energy the earth radiates back into space.
2. When huge amount of fossil fuels burns, it releases CO_2 into the atmosphere?
3. Continued use of coal and other fossil fuels is expected to double the concentration of CO_2 by the year 2050, elevating the earth's temperature by 3 to 9 degrees Fahrenheit.
4. The environmentalists predict that the temperature change will be greater in the Polar Regions than near the equator.
5. In general, they speculate that snowfall will begin later, the growing season will lengthen and higher latitudes will get less rain.
6. However not all experts are convinced that the heat is coming.

Exercise 15. Match the words (1–10) with their definitions (a–l). There are two definitions that you do not need to use.

- | | |
|----------------|---|
| 1. absorb | a. great care and attention |
| 2. alter | b. to gradually become less, worse, or lower |
| 3. caution | c. to take something in, especially gradually |
| 4. consequence | d. to prevent something, especially a system, process or event, from continuing as usual or as expected |
| 5. decline | e. the position north or south of the equator measured from 0° to 90° |
| 6. disrupt | f. to get better |
| 7. elevate | g. to move into or through something |
| 8. improve | h. to persuade someone or make them certain |
| 9. latitude | i. to raise something or lift something up |
| 10. penetrate | j. to change something, or to cause the characteristics of something to change |
| | k. a result of a particular action or situation, often one which is bad or not convenient |

I. a collection or mass especially of something which cannot be counted

Exercise 16. Translate the following sentences into English.

1. Яку кількість речовини необхідно взяти для проведення цього експерименту?
2. Які матеріали краще за все поглинають воду?
3. Радіація погано впливає на здоров'я людини.
4. За однією з версій, аварію на ЧАЕС спричинив не ядерний вибух реактора, а вибухи гримучої суміші в сусідніх приміщеннях.
5. Процес перетворення атомних ядер, обумовлений впливом на них швидких елементарних частинок (або ядер інших атомів), називається ядерною реакцією.
6. Всі ядерні реакції супроводжуються випусканням тих чи інших елементарних частинок (у тому числі і γ -квантів).
7. Під час дифузії молекули одного тіла проникають у проміжок між молекулами іншого тіла.
8. Радіоактивне випромінювання проникає глибоко в оточуючі тіла і спричиняє руйнування молекул та атомів тіла.
9. Крига тане при температурі вище 0°C . Під впливом температури вода перетворюється на пару.
10. Зміна агрегатного стану відбувається в залежності від зміни температури тіла.

UNIT 4

WORDBUILDING: Suffixes -ly; -ment

GRAMMAR: “there+ be” construction; articles

TEXT: Newton’s Laws of Motion

WORDBUILDING



Exercise 1. Make adverbs from the following words and translate them into Ukrainian:

bad, second, part, quick, strong, short, silent, rapid, wide, extreme, cruel, kind, happy, active, direct, easy, final, natural, normal, slow, serious, usual, sudden, love, day, hour, month, week, name, slight, high, exact, regular, artificial, ready.

v + -ment = n *to manage – management, to pay – payment*

Exercise 2. Make nouns from the following verbs with the help of suffix -ment and translate them into Ukrainian:

to develop, to achieve, to move, to arrange, to treat, to state, to improve, to agree, to equip, to govern, to require, to measure, to announce, to pave, to establish.

“THERE+ BE” CONSTRUCTION

Study the following table.

<u>Існує</u> дуже багато підручників з цієї тематики.	<u>There are</u> a lot of text-books on this subject.
<u>Напроти нашого будинку стоїть</u> чудовий сад.	<u>There is</u> a nice garden <u>opposite our</u> house.
<u>У вашому диктанті немає</u> помилок.	<u>There are</u> no mistakes <u>in your dictation</u> .
Чи <u>існують</u> якісь правила гри?	<u>Are there</u> any rules of this game?

Конструкція **there is / are** для теперішнього часу, **there was / were** для минулого і **there will be** для майбутнього вказує на наявність якогось предмета в певному місці. Підмет українського / російського речення стоїть безпосередньо після дієслова *be*, при цьому його форма узгоджується із підметом.

У заперечних реченнях конструкція **there be** застосовується із запереченнями **no** і **not any**, що стоять перед іменником у однині або множині.

Exercise 3. Translate the following sentences into Ukrainian.

1. There is a good library in our Institute.
2. There were no mistakes in his work.
3. Are there English books on this shelf?

4. There will be a lot of new schools in our city.
5. Many years ago our town was very small: there were no big houses, cinemas and institutes in it.
6. We will come tomorrow: there will be an interesting lecture at five o'clock.
7. Your work was very poor: there were too many mistakes in it.
8. There was a test in our group yesterday.
9. There will be a meeting at our department next week.
10. Will there be a conference next month?

Exercise 4. Put in the right form of the verb *to be*.

1. There _____ many new students in this group.
2. What _____ there in the room?
3. _____ there newspapers on the table?
4. How many boxes _____ there under the table?
5. There _____ an interesting lecture the next Monday.
6. There _____ some remarks which I wanted to discuss with you.
7. There _____ two fundamental units of measurement.
8. There _____ several new laboratories next year.
9. There _____ not many English magazines in the library.
10. There _____ no time for this work.

Exercise 5. Make the following sentences negative and interrogative.

1. There is a new equipment in our laboratories.
2. There are some students taking part in that conference.
3. There were some old houses in this street.
4. There will be a nice furniture in this room.
5. There are some laws that you must know.
6. There are many good rest-homes not far from our city.
7. There was a small skating ring near the house I live in.
8. There is no water in the Sahara desert.
9. There will be much fruit in the garden this autumn.
10. There were some pictures on the walls in this room.

Exercise 6. Reconstruct the following sentences.

1. numerous / are / units / measurement / there / of.
2. there / time / how / of / are / many / kinds?
3. there / scientific / department / in / are / any / researchers / this?
4. library / there / the / possibility / take / this / no / book / in / to / was.
5. next / a / laboratory / be / new / here / will / year / there.
6. no / room / professor / students / were / came / there / in / the / when.
7. not / the / there / any / during / be / will / prompts / test.
8. who / the / anybody / is / answer / there / knows?
9. life / Mars / there / on / is / any?
10. there / the / to / at / no / was / cheat / chance / exam.

Exercise 7. Translate the following sentences into English.

У нашій країні є чудове місто – Харків. Тут знаходиться найбільша проща у Європі, багато чудових парків і безліч зелених вулиць і провулків. Харків не є суто туристичним містом, скоріше індустріальним, але тут є багато фонтанів і пам'ятників, які роблять місто чарівним. Наприклад, в центрі знаходиться фонтан «Дзеркальний Струмінь», який є візиткою Харкова.

Харків – це місто студентів. Тут нараховується 45 вищих навчальних закладів, де можна отримати ту професію, яку забажаєш. Наприклад, тільки в Харківському національному університеті є 21 факультет. Після навчання існує можливість продовжити наукову діяльність. В університеті функціонує відділ аспірантури. Для зручності студентів і аспірантів в університеті працює бібліотека. У її фонді нараховується приблизно 3 350 000 книжок, газет, журналів на будь-яку тематику.

ARTICLES

Неозначений артикль a (an)	Означений артикль The	Нульовий артикль
1. Перед чисельними іменниками у однині, якщо вони вперше використовуються у контексті, а також їх можна замінити на займенник <i>any</i> : <i>Can you give me <u>a</u> pen?</i>	1. Якщо із контексту зрозуміло про який предмет йде мова, предмет є знайомим потенційному адресату: <i>A car struck a tree. You can see the mark on <u>the</u> car and <u>the</u> tree.</i>	1. Перед чисельними іменниками у множині, якщо вони вперше використовуються у контексті: <i>Children usually go to school at <u>the</u> age of 6.</i>
2. Перед іменниками, які характеризують предмет як одного з представників класу: <i>I think he will become <u>a</u> scientist.</i>	2. Перед чисельними іменниками у однині, які характеризують предмет як представника всього класу: <i><u>The</u> young man must be polite (молода людина, яка представляє все покоління).</i>	2. Перед власними назвами із значенням імен, прізвищ, географічних назв (країни, міста, вулиці, площі), назвами днів тижня, місяців, пір року <i>Peter, Smith, London, Great Britain, Friday, October, in summer</i>
3. З іменниками, які мають значення кількості: <i>a couple – пара, a dozen – дюжина, a hundred – сотня, a great deal of – багато.</i>	3. З іменниками, що називають предмети, які існують тільки в одиничному екземплярі: <i>the Earth, the Sun, the Bible</i>	Виключення: <i>the USA</i> (абривіатури), <i>the Argentine, the Sudan</i> (колишні колонії), <i>the Neatherland, the Hague, the Wall Street, the Smiths</i> (якщо мова йде про всю сім'ю).
4. У словосполученнях, які висловлюють значення ціни,		3. Перед абстрактними іменниками:

швидкості, співвідношення: <i>five pence a kilo</i> – п'ять пенсів за кілограм, <i>sixty kilometres an hour</i> – шістдесят кілометрів за годину, <i>three times a week</i> – три рази на тиждень. 5. У виразах <i>a few</i> – небагато, декілька; <i>a little</i> – небагато, трохи 6. перед іменниками у однині після <i>there + be</i>: <i>There is a book on the table.</i> 7. Перед іменником у однині, якщо перед ним стоїть означення, що виражено прикметником: <i>It was <u>a great</u> idea to come here!</i>	4. Перед словосполученнями із <i>of</i> (крім тих, що мають значення кількості, розміру): <i>The teacher of English was ill. The territory of Ukraine covers more than 603 square km.</i> <i>Can you give me a cup of coffee. We still have to pass a distance of two miles.</i> 5. Перед іменниками із прикметниками у найвищому ступені порівняння: <i>It was <u>the</u> most interesting report in the group.</i> 6. Перед іменниками, які мають значення назви географічних об'єктів (річки, моря, океани, горні хребти), кораблів та періодичних видань: <i>The Dnieper, the Pacific Ocean, the Titanic, the Times.</i>	<i>Politeness can not be tested by any means.</i> 4. Перед назвами наук, предметів, мов: <i>He studies Math and English.</i> 5. З іменниками, що мають значення прийомів їжі: <i>We usually have dinner at 1 o'clock in the afternoon.</i> 6. Із нечисельними іменниками, коли вони не конкретизуються: <i>advice, information, news, furniture, tea, coffee</i> 7. Перед іменником <i>home</i> 8. перед іменниками, за якими йде числівник: <i>Open page 120.</i> 9. У словосполученнях: <i>by land</i> – по суші; <i>by sea</i> – морем; <i>by air</i> – літаком; <i>in debt</i> – у боргах; <i>by heart</i> – напам'ять; <i>at night</i> – вночі (увечері); <i>in trouble</i> – в біді; <i>at work</i> – за роботою; <i>by water</i> – водним шляхом; <i>by mistake</i> – помилково; <i>by dinner</i> – за обідом; <i>in time</i> – вчасно; <i>from time to time</i> – час від часу
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Exercise 8. Insert the articles where necessary.

Our Institute dining-room is _____ large square room with _____ white ceiling and _____ green walls. _____ dining-room is very light as _____ windows are large. In _____ evening many lamps light up _____ room. There are many tables in _____ room. Some of them are round and some are square. All _____ tables are covered with _____ table-cloth. There are flowers on _____ tables as well as on _____ window sills. There is _____ vase on each table. _____ choice is usually wide. You can find _____ soup, _____ fish, _____ meat, _____ potato, _____ beefsteak, _____ sausages and other things there. At _____ buffet, which is on _____ left-hand side of _____ room as you enter, you can

also find many good things, such as _____ salad, _____ sandwiches, _____ fruit, _____ sweets, _____ tea, _____ coffee and _____ cake. When you are hungry you go to _____ dining-room and sit down at _____ vacant table. You call _____ waitress and order _____ meal. _____ waitress first puts _____ knife, _____ fork and _____ spoon on _____ table in front of each person and then brings _____ white and _____ brown bread and _____ food. You usually take something for _____ desert at _____ buffet. You can have _____ good meal at _____ Institute dining-room.

Exercise 9. Insert the articles where necessary.

When we want to write _____ letter, we take _____ piece of _____ paper and _____ pen. We first write our _____ address and _____ date in _____ right-hand corner. Then on _____ left-hand side we write _____ greeting. We may write, for instance, "My dear brother," "Dear Sirs," for business letters ect. (when we know _____ name of _____ person we are addressing, we use his or her name), and then on _____ line we begin _____ real letter. We must not forget to leave _____ margin on _____ left-hand side of _____ page. At _____ end of _____ letter we write "Yours," and then we sign our name. We put _____ letter into _____ envelope and close _____ envelope. On _____ envelope we write _____ name and address of _____ person who will receive it. We stick _____ stamp in _____ top right-hand corner, and then we post _____ letter.

Exercise 10. Insert articles before nouns where necessary.

1. _____ importance of _____ scientific research and _____ discoveries is growing with every _____ year. 2. Due to _____ achievements of _____ world science _____ lot of _____ things are brought to _____ life. 3. Science opens broad _____ opportunities for _____ development of _____ country's productive force. 4. All _____ scientists of _____ world value _____ our scientists for their brilliant discoveries. 5. _____ state should provide scientific and educational institutes with all necessary _____ equipment and facilities. 6. _____ role of _____ science increases in all spheres of our _____ life because it became _____ direct productive force.

Study the following words and word combinations

acceleration (n) – прискорення, розгін

at rest (adv) – у стані спокою

contribute (v) to – робити внесок, сприяти

direction (n) – напрям

external (adj) – зовнішній

friction (n) – тертя, сила тертя

gravitation (n) – тяжіння, сила тяжіння

inversely (adv) – зворотно, у зворотному напрямку

magnitude (n) – величина, розмір, значення

motion (n) – рух, переміщення

nature (n) – природа
notice (n) – зазначати, відмічати
to set in motion – приводити до руху
resultant (adj) – результуючий, ... що виникає
resultant force (n) – рівнодіюча сила
surface (n) – поверхня

Exercise 11. Translate the following word combinations into Ukrainian.

Under acceleration, free fall acceleration, an object at rest, to contribute little to our understanding of the subject, to contribute to good health, the external walls of the building, friction between moving parts, to cause the overheat of the engine, law of universal gravitation, to arrange in order of magnitude, to set in motion, chaotic motion, resultant force, plane surface, flat surface.

Exercise 12. Match the words (1–10) with their definitions (a–l).

- | | |
|----------------|--|
| 1 Acceleration | a connected with or located on the outside of smth/smb |
| 2 Contribute | b caused by the thing that has just been mentioned |
| 3 External | c in opposition to smth |
| 4 Friction | d the act or process of moving or the way smth moves |
| 5 Gravitation | e the size of smth |
| 6 Inversely | f the rate at which an object increases speed |
| 7 Magnitude | g the action of one object or surface moving against another |
| 8 Motion | h a force of attraction that causes objects to move towards each other |
| 9 Resultant | i the outside or top layer of smth |
| 10 Surface | j to give smth to help smb/smith |
| | k a force by which one object attracts another |
| | l to continue in existence after something happened |

Read the following text

NEWTON'S LAWS OF MOTION

Sir Isaac Newton discovered our current laws of motion. There is a belief that Sir Isaac Newton started to think about the nature of motion and gravitation after a falling apple had struck his head.

Newton discovered 3 laws describing motion:

First Law. Definition: **Every object will remain at rest or in uniform motion in a straight line unless it is made to change its state by the action of an external force.**

For example, a cement block isn't going to move unless you push it. A rocket in space is not going to speed up, slow down and change direction unless the engines are

switched on. Newton's First Law may seem rather surprising to you when you first meet it. If you roll a ball along a surface it always stops, but Newton's First Law says that an item will remain in uniform motion in a straight line unless a force acts upon it. It doesn't seem like there is any force that acts on the ball once you let it go, but there is! In real life (unlike many physics problems) there is usually friction acting. Friction is the external force acting on the ball causing it to stop.

Notice that Newton's First Law says that the force must be external. For example, you can't grab your belt and pull yourself up to the ceiling. Of course, you could get someone else to pull you up, but then that person would be applying an external force.

