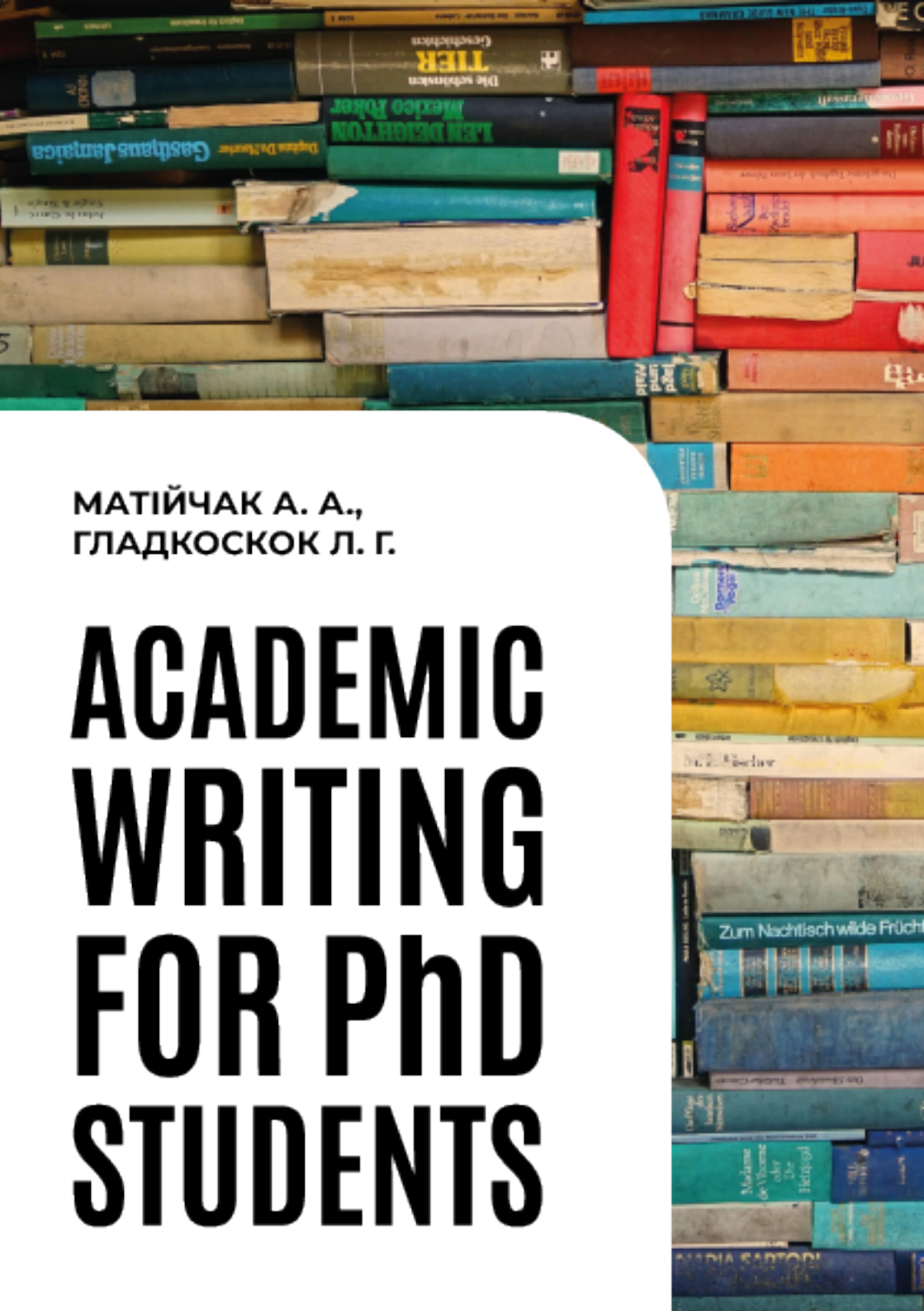




МАТІЙЧАК А. А.,
ГЛАДКОСКОК Л. Г.

ACADEMIC WRITING FOR PhD STUDENTS

Міністерство освіти і науки
Чернівецький національний університет
імені Юрія Федьковича

Матійчак А. А., Гладкоскок Л. Г.

ACADEMIC WRITING FOR PhD STUDENTS

Навчальний посібник



Чернівці
Чернівецький національний університет
імені Юрія Федьковича
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Навчальний посібник містить сучасні автентичні матеріали наукового профілю. Структура посібника забезпечує формування в аспірантів широкого тематичного словника, активне засвоєння функціональної лексики, розвиток навичок перекладу, тобто всіх тих компетентностей володіння академічним письмом та риторикою іншомовного спілкування, які необхідні сучасному науковцю.

Рекомендовано для аспірантів гуманітарних спеціальностей вищих навчальних закладів.

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Передмова

Запропонований навчальний посібник «Academic writing for PhD students» є практичним курсом англійської мови, призначеним для науковців, здобувачів вченого ступеню кандидата наук та всіх охочих удосконалити рівень володіння іноземною комунікацією. Навчальний посібник висвітлює актуальну тематику в контексті сучасної науки, на основі якої розроблений комплекс лексико-граматичних вправ, що слугує інструментарієм поліпшення навичок усної та письмової академічної комунікації.

Посібник укладений англійською мовою і відповідає рівню C1, містить додаткові матеріали для читання з метою збагачення вокабуляра науковців, аспірантів, магістрів та ін. здобувачів освіти. До навчального посібника входить 10 базових тем з глосарієм, завдання для самостійної роботи, граматичні вправи, тести та індивідуальні завдання, які сприятимуть вдосконаленню мовленнєвих та комунікативних компетентностей у науковців, зокрема аспірантів. Окрім того, кожен розділ навчального посібника містить додаткові тексти, які можуть використовуватися як для позааудиторного читання, так і для реферування, анотування та обговорення.

Структура посібника забезпечує формування у здобувачів освіти широкого тематичного словника, активне засвоєння функціональної лексики, розвиток навичок двостороннього перекладу, тобто всіх тих вмінь і навичок володіння іноземною мовою, які необхідні сучасному науковцю. Поданий у навчальному посібнику матеріал спрямований на практичний розвиток комунікативних навиків, вправи сприяють засвоєнню тематики, розумінню та активному застосуванню наукової лексики в академічному середовищі. Практичні завдання стимулюють творчий процес роботи аспірантів та підвищують їх зацікавленість у розкритті наукового потенціалу та саморозвитку.

Unit 1

The PhD Qualification

Text:	The PhD Qualification
Grammar:	Article. Noun
Scientific Writing:	My Research Project
Article:	How to Select a Research Topic?

Assignment 1. Read **Text 1** at page 118.