Second Law. Definition: **The resultant force acting on a body results in an acceleration which is in the same direction as the resultant force and is directly proportional to the magnitude of this force and inversely proportional to the mass of the object.**

In mathematical form this law states:

$$\vec{F}_{\text{Res}} = m \vec{a}$$

So if a resultant force F_{Res} acts on an object with mass m it will result in an acceleration a . It makes sense that the direction of the acceleration is in the direction of the resultant force. If you push something away from you it doesn't move toward you unless of course there is another force that acts on the object towards you!

Third Law. Definition: **For every force or action there is an equal but opposite force or reaction.**

Newton's Third Law is easy to understand but there are some difficulty in applying it. An important thing to realize is that the action and reaction forces can never act on the same object and hence cannot contribute to the same resultant.

Exercise 13. Find English equivalents for the following words and word combinations.

природа руху; рівномірний рух; зовнішня сила; якщо двигуни не включені; тертя; приводить до прискорення; прямо пропорційний; зворотно пропорційний; труднощі при застосуванні; унаслідок

Exercise 14. Find in the text antonyms for the following words.

rising; curve; common; fantastic; internal; starting; from; deceleration; difficult; different

Exercise 15. Fill in the gaps with the words given at the right side.

1. Isaac Newton discovered three laws that describe the _____ of motion apply
2. An _____ external force can change the uniform motion of an object. application
3. If the engines are switched on, the rocket will _____ its position. external
4. _____ can stop the ball that is rolling. resultant

5. If a person grabs you by your belt, he / she will _____ an external force. friction
6. The force that acts on a body is _____ proportional to the mass of this body. nature
7. The acceleration of a body is in the same direction as the _____ force. inversely
8. The Third Law of Newton is difficult in _____. change

Exercise 16. Choose the right word to fill in the gaps.

1. There is a natural tendency of (1) _____ to keep on doing what they're doing. All objects resist (2) _____ in their (3) _____ of motion. In the absence of an unbalanced force, an object in motion will maintain this state of (4) _____.

2. (5) _____ knows the Second Law. Everyone knows that heavier objects require (6) _____ force to move the same distance as (7) _____ objects. However, the Second Law (8) _____ us an exact relationship between force, mass, and acceleration. It can be expressed as a mathematical equation: FORCE = MASS times ACCELERATION

3. For every force there is a reaction force that is (9) _____ in size, but opposite in direction. That is to say that whenever an object pushes another object it gets pushed back in the (10) _____ direction equally hard.

- | | | | | |
|----|--------------|---------------|-----------|-------------|
| 1 | A People | b objects | c animals | d Bodies |
| 2 | A Irritation | b influence | c changes | d Friction |
| 3 | A Conditions | b conclusions | c states | d Positions |
| 4 | A Motion | b movement | c going | d Moving |
| 5 | A Someone | b Everyone | c Anyone | d No one |
| 6 | A Bigger | b more | c larger | d Best |
| 7 | A Less | b little | c lighter | d Smaller |
| 8 | A Gives | b gets | c hands | d Offers |
| 9 | A Same | b opposite | c other | d Equal |
| 10 | A Same | b other | c equal | d Opposite |

Exercise 17. Translate the following sentences into English.

1. Існує хаотичний рух частинок, що має назву броунівського руху.
2. Чи є можливість для прискорення цієї машини до 180 км / год.?
3. Існують три закони, що описують природу руху.
4. У науці є поняття прискорення вільного падіння, що дорівнює силі тяжіння, яка діє на об'єкт.
5. Існують фактори, що впливають на реальне прискорення вільного падіння на поверхні Землі.
6. Чи існує формула, за якою можна визначити прискорення вільного падіння?
7. У теоретичній науці існують задачі, що не враховують силу тертя.
8. У природі є потік енергії, яка впливає на зовнішню поверхню земної атмосфери.
9. Чи є у групи пропозиції, що сприяють вирішенню цієї задачі?

10. Існує поняття рівнодіючої сили, дія якої дорівнює дії декількох сил на об'єкт.

UNIT 5

WORDBUILDING: **Suffixes –ize, -ify, -ate**

GRAMMAR: **Present Perfect; Present Perfect or Past Indefinite**

TEXT: **Radiation**

WORDBUILDING

n, adj → neutral – neutralize
 pure – purify
 local – locate

Mind possible variants of translation of suffix –ate

v to graduate
n a graduate
adj graduate

Exercise 1. Translate into Ukrainian, mind pronunciation of suffixes:

to oxidize, to crystallize, to modernize, to magnify, to purify, to identify, to classify, to qualify, to specify, to initiate, to regulate, to concentrate, to delegate, to separate, to originate.

PRESENT PERFECT

<i>Affirmative form</i>	<i>Interrogative form</i>	<i>Negative form</i>
I you have+Participle II we they	I Have you+Participle II we they	I You haven't+Participle II we they
He She has+Participle II It	he Has she+Participle II it	He She hasn't+Participle II It
SHORT FORMS		
I you have we they	I have you we they	I you haven't we they
he she has it	has he she it	he she hasn't it

Participle II			
Regular verbs	Verb+ed	Irregular verbs	III-d form of the Verb
Play - <u>played</u>		Go – gone	
Study – <u>studied</u>		Write – written	
Jump – <u>jumped</u>		Know – known	

Signal words: *just, ever, never, already, so far, up to now, this (week, month...), recently, since, for, yet, today.*

Present Perfect вживається для вираження:

1. Дії, що відбувалися у минулому, але пов'язана результатом з моментом мовлення.

I have already read the book. Я прочитав книжку (результат – книжка прочитана, я знаю, про що там йдеться).

Have you done the exercises? Ти зробив вправи? (мене цікавить результат – так чи ні).

Have you passed your driving test? Ви вже склали іспит на право керування авто?

2. Для позначення дій, які (не) завершилися на поточний момент:

– *Have you finished your job?* – Ти завершив роботу?

– *Yes, I have/ No, I haven't.* – Так/Ні.

The train has just arrived. Потяг щойно прибув.

She hasn't written the test yet. Вона ще не дописала контрольну роботу.

3. Для опису дій, які почалися в минулому і досі тривають:

I've always liked him. Він завжди мені подобався (в минулому і зараз).

I have known him for years Я дуже довго його знаю.

He has written about a hundred novels. Він написав близько 100 романів.

4. Для позначення дій, що мали місце у період часу, який ще не минув (з виразами “recently”/ “this morning” / “afternoon” / “week”):

Has the postman come this morning? Поштар приходив сьогодні зранку?

He hasn't phoned this afternoon. Він ще не телефонував сьогодні вдень.

Exercise 2. Translate the following sentences into Ukrainian.

1. **Have you seen** that movie many times?
2. I think I **have met** him once before.
3. People **have not traveled** to Mars.
4. **Has** there ever **been** a war in the United States?
5. **Have you read** the book yet?
6. I **have been** to France.
7. He **has** never **traveled** by train.
8. You **have changed** since the last time I saw you.
9. I **have had** a cold for two weeks.
10. Mary **has loved** chocolate since she was a little girl.

Exercise 3. Reconstruct the sentences.

1. has/ month/ England/ Carol/ to/ been/ for/ a.
2. the/ seen/ answers/ test/ have/ to/ I
3. have/ finished/ you/ your/ yet/ work?
4. this/ has/ rained/ year/ a lot/ it
5. just/ her/ seen/ have/ we
6. been/ cinema/ week/ twice/ this/ the/ has/ to/ she
7. same/ years/ had/ have/ for/ ten/ we/ the/ the/ car
8. yet/ homework/ done/ you/ have/ your?

Exercise 4. Write positive and negative sentences in Present Perfect.

1. they / ask / a question -
2. he / speak / English -
3. I / be / in my room -
4. we / not / wash / the car -
5. Annie / not / forget / her homework –

Exercise 5. Write questions in Present Perfect.

1. they / finish / their homework -
2. Sue / kiss / Ben -
3. the waiter / bring / the tea -
4. Marilyn / pay / the bill -
5. you / ever / write / a poem -

Exercise 6. Ask for the information in the bold part of the sentence.

1. They have talked about art **at school**.
2. Jane has got **a letter**.
3. **Oliver** has cooked dinner.
4. Caron has read **seven** pages.
5. You have heard the song **100 times**. –

Exercise 7. Open the brackets in Present Perfect and guess what profession or hobby these people have. Say “He \ she must be a _____”.

1. She (translate) the text, (make) up a dialogue and (write) three exercises.
2. What a wonderful picture you (paint)!
3. He (design) a new clothes collection. It is wonderful!
4. I (buy) a packet of orange juice and a cake.
5. She (sell) all the apples.
6. He (make) a delicious soup.
7. I (collect) a lot of stamps.
8. The man (fix) the broken car.
9. He (finish) a new story.
10. Children, you (do) your home task?
11. She (type) three documents and (post) some letters.

Exercise 8. Match the sentences and the result of the action.

- | | |
|---|---|
| 1. I have just had lunch. | a) It is open now. |
| 2. She has already left the house. | b) She can not write now. |
| 3. Somebody has broken the window in our classroom. | c) It's too cold in here. |
| 4. I have known her since our childhood. | d) He knows this country very well. |
| 5. We have left all the money at home. | e) I am not hungry |
| 6. Your mistakes have taught you nothing. | f) She must be on her way to college. |
| 7. She has cut her finger. | g) She is my best friend. |
| 8. He hasn't come yet. | h) We can't buy anything. |
| 9. David has been to the USA more than once. | i) He is not here. |
| 10. Some fool has left the door unlocked. | j) His mother is very upset. |
| 11. Grandmother has written a letter. | k) She is going to the post-office now. |
| 12. The boy has fallen ill. | l) You are doing the same silly thing |

PRESENT PERFECT OR PAST INDEFINITE

	PRESENT PERFECT	PAST SIMPLE
1.	Time period has NOT finished <i>I have read an interesting book <u>this week</u>.</i>	Time period HAS finished <i>I read an interesting book <u>last week</u>.</i>
2.	gives recent news <i>She has crashed his car again.</i> (This is new information.)	gives older information <i>She crashed his car <u>last year</u>.</i>
3.	The time is not specific here <i>I have already seen that movie.</i> (We don't know when, but I know its plot)	the time is clear <i>I saw that movie on Thursday.</i> (We know exactly when.)
4.	with for and since , when the actions have NOT finished yet <i>I have lived in England for five years. (I still live in England)</i>	with for and since , when the actions have ALREADY finished <i>I lived in England for five years. (I don't live in England now.)</i>

Exercise 9. Open the brackets choosing the correct form of the verb.

- The old woman (fall) as she was crossing the street.
2. The doctor (come). He is waiting for you in the next room.
- I (speak) to him about it over and over again.
- I (speak) to him about it yesterday.
- The workers (choose) my brother as their delegate.
- I (not to come) to you yesterday because I (to be) very busy.
- My mother (to go) to the country a month ago.
- His brother not (to go) to school yesterday.

9. This year my uncle (build) a new house in the country.
10. I (to write) two plays.
11. Shakespeare (to write) about 30 plays.
12. When you (to start) your job?
13. That's the best presentation I ever (to hear).
14. I (to speak) to him last week.
15. It's obvious that you (not to read) this report.
16. I (to tidy) the room two hours ago.
17. She (to meet) her last Sunday?
18. You (to see) my teacher today?

Exercise 10. Answer the following questions.

1. Have you ever been abroad? When were you there last?
2. Have you ever travelled by air? When did you fly for the first time?
3. Have you read anything by Dickens? Which of his novels did you read when a child?
4. Have you been to the Opera Theatre? What operas and ballets have you seen there?
When were you there last? What did you see?
5. Have you taken any pictures this year? Was it in spring or in summer?
6. How long have you lived in this city? When did you come to live here?
7. Have you ever failed your exam? When? What exam did you fail?

Exercise 11. Open the brackets choosing the correct form of the verb.

1. You ever _____ (to be) to this gallery? – Yes, I _____ (to visit) it once when a youth, and the pictures _____ (to make) a great impression on me. Since then I _____ (not to be) here.
2. You already _____ (to see) the new film? – Yes, I _____ (to manage) to see it yesterday. I _____ (to go) to the cinema in the evening and _____ (to get) two tickets quite easily.
3. You always _____ (to draw) books from our library? – Yes, as a rule, I _____ (to draw). Last year I _____ (to go) to another library but I _____ (not to find) it as good as this one. I _____ (to draw) books from here for some 10 months already.
4. I _____ (not to hear) anything of Jane lately. When you _____ (to see) her last? – I (to meet) her two days ago. I _____ (to think) that she _____ (to change) very much.
5. You _____ (to have dinner) already? – No, not yet. The waitress _____ (to take) my order 20 minutes ago and _____ (not to bring) me anything yet.
6. You ever _____ (to see) Ula-nova dance? – Oh yes, I _____ (not to miss) a single performance with her. I _____ (to watch) her for many years. She _____ (to be) not only a splendid dancer, but a good actress as well.
7. You _____ (to bring) your bathing suit with you? – Yes, I am going to show how much I _____ (to improve) since last summer. I _____ (to take) some swimming lessons lately. Now it _____ (to be) for you to judge if I _____ (to make) any progress.
8. Where you _____ (to get) this new bicycle from? – My parents _____ (to give) it to me as a birthday present.

Exercise 12. Translate the following sentences into English.

A.

1. Ти прочитав книгу? – Ні, я тільки почав її читати.
2. Коли він приїхав до Харкова? – Він приїхав два дні тому.
3. Будівництво цього корпусу розпочалося цього тижня.
4. Ти був у Англії? – Ні, але я був в Америці.
5. Ти грав у теніс на цьому тижні? – Так, 2 рази.
6. Я ніколи не бачив цей фільм. Він цікавий?
7. Я вступив до університету у цьому році, а мій брат – у минулому.
8. Сьогодні у нас було чотири пари. Я дуже втомився.
9. Ти ходив учора на тренування? – Ні, я себе погано почував.
10. Ти коли-небудь їв таку страву? – Ні, ніколи.
11. Коли вона склала останній іспит? – Цього тижня.
12. Ти вже чув новини по радіо?
13. Ми тут з шостої години.
14. Я знаю, що він ще не повернувся з відрядження.
15. Хто може дати мені олівець? – Я забув свій вдома.
16. Я працюю в цій організації з березня.

B.

1. Я закінчив школу у цьому році.
2. Ти дивишся телевізор чи я можу його вимкнути?
3. В університеті пари починаються о 8. 00.
4. Що ти робив учора? – Спочатку я виконав домашнє завдання, а потім гуляв з друзями.
5. О восьмій вечора до мене прийшов друг, і ми грали у шахи.
6. Цього тижня ми купили новий телевізор.
7. Мій батько працює з 8.00 до 18.00, а потім забирає мою молодшу сестру з дитячого садка.
8. Коли він повернувся з роботи, уся родина вже чекала на нього.

Study the following words and word combinations

cause, v – зумовити, спричиняти

coal, n – вугілля

consequence, n – наслідок, значення

core, n – ядро, стрижень

deal with, v – мати справу з...

define, v – визначати

detect, v – виявляти

disaster, n – лихо, нещастя

drastically, adv – радикально,
надмірно

emit, v – виділяти, випускати,
випромінювати

estimated – оціночний, оцінений

facility, n – пристосування,
устаткування, змоги

fallout, n – радіаційний викид

fatality, n – нещастя, катастрофа

fission, n – розщеплення, ділення

foggy, adj – туманний, мрячний

forcibly, adv – силою, примусово

fusion, n – сплавлення, синтез

impact, n – вплив, поштовх

include, v – містити, включати,
охоплювати

inherent, adj – притаманний;
невід'ємний

lead (led, led), v – вести; керувати,
управляти

living being – жива істота

occur, v – відбуватися, траплятися

plate, n – табличка, пластина

potassium – калій

release, v – випускати, звільняти

thorium, n – торій

Exercise 13. Translate the following sentences into Ukrainian.

1. I'm sorry if I caused any confusion.
2. Our findings have far-reaching consequences for researchers.
3. The core is the central part of a nuclear reactor.
4. The tutor has clearly defined the task.
5. The scientists detected changes in measurements.
6. Nuclear disaster in Chernobyl took away many people's lives and health.
7. This country's economy has slowed drastically last year.
8. The kettle emitted a shrill whistle.
9. A top-secret research facility has been made in this laboratory.
10. The protection against radioactive fallout must be carefully kept.
11. A 50% increase in the number of traffic fatalities has been recorded this year.
12. Driving in foggy conditions is very dangerous.
13. How can we calculate the energy that comes from the fusion of hydrogen atoms?
14. We need to assess the impact on climate change.
15. The curriculum includes courses in computing.
16. I'm afraid the problems you mention are inherent in the system.
17. Our research led us to the conclusion that the present system is wrong.
18. The explosion occurred at 5.30 a.m.
19. Oil was released into the sea.

Read the following text

RADIATION

Radiation was first detected by a French scientist Henry Becquerel, who was conducting an experiment with photographic plates. He found that elements like uranium, thorium and potassium emitted certain rays, which had an effect on the plates, making them foggy. However, the types of radiation and their effects on living beings vary drastically.

There are different sources of radiation. Some of them are inherent in the planet's atmosphere and living beings have *an in-built mechanism* to deal with them. But other sources of radiation are processes like *nuclear fission* and *fusion* which can cause a lot of harm.

Scientists define nuclear and radiation accidents as events that have led to *significant consequences* to people, and the environment. Examples include *lethal effects* to individuals, large radioactivity release to the environment, or *reactor core melting*. One of the prime examples of a "*major nuclear accident*" is Chernobyl Disaster in 1986.

The explosions that ruptured the Chernobyl reactor vessel and *the consequent fire* that continued for 10 days or so *resulted in* large amounts of radioactive materials being released into the environment.

The cloud from the burning reactor spread numerous types of radioactive materials, especially iodine and caesium radionuclides, over much of Europe. Radioactive iodine-131, most significant in contributing to *the thyroid gland* at high doses, has a short half-life (8 days) and largely disintegrated within the first few weeks of the accident. Radioactive caesium-137, which contributes to both external and internal doses, has a much longer half-life (30 years) and is still measurable in soils and some foods in many parts of Europe.

That accident killed 56 people directly, and caused an estimated 4,000 additional cases of fatalities related to cancer, as well as damaging approximately \$7 billion of property. Radioactive fallout from the accident was concentrated in areas of Belarus, Ukraine and Russia. Approximately 350,000 people were forcibly resettled away from these areas soon after the accident.

The impact of nuclear accidents has been *a topic of debate* practically since the first nuclear reactors appeared. It has also been *a key factor in public concern* about nuclear facilities. Some technical measures to reduce the risk of accidents or to minimize the amount of radioactivity released to the environment have been adopted. Despite the use of such measures there have been many accidents with varying impacts on people and environment. Scientists have reported that worldwide there have been 99 accidents at nuclear power plants. Fifty-seven accidents have occurred since the Chernobyl disaster and most of all nuclear-related accidents have occurred in the USA.

On the other hand scientists are sure that nuclear power has caused far fewer accidental deaths per unit of energy generated than such major forms of power generation as coal, natural gas, and hydropower.

Exercise 14. Find the Ukrainian equivalents.

First detected, photographic plates, potassium emitted certain rays, their effect on living beings, vary drastically, have an in-built mechanism, significant consequences, reactor core melt, related to cancer, forcibly resettled away, radioactive fallout, the impact of nuclear accidents, a key factor, minimize the amount of radioactivity, nuclear power plants, nuclear-related accidents, on the other hand, per unit of energy.

Exercise 15. Find in the text antonyms for the following words.

Absorb, leave out, insignificant, indirectly, vanish, increase, life, many, solidify, harm, exactly, success.

Exercise 16. Answer the following questions.

1. What experiments did H. Becquerel conduct?
2. What do certain elements emit?
3. How do some elements influence living beings?
4. How do scientists define nuclear accidents?
5. What do you know about Chernobyl disaster?
6. How many accidents have happened till now?

7. In your opinion, what are the main reasons of such disasters?
8. Is nuclear power dangerous for humans?

Exercise 17. Choose the right word to fill in the gaps.

1. Radiation was first (1) _____ by a French scientist Henry Becquerel.
2. The types of radiation and their effect on living beings, vary (2) _____.
3. Some of it is (3) _____ in the planet's atmosphere.
4. Scientists define nuclear and radiation accidents as events that have led to significant (4) _____ to people.
5. That accident (5) _____ an estimated 4,000 additional cases of fatalities related to cancer.
6. Many people were (6) _____ resettled away from these areas soon after the accident.
7. The (7) _____ of nuclear accidents has been a topic of debate practically since the first nuclear reactors appeared.
8. Some technical measures to (8) _____ the risk of accidents have been adopted.
9. Fifty-seven accidents have (9) _____ since the Chernobyl disaster.

1	a	computed	b	detected	c	simulated	d	calculated
2	a	strangely	b	absolutely	c	completely	d	drastically
3	a	simple	b	strange	c	inherent	d	Difficult
4	a	consequences	b	importance	c	Energy	d	Facilities
5	a	caused	b	created	c	generated	d	Released
6	a	easily	b	forcibly	c	completely	d	practically
7	a	fallout	b	impact	c	Source	d	environment
8	a	detect	b	increase	c	Reduce	d	Occur
9	a	detected	b	increased	c	reduced	d	Occurred

Exercise 18. Read the text. Fill in the gaps with necessary prepositions.

Radiation was first detected ____ a French scientist Henry Becquerel. The type of radiations and their effect ____ living beings, vary drastically. There are different sources ____ radiation. But other sources of radiation are activities ____ nuclear fission and fusion can cause a lot of harm. Scientists define nuclear and radiation accidents ____ events that has led ____ significant consequences ____ people, and the environment. The impact ____ nuclear accidents has been a topic ____ debate practically ____ the first nuclear reactors appeared. It has also been a key factor ____ public concern ____ nuclear facilities. ____ the use ____ such measures, "there have been many accidents ____ varying impacts as well near misses and incidents". Scientists have reported that worldwide there have been 99 accidents ____ nuclear power plants. ____ the other hand scientists are sure that nuclear power has caused far fewer accidental deaths ____ unit of energy generated than such major forms ____ power generation ____ coal, natural gas, and hydropower.

Exercise 19. Match the words (1–10) with their definitions (a–l). There are two definitions that you do not need to use.

- | | |
|----------------|--|
| 1. fusion | a. something that happens as a result of a particular action or set of conditions |
| 2. emit | b. to notice or discover something, especially something that is not easy to see |
| 3. facility | c. the most important or central part of something |
| 4. impact | d. to send out gas, heat, light, sound etc |
| 5. occur | e. rooms, equipment, or services that are provided for a particular purpose |
| 6. consequence | f. the dangerous radioactive dust which is left in the air after a nuclear explosion and which slowly falls to earth |
| 7. core | g. the process of splitting an atom to produce large amounts of energy or an explosion |
| 8. detect | h. a physical combination of separate things |
| 9. fission | i. the effect or influence that an event, situation etc has on someone or something |
| 10. fallout | j. to happen or exist in a particular place or situation |
| | k. to become warm or hot |
| | l. to make something happen, especially something bad |

Exercise 20. Translate into English.

1. Хто виявив цей феномен?
2. Коли стався викид радіоактивних речовин на атомній станції?
3. Радіаційний викид на атомній станції спричинив багато хвороб, серед яких і рак.
4. Дослідження радикально змінили нашу точку зору з цього питання.
5. Французький фізик А. Беккерель проводив експерименти з фотографічними пластинами.
6. Такі види радіації, як синтез та розщеплення, впливають на здоров'я людини.
7. На атомних станціях встановлюють устаткування, що мінімізує ризики радіаційних викидів.
8. Незважаючи на використання спеціального устаткування, з часів Чорнобильської катастрофи трапилося багато інших катастроф.
9. Чи вся радіація шкідлива для людини?
10. Що випромінюють деякі речовини?

UNIT 6

WORDBUILDING: Prefixes: dis-, un-, in-, im-, il-, ir-, re-, mis-

GRAMMAR: Present Perfect Continuous

TEXT: The Role of Gravity

WORDBUILDING

dis-; un-; in-; im-; il-; ir-; re-; mis-

Exercise 1. Read and translate into Ukrainian:

order – disorder, advantage – disadvantage, real – unreal, soluble – insoluble, comfortable – uncomfortable, definite – indefinite, accurate – inaccurate, organic – inorganic, possible – impossible, pure – impure, legal – illegal, regular – irregular, reversible – irreversible, write – rewrite, construct – reconstruct, produce – reproduce, place – replace, organize – reorganize, understand – misunderstand, calculate – miscalculate, information – misinformation.

PRESENT PERFECT CONTINUOUS

<i>Affirmative form</i>	<i>Interrogative form</i>	<i>Negative form</i>
I you have been playing we they	I Have you been playing we they	I you haven't been playing we they
he she has been playing it	he Has she been playing it	He She hasn't been playing It
SHORT ANSWER		
Yes, I (you, we, they) have.		No, I (you, we, they) haven't.
Yes, he (she, it) has.		No, he (she, it) hasn't.

Present Perfect Continuous **вживається**, коли необхідно підкреслити:

1) процес, який почав відбуватися в минулому і продовжується до теперішнього часу. Під час вживання Present Perfect Continuous як правило зазначається проміжок часу, протягом якого подія відбувалася:

You have been watching TV for two hours!!! Stop it! *Ти дивишся телевизор вже дві години!!! Досить!!!*

2) тривалу дію, яка тільки що закінчилась, але є якийсь результат:

*I've been working hard
since the morning. I'm tired now.*

Я працював з ранку. Зараз я втомлений

Exercise 2. Translate the following sentences into Ukrainian.

A.

1. How long have they been living in Kharkiv?
2. The Dnieper Hydro-Electric Station has been functioning since 1931.
3. I have been reading the book for one hour.
4. For three years he has been working at his subject.
5. Where have you been? I've been waiting for you for half an hour!
6. How long have you been studying English?
7. I've been looking for you a whole hour.

B.

1. He has been here since 6 o'clock.
2. We haven't noticed any change in it.
3. I have been living in Kiev since 2005.
4. He has been playing football all day.
5. They have already played football.
6. I've been doing my homework for three hours.
7. Have you done your homework yet?
8. He's been writing articles all day.
9. He has written three articles today.

Exercise 3. Open the brackets choosing the correct form of the verb.

A.

1. I (to play) football for five years.
2. My team (to win / only) two matches so far.
3. How long you (to wait) for us?
4. She (to go out) with Dan for seven years.
5. He (to work) on this essay since two o'clock.
6. I (to finish/just) my homework.
7. You ever (to play tennis).
8. I (to participate) in four contests this year.
9. I (to swim) for seven years and I (to receive / already) some trophies.
10. You (to take) part in any competitions yet?
11. He (not to drive) a car for eight years.
12. We (not to run) for 30 minutes yet - there are still 10 minutes left.
13. She (not to read) for a long time - just 10 minutes, not more.
14. They (not to smoke) for 1 month now.
15. I (not to eat) anything since two o'clock. I'm hungry.
16. You (to take) the dog for a walk yet? I – (to work) all day. I (to come / just) home from work and I (not to have) the time yet to walk the dog.

B.

1. Why are you out of breath? - I _____ (to run).
2. The toaster is okay again. Dad _____ (to repair) it.
3. I am so tired, I _____ (to work) all day.
4. Your shirt is clean now. Maggie _____ (to wash) it.
5. I'm afraid, I'm getting a cold. I _____ (to walk) home in the rain.
6. Your clothes smell awful! _____ (you / to smoke)?
7. She is ready for her exam now. I _____ (to help) her preparing for it.
8. Since I bought my car, I _____ (not to travel) by train.
9. He _____ (not to learn) English for two years yet, but he speaks it very well.
10. My sister and her boyfriend (not to go) out together for a long time. They only met three weeks ago.
11. James _____ (not to tidy) up his room for a long time. It's a complete mess.
12. We _____ (not to practice) for hours – 15 minutes were enough.
13. Louis is absolutely tired as he _____ (not to sleep) well for days.
14. Dana _____ (not to work) for days because she is ill.
15. I _____ (not to play) the piano for ages, so please don't ask me to perform anything.

Exercise 4. Translate the following sentences into English.

- A.**
1. Дощ іде вже дві години.
 2. Вона шукає роботу вже півроку, але не може знайти нічого цікавого.
 3. О! Ви були на рибалці! Скільки риби ви піймали?
 4. Моя сестра – актриса. Вона вже зіграла у декількох фільмах.
 5. На цьому тижні він грав у теніс уже тричі.
 6. Вони грають вже 40 хвилин, отже, вони скоро закінчать гру.
 7. Я знаю його вже декілька років. Він – гарна людина.
 8. Чому книга така брудна? Що ти зробив з нею?
 9. Я загубив його номер телефону. І ніяк не можу з ним зв'язатися.
 10. Я пишу доклад вже три години, але ніяк не можу його закінчити.
 11. Як довго ти тут працюєш?
 12. Ми чекаємо на автобус вже 20 хвилин.
 13. Я бачив його учора, але не бачив його сьогодні.

B. 1. Коли я його зустрів, він поспішав на роботу, і тому ми не мали часу нормально поспілкуватися.

2. Чого вони сміялися, коли я увійшов?
3. Я дивлюсь фільм вже 30 хвилин, але так і не зрозумів, про що йдеться.

4. Вона грає на піаніно вже більше години, я сподіваюсь, що скоро вона зробить перерву.
5. Я вже написав йому листа і зараз чекаю на його відповідь.
6. Ти вже снідав?
7. Ми вчимо цю граматичну конструкцію вже три місяці, а ти так і не навчився її використовувати!
8. Учора я спочатку гуляла з друзями, а потім ми вирішили піти у кіно.
9. Де ти був? Я шукаю тебе вже півгодини.
10. Зайди до Анни. Вона шукає тебе.

Study the following words and word combinations

account for, v – враховувати
agent, n – фактор, чинник
along with, prep – разом з
attract, v – притягувати, привертати
coalesce, v – з'єднуватися,
 поєднуватись
consistent, adj – послідовний
definitive, adj – безумовний,
 остаточний
density, n – щільність, густота; density
 of matter
disperse, v – розповсюджувати,
 розсіювати
draw upon, v – брати, черпати
drop, v – кидати
elaboration, n – розвинення, розробка,
 удосконалювання

essential, adj – суттєвий,
 найважливіший
familiar, adj – обізнаний, відомий
fluid, n – рідина
intact, adj – неушкоджений
intertwine, v – сплітати, переплітати
link, n – ланка, сполучення, зв'язок
observe, v – спостерігати
phenomenon, n – явище
refusal, v – відмова
remain, v – залишатися
responsible, adj (for) – відповідальний
 за ...
reveal, v – виявляти, показувати
strict, adj – точний, вимогливий,
 суворий
tide, n – потік

Read the following text

THE ROLE OF GRAVITY

Gravitation, or gravity, is a natural phenomenon by which physical bodies attract with a force proportional to their mass. In everyday life, gravitation is most familiar as the agent that gives weight to objects with mass and causes them to fall to the ground when dropped. Gravitation causes *dispersed matter* to coalesce, and *coalesced matter* to remain *intact*, thus accounting for the existence of the Earth, the Sun, and most of the macroscopic objects in the universe.

Gravitation is responsible

- for keeping the Earth and the other planets in their orbits around the Sun;
- for keeping the Moon in its orbit around the Earth;

- for the formation of tides;
- for *natural convection*, by which fluid flow occurs under the influence of a *density gradient* and gravity;
- for heating *the interiors* of forming stars and planets to very high temperatures;
- and for various other phenomena observed on Earth.

Gravitation is one of the four fundamental interactions of nature, along with electromagnetism, and the nuclear strong force and weak force. It is, first of all, the only truly universal force. It acts on every material thing from an electron to a galaxy, and, as we learned, it even acts on particles like photons and neutrinos or energy in any form. Secondly, gravity has played a uniquely important role in the development and growth of mechanics. Newton, in his definitive formulation of mechanics, drew upon studies of motion near the earth, influenced by *local gravity* and of planetary motion far from earth, influenced by *the Sun's gravity*.

Since Newton's time, motion governed by gravitational force

- has provided the strictest tests of mechanic;
- has served as stimulus for much of the mathematical elaboration of the theory of mechanics;
- has led to the discovery of distant new planets and artificial satellites;
- has revealed new details of the shape and structure of the earth. The study of the orbit of Mercury brought to realising an imperfection of Newtonian mechanics. Mercury's refusal to follow precisely the laws of classical mechanics stands now as one of the experimental supports of the new mechanics of Einstein's *general relativity*.