Active Vocabulary

to earn a qualification – здобути кваліфікацію

to obtain employment/ a doctorate – отримати роботу/
докторський ступінь

university setting – університетське середовище

Doctorate degrees (PhD, habilitation degrees, doctor of science and doctor of technology) – Докторські ступені
(доктор філософії, ступені габілітації,
доктор наук і доктор технологій)

a degree holder – людина з науковим ступенем

to achieve the highest level of education – досягти вищого
рівня освіти

to do/ qualify for a PhD – отримати ступінь доктора
філософії

to be enrolled in a program – навчатися за програмою

to do (syn.: perform, conduct, pursue) research –
проводити дослідження

to communicate the results to peers – обговорювати
результати з колегами

to take exams/ courses – здавати екзамени/проходити курси

a PhD student schedule – розклад аспірантів
a supervisor/ scientific advisor(-er) – науковий керівник
a subject area – предметна галузь
to contribute to the body of knowledge – робити внесок у сукупність знань
an accomplishment – досягнення
to present an innovative contribution – представити інноваційний внесок
to write and defend a dissertation – написати та захистити дисертацію
faculty dissertation committee – дисертаційна комісія факультету
the Academic Council – Вчена рада
to meet requirements – відповідати вимогам
an advantage career-wise – перевага в кар'єрному плані
to complete / pursue a degree – отримати ступінь

Definitions and Samples

Among academic doctorates the most common doctorate is the ***Doctor of Philosophy***, or ***PhD***, which is a terminal academic degree a student may pursue when interested in an academic or research career intending to perform original research within the chosen field. Mostly PhD is awarded to individuals who have completed research in humanities and social sciences.

Habilitation is the highest university degree in many European and non-English-speaking countries (Poland, Germany, Austria); there it is a formal qualification needed to become a university professor. Usually habilitation is awarded 5–15 years after a PhD degree or its equivalent. The candidate fulfills a university's criteria of excellence in research, teaching and further education, usually including a dissertation.

Doctor of Sciences (DSc) is a second research degree acquired by a person at the research level of higher education on the basis of PhD degree and stipulates acquisition of the

highest competencies in the area of development and implementation of research methodology and engagement in original research. DSc is earned about 6-8 years after the PhD and is awarded to individuals who have completed research in natural sciences, engineering, and other scientific fields.

Doctor of Technology (DTech) degree is offered as an advanced doctoral degree at many universities. This degree is awarded to candidates who have completed a course of study in technology and a lengthy thesis or project in a technology-related field, gained advanced knowledge in their specialized field and can advance their knowledge within industry. This degree focuses on developing practical solutions, critical analysis, synthesis and innovation in the workplace.

Comprehension

1. What degrees are required to obtain employment in a university setting?
2. What qualifications can professionals earn in Ukraine / other countries?
3. Why did you decide to do a PhD? What degrees have you completed?
4. What programs were you enrolled in while earning your degrees (Bachelor's / Master's degrees) at the University?
5. What courses and exams do you have to take in order to obtain a doctorate?
6. What is a PhD student schedule dependent on?
7. What does a typical PhD program involve?
8. Having completed your PhD, what benefits could you have as a degree holder?
9. What should your PhD dissertation present?
10. What is necessary to qualify for a PhD?

Word Study

Exercise 1. Give English equivalents of the following phrases:

університетське середовище, предметна галузь, досягнення, здобути кваліфікацію, проводити дослідження, отримати ступінь, науковий керівник, навчатися за програмою, розклад аспірантів, здавати екзамени, людина з науковим ступенем, написати та захистити дисертацію, перевага в кар'єрному плані, представити інноваційний внесок, обговорювати результати з колегами.

Exercise 2. Complete the following sentences using the text. Pay attention to the prepositions:

1. A PhD student is a postgraduate enrolled ... 2. Having a PhD degree is a mark ... 3. Students are expected to build ... 4. A PhD degree can also provide the holder ... 5. The dissertation must be approved ... 6. Mostly PhD is awarded ... 7. In order to qualify ... 8. DSc is a second research degree acquired ... 9. DTech degree focuses ... 10. A PhD student schedule is dependent ...

Exercise 3. Match nouns in the right column with adjectives in the left. Make as many word combinations as possible, translate them:

scientific	solution
critical	research
innovative	field
practical	degree
academic	analysis

Exercise 4. Form nouns from the corresponding verbs. Use them in the sentences of your own:

to achieve, to qualify, to require, to award, to enroll, to acquire, to approve, to depend, to engage, to complete, to pursue, to innovate.

Exercise 5. Fill the gaps with suitable prepositional verbs from the list below. Use them in proper tense forms:

approve of, result in, apply for (something)/ to (somewhere), deal with, depend on, specialize in, contribute to, discuss with, elaborate on, graduate from, prepare for, respond to.

1. I wish he had ... more ... his thesis plan. He is still not sure about the last point. 2. How are you going to ... all these tasks? 3. Did you ... your supervisor's text message? 4. I'm the wrong person to ask about this issue. You should ... it ... other scholars in your field. 5. Which field did you ...? 6. My scientific adviser didn't ... my hypothesis at first. 7. He ... the University of Turin with a Master's degree in Philosophy. 8. What have you done recently that ... your research? 9. Unfortunately, their first attempts to test the device modification ... failure. 10. The result of your experiment will mostly ... the technical conditions. 11. Have you ... the qualifying exam? 12. Which universities did you ... the position of the Associate Professor?

Exercise 6. Learn the following sets of related words. Define what part of speech each word belongs to:

education – educational – educationalist – educate – educated; pursue – pursuit – pursued – pursuer – pursuant – pursuantly – pursuance; scholar – scholarly – scholarship; qualification – qualify – qualified; science – scientist – scientific; communicate – communication – communicative – communicator; theory – theoretician – theoretical – theoretically; technology – technological – technologically – technologist – technologize; research – researcher – researchable; know – knower – knowledge – knowledgeable – knowledgeably – knowledgeability.

Exercise 7. Fill the gaps with suitable word using one of the suffixes from the list below:

-al; -able; -ly; -ist; -er

1. The main of the tasks for our university ... was to identify these factors and explore the relationship between them

(research). 2. Do you have a qualification in teaching? – Sure, my diploma indicates the obtained higher ... qualification (education). 3. The brilliantly ... remarks of my opponent were very helpful to improve our assumptions (knowledge). 4. If you are ... adept, you can share your expertise at the conference (technological) 5. Taking this course is an opportunity to gain knowledge and skills in more ... areas of economics (special).

Exercise 8. Translate into English:

1. Серед академічних ступенів найпоширенішим є ступінь доктора філософії, який аспірант може здобути, якщо зацікавлений у академічній або дослідницькій кар'єрі з наміром проводити дослідження в обраній галузі.
2. Отримати ступінь доктора філософії – це вражаюче досягнення, яке вимагає величезних зусиль протягом тривалого періоду часу.
3. Кандидатська дисертація представляє оригінальне дослідження у певній галузі знань; це кульмінація років наполегливої праці, відданості та зосередженості на конкретній темі та проблемі дослідження.
4. Наявність ступеня доктора філософії є тією ознакою, яка може дати перевагу в кар'єрі як майбутнім науковцям, так і фахівцям-практикам.
5. Переважно ступінь доктора філософії присуджується науковцям, які завершили дослідження в галузі гуманітарних і соціальних наук.
6. Дисертація повинна продемонструвати майстерність науковця в обраній галузі дослідження та його здатність ефективно повідомляти про свої здобутки.
7. Для того, щоб отримати ступінь доктора філософії, кандидат повинен виконати всі вимоги програми, а також написати й успішно захистити дисертацію, яка представляє його власні дослідження.