Finally, gravity has a special place in mechanics because of its essential link with motion. Most forces on earth can be measured with a spring balance or other device that involves no motion. The same is obviously not true of the forces acting on the planets. These can be determined only if we study the motion of the planets. The motion determines the force, but at the same time the force determines the motion. Planetary mechanics must be a *self-consistent theory* in which the law of motion (Newton's second law) and the law of gravitational force are intertwined.

Exercise 5. Find the Ukrainian equivalents.

A natural phenomenon, attract with a force, when dropped, accounting for the existence, familiar as the agent, causes them to fall, dispersed matter, coalesced matter, to remain intact, heating the interiors, responsible for, the formation of tides, along with electromagnetism, a uniquely important role, the strictest tests of mechanics, essential link, has revealed new details.

Exercise 6. Translate the following word combinations and sentences into Ukrainian.

The agent that gives exact data; the story has attracted a lot of interest from the media; gradually the different groups of people coalesced into one group; a definitive agreement; density of matter; the clouds dispersed as quickly as they gathered; the apples are beginning to drop from the trees; elaboration of this device; a good diet is essential for everyone; familiar to everyone; a powerful cleaning fluid; in that accident his car remained almost intact; the problems of crime and unemployment are closely intertwined; there are a number of links between the two theories; scientists have observed a drop in

ozone levels over the Antarctic; storms, lightning, and other natural phenomena; they couldn't understand her refusal of a scholarship to Yale; many scientists remain unconvinced by the current evidence; the airline is legally responsible for the safety of its passengers; the violinist revealed himself as a talented interpreter of classical music; a strict teacher; strong tides make swimming dangerous

Exercise 7. Find in the text synonyms for the following words.

Normal, well-known, liquid, to study, different, unequivocal, exactly, uncover, unnatural, include.

Exercise 8. Agree or disagree with the following statements.

1. Gravitation attracts everything to the earth.
2. Gravitation causes coalesced matter to disperse.
3. This phenomenon acts only on the Earth.
4. Only big objects feel the action of gravitation
5. Gravitation has contributed in the development on mechanics.
6. Due to gravitation scientists have discovered distant planets.
7. We can apply Newtonian mechanics for everything.
8. Gravity is linked with motion.
9. We can measure forces with a spring balance.
10. Motion and force determine each other.

Exercise 9. Choose the appropriate word and translate the sentences into Ukrainian.

1. Because Newton (opposed, maintained) that there was a gravitational attraction between any two (material, immaterial) bodies in the universe, his generalization is called the law of universal gravitation.
2. All bodies on the Earth fall with (the same, different) acceleration.
3. One might suppose that the earth's gravitational force weakens with distance, and certainly this seems a (reasonable, unreasonable) supposition.
4. Light and sound (weaken, strengthen) with distance, these are two common phenomena which man has always been familiar with.
5. It would seem reasonable that for a body like the Earth which has nearly the (symmetrical, similar) shape of a (sphere, square), we could simplify matters.
6. A century after Newton's death the astronomer W. Herschel discovered instances of far distant stars that (revolved, returned) about each other in (strict, weak) accordance with Newton's law of universal gravitation.

Exercise 10. Answer the questions.

1. What is gravitation?
2. What does gravitation cause?
3. What is the place of gravitation among the forces of nature?
4. Why is gravity the only truly universal force?
5. What is the role of motion governed by gravitational force?
6. What showed the imperfection of Newtonian mechanics?
7. How can most forces on earth be measured?

Exercise 11. Match the words (1–11) with their definitions (a–m). There are two definitions that you do not need to use.

- | | |
|---------------|--|
| 1. attract | a. if it happens to an objects or ideas, they combine to form one single group |
| 2. density | b. certain, clear, and not likely to change |
| 3. coalesce | c. go away in different directions |
| 4. essential | d. to give more details or new information about something |
| 5. familiar | e. extremely important and necessary |
| 6. disperse | f. to make someone or something move towards another thing |
| 7. definitive | g. easy to recognize because of being seen, met, heard, etc before |
| 8. elaborate | h. in science, the force which attracts all objects in the universal towards one another |
| 9. tide | i. a way in which two things or ideas are related to each other |
| 10. refusal | j. when you say firmly that you will not do, give, or accept something |
| 11. link | k. the regular rising and falling of the level of the sea |
| | l. the relationship between the mass of a substance and its size |
| | m. the position or purpose that someone or something has in a situation, organization, society or relationship |

Exercise 12. Complete the following sentences according to the text.

1. Gravitation is a natural phenomenon by which physical bodies attract with a force.... 2. Gravitation is responsible for keeping the Earth and the other planets in 3. Gravitation is one of the four fundamental interactions of nature, along with 4. It acts on every material thing from 5. Second, gravity has played a uniquely important role in the development 6. Through the study of the orbit of Mercury came to 7. Mercury's refusal to follow precisely the laws of classical mechanics stands now as one of 8. Gravity has a special place in mechanics because of 9. The motion determines the force, but at the same time

Exercise 13. Translate into English.

1. Науковий керівник тільки що повідомив мені остаточне формулювання теми моєї курсової роботи.
2. Треба бути послідовним у виконанні лабораторної роботи.
3. Ти можеш дати визначення густоти речовини?
4. Ці проблеми тісно переплітаються.
5. Ми спостерігаємо за цим явищем з березня і вже маємо достатньо інформації, щоб написати статтю з цієї теми.
6. Ми працюємо над удосконаленням цієї установки з вересня і вже маємо певні результати.
7. Необхідно знайти зв'язок між цими двома теоріями.
8. Гравітація, разом з електромагнетизмом, є однією з чотирьох основних взаємодій у природі.

9. Хмари розсіялися, ми можемо йти на вулицю.
10. Що поєднує ці дві теорії?

Exercise 14. Retell the text «THE ROLE OF GRAVITY».

UNIT 7

WORDBUILDING: Word building components. Revision

GRAMMAR: Past Perfect; Future Perfect; Revision of Tenses

TEXT: Nuclear Reactors

WORDBUILDING

Exercise 1. Form new words with the help of the following suffixes and prefixes, translate into Ukrainian:

- ify:** pure, clear, class, identity, acid, solid, simple.
- ize:** character, neutral, sterile, summary, carbon, crystal.
- al:** experiment, emotion, classic, globe, mechanic, origin, medicine.
- ic:** acid, atom, alcohol, organ, period, cube.
- ical:** technology, ecology, physics, biology, theory, botany.
- de:** composition, hydrate, constructive, compression, classify.

Exercise 2. Form new words with the help of word building components, translate into Ukrainian:

Health, to prevent, to research, order, nitrogen, synthesis, organ, to digest, hard, fresh, pain, toxic, clear, crystal, solid, cell, cancer, to solve, therapy, character, to construct.

PAST PERFECT

<i>Affirmative form</i>		<i>Interrogative form</i>	<i>Negative form</i>
<i>I</i> <i>You</i> <i>He</i> <i>She</i> <i>It</i> <i>We</i> <i>You</i> <i>They</i>	<i>had played</i>	<i>I</i> <i>you</i> <i>he</i> <i>Had she played?</i> <i>it</i> <i>we</i> <i>they</i>	<i>I</i> <i>You</i> <i>He</i> <i>She</i> <i>It</i> <i>We</i> <i>You</i> <i>They</i> <i>had not played</i> <i>(hadn't)</i>

SHORT ANSWERS

<i>Affirmative form</i>	<i>Negative form</i>
<i>I</i> <i>he</i> <i>she</i> <i>Yes, it had</i> <i>we</i> <i>you</i> <i>they</i>	<i>I</i> <i>he</i> <i>she</i> <i>No, it had not</i> <i>we</i> <i>(hadn't)</i> <i>you</i> <i>they</i>

Past Perfect вживається:

1) У складнопідрядних реченнях, коли у минулому відбувалось декілька дій. Дія, яка відбувалася раніше від усіх, вживається у Past Perfect, усі інші – у Past Indefinite:

*When he came, I **had been** there for half an hour.*

2) Коли дія здійснилася до якогось моменту у минулому:

*I **had done** my work by eight o'clock.*

Exercise 3. Choose the correct tense (Simple Past or Past Perfect).

1. She gave/had given me the book that she read/had read.
2. She threw/had thrown away the article that she wrote/had written.
3. We visited/had visited the museum that our friend told/had told.
4. In the evening, the child told/had told their grandparents what they saw/had seen at the zoo.
5. The boy was/had been very sorry for what he had said.
6. When James went/had gone out to play, he already did/had already done his homework.
7. Anna came/had come home, sat/had sat down and switched/had switched on the TV.
8. Before that day in winter, the African boy never saw/had never seen snow in his life.
9. The wind blew/had blown away the leaves that we gathered/had gathered.
10. They showed/had shown me the pictures, they took/had taken during their trip.

Exercise 4. Open the brackets using the correct tense.

1. The teacher (to correct) the tests we (to write).
2. My sister (not to see) the note that I (to lay) on the kitchen table for her.
3. We (to want) to watch a film that we (not to see) before.
4. I (to go) to London in 2002.
5. I (to buy) some souvenirs for my relatives before I (to leave) the Park.
6. When he (to wake up), his wife (already / to prepare) breakfast.
7. By the time he (to arrive) at the pub, they (to run) out of beer.
8. When she (to start) to learn English, she (already / to learn) French.
9. Jane (already / to type) ten pages when her computer (to crash).
10. She (to hear) the news, (to go) to the telephone and (to call) a friend.
11. He (to feel) very tired because he (not to sleep) very well the night before.
12. It (to be) six o'clock and Bob (to get) up and (to go) to the bathroom where he (to have) a cold shower to wake up.
13. I (to know) him for a long time before I (to meet) his family.
14. By 6 o'clock he (to do) everything he (to plan), and (to go) to his friend.

FUTURE PERFECT

<i>Affirmative form</i>		<i>Interrogative form</i>	<i>Negative form</i>
<i>I</i> <i>You</i> <i>He</i> <i>She</i> <i>It</i> <i>We</i> <i>You</i> <i>They</i>	<i>will have played</i>	<i>I</i> <i>you</i> <i>he</i> <i>will she have played?</i> <i>it</i> <i>we</i> <i>they</i>	<i>I</i> <i>You</i> <i>He</i> <i>She</i> <i>It</i> <i>We</i> <i>You</i> <i>They</i> <i>will not have played (won't)</i>

SHORT ANSWERS

<i>Affirmative form</i>	<i>Negative form</i>
<i>I</i> <i>he</i> <i>she</i> <i>Yes, it will</i> <i>we</i> <i>you</i> <i>they</i>	<i>I</i> <i>he</i> <i>she</i> <i>No, it will not (won't)</i> <i>we</i> <i>you</i> <i>they</i>

Exercise 5. Open the brackets using the correct tense.

1. I don't know what he thinks about it, but I (to ask) him.
2. According to the weather forecast it (to rain) tomorrow all day long.
3. The windows in my flat are dirty. I haven't cleaned them yet. I (to do) it this Saturday.
4. I (to come) to London tomorrow; I will phone you when I arrive.
5. Don't wait for him, he won't come for supper; he (to come) by midnight.
6. This time next year I (to do) exactly what I'm doing now.
7. On the 1st March we (to be married), for a whole year.
8. Don't phone now. It's only 7 o'clock in New York and nobody (to work).
9. The builders (to finish) the work on the house by the weekend.
10. Give me a ring on Thursday. I (to hear) the results by then.
11. I can't believe it! This time next week, we (to swim) in the Indian Ocean.
12. When I arrive at the airport, my whole family (to wait) for me.
13. John won't be home at 11 o'clock. He (to do) his aerobics class.
14. By the year 2500, a lot of animals (to become) extinct.

Study the following words and word combinations

abundant, adj – рясний, багатий
arrange, v – улагоджувати, пристосовувати
available, adj – дійсний, доступний
capacity, n – навантаження, дієздатність, потужність
circuit, n – схема, кругообіг
containment, n – герметичність, локалізація
convey, v – транспортувати, передавати
core, n – ядро
emitter, n – випромінювач
fission, n – розщеплення, ділення
fret, v – розмивати, підточувати, роз'їдати

fuel, n – паливо
impede, v – затримати, перешкоджати
insert, v – вставити, помістити
intrusion, n – вторгнення, втручання
leak, v – давати течу, протікати
mature, adj – досконалий, дорослий
pellet, n – осад
plug, v – закупорювати
pressure vessel, n – корпус реактора
propulsion, n – просування, поштовх
release, n – випуск, скидання
robust, adj – міцний, сильний
rod, n – стержень
split, v – розщепити
supply, n – постачання
sustainable, adj – що підтримується
withdraw, v – вилучати, забирати

Read the following text

NUCLEAR REACTORS

Nuclear power is a mature, proven technology which is strongly regulated and controlled, making it among the safest available. It is also the lowest cost while its fuel supply is abundant, sustainable, secure, clean and reliable. Over 16% of the world's electricity is produced from nuclear energy, more than from all sources worldwide.

Most nuclear electricity is generated using just two kinds of reactors which were developed in the 1950s and improved since. New designs are coming forward and some are in operation as the first generation reactors come to the end of their operating lives.

A nuclear reactor produces and controls the release of energy from splitting the atoms of certain elements. In a nuclear power reactor, the energy released is used as heat to make steam to generate electricity. (In a research reactor the main purpose is to utilise the actual neutrons produced in the core. In most naval reactors, steam drives a turbine directly for propulsion.)

There are several components common to most types of reactors: *fuel, moderator, control rods, coolant, pressure vessel or pressure tubes, steam generator, and containment.*

The basic fuel for reactors is uranium. Usually pellets of uranium oxide (UO₂) are arranged in tubes to form fuel rods. In a new reactor with new fuel a neutron source is needed to get the reaction going. Usually this is beryllium mixed with polonium, radium or other alpha-emitter.

Material in the core which slows down the neutrons released from fission so that they cause more fission is **the moderator**. It is usually water, but may be heavy water or graphite.

Control rods are made with neutron-absorbing material such as cadmium, hafnium or boron, and are inserted or withdrawn from the core to control the rate of reaction, or to halt it.

The coolant is a fluid circulating through the core to transfer the heat from it.

Pressure vessel or **pressure tubes** are constructed from a robust steel vessel containing the reactor core and moderator/coolant, but it may be a series of tubes holding the fuel and conveying the coolant through the surrounding moderator.

The steam generator represents (not in BWR) a part of the cooling system where the high-pressure primary coolant bringing heat from the reactor is used to make steam for the turbine, in a secondary circuit. Essentially a heat exchanger is like a motor car radiator. These are large heat exchangers for transferring heat from one fluid to another – here from high-pressure primary circuit in PWR to secondary circuit where water turns to steam. Each structure weighs up to 800 tonnes and contains from 300 to 16,000 tubes about 2 cm diameter for the primary coolant, which is radioactive due to nitrogen-16. The secondary water must flow through the support structures for the tubes. The whole thing needs to be designed so that the tubes don't vibrate and fret, operated so that deposits do not build up to impede the flow, and maintained chemically to avoid corrosion. Tubes which fail and leak are plugged, and surplus capacity is designed to allow for this.

Containment is the structure around the reactor which is designed to protect it from outside intrusion and to protect those outside from the effects of radiation in case of any serious malfunction inside. It is typically a metre-thick concrete and steel structure.

Exercise 6. Give the Ukrainian equivalents to the words and expressions.

Mature, proven technology, fuel supply, abundant, sustainable, reliable, splitting the atoms of certain elements, directly for propulsion, control rods, pressure vessel, containment, pellets of uranium oxide, released from fission, inserted or withdrawn from the core, a robust steel vessel, the high-pressure primary coolant, a heat exchanger, vibrate and fret, build up to impede the flow, maintained chemically to avoid corrosion, tubes which fail and leak, capacity is designed to allow for this, to protect it from outside intrusion, serious malfunction.

Exercise 7. Give the English equivalents to the expressions.

Чітко регулюється та контролюється, виробляється, використовуючи два типи реакторів, реактори першого покоління, контролює вихід енергії, основне паливо, осад оксиду урану, поміщувати або вилучати з ядра, зупинити реакцію, рідину, що циркулює у реакторі, переносити охолоджувач, вода перетворюється на пару, перешкоджати потоку, підтримувати, щоб запобігти корозії, герметичність навкруги реактора, захищати від зовнішнього втручання, бетонна або сталеві конструкції.

Exercise 8. Answer the questions according to the text.

1. How can nuclear energy be characterised?
2. How is most nuclear electricity generated?
3. What kinds of reactors are mentioned in this text? What is their main purpose?
4. What are the main components common to most types of reactors?
5. Where are pellets of uranium oxide arranged? What for?
6. What fuel is usually used in nuclear reactors?
7. What is the moderator used for?
8. What material is used for control rods? What is their function?
9. What does the steam generator represent?
10. What is the containment?

Exercise 9. Find the words with the same meaning.

abundant	scarce , plentiful, coolant, secure
available	unobtainable, accessible, persistent, memorable
avoid	face up , withdraw, fret, avert
fluid	substance, material, pellet, liquid
improve	deteriorate, leak, ameliorate, plug
insert	enter, persist, sustain, maintain
mature	childish , developed, underdeveloped, secure
intrusion	invasion, protection, deflection, function
robust	frail, vigorous, cast-iron, heavy
support	approval, confirmation, revision, sustention

Exercise 10. Complete the following sentences with the words according to the text.

Nuclear power is a _____, _____ technology which is strongly regulated and controlled. It is also the lowest cost while its fuel _____ is _____, _____, _____, _____ and _____. Most nuclear electricity is _____ using just two kinds of reactors.

A nuclear reactor _____ and controls the _____ of energy from _____ the atoms of certain elements. There are several _____ common to most types of reactors: _____, _____, _____, _____, _____, _____, and _____. The _____ fuel for reactors is _____. Usually _____ of uranium oxide are _____ in tubes to form _____.

Material in _____ which slows down the neutrons released from _____ so that they cause more fission is _____. _____ are made with neutron-absorbing material such as _____, _____ or boron, and are _____ or _____ from _____ to control _____, or _____ it. The _____ is a fluid circulating through the core _____ the heat from it. _____ are constructed from _____ steel vessel containing the reactor core and moderator/coolant, but it may be a series of tubes _____ the fuel and _____ the coolant through the _____ moderator.

_____ is the structure around the reactor which is designed to protect it from _____ and to protect those outside from the effects of radiation in case of any serious _____ inside. It is typically a metre-thick _____ and steel structure.

Exercise 11. Match the words (1–12) with their definitions (a–n). There are two definitions that you do not need to use.

- | | |
|-----------------|--|
| 1. abundant | a. form (a channel or passage) by rubbing or wearing away |
| 2. capacity | b. to slow down or cause problems for the achievement or finishing of something |
| 3. fret | c. able to continue over a period of time |
| 4. fuel | d. the basic and most important part of something |
| 5. impede | e. to escape from a hole or crack in a pipe or container |
| 6. intrusion | f. block or fill in a hole or cavity |
| 7. leak | g. strong and unlikely to break or fail |
| 8. pellet | h. to take or move out or back, or to remove |
| 9. plug | i. more than enough |
| 10. robust | j. a large machine in which atoms are either divided or joined in order to produce power |
| 11. sustainable | k. the amount that something can produce |
| 12. withdraw | l. when someone goes into a place or situation where they are not wanted or expected to be |
| | m. a small, rounded, compressed mass of a substance |
| | n. material such as coal, gas, or oil that is burned to produce heat or power |

Exercise 12. Read the text. Fill in the gaps with necessary prepositions.

New designs are coming _____ and some are _____ operation _____ the first generation reactors come _____ the end _____ their operating lives. A nuclear reactor produces and controls the release _____ energy _____ splitting the atoms _____ certain elements. _____ a nuclear power reactor, the energy released is used _____ heat to make steam to generate electricity. There are several components common _____ most types _____ reactors: fuel, moderator, control rods, coolant, pressure vessel, steam generator, and containment. Material _____ the core _____ slows _____ the neutrons released _____ fission _____ they cause more fission is the moderator. Control rods are made _____ neutron-absorbing material _____ cadmium, hafnium or boron. The coolant is a fluid circulating _____ the core to transfer the heat _____ it. Pressure vessel or pressure tubes are constructed _____ a robust steel vessel containing the reactor core and moderator/coolant. Containment is the structure _____ the reactor which is designed to protect it _____ outside intrusion and to protect those outside _____ the effects of radiation _____ any serious malfunction inside.

Exercise 13. Translate the following sentences into English.

1. Першу у світі атомну електростанцію було побудовано у СРСР через дев'ять років після атомного бомбардування Хіросіми.

2. Цій найважливішій події передувала напружена праця зі створення власної ядерної зброї.

3. На чолі цього проекту був видатний науковець Ігор Курчатов.

4. У науковій лабораторії Радянського Союзу було відтворено дослідження американських науковців, отримано чистий уран та графіт.

5. У грудні 1946 року науковці здійснили першу ланцюгову реакцію на дослідному ядерному ураново-графітному реакторі Ф1.

6. Потужність цього реактора була дуже малою, але це дозволило отримати важливу інформацію для подальшої роботи.

7. Подальші розробки проводилися у співпраці з видатним хіміком Миколою Доллежалем, який запропонував свою модель.

8. Принцип дії та конструкція реактора Доллежаля були такими: у металевому корпусі містилися графітові блоки з каналами для уранових блоків та регулюючих стержнів (поглиначів нейтронів).

9. При відповідній масі урану починалася підтримувана ланцюгова реакція ділення атомів.

10. У результаті реакції виникали не тільки два нові ядра, але й декілька нейтронів, які й підтримували реакцію.

11. Науковці встановили, що у цьому випадку вже неможливо як-небудь вплинути на хід реакції або зупинити її.

12. Враховуючи цю інформацію, науковці швидко впоралися із завданням.

PART II: Texts for additional reading and speaking practice

Text 1



MOBILE PHONES

We love them so much that some of us sleep with them under the pillow, yet we are increasingly concerned that we cannot escape their electronic reach. We use them to convey our most intimate secrets to friends, but also we worry that they are eroding our privacy. We rely on them more than the internet to cope with modern life, and we absolutely cannot imagine our life without them.

As researches show these are teenagers who regard their mobiles as an expression of their identity. This is partly because mobiles, are beyond the control of parents. But the researchers suggest that another reason may be that mobiles, especially text messaging, help to overcome shyness. Young people often use texting to apologize, to excuse lateness or to communicate other things that make them uncomfortable.

But while the research points out that mobile phones now boast twice the reach of the desktop internet, it argues that the impact of phones has been local rather than global, shoring up existing friendships and networks, rather than opening users up to a new broader community. Even the language of texting in one area can be incomprehensible to anybody from another area.

Let's consider some of advantages and disadvantages of mobiles. In travels like in everyday life we can need help in a case of incident. In chance of any kind of accidents we can inform with mobile phone suitable services, such as: police, fire guard or ambulance service. What is a more, young people, using the mobile phone learn to take care of themselves, because when their parents will buy them a "card mobile phone", the users know, how much money they can afford to spend on a definite time. It teaches them, how to save money.

Furthermore thank to mobile phones, parents can control their children during their house absence. They can always call kids to find out where they are, what they are doing, why they aren't at home and what time they are coming back. It is also possible to give them recommendations, such how: "Make purchases!" or "Visit your grandma today" etc.

On the other hand some people say that mobile phones restrain interhuman contacts, because people prefer to talk on the phone with their friends instead of for example meet with them.

Mobile phones aren't also sensible for our health, because they emit harmful rays. But on the other hand almost everything has some negative signs, but we don't have to worry of them. The most important trump of mobile phones is comfort and if we will use this kind of phones with reflection, it can really help us and be very useful.

Think about:

- The title of every passage.
- What is mobile for you?
- What do you prefer: to go and see your friends, or just to ring them up? Why?

- Do you think mobile phones were a good invention?
- Are there any places where you think mobiles should be banned?
- How have mobile phones changed since the 90s?
- What do you think mobile phones will be like in 20 or 100 years time?
- What will you be able to do with your phone?
- How big will it be and what will it look like?

Imagine you work for a mobile phone company.

- Work in a group to design a mobile phone of the future.
- Think about the features it has and what it can do.
- When you have decided, try to draw the phone and label all the features.
- Then you can present your idea to the group

MOBILE PHONE QUIZ

How much do you know about mobile phones? Try this quiz and find out.

- 1) What is the average number of mobile phones owned by each British person?**
 - a) 0.8
 - b) 1.8
 - c) 2.8
- 2) When was the first mobile phone created?**
 - a) 1973
 - b) 1983
 - c) 1993
- 3) What were the first words spoken on a mobile?**
 - a) "Can you hear me?"
 - b) "I'm on the train"
 - c) "Guess where I'm calling from?"
- 4) How many phone numbers could the first mobile phones hold in their memory?**
 - a) 10
 - b) 30
 - c) 100
- 5) How much money was spent last year in Britain on ring tones?**
 - a) £ 26 million
 - b) £ 56 million
 - c) £ 76 million
- 6) Which country has the most mobile phones in use?**
 - a) The United States
 - b) India
 - c) In China
- 7) How many people in the whole world own a mobile phone?**
 - a) 4 million
 - b) 4 billion
 - c) 4 trillion
- 8) What percentage of drivers use their mobile phone while driving in the UK?**
 - a) 0.8

b) 1.8

c) 2.8

9) How many texts are sent every second in Britain?

a) 1000

b) 5000

c) 10 000

10) What is the universal emergency number for all mobile phones in the EU?

a) 112

b) 999

c) 911

Text 2

SOME INTERESTING FACTS ABOUT ALBERT EINSTEIN

Albert Einstein was *a genius theoretical physicist*. He is best known for his *mass-energy equivalence, theory of relativity, Brownian motion and photoelectric effect*. He was *honored with the Nobel Prize in Physics in 1921*. Here are some interesting facts about Albert Einstein.

Albert Einstein's popular phrase "**The important thing is to not stop questioning**" *reflected his never-ending questioning attitude and curiosity*. This attitude *earned him a Nobel Prize*

Albert Einstein was a genius in physics and mathematics. He published his first scientific work "The Investigation of the State of Ether in Magnetic Fields" in 1894, when he was just 15 years old. Albert Einstein showed *speech impairments* till the age of nine. Young Einstein seldom spoke and always *muttered* silently, framing sentences in his mind until he finally spoke them loud after getting them right. He always had problems with *spelling*. The headmaster of the school *suggested* that Einstein should *attend* a trade school. His teachers also *declared* him as *borderline retarded*! After graduating from college, Einstein failed to find a job related to his field, physics. He became a technical assistant in a Swiss patent office. However, he never stopped his research on theoretical physics and continued to work on it in his spare time.

He was visiting the United States when Adolf Hitler came to power in 1933, and did not go back to Germany, where he had been a professor at the Berlin Academy of Sciences. He settled in the U.S., becoming a citizen in 1940. *On the eve* of World War II, he helped President Franklin D. Roosevelt that Germany might be developing an *atomic weapon*, and recommended that the U.S. begin similar research; this *eventually* led to what would become *the Manhattan Project*. Einstein was in support of defending the Allied forces, but largely denounced using the new discovery of nuclear fission as a weapon. Later, together with Bertrand Russell, Einstein signed the Russell–Einstein Manifesto, which *highlighted* the danger of nuclear weapons. Einstein was affiliated with the Institute for Advanced Study in Princeton, New Jersey, until his death in 1955.

Einstein published more than 300 scientific papers along with over 150 non-scientific works. His *great intelligence* and *originality* have made the word "Einstein" synonymous with genius.

- Make 10 True/False sentences on the text
- Make up 10 questions on the text and answer your partner's questions.
- Find some interesting information about other physicists

Text 3

SOME INTERESTING FACTS ABOUT PHYSICS

1. The air around us is not weightless. In fact, it can be weighed almost as accurately as iron or lead. A column of air 1 inch square and 600 miles high, for instance, weighs approximately 15 pounds, about twice as much as an average newborn baby. This weight is what creates the phenomenon known as "atmospheric pressure."
2. Sound travels through an object by transferring between molecules. The speed of the sound is dependent on how tight the bonds between the molecules are. The less 'elastic' a material is, the faster the sound moves. For the quoted examples the relevant speeds are: steel, 5100 m/s (meters per second); gold, 3240 m/s; water, 1493 m/s; air, 343 m/s. Diamond allows sound to travel at 12000 m/s which equates to 27000 mph.
3. If you punch a series of holes in a paper cup filled with water, the water will squirt out farthest and fastest from the lowest holes. The reason is that water pressure is greatest at the bottom of the cup. For the same reason, dams are made thicker at the bottom than at the top.
4. The tube used to produce X-rays is called Coolidge tube (трубка Кулиджа). It is a device in which high speed electrons, produced from a filament and accelerated by a potential difference, fall on a metal surface (usually a heavy metal) and emit an electron from the L-shell (i.e. the shell with two electrons). This emission of an electron leaves a vacancy or hole in the atom which is filled by an electron moving from a higher energy level which releases energy. This energy is X-ray.
5. A black body is an idealized physical body that absorbs all incident electromagnetic radiation, regardless of frequency or angle of incidence. A black body in thermal equilibrium (that is, at a constant temperature) emits electromagnetic radiation called black-body radiation. The radiation is emitted according to Planck's law, meaning that it has a spectrum that is determined by the temperature alone, not by the body's shape or composition.

Think about:

- Some other interesting facts about physics.
- The field of physics that is more interesting for you. Why?
- 10 True/False sentences on the text.
- Make up 10 questions on the text and answer your partner's questions.

Text 4

VECTOR ADDITION OF GRAVITATIONAL FORCES

Pick a flower on earth and you move the farthest star.

Paul Dirac

When you stand on the ground, which part of the earth is pulling down on you with its gravitational force? Most people are tempted to say that the effect only comes from the part directly under you, since gravity always pulls straight down. Here are three observations that might help to change your mind:

✓ If you jump up in the air, gravity does not stop affecting you just because you are not touching the earth: gravity is a noncontact force. That means you are not immune from the gravity of distant parts of our planet just because you are not touching them.

✓ Gravitational effects are not blocked by intervening matter. For instance, in an eclipse of the moon, the earth is lined up directly between the sun and the moon, but only the sun's light is blocked from reaching the moon, not its gravitational force — if the sun's gravitational force on the moon was blocked in this situation, astronomers would be able to tell because the moon's acceleration would change suddenly. A more subtle but more easily observable example is that the tides are caused by the moon's gravity, and tidal effects can occur on the side of the earth facing away from the moon. Thus, far-off parts of the earth are not prevented from attracting you with their gravity just because there is other stuff between you and them.

✓ Prospectors sometimes search for underground deposits of dense minerals by measuring the direction of the local gravitational forces, i.e., the direction things fall or the direction a plumb bob hangs. For instance, the gravitational forces in the region to the west of such a deposit would point along a line slightly to the east of the earth's center. Just because the total gravitational force on you points down, that doesn't mean that only the parts of the earth directly below you are attracting you. It's just that the sideways components of all the force vectors acting on you come very close to canceling out.

A cubic centimeter of lava in the earth's mantle, a grain of silica inside Mt. Kilimanjaro, and a flea on a cat in Paris are all attracting you with their gravity. What you feel is the vector sum of all the gravitational forces exerted by all the atoms of our planet, and for that matter by all the atoms in the universe.

- Make up 10-15 special questions to the text
- Compose a summary to the text "Vector Addition of Gravitational Forces"

Text 5

HARM AND BENEFIT OF RADIATION

Radiation consists of three types of rays, each with a different *capacity to penetrate* bodies. These are alpha, beta and gamma rays. Radiation is not harmful in all cases. In fact, some types of radiation are *unavoidable*, like cosmic radiation which originates from stars. The Sun too, radiates cosmic energy produced by nuclear reactions on its surface, consisting of *short wavelength emission* of electrons and neutrons. Radiation can easily penetrate *a lead object*, one inch thick. Thus, you can have an idea about the effect cosmic radiation can have on living beings. As you move upwards from the surface of

the Earth the effect of this radiation goes on increasing. Therefore, frequent fliers and astronauts are more *exposed to cosmic radiation* than others.

But *overexposure* to these types of radiation, can *alter the DNA* of animals by the *ionizing effect*, it produces. If the rate of ionization is significantly large, it can result in *permanent damage of the tissues*. Overexposure to nuclear radiation from the Sun or nuclear tragedies can cause *sunburn, melanoma* or different types of cancers. *Burns*, are the most immediate and primary effects of radiation.