Structure Study

Article. Singular and Plural of Nouns.

Exercise 9. Insert articles where necessary. Explain your choice:

1. Essentially, ... PhD program requires students to complete ... certain number of credits in coursework and successfully pass ... qualifying exams, which is followed by ... dissertation writing and defence. 2. ... Master's degree in ... relevant field is often required, but some programs may accept candidates with ... bachelor's degree, especially in fields like science and engineering. 3. ... difference between ... PhD student and ... PhD candidate is that ... student is still working through ... coursework and is yet to begin ... dissertation process, and thus do not qualify to present and defend their dissertation to receive their doctorate. 4. ... integral part of ... qualifying examination is ... research proposal submitted to ... examining committee. 5. ... PhD qualifying exam is ... step you take to reach closer to ... Doctor status. 6. Research is ... collaborative effort, and ... sharing of knowledge and resources is crucial for ... growth of any scientific discipline. 7. ... PhD studentship is ... form of financial support for doctoral research; it can cover tuition fees and living costs, and may also provide ... additional funding for materials and equipment.

Exercise 10. Choose the correct form of a noun/verb. Explain your choice:

1. They have not made any *progress/progresses* in their research. 2. Our scientific adviser gave us some relevant *advice/advice*s on the problem solution. 3. They don't have any *experience/experiences* in conducting such surveys. 4. *Is/Are* there any news on the University website concerning the upcoming conference *proceeding/ proceedings*? 5. Are you reading the monograph or just looking through the *content/ contents*? 6. We have to attend *a two-month/ a two-months* advanced scientific training to improve our research skills and

knowledge/knowledges. 7. There is not enough *information/informations* on the practical application of this device. 8. To learn the *truth/truths*, you need to read a lot of *paper/papers*. 9. As far as I knew his field of expertise *was/were* cybernetics. 10. The audience of the Lecture Theatre *was/were* enjoying every minute of his speech.

Exercise 11. Use the suffixes to form nouns out of the given words. Give their plurals, if possible:

-age; -al; -ance; -ation; -ence; -ent; -er; -dom; -hood; -ing; -ion; -let; -ment; -ness; -sion; -ship; -ty; -ure

To govern, to write, to book, to enter, free, to approve, to qualify, to agree, to generate, to arrive, to explain, to depart, brother, to teach, to set, leader, to develop, empty, to resist, to employ, to stimulate, to connect, certain, to pass, to understand, to restrict, to study, to differ.

Exercise 12. Complete the sentences with a proper noun form corresponding to the words given in parentheses:

1. Her ... to admit the article drawbacks surprised the scientific adviser (fail). 2. The number of ... in the survey was over two hundred PhD students (respond). 3. One of the tasks of ... is to identify these factors and explore the ... between them (research; relation). 4. Completing small tasks provides a sense of ... and divides a larger scientific project into a number of smaller subsets that can be completed along the way before the dissertation ... (accomplish; defend). 5. This field of science is ever-growing with invaluable and innovative ... from researchers worldwide (contribute).

Exercise 13. Learn plurals of foreign (Greek and Latin) origin nouns. They are commonly used in scientific prose. Use them in the sentences of your own (5):

Nouns ending with -us get an ending -i or -es:

Nucleus — nuclei, radius — radii, stimulus — stimuli,
cactus — cacti/cactuses, fungus — fungi/funguses,

hippopotamus — hippopotami/ hippopotamuses,
octopus — octopi/octopuses.

Nouns ending with -um get an ending -a or -s:

Agendum — agenda, medium — media,
symposium — symposia, datum — data,
memorandum — memoranda/memorandums,
curriculum — curricula/curriculums, bacterium — bacteria.

Nouns ending with -on get an ending -a:

Criterion — criteria, phenomenon — phenomena,
automaton — automata.

Nouns ending with -ex or -ix get an ending -ices or -s(-es):

Appendix — appendices, index — indices/indexes,
matrix — matrices/matrixes.

Nouns ending with -is get an ending -es:

basis — bases, analysis — analyses, crisis — crises,
diagnosis — diagnoses, hypothesis — hypotheses,
thesis — theses, oasis — oases.

Nouns ending with -a get an ending -ae or -s:

Formula — formulae/formulas, larva — larvae,
antenna — antennae/antennas.

Exercise 14. Paraphrase the following, using the Possessive Case where possible:

The report of the guest speaker, questions of the conference participants; doctor of science; the purpose of the article; publications of the scholar; the content of the website; an absence of three days; the thesis of my sister-in-law; methods of thinking; novels of Dickens; the body of knowledge; achievements of a PhD student; the paper of Jack and Ann; the distance of a mile; poems of Shelly and Byron; curiosity of a scientist; lexicographers of Oxford; remarks of the supervisor; requirements of the journal; future of Europe; curricula of higher educational establishments; scientific and technological potential of Ukraine.

Exercise 15. Choose the correct noun form with a proper article:

1. Humanities, Arts and Social Sciences candidates undertake supervised research which culminates in *a PhD thesis/PhD theses*. 2. *Harvard University/The Harvard University* degree is respected everywhere. 3. She was enrolled in *College of Fine Arts/ the College of Fine Arts*. 4. One scientific study proved that *at present stage/the present stage* of AI development, it can be programmed to create "novel" ideas, but not original ones. 5. To *philosopher/the philosopher*, language may be *instrument/an instrument* of thought; to sociologist/*the sociologist*, a form of behaviour/*the behaviour*; to *psycho-logist/the psychologist*, a cloudy window through which he glimpses *workings/the workings of mind/the mind*; to engineer/*the engineer*, series/*a series* of physical events; to *linguist/ the linguist*, a system of arbitrary signs, he is interested in *form/the form* and meaning of all possible statements in a language. 6. Braille was invented to help *blind/the blind*. 7. *Questions/The questions* you ask are *very/the very* questions I'm putting myself. 8. Only *few/a few* PhD students failed the test. 9. He had *feeling/the feeling* that all his efforts to persuade his opponent proved to be futile.

Scientific Writing. My Research Project

Research *is a process of systematic study that entails collection of data; documentation of critical information; analysis and interpretation of that data/information in accordance with suitable methodologies set by specific professional fields and academic disciplines.*

Research Project *means a scientific endeavor to answer a research question.*

Exercise 16.1. Memorise the synonyms:

research (*n*) investigation; exploration; examination; ana-
/ˈriː.səːtʃ/ lysis; study; survey; search; experimenta-
tion; enquiry (UK) / inquiry (US); probing;

scrutiny; delving; groundwork; disquisition; testing; fact-finding.

to research (v) /rɪ'sɜ:tʃ/ investigate; examine; explore; probe; study; analyse (UK) / analyze (US); look into; scrutinise (UK) / scrutinize (US); experiment; assess; inspect; review; delve into; enquire into; inquire into; conduct investigations into; make enquiries into; consult the archives; do research; look up; do tests.