Thermal radiation is approximately 35-45% of the total energy released in a nuclear explosion or test. This is a *sufficiently* large quantity to permanently alter the *gene structure* and introduce *hereditary problems* as is evident from the bombings of Hiroshima and Nagasaki. The subsequent generations were found to have *severe abnormalities*.

There is a parameter called *radiation absorbed dose* (rad), that gives an idea about the effects of radiation that bombards a human body. The amount of 50 to 150 rad causes alterations in the blood with symptoms like *nausea, fatigue* and *vomiting*. In case of exposure between 150-1100 rad amount, if not treated immediately, a victim may die in 30 days. For all levels above this *the central nervous system* of the body fails and loses control over all bodily functions and death may occur *in a matter of few days* or even hours.

But there are **some certain positive effects** of radiation such as *radio therapy* (for treatment of cancers) and *radiation exposure in X-ray diagnostic radiology, radio carbon dating*, where nuclear radiations are used to determine the properties and uses of several radioactive elements, and also determines *the age of fossil samples* and others.

Radiation, like many other scientific discoveries, can be put to both constructive and destructive uses. It is *the responsibility of humanity* to use this powerful tool for the benefit of nature and all of its elements.

Make up questions to the given answers.

1. Radiation consists of three types of rays.
2. Radiation is not harmful in all cases.
3. As you move upwards from the surface of the Earth, the effects of this radiation goes on increasing.
4. Overexposure to these radiations, can alter the DNA of animals by the ionizing effect, it produces.
5. Overexposure to nuclear radiations from the Sun or nuclear tragedies can cause sunburn, melanoma or different types of cancers.
6. There is a parameter called *radiation absorbed dose* (rad), that gives an idea about the effects of radiation that bombards a human body.
7. There are some certain positive effects of radiation such as radio therapy.
8. Radiation can be put to both constructive and destructive uses.

Give extra information about

- Alpha rays
- Beta rays
- Gamma rays

- Chernobyl disaster
- Other disasters on nuclear plants

Discuss the benefits and risks of the nuclear industry.

Text 6

EFFECTS OF WATCHING TOO MUCH TV

Discoveries and invention of devices are always welcome till we, humans, find a way to abuse its benefits and be adversely affected by it. This was the case when Wilhelm Roentgen discovered x-ray and within five years, the British Army was using a mobile x-ray unit to locate bullets and shrapnel in wounded soldiers in the Sudan. TV was also invented with positive thoughts in mind – there would be no national borders, education and communication would be worldwide, etc. However, we are now trying to overcome its physiological and psychological adverse effects on human beings.

One of the physiological effects of watching TV in excessive amounts is eye-strain. It is true that there are specifications for watching TV; TV should be 5 m. away from the eye, the room should be adequately lit, TV should be placed at the same height with our eyes, etc. However, these do not prevent our eyes from getting tired if we keep watching TV for a long time. Another effect is obesity, which is widely observed in people who like watching TV and eating snacks everyday (there is even a term “TV snacks” to refer to fast food that is suitable for eating in front of the TV). TV is such a powerful machine that people cannot get away from it – it is addictive.

Apart from the physiological effects, TV also causes psychological effects. One is a result of being exposed to violence. After seeing so many violent scenes on TV, people start considering violent actions normal and they lose their sensitivity to their environment. Partly connected to this effect, the interpersonal communication among people decreases. Being insensitive to the suffering of other people causes people to become alienated. Also, after coming home from work people seek to relax in front of the TV, and generally people prefer watching TV to talking to each other. This issue is very important since lack of interpersonal relationships mostly end with divorces.

Shortly, inventions are meant to be beneficial for human beings, if we know how to benefit from them. TV is one of such inventions that need to be used for the right purpose only – being educated and entertained for a reasonable (according to age) period of time. We may, then, be safe from or at least reduce the adverse physiological and psychological effects of watching too much TV

- Make up 5 questions on the text.
- Work in groups of 3 students. Ask and answer the questions.
- What do you think about:
 1. Television: for and against
 2. Television in your live
 3. Television and the Internet

Text 7

TYPES OF NUCLEAR REACTORS

As indicated under history, nuclear power stations are divided into 4 generations. Power stations currently under construction belong to the 3rd generation. *The first generation* were prototypes from the 1950s and 1960s, *the second generation* were commercial power stations that were built until the end of the last century. This means that the Borssele nuclear power station belongs to the second generation. *The third generation* is not extremely different to the 2nd, but it does include a number of improvements in the field of safety, reliability and cost price of electricity generation. A lot of research is being performed globally with regard to *the fourth generation*. This involves truly new concepts, in which the entire nuclear fuel cycle is included (recycling of waste, more effective use of uranium, etc.).

The third generation mainly concerns *light water reactors* (LWR). Almost 80% of all reactors currently operational are of this type. Water is used here as neutron moderator and transfers the heat from the nuclear reaction to the turbines that generate the electricity. The most important difference is the one between pressurised and boiling water reactors, the first type of which is found more often (58%). 21% of all nuclear reactors are *boiling water reactors* (BWR).

Compared to light water reactors, the design of the helium-cooled Pebble Bed reactors is much more innovative. These are also called the III+ generation. In this type of reactor the uranium nuclear fuel is not contained in rods but in pebbles: spheres the size of tennis balls. Helium is used as a coolant instead of water. The reactor is operated at high temperatures (depending on the type up to around 900°C) and the hot helium gas is used to drive the turbines directly. This design has a much higher efficiency than that of water-cooled reactors: around 41% instead of 34%. In addition to this, these reactors are inherently safe. The pebbles can withstand temperatures of up to 1600°C.

Several years ago, an international committee selected six reactor types for further research. In addition to the VHTR, the SCWR (Super Critical Water Cooled Reactor) is being developed, which should provide a very high efficiency for electricity production. The reactor is cooled by water at extremely high pressures and a temperature of 550°C. Work is also underway on the MSR – Molten Salt Reactor – whereby the reactor core itself circulates, which operates at a high temperature (700°C) and therefore has a high generation efficiency.

- Make 10 True/False sentences on the text
- Make up 10 questions on the text and answer your partner's questions.
- Give extra information about
 - a) Light water reactors;
 - b) Helium-cooled Pebble Bed reactors;
 - c) The very high temperature reactors;
 - d) Super Critical Water Cooled Reactors
 - e) Other types of reactors.

PART III: Grammar tests

Unit 1

TEST 1

1. Kate _____ in London.
A to live C live
B is living D lives
2. She _____ English.
A is C are
B is being D am
3. She _____ English now.
A speak C speaks
B is speaking D are speaking
4. Do you _____ Russian?
A speak C is speaking
B speaks D are speaking
5. You _____ to speak English now.
A learning C is learning
B are learning D learn
6. Water _____ at 100 degrees Celcius.
A boiling C boil
B is boiling D boils
7. I _____ in Moscow with my friend (only for a couple of weeks).
A am living C lives
B live D are living
8. The water _____. Can you turn it off?
A boil C is boiling
B to boil D boils
9. I _____ English now.
A am speaking C am saying
B speak D is telling
10. My parents ____ in a detached house.
A lives C is living
B live D living
11. The Sun ____ in the East.
A rise C are rising
B rises D rising
12. Red traffic lights ____ "Stop".
A points C means
B reads D speaks
13. He ____ to any parties.
A not to belong C doesn't belong
B don't believe D believes
14. Do you ____ where the post office is?
A knowing C realize
B know D speak
15. My mother usually ____ lots of money on clothes.
A spends C is asking

- B is wasting
16. Martin never ____ me text messages.
A sends
B doesn't send
17. I ____ too much coffee.
A drinking
B drinks
18. The bank always ____ on time.
A close
B serve
19. I ____ I'll show you the city.
A promise
B promising
20. You ____ your things. You should be more attentive.
A always lose
B are losing always
21. A solar eclipse ____ when the moon ____ in front of the sun.
A happen, pass
B happens, is passing
22. What ____ of my hair?
A do you think
B think
23. What ____ about now?
A do you think
B think
24. My term in university course ____ until next month.
A is starting
B start
25. He always ____ a black hat.
A wears
B clothes
26. When ____ ?
A is the plane arriving
B does the plane arrive
27. Why ____ now?
A does she cry
B she cries
28. What time ____ in the morning?
A are you getting up
B you are getting up
29. This weekend I ____ my friends in Brighton.
A visit
B am visiting
30. ____ in the pool at the moment?
- D rejects
C receives
D obtains
C drink
D is drinking
C opens
D open
C am promise
D promises
C are always losing
D lose
C happens, passes
D is happening, is passing
C are you thinking
D you are thinking
C are you thinking
D you are thinking
C start
D doesn't start
C bring
D sell
C the plane is arriving
D the plane arrives
C is she crying
D she is crying
C do you get up
D you get up
C are visiting
D visits

A Do they swim
B They swim

C Are they swimming
D They are swimming

Unit 2

TEST 2

Which sentence in every pair makes more sense?

1. While I was watching TV, someone **knocked** on the window.
While I was watching TV, someone **was knocking** on the window.
2. **Did you listen** to me? - Yes. You asked me if I had done my homework.
Were you listening to me? - Yes. You asked me if I had done my homework
3. **We ran** to the car to keep dry when it started to rain.
We **were running** to the car to keep dry when it began to rain.
4. **Did you eat** lunch when the fire alarm rang?
Were you eating lunch when the fire alarm rang?
5. What **did you do** when the dog ran into the room? - I **looked up** a word in my dictionary.
What **were you doing** when the dog ran into the room? - I **was looking up** a word in my dictionary.
6. It was a beautiful day. The sun **shone** and there wasn't a cloud in the sky.
It was a beautiful day. The sun **was shining** and there wasn't a cloud in the sky.
7. What **did you do** when the dog ran into the room? - I **jumped out** of the window
What **were you doing** when the dog ran into the room? - I **was jumping out** of the window
8. While he **held** the old vase, he dropped it.
While he **was holding** the old vase, he dropped it.
9. My friend **didn't wait** for me for a long time.
My friend **wasn't waiting** for me for a long time.
10. No wonder she fell off her bike. She **didn't look** where she was going.
No wonder she fell off her bike. She **wasn't looking** where she was going.

11. We **had** a picnic when it began to rain.
We **were having** a picnic when it began to rain.
12. He **broke** his leg while riding his bike at the weekend.
He **was breaking** his leg while riding his bike at the weekend.
13. When **did he have** the accident? - As he **was climbing up** the ladder.
When **was he having** the accident? - As he **was climbing up** the ladder.
14. How fast **did he drive** when the accident happened?
How fast **was he driving** when the accident happened?

TEST 3

1. The party ____ awful. Nobody _____ it.
A is, enjoyed C are, enjoys
B was, enjoyed D was, enjoys
2. We _____ some flowers yesterday.
A is buying C bought
B buy D buys
3. What time ____ Ann tomorrow?
A you are meeting C you meet
B are you meeting D you will meet
4. I ____ to bed now. Good night!
A will be going C go
B went D am going
5. We often _____ business with your company.
A do C make
B prepare D take
6. The car was empty but the engine _____.want
A run C has run
B runs D was running
7. I _____ near the house when a tile _____ off the roof. It nearly hit me.
A was walking, fell C walked, fall
B walked, fell D was walking, was falling
8. This house is often empty because the owners _____ abroad 5 times a year.
A go C were going

B are going

D is going live

9. While I _____ to the assistant, the manager _____ my receipt.

A complained, finds

C complain, found

B complained, found

D was complaining, found

10. Robert _____ in Kenya a few weeks ago.

A arrives

C is arriving

B arrived

D were arriving

11. My mum _____ in the park when I _____ her.

A walked, meets

C walks, was meeting

B was walking, met

D is walking, met

12. The carnival _____ on Tuesday and _____ till Saturday.

A begins, continued

C was continuing

B begin, continued

D begins, continues

13. Mozart _____ more than 600 pieces of music.

A wrote

C was writing

B write

D writes

14. She _____ into the car and _____ away.

A got, drove

C got, is driving

B gets, drove

D get, drive

15. When I _____ home yesterday, I _____ my classmate.

A go, met

C was going, met

B went, was meeting

D went, met

16. Mike _____ his friend because he _____ the other way.

A doesn't see, face

C didn't see, faced

B saw, is facing

D didn't see, was facing

17. The adults _____ about their project from five till eight pm.

A were talking

C is talking

B talked

D talks

18. I _____ my purse. I can't find it anywhere.

A was looking

C is looking

B am looking

D looked

19. The fest _____ on Friday and _____ till Saturday.

A begins, continues

C is beginning, is continuing

B begin, continue

D begins, continued

20. I know all about her new job because I _____ her for a few minutes yesterday.

A didn't see

C saw

B don't see

D see

21. When the phone _____, she _____ a letter.

A rings, was writing

C was ringing, was writing

B rang, was writing

D was writing, wrote

22. The train usually _____ at 11.00 but sometimes there _____ delays.

A is leaving, was

C leaves, are

B leaves, is

D left, is

23. I _____ her because I'm shy.

A calls

C call

B are calling

D didn't call

24. We _____ when they _____ home.

A knew, leave

C know, was leaving

B knew, will leave

D didn't know, left

25. A key invention _____ the steam engine. It _____ in the 18th century.

A was, was developed

C has been, has developed

B is, is developed

Unit 3

TEST 4

1. This time tomorrow they _____ in the train on their way to Chicago.

A will sit

C are sitting

B will be sitting

D sit

2. Don't phone Jim from 5 to 6 – he _____ dinner.

A had

C is having

B will be having

D have

3. Why are you in a hurry? If you _____ at 8 o'clock, they _____ the meal.

A arrive, still are cooking

C will arrive, are still be cooking

B arrive, will be still cooking

D will arrive, still cook

4. He _____ when you _____ back tonight.

A will be sleeping, come

C was sleeping, was coming

B slept, come

D sleeps, will be coming

5. Let's meet at the station at 5 o'clock. - OK. I _____ for you there.
A 'll wait C will be waiting
B wait D was waiting
6. I _____ for my exam on Philosophy all day tomorrow.
A was working C works
B am working D will be working
7. The plane _____ at twice the speed of sound when it passes overhead.
A will be traveling C travels
B will travel D is traveling
8. "I wonder if that terrible wind _____ tomorrow." – "Oh, yes. The weather forecast says it _____ for another two weeks
A will blow, will blow C will be blowing, will be blowing
B will blow, blows D blows, blows
9. I _____ more about that topic in my next lecture.
A will say C am saying
B will be saying D was saying
10. After the operation you _____ any sport for a while.
A didn't C don't
B will not be doing D won't do
11. She _____ every day until the end of the month.
A performs C will be performing
B shall be performing D will perform
12. We _____ to my brother's house again for Christmas.
A will be going C go
B are going D were going
13. I _____ Tom on Tuesday. That's when we usually _____.
A saw, are meeting C will see, meet
B have seen D will be seeing, meet
14. We _____ you in half an hour.
A will join C will be joining
B have joined D shall join
15. What time _____ tomorrow?
A do your friends arrive C will be your friends arriving
B are your friends arriving D will your friends be arriving

16. The man _____ a journal _____ the case and gave it to me.
A took, into C took, out of
B are taking, from D take, in
17. He _____ an article from the latest magazine yesterday.
A read C will read
B is reading read D reads
18. When I _____ at school all of us _____ Latin.
A were, studied C am, were studying
B was, were studying D am, studies
19. Who is going to look _____ your children while you are away?
A through C for
B at D after
20. _____ of the students knows English?
A Who C Whose
B Which D Whom
21. The lesson _____ soon so we _____ to get back to college.
A began, need C will begin, needed
B begins, need D is beginning, will need
22. I _____ my parents next Saturday.
A visited C visit
B was visiting D am visiting
23. On Monday I _____ with the Marketing team all day to discuss next year's brochure.
A am meeting C met
B meet D were meeting
24. The course _____ in two weeks time.
A will finish C is going to finish
B finishes D finish
25. The sun _____ a minute earlier tomorrow.
A is going to rise C will rise
B rise D rises

TEST 5

1. There ____ a lot of water on the carpet yesterday.
A. were B is C was
2. There ____ a lot of traffic in the rush hour.
A. is B are C were
3. There ____ some people to see you.
A. are B is C was
4. There ____ little time left tomorrow.
A. was B is C will be
5. There ____ some people. Where are they?
A. have just been B just have been C have been just
6. There ____ much to say on the subject.
A. Is B were C was
7. ____ only one possible answer?
A. There is B Is there C Were there
8. There ____ never enough time to finish it.
A. Is no B is C were
9. There ____ nobody there.
A. isn't B is C are
10. There ____ little information available.
A. isn't B is C are

TEST 6

1. ____ southeast Britain has always been ____ most populated part of ____ island.
a. -,the, the c. -, the, an
b. -, -, the d. the, the, a
2. We usually take ____ children to ____ zoo.
a. the, the c. a, the
b. -, the d. -, a

3. _____ poor children started _____ work at _____ age of six.