Exercise 16.2. Read and translate adjectives that can be used to qualify research:

research academic, scientific, original, objective, unbiased, logical, independent, descriptive, critical, challenging, systematic, relevant, replicable, complex, multi-disciplinary, full-scale, extensive, technical, empirical, reproducible, transparent, fundamental, specific, scheduled, complicated, feasible, quality, ethical, reliable, trustworthy, methodical.

possible intensifiers: rather, extremely, quite, fully, entirely, exceedingly, mostly, undoubtedly, definitely, precisely, fairly.

Exercise 17. Following the model compose sentences identifying the research characteristics.

A	B	C
<u>Academic research</u>	<u>obviously has to be</u>	<u>an original</u> <u>unbiased study.</u>

A: fundamental research; scheduled testing; effective survey; peer-review; the research you are conducting.

B: is quite; obviously has to be; is without doubt; seems to be, definitely should be.

C: (use adjectives and nouns from exercise 16, add your own ones).

Exercise 18. Name some research problems that can be regarded as:

1) fundamental ones; 2) most challenging ones; 3) most relevant in your field; explain your choice.

Exercise 19. Combining A, B, and C compose 5 sentences on the background, essence and the reasoning for further research of the problem(s) you are studying:

A	B		C	
This scientific problem The issue of... as is outlined now The scientific question... as is viewed now The problem under consideration	was (first/again)	advanced raised brought up formulated posed put forward	by	Dr N Prof. X the scholars of ... University
The dilemma of... The scientific concern to ... The scientific uncertainty ... The scientific challenge of ... as such	—	arose grew out broke upon	at in as early as as far back as	the beginning of 1970 the late 80's the 1990's the 20th century

It The hypothesis This issue The problem of...	was is has been can be	briefly mainly	outlined described stated formulated	as follows ... as is given below ... in the following way: ...
The issue The problem of... Some aspects of the problem Such aspects of the problem as ...	is/are still remain/ remains	inadequately insufficiently not sufficiently	studied examined understood	and need(s) further research

Exercise 20. Translate into English:

1. Використання штучного інтелекту (ШІ) в наукових дослідженнях становить, безперечно, одну з найважливіших та неоднозначних проблем сучасної науки.
2. Учасники заходу долучилися до активного обговорення проблеми академічної доброчесності й викликів науки у кризових ситуаціях.
3. Розглядувану проблему можна коротко сформулювати наступним чином: створення сучасних ефективних наукових центрів інноваційного розвитку, орієнтованих на прикладні дослідження та розвиток технологій.
4. Такі аспекти проблеми як переваги використання джерел відновлюваної енергії все ще недостатньо вивчені і потребують подальшого дослідження.
5. Наукове дослідження починається з формулювання проблеми, визначення мети, уточнення змісту проблеми, визначення конкретних завдань та вибору методів дослідження.

Discussion Points

1. Explain your decision to become a researcher to the group of peers.

2. Give the rationale for doing your future research.
3. Speak about the benefits of your research project.
4. Speak about the characteristic features of a research in your field.

Assignment 2.

Article for Reading and Discussion

Read the article at page 139 and explain your way of selecting a research topic:

1. Have you selected your research topic? What motivated you to choose it?
2. What/Who helped you to consider its relevance and significance?
3. Have you already reviewed any existing literature on it?
4. How can you make your research more manageable?
5. What can provide valuable insights into the topic and help you refine your research question?
6. What makes you think your topic is feasible enough?
7. Is your research topic aligned with the necessary requirements? Which ones?

Unit 2

The Scientific Attitude

Text:	The Scientific Attitude
Grammar:	Adjective. Verb. Indefinite Tenses (Active Voice)
Scientific Writing:	Information
Article:	The Structure of PhD Dissertation

Assignment 1. Read Text 2 at page 120.

Active Vocabulary

scientific attitude – науковий підхід

to solve problems – вирішувати проблеми

to be of purely academic nature – мати суто академічний характер

the root of science – основа науки

set of conditions – низка умов

acceptance of claims – прийняття тверджень

mindset/thinking (scientific, critical, logical) – мислення (наукове, критичне, логічне)

scientific temper – наукова вдача

to be refuted by evidence – бути спростованим доказами

open-mindedness – відкритість, сприйнятливість, широта світогляду

critical-mindedness – критичність

unprejudiced point of view – неупереджена точка зору

application of logical principles – застосування логічних принципів

rigorous standards of evidence – жорсткі стандарти надання доказів

careful reasoning – ретельна аргументація
pertinent and habitual curiosity – доречна і звична (цікавість) допитливість
systematic observations – систематичні спостереження
to follow rules and requirements – дотримуватися правил і вимог
consistency – послідовність
to establish cause-and-effect relationships – встановлювати причинно-наслідкові зв'язки
to question assumptions – ставити під сумнів припущення
hands-on activity – практична діяльність
suspended judgement (restraint) – стримане судження (стриманість)
reliance on facts – опора на факти
tolerance of uncertainty – толерантність до невизначеності
scientific thought – наукова думка
to gain knowledge – отримувати знання
to make outcomes – досягати результатів
to be meaningful to science – бути значущим (мати значення) для науки

Definitions and Samples

Scientific temper means "an individual's attitude of logical and rational thinking".

Critical thinking is "the objective analysis and evaluation of an issue in order to form a judgement" / "the process of thinking carefully about a subject or idea, without allowing feelings or opinions to affect you" (Cambridge dictionary).

Open-mindedness is "the quality of being willing to consider ideas and opinions that are new or different to your own": "This book is a tacit lesson in open-mindedness tempered with thorough scientific analysis".

Assumption is "something that you accept as true without question or proof": "He premised his argument on several incorrect assumptions".

Evidence means "facts, information, documents, etc. that give reason to believe that something is true": "Is there any scientific

evidence that a person's character is reflected in their handwriting?"

Curiosity is "an eager wish to know or learn about something": "Just out of curiosity I decided to go through the files".

Scepticism is "an attitude that shows you doubt whether something is true or useful": "There was a climate of scepticism surrounding the conference". (From the Cambridge English Corpus).

Comprehension

1. What is science? And what lies at its root (especially in your area of expertise)?
2. What forms the essential grain of scientific thinking?
3. How can you describe a person with a scientific temper?
4. What is a scientific attitude? What does it involve?
5. What key characteristics of scientific attitude do you know?
6. How can PhD students develop their scientific attitudes? How will this help them in their research?
7. What are the major components of a scientific attitude?
8. Which of the scientific attitudes do you possess?
9. What do scientific attitudes in action allow scientists to consider in the course of research?
10. How can scientific thinking be defined? What is the goal of scientific thinking?

Word Study

Exercise 1. Give English equivalents of the following phrases:

наукова думка, отримувати знання, наукова вдача, низка умов, практична діяльність, науковий підхід, жорсткі стандарти, вирішувати проблеми, досягати результатів, встановлювати причинно-наслідкові зв'язки, критичне мислення, систематичні спостереження, ретельна аргументація, прийняття тверджень, застосування логічних принципів, послідовність, допитливість, дотримуватися правил і вимог, здоровий скептицизм, відкритість (широта) світогляду, ставити під сумнів припущення, покладатися на факти, спростовуватися доказами, неупереджена точка зору.