- a. the, -, the
- b. -, the, the
- c. -, the, an
- d. -, -, the

4. _____ advertisers understand _____ power of _____ television.

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

5. Chinese eat _____ rice every day.

- a. -
- b. a
- c. an
- d. the

6. I usually wake up looking forward to _____ day, but at _____ moment I don't because I don't like _____ girl I work with.

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

7. _____ people who work in _____ Wall Street area are too busy to worry about _____ weather.

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

8. I clean my teeth with _____ toothpaste.

- a. the
- b. -
- c. some
- d. a

9. I've been walking for three hours. I've got _____ sore feet

- a. the
- b. a
- c. -
- d. an

10. In _____ big cities _____ number of people from _____ Vietnam and _____ Philippines is growing.

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

11. Have you got these shoes in _____ size 43?

- a. an
- b. the
- c. a
- d. -

12. _____ Rockies is _____ great mass of _____ mountains running down _____ western side of the U.S.

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

13. _____ President Pompidou recommended _____ return to _____ totally unpolluted French without _____ English words.

a. the, a, -, -

c. the, -, -, -

b. the, a, the, -

d. -, a, -, -

14. _____ fruit rather than _____ desserts is served at _____ end of _____ meal.

a. -, -, an, a

c. -, -, the, a

b. -, -, the, -

d. the, -, the, a

15. My best friend is _____ doctor.

a. an

c. a

b. the

d. -

16. _____ poor wore _____ simple clothes of _____ leather or _____ wool.

a. the, the, -, -

c. -, -, -, -

b. the, -, -, -

d. the, -, the, th

17. My friend and I went out for _____ meal yesterday and _____ food was excellent especially _____ chicken.

a. a, the, the

c. the, the, the

b. a, the, a

d. a, -, the

18. _____ Indian meal consists of _____ meat dish, _____ bread and _____ rice.

a. an, -, the, the

c. an, -, -, -

b. an, a, -, -

d. -, the, -, -

19. _____ Wall Street is _____ place where _____ sun never shines.

a. -, a, the

c. the, a, the

b. -, a, -

d. -, -, the

20. For _____ Americans who own their own homes, _____ never-ending rise in _____ house prices is _____ good thing.

a. -, -, -, a

c. the, the, -, a

b. the, a, -, a

d. the, -, the, a

1. I _____ anything since breakfast so I feel very thirsty now.

A wasn't drinking

B didn't drink

C haven't drunk

2. I _____ to the cinema since I came to the UK.

A didn't go

B haven't gone

C hasn't gone

3. My math teacher wasn't happy yesterday. I _____ to bring my workbook to class.

A forgot

B forget

C have forgotten

4. I like your watch. How long . _____ it?

A did you have

B have you had

C are you having

5. Have you ever ridden a horse? - No, but I _____ a camel when I visited Egypt last year.

A was riding

B rode

C have ridden

6. _____ my pen? I can't find it anywhere?

A Have you seen

B You saw

C Did you see

7. My grandmother _____ for 61 years before dying at the age of 90!

A smoked

B was smoking

C has smoked

8. I went to the school dance last Friday, but I _____ it very much.

A haven't enjoyed

B don't enjoy

C didn't enjoy

9. Who _____ the thermometer?

A invents

B invented

C has invented

10. I bought a new computer last week, but it _____ so I took it back to the shop.

A didn't work

B hasn't worked

C doesn't work

11. I _____ late for school again this morning. The teacher was not happy!

A arrive

B 'm arriving

C have arrived

12. My sister _____ a baby. She's going to call it James.

A had

B has had

C was having

13. I _____ my foot playing tennis last week, and now I can hardly walk.

A injured

B have injured

C was injuring

14. I was in a big hurry so I _____ no time to phone you.

A have

B had

C was having

15. That's a lovely scarf! Where _____ it?

A did you buy

B do you buy

C have you bought

16. Have you seen my pencil? It was here a minute ago and now it _____.

A has disappeared

B it disappeared

C it was disappearing

17. I _____ very well last night. There was loud music coming from a house down the road.

A didn't sleep

B haven't slept

C wasn't sleeping

18. _____ my hand on a piece of glass. Do you have a Band-Aid?

A I cut

B I've cut

C I was cutting

19. "Where's Brianna?" - " _____ to the library!"

A She's gone

B She goes

C She is going

20. Where _____? I _____ for you everywhere!

A you have been, 'm looking

B have you been, look

C were you, 've looked

Unit 6

TEST 8

1. She _____ cold. I'll lend her my coat.

A is looking

B has been looking

C looks

2. I _____ hard, so now I'm going to have a rest.

A work

B have been working

C was working

3. I've written the letter but I haven't posted it ____.

A just

B yet

C always

1. I _____ for a job.

A have looked

B 'm looking

C look

2. It's the first time he _____ a car.

A drives

B drive

C has driven

3. It snowed a lot last winter but it _____ this winter.

A snowing

B hasn't snowed

C to snow

4. While I _____ to the assistant, the manager found my receipt.

A complained

B was complaining

C have been complaining

5. Tom ____ his key yesterday.
A has lost B loses C lost
6. I ____ English since December.
A am learning B learn C have been learning
7. What time ____ Jack tomorrow?
A you meet B were you meeting C are you meeting
8. I ____ near the house when a tile ____ off the roof. It nearly hit me.
A walked, fell B walked, has fallen C was walking, fell
9. Robert ____ in Kharkiv a few weeks ago.
A arrives B arrived C has arrived
10. My aunt ____ in the park now.
A is walking B was walking C walks
14. They ____ the problem since one o clock.
A are discussing B discussed C have been discussing
15. The researcher ____ the territory since last December.
A has been exploring B explores C exploring

Unit 7

TEST 9

1. The documents ____ by yesterday.
A have been signed C had been signed
B will sign D signed
2. He ____ to a new neighborhood to work last week.
A has sent C was sent
B had been sent D sent
3. The lesson ____ when I arrived.
A has already started C had already started
B started D have already been started
4. She could not find the book that I ____ her.
A lend C was lent
B had lent D lent
5. By next year they ____ French for 5 years.

A will teach
B will have been teaching

C has taught
D are teaching

6. The report _____ ready by 6 o'clock tomorrow.

A had been
B has been

C will have been
D was

7. By tomorrow the teacher _____ all the students.

A has examined
B examines

C will have examined
D is examining

8. When they entered the hall the performance _____.

A has already begun
B was already begun

C had already begun
D already began

9. I _____ my homework by seven o'clock yesterday.

A have finished
B had finished

C have been finished
D finished

10. He _____ the exams by next Wednesday.

A has passed
B was passing

C will have passed
D had passed

11. They were happy to hear they _____ a prize.

A had won
B was winning

C won
D will win

12. By the time Rick retires, he _____ for the same company for thirty years.

A will work
B will be working

C will have worked
D is working

13. Dad _____ to work by the time I woke up.

A has already gone
B was going

C had already gone
D went

14. She _____ London by the end of the month.

A will have left
B will leave

C will be leaving
D has left

15. I haven't got much homework. I _____ it by eight o'clock.

A do
B will have done

C will be done
D have done

16. When we got home last night, we found that somebody _____ into the flat.

A had broken
B has broken

C broke
D was broken

17. He _____ the suitcase by tomorrow.

A have packed
B will have packed

C will pack
D will be packing

18. When she _____ the match _____.

A arrived, started already
B already arrived, starts

C arrived, had already started
D had arrived, had already started

19. I guess, I _____ your next letter before Christmas.

A shall not have received
B receive

C won't be receiving
D hadn't received

20. You _____ much efforts before you can run a marathon.

A will be spending
B spent

C will have spent
D had spent

21. The workers _____ this school by September 1st.

A will build
B will have built

C will be building
D are building

22. I _____ this work before you _____.

A will be finishing, return
B will finish, will return

C will have finished, will return
D will have finished, return

23. I _____ a letter by the time he _____ to me.

A will have written, come
B will be finishing, will come

C will have written, comes
D will finish, will come

24. Next year is our 10th wedding anniversary. We _____ for 10 years.

A will marry
B are married

C will have been married
D have been married

25. We _____ in Paris. By the time you arrive, we _____ for Rome.

A don't meet, will leave
B won't have met, will leave

C won't meet, will be leaving
D won't meet, will have already left

General grammar revision

TEST 10

- 1. When I _____ that morning, the sun _____ brightly and the birds _____.**
A was getting up, shone; C get up, is shining; are singing sang
B got up, was shining; D got up, is shining; is singing were singing
- 2. The student _____ to the question when the headmaster _____.**
A replied, is coming in C was replying, came in
B am replying, came in D is replying, was coming in
- 3. 'Who _____ after your baby when you're at work?' 'My mother _____.'**
A looks, does C look, does
B will have looked, will D is looking, do
- 4. She turned and saw _____ laughing girl.**
A – C an
B a D the
- 5. _____ British are a nation of newspaper readers.**
A – C An
B A D The
- 6. What _____ beautiful picture you've bought!**
A – C an
B a D the
- 7. _____ Times is the most popular newspaper among _____ British readers.**
A –, – C An, the
B A, the D The, –
- 8. How long _____ each another ?**
A had you known C you have known
B will have you known D have you known
- 9. By yesterday the teacher _____ all the students.**
A has examined C examined
B was examined D had examined
- 10. He _____ just _____ two big apples.**
A was, eaten C was, eating
B has been, eaten D has, eaten

11. When they _____ the hall the performance _____.
A entered, has already begun C entered, had already begun
B will enter, was already begun D had entered, already began
12. I _____ my work by seven o'clock tomorrow.
A have finished C finish
B will have finished D finished
13. He _____ the exams by last Friday.
A has passed C passed
B was passing D had passed
14. My friends _____ across _____ Atlantic.
A will never travel, an C is ever travelling, a
B have never travelled, the D had never travelled –
15. _____ Manhattan is in _____ New York.
A The, – C –, –
B The, the D A, the
16. He _____ her since he was five years old.
A knows C have known
B has known D knew
17. I _____ hard all day. I'm exhausted.
A have been working C will work
B worked D was working
18. I _____ every day for the last six months.
A exercises C is exercising
B have been exercising D will exercise
19. They _____ to _____ Austria last winter.
A have gone, an C go, the
B went, – D had gone, –
20. This time next week I _____ my exam.
A will take C take
B taken D will be taking
21. _____ Dead Sea is very salty.
A The C –
B A D An

22. _____ Nile is _____ longest river in _____ Africa.
A –, the, an
B The, the, –
C The, the, an
D The, a, –
23. My cousin _____ to us since he changed his address.
A hadn't written
B didn't write
C hasn't written
D doesn't write
24. Kevin _____ he _____ all over the world by that time.
A hopes, will have travelled
B hope, will travel
C is hoping, travels
D hoped, will be travelling
25. When we _____ to Paris, we _____ the Eiffel Tower.
A go, will climb
B will go, climb
C are going, are climbing
D went, will have climbed

TEST 11

1. We always have _____ dinner at five o'clock.
A –
B an
C a
D the
2. Sue _____ as many books as she could carry herself.
A will have taken
B took
C takes
D is taking
3. When Ted _____ a new job, he _____ less dependent on his parents.
A is finding, is becoming,
B has found, will become
C finds, became
D found, became
4. _____ Arctic Ocean is _____ of all.
A An, colder
B the, coldest
C –, the colder
D the, the coldest
5. They _____ just _____ this issue with their boss.
A will have, discussed
B have, discussed
C has, discussed
D had, discussed
6. Mr. Robbins _____ the lecture in English Literature now.
A will deliver
B is delivering
C has delivered
D delivers
7. What are you doing? I _____ a book.
A have read
C was reading

B read

D am reading

8. The plane _____ from Kharkiv at eight o'clock tomorrow morning.

A will leave

C is leaving

B will be leaving

D leaves

9. I _____ to go out tonight. I _____ too tired.

A don't want, am

C doesn't want, was

B didn't want, will be

D don't want, will have been

10. My son doesn't go to _____ school on _____ Saturday and Sunday.

A -, -

C -, a

B a, -

D the, -

11. _____ Dnieper is _____ main river in _____ Ukraine.

A A, a, -

C -, the, -

B The, the, -

D The, a, the

12. _____ Ivanovs _____ a prize last week.

A -, won

C a, have won

B an, are winning

D the, won

13. Give me _____ pen, I've lost _____ .

A your, my

C your, mine

B yours, me

D you, my

14. The film _____ when I arrived.

A had already started

C has already started

B started

D will have started

15. By next year I _____ Literature for 5 years.

A will teach

C has taught

B will have been teaching

D are teaching

16. Who _____ Chinese in your family? I _____ .

A speak, do

C speaks, do

B speaks, have

D speak, speak

17. We _____ from the University in four years.

A will graduate

C have graduated

B graduated

D will be graduating

18. He didn't even know _____ Browns had _____ daughter.

A -, the

C -, the

B a, a

D the, a

15. It was in _____ July on _____ motorway near _____ London.
 A the, the, the C —, the, the
 B —, the, a D —, the, —
16. Sorry, I can't talk now because _____.
 A I'm driving C I drove
 B I drive D I was driving
17. How long _____ this television? We _____ it for at least five years.
 A did you have, had C have you had, had
 B do you have, had D have you had, have had
18. Let's hope we get _____ nice weather.
 A — C a
 B an D the
19. We travelled across America from _____ coast to _____ coast.
 A —, — C a, a
 B an, an D the, the
20. When they went _____ France, they employed _____ house-sitter.
 A to, — C in, an
 B to, a D in, the
21. She _____ alone at the moment.
 A lived C has lived
 B lives D is living
22. I _____ physical exercises three times a day.
 A am doing C have done
 B do D am done
23. _____ Celts were an ancient people who used _____ iron to make tools.
 A —, — C A, a
 B —, an D The, the
24. The village of Greyford _____ largely traffic-free since its by-pass _____ a year ago.
 A has been, opened C has been, has opened
 B was, opened D was, has opened
25. Someone _____ me last week that you _____ up your job.
 A has told, gave C has told, have given
 B told, gave D told, had given

TEST 13

1. This morning _____ bus I always get to work by was late.
A — C a
B an D the
2. My favourite subject is _____ history, but I'm not very good at _____ maths.
A —, — C a, a
B an, an D the, the
3. What time does your plane arrive? I'll come to _____ airport to meet you.
A — C a
B an D the
4. While we _____ a drink, a waiter _____ a pile of plates.
A had, dropped C had, was dropping
B were having, dropped D were having, was dropping
5. Why have you got so many eggs? – Because I _____ an omelette.
A will have made C am going to make
B make D have made
6. We can't play outside because it _____.
A rains C was raining
B is raining D had rained
7. What time _____ you get home last night?
A do C were
B are D did
8. Martha _____ me a lift because I _____ the train.
A gave, had missed C gave, have missed
B had given, had missed D had given missed
9. I was nervous during the flight because I _____ before.
A haven't flown C hadn't flown
B didn't fly D wasn't flying
10. I work for _____ company that makes _____ carpets.
A —, — C a, the
B a, — D the, the

11. My friend lives in _____ same street as me.
A — C a
B an D the
12. Leave early if you want to miss _____ rush hour.
A — C a
B an D the
13. Last night we had _____ dinner in _____ restaurant.
A —, a C a, —
B a, the D the, the
14. She was telling me about _____ life she led in an earlier existence.
A — C a
B an D the
15. I must get _____ pair of tights here.
A — C a
B an D the
16. For the last ten years, engineers _____ noise levels in Britain's cities.
A were measuring C have been measuring
B measured D have measured
17. You _____ text messages for half an hour.
A are sending C have sent
B are sent D have been sending
18. This box _____ two kilos.
A has weighed C weighs
B is weighing D is weighed
19. John writes articles for a newspaper. He is _____ journalist.
A a C an
B the D —
20. _____ Grand Hotel is in Baker Street.
A A C An
B The D —
21. When we got home last night, we found that somebody _____ into the flat.
A had broken C broke
B has broken D was broken
22. I _____ hard, so now I'm going to have a rest.