Exercise 2. Complete the following sentences by matching the sentence halves:

1. A person with a scientific temper ...	a) ... helps to think critically and reject dangerous ideas.
2. PhD students' scientific mindset ...	b) ... is open to ideas being refuted by evidence.
3. Open-minded researchers ...	c) ... do everything correctly and exactly as it should be done.
4. A true scientist ...	d) ... allow to consider all possibilities and question all information.
5. Scholars' scientific attitudes ...	e) ... are receptive to new ideas and hypotheses.
6. Logical attitude ...	f) ... is not only critical to the work of others, but also of his own.
7. Scrupulous scientists ...	g) ... is a particular way of thinking, that is reasonable and based on good judgement.

Exercise 3. Read the meaning of the adjectives characterising a scientist. Which ones may seem odd in the list? Why?

Assertive – someone who behaves confidently and is not frightened to say what they believe or are sure of.

Responsible – having control and authority over something or someone and the duty of taking care of them.

Curious – interested in learning about something.

Scrupulous – doing everything correctly and exactly as it should be done.

Honest – telling the truth or able to be trusted and not likely to cheat or lie.

Organised – arranging things in a systematic way.

Logical – using reason.

Resolute – someone who continues doing something or tries to do something in a determined way.

Intelligent – able to learn and understand things easily.

Committed – willing to give your time and energy to something that you believe in.

Accurate – exactly aimed and moving on an intended path.

Partial – having a liking for something; influenced by the fact that you personally prefer or approve of something, so that you do not judge fairly.

Ambitious – having a strong wish to be successful, powerful, rich or famous.

Exercise 4. Using prefixes write opposites of the given adjectives. One word can be used with more than one prefix.

Un-	In-	Im-	Il-	Ir-	Dis-
Assertive		Accurate		Intelligent	
Organised		Scrupulous		Rational	
Committed		Resolute		Pertinent	
Responsible		Partial		Ambitious	
Logical		Honest		Prejudiced	

Exercise 5. Write out the most important features that a true scientist must possess and explain how he applies them in his research.

e.g., A scientist is accurate and organised because he arranges data in a systematic way.

Exercise 6. Match nouns in the right column with adjectives in the left. Make as many word combinations as possible, use 5 of them in the sentences of your own.

pertinent	attitude
suspended	opinion
systematic	application
rigorous	curiosity
scientific	observations
unprejudiced	reasoning
practical	research
academic	judgement

e.g., Rigorous reasoning means a strong and logical set of reasons by which every assumption is constantly challenged and checked before to support an idea or conclusion.

Exercise 7. Fill the gaps with suitable prepositional verbs from the list below. Use them in proper tense forms:

to be interested in; to concentrate on/upon; to be based on; to direct to/towards; to depend on/upon; to find out; to be critical of; to belong to; to rely on/upon

1. He is an expert in this field. You can ... his expertise. 2. Their conclusion ... several incorrect assumptions, not facts. 3. She is an Associate Professor at the department of Ancient History. She ... our university setting. 4. It's human to err. Everybody can make mistakes. Don't ... my ideas. 5. While checking the hypothesis we must ... the details and data provided. 6. This phenomenon has already been explained. You'd better ... your attention ... another issue. 7. Don't stop halfway in your research. To achieve good results, you must ... the reason of your failure. 8. This assumption ... largely ... previous research in this field. 9. Stakeholders ... mostly ... the practical application of the scientific project.

Exercise 8. Translate into English:

1. Науковий підхід – це властивий дослідникам спосіб мислення та пізнання, що формується умовами дослідження, рівнем знань та професійної підготовки науковця, а також галуззю знань, в якій проводиться дослідження. 2. Науковець зосереджує свою увагу на проблемах, які ще не отримали задовільного пояснення. 3. Вченим притаманний ряд особливих рис, які необхідні для проведення наукових досліджень: допитливість, здоровий скептицизм, критичне мислення, ретельна аргументація, застосування логічних принципів та відкритість світогляду. 4. Дослідник повинен бути неупередженим, чесним, розвивати в собі такі риси як спостережливість, об'єктивність, логічність, точність та послідовність. 5. Кожен вчений розробляє певний науковий підхід, за яким буде здійснювати власне дослідження; зокрема, до таких підходів відносять: теоретичний, історичний, емпіричний, експериментальний,

методологічний та ін. підходи. 6. Критичне мислення дозволяє вченим, опираючись на факти, розглядати всі можливості і систематично піддавати сумніву та перевіряти всю інформацію в ході дослідження.

Structure Study

Adjective. Verb. Indefinite Tenses (Active Voice).

Exercise 9. Give the comparative and the superlative degrees of the following adjectives:

critical, quick, far, careful, dry, good, thin, open-minded, little, new, accurate, full, good-looking, busy, bad, creative, few, famous, easy, absent-minded, wet, interesting, old, expensive, large, powerful, big, tiresome.

Exercise 10. Fill the gaps with adjective or adverb in the correct form:

- | | |
|---|-----------------|
| 1. The results of scientific research are submitted for review by peers before dissemination to a ... audience. | wide |
| 2. Their ... findings are ... than the previous ones. | late, reliable |
| 3. You missed the deadline. I expected you to submit your article ... | early |
| 4. That exam was really awful. It was much ... than I had expected. | difficult |
| 5. He works... than most of other PhD students. | hard |
| 6. This guest-speaker is ... lecturer I have ever listened to. | assertive |
| 7. The ... you are, the... results you get. | focused, good |
| 8. War tends to bring out ... in people. | bad |
| 9. The ... I think of his project, the ... I like it. | long, little |
| 10. She is ... researcher in the team of ... experimenters. | committed, avid |
| 11. The ... you practice English, the ... you learn. | much, fast |
| 12. We discussed this problem a lot but we didn't get ... in actually solving it. | far |

Exercise 11. Complete these sentences in your own way using the degrees of comparison:

1. ... **is/are** (easier, more reliable, less expensive) **than**
2. ... **is/are** (the earliest, the worst, the least studied)
3. ... **as** (rigorous, unprejudiced, interesting, pertinent) **as**
4. ... **not so** (strong, creative, difficult, considerable) **as**
5. ... **much** (worse, better, more, less) **than**

Exercise 12. Practice the following according to the model:

Model: His research in the field of sociology produces unexpected results. His research in the field of sociology produced unexpected results. His research in the field of sociology will produce unexpected results. My colleague said that his research in the field of sociology would produce unexpected results.

1. Guided by their supervisors, PhD students choose authentic materials to work with.
2. This issue proves relevant to a consideration of the students' responses.
3. His laboratory assistant always helps him in his experiments.
4. PhD students attend lectures and practical classes five days a week.
5. My supervisor regularly checks my draft.
6. The researcher systematically questions all information in the course of research.
7. She usually solves her problems by herself.
8. This information attracts scientists' attention.
9. Professor X prefers teaching methods that actively involve PhD students in research.
10. The proposed conference framework offers challenging discussions for students and researchers in various areas.

Exercise 13. Make up questions to which the italicized words are the answers:

- 1 We really need *a long-term investment in science and technology*.
2. *He* thinks he did a lot to enhance his knowledge in the field.
3. She uses *qualitative* methods to achieve good results.
4. *Yes*, he defended his thesis successfully.
5. She said that *it would be a promising area of artificial intelligence research*.
6. Scientists will not accept *unsubstantiated claims*.
7. The monograph is full of interesting observations on *the nature of human behaviour*.
8. He always directs his attention to *the most questionable* issues.

Exercise 14. Open the brackets, use the verb in the correct form:

1. If he (cope) with the task, it (be) satisfying for him. 2. She (inform) us about the next conference when she (get) the information. 3. We (let) you know as soon as he (accept) our offer. 4. If they (not come) on time we (not wait). 5. If we (not install) this computer programme, our control system (be) unreliable. 6. If she answers in the positive, this will be the best answer of hers. 7. He is so diligent that it (not surprise) anyone if he (pass) the qualifying exams with the highest scores.

Exercise 15. Translate into English:

1. Наукові дослідження створюють наукові знання, надаючи інформацію про те, як система функціонує за певних умов. 2. Перш за все вчений зосереджує свою увагу на деяких проблемах, потім перевіряє факти, які він спостерігає. 3. Чим скоріше ти завершиш дослідження, тим краще. 4. На цей раз у нього менше помилок в роботі, але якщо він не встигне виконати всі завдання до дедлайну, тим гірше для нього. 5. Як ви вважаєте, що відіграє більш важливу роль у сучасному житті – наука, мистецтво чи технології? 6. Він склав іспит з філософії краще ніж з англійської, але гірше ніж зі спеціальності. 7. Вона сказала, що принесе мені монографію завтра. 8. Цей матеріал значно складніший ніж той, який ми вивчали минулого тижня. 9. Який науковий підхід ти застосовуватимеш у своєму дослідженні? 10. Чи погоджуєтеся ви з тезою, що мистецтво вимагає суб'єктивності й залишає передбачувану об'єктивність науки.

Scientific Writing. Science. Scientific Information.

Exercise 16. Read and translate adjectives that can be used to qualify the following terms. Which are synonyms among them?

Science(s)

natural, social, exact, technical; physical, political, medical, forensic, actuarial; early, former, modern, contemporary, recent, late, past; advanced, cutting-edge, innovative,

sophisticated, liberal; new, mature; fundamental, pure, theoretical, applied.

information

relevant, detailed, ample, precise, valuable, great, substantial, valid, considerable, available; previous, earlier, preliminary, present, current, further; voluminous, pervasive, extensive; fragmentary, vague; (in)accurate, (in)sufficient, (in)complete, (un)reliable.

Exercise 17. Combining A, B and C write a sentence concerning information on your subject:

A		B			C	
Currently / At present Nowadays	in (social/ political/ modern) science	there is	some fragmentary a lot of little not enough lack of not any sufficient precise/ relevant	information	about on concerning regarding with regard to bearing on	the use of... the application of... the changes in... the action of...
	in literature					

Exercise 18. Combining A, B and C write a sentence concerning the sources of information on your subject and the way it has been provided:

A	B		C
The relevant information Some of available information Much of the earlier information Most of the recent information	comes has come is obtained has been received	from	surveys on ... latest research of ... studies involving ... analysis recent investigations in the field of...
	is provided has been provided	by	using the newly-developed method...

Exercise 19. Combining A, B and C write a sentence concerning the possible conclusions you can make as to the information obtained in the course of your research:

A	B			C
The information obtained	is (not)	sufficient / insufficient	to classify	these phenomena as ...
The available information	seems		to assume	that this change is ...
Information provided by ...	does not seem	sufficient / insufficient	to conclude	that these findings are ...
	has (not) been		to indicate	(de/in)creased amounts of ...
			to suggest	an interrelation between ...
				a participation of ...
			to permit	any such assumption
			to suggest	any of these conclusions
			to allow	such conclusions
				the following the assumption ...

Exercise 20. Translate into English:

1. Наукова інформація, що отримується в процесі пізнання, відображає закономірності об'єктивної дійсності і використовується в практиці наукової комунікації.
2. В літературі відсутня будь-яка інформація про це явище.
3. Наразі отриманої інформації недостатньо, щоб підтвердити ваше припущення.
4. В наш час є багато інформації про природу цієї взаємодії.
5. Інформація, отримана з останніх досліджень в цій галузі, здається не надто ґрунтовною, щоб дійти такого висновку.
6. До основних джерел наукової інформації належать монографії, дисертації, періодичні наукові видання (журнали, бюлетені, збірники матеріалів конференцій з різних галузей науки і техніки), а також навчальна література – підручники, посібники, методична література.
7. Щоб зрозуміти цей процес, нам потрібна точна інформація, отримана експериментальним шляхом.
8. В процесі збору інформації достовірність отриманих результатів дослідження значною мірою залежить від належ-

ного застосування емпіричних методів: спостереження, тестування, опитування (анкетування) тощо.

Discussion Points

1. Explain the importance of scientific attitude in research.
2. Speak about the characteristic features of a scientist / researcher.
3. Read and discuss the quotations about science:
 - "Science is organised knowledge. Wisdom is organised life". (Immanuel Kant)
 - "The science of today is the technology of tomorrow". (Edward Teller)
 - "The good thing about science is that it's true whether or not you believe in it". (Neil deGrasse Tyson)
 - "Science may set limits to knowledge, but should not set limits to imagination". (Bertrand Russell)
 - "Science is a wonderful thing if one doesn't have to earn one's living at it". (Albert Einstein)
 - "There are in fact two things, science and opinion; the former begets knowledge, the latter ignorance". (Hippocrates)
 - "The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but 'That's funny...'" (Isaac Asimov)
 - "Those who invest in science invest in the future, those who cut science hope for the best". (John Beddington)

Assignment 2.

Article for Reading and Discussion

Read the article at page 141 and explain the importance of scientific writing. What is your viewpoint on it?

Unit 3

The Scientific Method

Text:	The Scientific Method
Grammar:	Participle and its Functions. Passive Voice.
Scientific Writing:	Conducting experiments.
Article:	Why Drinking Coffee Can Benefit Your Health

Assignment 1. Read **Text 3** at page 122.

Active Vocabulary

phenomenon (pl. phenomena) – явище (мн. явища)

rigorous – суворий

validity – достовірність

bias /'baɪəs/ – схильність, упередження

reproductive – відтворний, репродукційний

assumption – припущення

to identify – розпізнавати, пізнавати

testable – перевірний

reliable – надійний, достовірний

to determine – визначити, вирішити

to refute – спростувати

to interpret – інтерпретувати, тлумачити, пояснювати

refined – вдосконалений, покращений

to revise – переглядати, виправляти

peer-reviewed – рецензований

to replicate – відтворювати, повторювати

to contribute – сприяти, вносити

inquiry – запит

essential – істотний, невід'ємний

Definitions and Samples

Scientific method – a systematic approach used to investigate natural phenomena, acquire new knowledge, or correct and integrate previous knowledge.

Formulation of a hypothesis – the process of creating a testable prediction that offers a possible explanation for the observed phenomena.

Conducting experiments – the designing and execution of controlled experiments to test the validity of a hypothesis.

Data collection – the process of gathering quantitative or qualitative information from the experiments conducted.

Data analysis – the use of statistical methods or other approaches to effectively interpret the collected data.