A have been working
B had worked

C was working
D will work

23. I ____ you for ages.

A didn't see
B haven't seen

C saw
D see

24. Don't phone me between 6 and 7. I ____ dinner.

A will have
B will have had

C will be having
D have

25. Wait here until I ____ back.

A will come
B come

C am coming
D came

TEST 14

1. Usually the train ____ London at 11.30.

A leave
B is leaving

C will leave
D leaves

2. I think something ____ wrong with the television. I can't get a picture at all.

A had gone
B has gone

C had been going
D will be going

3. The money _____ on the table.

A is
B were

C are
D has

4. It's the first time he ____ a car.

A drives
B has driven

C drive
D had driven

5. By next year they ____ married for 25 years.

A will have been
B will be

C are
D have been

6. I'll tell you when he ____.

A comes
B come

C will come
D came

7. Don't worry if I ____ late tonight.

A will be
B am

C have been
D was

8. It snowed a lot last winter but it ____ this winter.

A snowing
B would have snowed

C hasn't snowed
D hadn't snowed

9. Tom ____ his key yesterday.

A has lost
B loses

C was losing
D lost

10. What ____ this word mean?

A do
B does

C will be
D is

11. I don't think I ____ out tonight.

A have gone
B would have gone

C 'll go
D 'll be going

12. We didn't know when they ____ home.

A leave
B will leave

C was leaving
D left

13. ____ Statue ____ Liberty is at the entrance to ____ New York harbour.

A The, of, –
B The, at, the

C The, the, –
D A, of, –

14. I have played ____ piano since I was eight.

A the
B a

C an
D –

15. I ____ English since December.

A am learning
B learn

C have been learning
D learnt

16. What time ____ Ann tomorrow?

A you are meeting
B are you meeting

C you meet
D you will meet

17. I ____ to bed now. Good night!

A will be going
B went

C go
D am going

18. ____ tomato is ____ vegetable.

A the, a

C a, a

B a, the

D –, –

19. He likes _____ tomatoes and _____ cucumbers.

A the, a

C a, a

B a, the

D –, –

20. Taiwan was called "Isla Formosa" by _____ Dutch.

A the

C an

B a

D –

21. While I _____ to the assistant, the manager found my receipt.

A complained

C have been complaining

B have complained

D was complaining

22. _____ UK has _____ strong economy.

A The, the

C A, a

B The, a

D The, –

23. _____ language of _____ England is _____ British English.

A The, the, the

C The, an, a

B The, –, –

D –, –, –

24. _____ pandas and _____ tigers are both endangered animals.

A A, a

C The, an

B The, –,

D –, –

25. As soon as he _____, tell him to call me back, please.

A arrives

C will arrive

B arrive

D has arrived

Appendix 1. IRREGULAR VERBS

Неозначена форма (Infinitive)	Просте минуле (Past Simple)	Дієприкметник II (Past Participle)	Переклад
arise [ə'raiz]	arose [ə'rəuz]	arisen [ə'riz(ə)n]	з'являтися, піднімати(ся)
awake [ə'weik]	awoke [ə'wəuk]	awoken [ə'wəukən]	будити
be [bi:]	was [wɔz], were [wɜ:]	been [bi:n]	бути
bear [bɛə]	bore [bɔ:]	born [bɔ:n]	нести, народжувати
beat [bi:t]	beat [bi:t]	beaten ['bi:tn]	бити
become [bi:kʌm]	became [bi:keim]	become [bi:kʌm]	ставати
begin [bi'gin]	began [bi'gæn]	begun [bi'gʌn]	починати(ся)
bend [bend]	bent [bent]	bent [bent]	гнути
bet [bet]	bet [bet]	bet [bet]	битися об заклад
bind [baɪnd]	bound [baund]	bound [baund]	зв'язувати
bite [baɪt]	bit [bit]	bitten ['bitn]	кусати
bleed [bli:d]	bled [bled]	bled [bled]	сходити кров'ю
blow [blou]	blew [blu:]	blown [bloun]	дути
break [breɪk]	broke [brɔk]	broken ['brɔk(e)n]	ламати
breed [bri:d]	bred [bred]	bred [bred]	вирощувати
bring [brɪŋ]	brought [brɔ:t]	brought [brɔ:t]	приносити
broadcast ['brɔ:dka:st]	broadcast ['brɔ:dka:st]	broadcast ['brɔ:dka:st]	віщати, передавати по радіо / ТБ
build [bɪld]	built [bɪlt]	built [bɪlt]	будувати
burn [bɜ:n]	burnt [bɜ:nt]	burnt [bɜ:nt]	горіти, палити
burst [bɜ:st]	burst [bɜ:st]	burst [bɜ:st]	вибухати
buy [baɪ]	bought [bɔ:t]	bought [bɔ:t]	купувати
catch [kætʃ]	caught [kɔ:t]	caught [kɔ:t]	ловити, встигати
choose [tʃu:z]	chose [ʃəuz]	chosen [tʃəuz(ə)n]	вибирати
come [kʌm]	came [keim]	come [kʌm]	приходити
cost [cɔst]	cost [cɔst]	cost [cɔst]	коштувати
creep [kri:p]	crept [krept]	crept [krept]	повзти
cut [kʌt]	cut [kʌt]	cut [kʌt]	різати
do [du:]	did [dɪd]	done [dʌn]	робити, виконувати
draw [drɔ:]	drew [dru:]	drawn [drɔ:n]	малювати, звертати (увагу)
dream [dri:m]	dreamt [dremt]	dreamt [dremt]	мріяти, снитися
drink [drɪŋk]	drank [dræŋk]	drunk [drʌŋk]	пити
drive [draɪv]	drove [drouv]	driven ['drɪvn]	керувати авто

eat [i:t]	ate [et]	eaten ['i:tn]	їсти
fall [fɔ:l]	fell [fel]	fallen ['fɔ:lən]	падати
feed [fi:d]	fed [fed]	fed [fed]	годувати
feel [fi:l]	felt [felt]	felt [felt]	почувати (себе)
fight [fait]	fought [fɔ:t]	fought [fɔ:t]	битися, боротися
find [faɪnd]	found [faund]	found [faund]	знаходити
fly [flai]	flew [flu:]	flown [floun]	літати
forget [fə'get]	forgot [fə'gɒt]	forgotten [fə'gɒt(ə)n]	забувати
forgive [fo'giv]	forgave [fo'geiv]	forgiven [fo'givn]	пробачати
freeze [fri:z]	froze [frouz]	frozen ['frouzn]	замерзати
get [get]	got [gɒt]	got [gɒt]	отримувати, розуміти, добиратися
give [giv]	gave [geiv]	given [givn]	давати
go [gou]	went [went]	gone [gɒn]	їти, їхати
grow [grou]	grew [gru:]	grown [groun]	виросити
hang [hæŋ]	hung [hʌŋ]	hung [hʌŋ]	висіти
have [hæv]	had [hæd]	had [hæd]	мати (щось)
hear [hiə]	heard [hɜ:d]	heard [hɜ:d]	чути
hide [haɪd]	hid [hid]	hidden ['hɪdn]	ховатися
hit [hit]	hit [hit]	hit [hit]	ударяти
hold [hould]	held [held]	held [held]	тримати
hurt [hɜ:t]	hurt [hɜ:t]	hurt [hɜ:t]	ранити, травмувати
keep [ki:p]	kept [kept]	kept [kept]	тримати, зберігати
know [nou]	knew [nju:]	known [noun]	знати
lay [lei]	laid [leid]	laid [leid]	класти
lead [li:d]	led [led]	led [led]	вести за собою
learn [lɜ:n]	learnt [lɜ:nt]	learnt [lɜ:nt]	вчити(ся)
leave [li:v]	left [left]	left [left]	залишати, покидати
lend [lend]	lent [lent]	lent [lent]	позичати
let [let]	let [let]	let [let]	дозволяти
lie [lai]	lay [lei]	lain [lein]	лежати
light [lait]	lit [lit]	lit [lit]	світити
lose [lu:z]	lost [lɒst]	lost [lɒst]	втрачати
make [meɪk]	made [meid]	made [meid]	робити
mean [mi:n]	meant [ment]	meant [ment]	означати
meet [mi:t]	met [met]	met [met]	зустрічати
mistake [mis'teɪk]	mistook [mis'tuk]	mistaken [mis'teɪk(e)n]	помилятися

pay [pei]	paid [peid]	paid [peid]	платити
prove [pru:v]	proved [pru:vd]	proven [pru:vn]	доводити
put [put]	put [put]	put [put]	класти
read [ri:d]	read [red]	read [red]	читати
ride [raid]	rode [roud]	ridden ['ridn]	кататися
ring [riŋ]	rang [ræŋ]	rung [rʌŋ]	підніматися
rise [raiz]	rose [rouz]	risen ['rizn]	піднімати(ся)
run [rʌŋ]	ran [ræŋ]	run [rʌŋ]	бігти
say [sei]	said [sed]	said [sed]	сказати
see [si:]	saw [sɔ:]	seen [si:n]	бачити
seek [si:k]	sought [sɔ:t]	sought [sɔ:t]	шукати
sell [sel]	sold [sould]	sold [sould]	продавати
send [send]	sent [sent]	sent [sent]	посилати
set [set]	set [set]	set [set]	встановити
shake [ʃeik]	shook [ʃuk]	shaken ['ʃeik(ə)n]	трясти
show [ʃəu]	showed [ʃəud]	shown [ʃəun]	показувати
shrink [ʃriŋk]	shrank [ʃræŋk]	shrunk [ʃrʌŋk]	зменьшувати
shut [ʃʌt]	shut [ʃʌt]	shut [ʃʌt]	закривати
sing [siŋ]	sang [sæŋ]	sung [sʌŋ]	співати
sink [siŋk]	sank [sæŋk], sunk [sʌŋk]	sunk [sʌŋk]	потонути
sit [sit]	sat [sæt]	sat [sæt]	сидіти
sleep [sli:p]	slept [slept]	slept [slept]	спати
speak [spi:k]	spoke [spouk]	spoken ['spouk(e)n]	говорити, розмовляти
spell [spel]	spelt [spelt]	spelt [spelt]	вимовляти по буквам
spend [spend]	spent [spent]	spent [spent]	тратити, проводити (час)
spill [spil]	spilt [spilt]	spilt [spilt]	розливати
spoil [spɔil]	spoilt [spɔilt]	spoilt [spɔilt]	псувати
spread [spred]	spread [spred]	spread [spred]	поширювати
spring [sprin]	sprang [spræŋ]	sprung [sprʌŋ]	стрибати
stand [stænd]	stood [stu:d]	stood [stu:d]	стояти
steal [sti:l]	stole [stoul]	stolen ['stəulən]	красти
stick [stik]	stuck [stʌk]	stuck [stʌk]	приклеювати
sting [stiŋ]	stung [stʌŋ]	stung [stʌŋ]	жалити
sweep [swi:p]	swept [swept]	swept [swept]	підмітати
swim [swim]	swam [swem]	swum [swʌm]	плавати

swing [swɪŋ]	swung [swʌŋ]	swung [swʌŋ]	гойдатися
take [teɪk]	took [tuk]	taken ['teɪk(ə)n]	брати
teach [ti:tʃ]	taught [tɔ:t]	taught [tɔ:t]	навчати
tear [tɛə]	tore [tɔ:]	torn [tɔ:n]	рвати на шматки
tell [tel]	told [tould]	told [tould]	розповідати
think [θɪŋk]	thought [θɔ:t]	thought [θɔ:t]	думати
throw [θrəʊ]	threw [θru:]	thrown [θrəʊn]	кидати
understand [ʌndə'stænd]	understood [ʌndə'stʊd]	understood [ʌndə'stʊd]	розуміти
wake [weɪk]	woke [wʊk]	woken ['wʊk(e)n]	прокидатися
wear [wɛə]	wore [wɔ:]	worn [wɔ:n]	носити, одягатися
weep [wi:p]	wept [wept]	wept [wept]	плакати
wet [wet]	wet [wet]	wet [wet]	мочити
win [wɪn]	won [wʌn]	won [wʌn]	перемагати, вигравати
wind [waɪnd]	wound [waʊnd]	wound [waʊnd]	заводити
write [raɪt]	wrote [raʊt]	written ['rɪtɪn]	писати

Appendix 2. A TABLE OF ENGLISH GRAMMAR TENSES

Present Indefinite	Affirmative I (we, you, they) play He (she. it) plays. Negative I (we, you, they) do not play He (she. it) does not play. Question Do I (we, you, they) play Does he (she, it) play?	● action in the present taking place once, never or several times ● facts ● actions taking place one after another ● action set by a timetable or schedule	always, every ..., never, normally, often, seldom, sometimes, usually if sentences type I (If I talk, ...)
Present Continuous	Affirmative I'm playing He (she, it) is speaking. You (we, they) are playing Negative I'm not playing He (she, it) is not speaking. You (we, they) are not playing Question Am I playing? Is he (she, it) speaking? Are you (we, they) playing?	● action taking place in the moment of speaking ● action taking place only for a limited period of time ● action arranged for the future	at the moment, just, just now, Listen!, Look!, now, right now
Past Indefinite	Affirmative I (you, he, we ...) played Negative I (you, he, we ...) did not play Question Did I (you, he, we ...) play?	● action in the past taking place once, never or several times ● actions taking place one after another ● action taking place in the middle of another action	yesterday, ago, in 1990, the other day, last Friday
Past Continuous	Affirmative I (he, she, it) was playing You (we, they) were playing Negative I (he, she, it) was not playing You (we, they) were not playing Question	● action going on at a certain time in the past ● actions taking place at the same time ● action in the past that is interrupted by another action	when, while, as long as

	Was I (he, she, it) playing? Were you (we, they) playing?		
Present Perfect	Affirmative I (you, we, they) have played He (she, it) has played Negative I (you, we, they) have not played He (she, it) has not played Question Have I (you, we, they) played? Has he (she, it) played?	● putting emphasis on the result ● action that is still going on ● action that stopped recently ● finished action that has an influence on the present ● action that has taken place once, never or several times before the moment of speaking	already, ever, just, never, not yet, so far, till now, up to now
Present Perfect Continuous	Affirmative I (you, we, they) have been playing He (she, it) has been playing Negative I (you, we, they) have not been playing He (she, it) has not been playing Question Have I (you, we, they) been playing	● putting emphasis on the course or duration (not the result) ● action that recently stopped or is still going on ● finished action that influenced the present	all day, for, since, how long?, the whole week
Past Perfect	Affirmative I (you, we, he ...) had played Negative I (you, we, he ...) had not played Question Had I (you, we, he ...) played	● action taking place before a certain time in the past ● sometimes interchangeable with past perfect progressive ● putting emphasis only on the fact (not the duration)	already, just, never, not yet, once, until that day
Past Perfect Continuous	Affirmative I (you, we, he ...) had been playing	● action taking place before a certain time in the past	for, since, the whole day, all day

	Negative I (you, we, he...) had not been playing Question Had I (you, we, he) been playing	• sometimes interchangeable with past perfect simple • putting emphasis on the duration or course of an action	
Future Indefinite	Affirmative I (you, we, he ...) will play Negative I (you, we, he...) will not (won't) play Question Will I (you, we, he ...) play	• action in the future that cannot be influenced • spontaneous decision • assumption with regard to the future	in a year, next ..., tomorrow, probably, perhaps
Future Continuous	Affirmative I (you, we, he ...) will be playing Negative I (you, we, he...) will not (won't) be playing Question Will I (you, we, he ...) be playing	• action that is going on at a certain time in the future • action that is sure to happen in the near future	in one year, next week, tomorrow
Future Perfect	Affirmative I (you, we, he ...) will have played Negative I (you, we, he...) will not (won't) have played Question Will I (you, we, he ...) have played	• action that will be finished at (by) a certain time in the future	by Monday, in a week
Future Perfect Continuous	Affirmative I (you, we, he ...) will have been playing Negative I (you, we, he...) will not (won't) have been playing Question Will I (you, we, he ...) have been playing	• action taking place before a certain time in the future • putting emphasis on the course of an action	for ..., the last couple of hours, all day long

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Навчальне видання

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Зубкова Людмила Миколаївна
Холмогорцева Ірина Сергіївна

ENGLISH FOR PHYSICISTS
(part 1)

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