Hypothesis testing – the determination of whether the obtained data supports or refutes the proposed hypothesis.

Empirical evidence – based on practical experience or scientific experiments rather than theory.

Comprehension

1. What is the primary purpose of the scientific method?
2. How does the scientific method minimize bias in research?
3. What is the first step in the scientific method process?
4. What role does a hypothesis play in the scientific method?
5. Why are experiments conducted under controlled conditions in the scientific method?
6. What is the significance of data collection in the scientific method?
7. How do researchers determine whether the evidence supports or refutes a hypothesis?
8. Why is it important for scientists to share their results with the scientific community?

Word Study

Exercise 1. Give English equivalents of the following phrases:

науковий метод, системний підхід, логічне мислення, збір даних, статистичний аналіз, рецензовані публікації, критичне мислення, надійні та відтворювані результати, альтернативні

пояснення, розширювати знання, різні наукові дисципліни, наукове дослідження, досліджувані явища.

Exercise 2. Complete the following sentences using the text.

1. The is a structured process used by scientists to explore the natural world and test hypotheses. 2. Instead of relying on personal beliefs, researchers use to support their conclusions. 3. Before conducting experiments, scientists formulate a, which is a testable prediction about the observed phenomena. 4. To ensure accuracy, experiments must be performed under that allow reliable and reproducible results. 5. After conducting experiments, researchers proceed with to determine whether the evidence supports their hypothesis. 6. Scientists share their findings through, which help validate research and contribute to scientific discussion. 7. One of the key principles of the scientific method is, which encourages questioning and objective analysis.

Exercise 3. Find in the text synonyms to the following words and phrases.

strict, thorough; to explore; accuracy; to highlight; vital; to analyse, explain; to improve, to adjust; to collect, to accumulate; to disprove, to contradict.

Exercise 4. Form nouns from the corresponding verbs. Use them in sentences of your own:

to investigate, to explain, to observe, to predict, to analyse, to collect, to interpret, to refine, to test, to explore.

Exercise 5. Fill in the gaps with suitable prepositional verbs from the list below. Use them in the proper tense forms:

to rely on, to begin with, to consist of, to contribute to, to return to, to depend on, to share with

1. When unexpected results occur, researchers must their initial hypothesis for revision. 2. Scientists findings the global research community through academic journals. 3. The scientific method several steps, including hypothesis formu-

lation and experimentation. 4. Rather than assumptions or personal beliefs, the scientific method emphasizes empirical evidence. 5. Publishing research findings helps ... the advancement of scientific knowledge. 6. Every research study ... a clear observation of a problem or phenomenon. 7. The accuracy of scientific measurements the precision of the instruments used.

Exercise 6. Learn the following sets of related words. Define what part of speech each word belongs to:

science – scientific – scientist; experiment – experimental – experimenter – experiment – experimented; analysis – analytical – analyst – analyse – analysed; observation – observational – observer – observe – observed; investigation – investigative – investigator – investigate – investigated; discovery – discoverable – discoverer – discover – discovered; explanation – explanatory – explain – explained; development – developmental – developer – develop – developed, publication – publisher – publish – published

Exercise 7. Translate into English:

1. Науковці спостерігають за змінами в світі, щоб краще його зрозуміти.
2. Проведення експерименту в контрольованих умовах забезпечує точність результатів.
3. Гіпотеза має бути перевірена, щоб її можна було підтвердити або спростувати.
4. Перед публікацією наукова стаття проходить рецензування іншими дослідниками.
5. Збір даних є важливим етапом будь-якого наукового дослідження.
6. Критичне мислення допомагає уникнути упередженості у процесі аналізу інформації.
7. Науковці використовують логічне мислення, щоб пояснити складні явища.
8. Якщо результати експерименту суперечать очікуванням, необхідно повернутися до гіпотези та внести зміни.

Structure Study

Participle and its Functions. Passive Voice.

Exercise 8. The general rule holds that "someone is -ed if something is -ing. Or, if something is -ing, it makes you -ed". Following the model complete 2 sentences for each situation, using either form of the participle in brackets.

1. The lecture was not as interesting as we had hoped (bore).
 - a) The lecture was ____.
 - b) We were ____ with the lecture.
2. The experiment did not give the results the scientists wanted (disappoint).
 - a) The experiment was ____.
 - b) The scientists were ____ with the experiment.
3. The book was not as exciting as the reviews said (excite).
 - a) The book was ____.
 - b) We were ____ about the book.
4. The noise from the construction site was worse than we expected (annoy).
 - a) The noise was ____.
 - b) We were ____ by the noise.
5. The explanation of the theory was not very clear (confuse).
 - a) The explanation was ____.
 - b) The students were ____ by the explanation.
6. The long flight made us feel very tired (tire).
 - a) The flight was ____.
 - b) We were ____ after the flight.
7. The horror movie was scarier than we had imagined (frighten).
 - a) The movie was ____.
 - b) We were ____ by the movie.

Exercise 9. Choose the correct form of the participle:

1. She was amusing/amused by the comedian's jokes.
2. The instructions were so unclear that we felt confusing/confused.
3. He was embarrassing/embarassed when he forgot his speech in front of the audience.
4. The news about the earthquake was

shocking/shocked. 5. After working all day, she felt completely exhausting/exhausted. 6. The children were fascinating/fascinated by the magician's tricks.

Exercise 10. Translate the following phrases, and use them in sentences of your own:

well-developed argument, advanced technology, limited resources, improved strategy, established principles, experienced researcher, increased demand, refined technique, complicated process, confirmed hypothesis.

Exercise 11. Define the function of Participle 2 in the following sentences and translate them:

1. The data **collected** during the experiment was carefully analysed. 2. The documents **submitted** by the applicant were incomplete. 3. The theory **developed** by the scientists changed our understanding of physics. 4. The project **completed** last week received positive feedback. 5. The **damaged** equipment needs to be repaired before the next test. 6. The results **obtained** from the survey will be published soon. 7. The instructions **given** by the professor were very clear. 8. The problems **faced** by researchers require innovative solutions.

Exercise 12. Replace the infinitives in brackets by Participle 2:

1. The new vaccine was produced using a method (to test) in previous clinical trials. 2. The missing files (to find) in the archive provided crucial evidence for the case. 3. The company improved its strategy based on feedback (to receive) from customers. 4. The lecture (to attend) by hundreds of students covered the latest scientific discoveries. 5. The theory (to prove) by multiple studies is now widely accepted in the field. 6. The chemicals (to mix) incorrectly led to an unexpected reaction. 7. The ancient manuscript (to discover) in the cave contained valuable historical information. 8. The meeting (to schedule) for next week was postponed due to unforeseen circumstances.

Exercise 13. Define what part of speech the words with -ed belong to and state their function in the following sentences:

1. The scientist conducted a series of experiments to test the new hypothesis. 2. The advanced technology used in the project improved efficiency. 3. She felt frustrated after struggling with the complex equations. 4. The crowded conference hall made it difficult to find a seat. 5. The team had achieved remarkable results in their latest study. 6. His talented approach to problem-solving impressed the committee.

Exercise 14. Transform the following sentences into Passive:

1. The professor explained the complex theory in great detail. 2. Scientists discovered a new species in the rainforest last year. 3. The researchers will publish their findings in a scientific journal. 4. The company is developing a new strategy to reduce pollution. 5. They have translated the book into three different languages. 6. The team had already completed the project before the deadline. 7. The government will implement new environmental regulations next year. 8. The students are discussing the results of the experiment in class. 9. The committee awarded the scientist a prestigious prize for her discovery.

Exercise 15. Give 2 Passive transforms of the following sentences as in the model:

1. The university offered the researcher a scholarship. 2. The company sent the employees an important announcement. 3. The professor showed the students a new experiment. 4. The government granted the organization financial support. 5. The teacher assigned the class a difficult project. 5. The editor gave the journalist valuable feedback.

Exercise 16. Translate into English:

1. Цей закон був ухвалений парламентом минулого року. 2. Новий дослідницький центр буде відкритий наступного місяця. 3. Важливі дані були зібрані під час експерименту. 4. Стаття була опублікована у відомому науковому журналі. 5. Це питання активно обговорюється в академічних колах.

6. Остаточне рішення буде прийняте після додаткового аналізу. 7. Проблема зміни клімату була піднята на міжнародній конференції. 8. Книга була перекладена на кілька мов. 9. Новий метод дослідження був розроблений групою вчених. 10. Перші результати тестування будуть оприлюднені наступного тижня.

Scientific Writing. Conducting experiments.

Exercise 17. Read and translate adjectives that can be used to qualify

experiment controlled, rigorous, systematic, valid,
reliable, recent initial, comprehensive,
objective, thorough, scientific, technical,
qualitative, successful, quantitative,
unreliable, promising.

Exercise 18. Translate into Ukrainian.

1. Experiments are a key part of the scientific method, helping researchers test their hypotheses and gather data. 2. In a well-designed experiment, scientists carefully control all variables except the one being tested. 3. The results of an experiment must be reproducible by other researchers to confirm the findings. 4. An experiment can be either qualitative, where the focus is on descriptions, or quantitative, which involves numerical data. 5. In a double-blind experiment, neither the participants nor the researchers know who is receiving the treatment or placebo. 6. Experiments are often conducted in labs to maintain a controlled environment and reduce external factors. 7. Before conducting large-scale experiments, researchers may first run pilot tests to check if their methods work properly.

Exercise 19. Combining A, B and C complete the sentences stating the purpose of the experiments.

A	B		C	
I / We	planned conducted	the experiment	to analyse to impact	a correlation... affected the rate...

Resear- chers The author	carried out made tested started	a number of experiments	to observe to determine to evaluate to investigate to test	the influence of... significant role... people's productivity... data on... relationship between... how different are... effectiveness of...
		this experiment	to obtain to check to provide	

Exercise 20. Translate into English.

1. Дослідники планують провести серію тестів, щоб перевірити вплив температури на швидкість реакцій.
2. Цей експеримент має на меті встановити, чи існує зв'язок між харчуванням і рівнем енергії.
3. Ми організували кілька досліджень, щоб вивчити, як зміна середовища впливає на поведінку тварин.
4. Результати останнього експерименту показали, що зміни в освітленні справді покращують концентрацію.
5. Група вчених провела тестування різних методів, щоб знайти найефективніший підхід до навчання.
6. У цьому дослідженні вивчається, як довготривале використання технологій може впливати на сон.

Discussion Points

1. Why is it important to formulate a clear hypothesis before experimenting?
2. How can researchers ensure that their experiments are reliable and free from bias?
3. What role does data analysis play in determining the validity of an experiment's results?
4. How can the reproducibility of an experiment strengthen its findings and contribute to scientific progress?

Assignment 2.

Article for Reading and Discussion

Read the article at page 143 and explain:

1. The text mentions that coffee has several health benefits, including a reduced risk of certain diseases. Do you think these benefits outweigh the potential negative effects of excessive coffee consumption? Why or why not?
2. Since many of the studies on coffee are correlational, we don't yet fully understand why it has such positive effects. What other lifestyle factors do you think could contribute to the health benefits associated with coffee consumption?

Unit 4

Pure and Applied Science

Text:	Pure and Applied Science
Grammar:	Continuous Tenses.
Scientific Writing:	Method (Technique Procedure).
Article:	Learning a New Language Is Hard, But Your Brain Will Thank You

Assignment 1. Read **Text 4** at page 124.

Active Vocabulary

in the advancement – у розвитку / у просуванні

to expand – розширювати

to refer to – посилатися на / називати

fundamental – фундаментальний / основний

to be concerned with – займатися / перейматися / бути стурбованим чимось

to seek – прагнути / шукати

an application – застосування / прикладне використання

in contrast to – на відміну від

to be built upon – базуватися на / спиратися на

to be established – бути встановленим / бути заснованим

to leverage – використовувати з вигодою / важелі впливу

innovate – впроваджувати інновації / оновлювати

to enhance – покращувати / підвищувати

to exemplify – слугувати прикладом / ілюструвати

striving – прагнення / намагання

inherently interconnected – за своєю суттю взаємопов'язані

breakthrough – прорив / значне відкриття

conversely – навпаки

to be encountered in – зустрічатися в / стикатися з

to prompt – спонукати / стимулювати

tangible solutions – відчутні рішення / реальні вирішення

to propel – просувати / стимулювати

Definitions and Samples

to leverage for/to – to make effective use of something to achieve a goal

to be indispensable to/for – being absolutely necessary for something

to account for – considering or explaining something in a particular way.

Comprehension

1. What are the main differences between pure science and applied science in terms of their goals and approaches?
2. Why is pure science often referred to as "fundamental" science? Provide an example from the text.
3. How do researchers in pure science view the practical applications of their findings?
4. In what ways does applied science rely on pure science to solve real-world problems?
5. What are some examples of disciplines that represent applied science mentioned in the text?
6. How can breakthroughs in pure science lead to innovations in applied science? Provide an example.
7. According to the text, how do practical challenges in applied science influence pure science research?
8. Why are both pure and applied sciences considered indispensable for human progress?
9. How does the interconnection between pure and applied science benefit society as a whole?

Word Study

Exercise 1. Give English equivalents of the following words and phrases and compose sentences of your own:

фундаментальні запитання; практичні, реальні проблеми; відкриття нових фактів; взаємопов'язані напрями; застосовува-

ти принципи; покращити добробут людей; спонукати до вивчення; незамінні для прогресу.

Exercise 2. Complete the following sentences using the text:

1. Pure science is focused on expanding knowledge for the sake of ... the natural world. 2. Researchers in pure science aim to discover new ... principles, and theories. 3. In contrast to pure science, applied science seeks to solve ... real-world challenges. 4. Applied scientists ... the theories uncovered by pure science to create new technologies. 5. The practical challenges faced in applied science can ... new research questions in pure science. 6. Disciplines such as engineering and medicine ... applied science in action. 7. Breakthroughs in pure science often serve as a ... for innovations in applied science. 8. Both pure and applied science are considered ... for the advancement of human knowledge.

Exercise 3. See if you can recall the prepositions:

to focus....; to be concerned....; to contribute....; to be devoted; to rely....; to focus....; to leverage....; to refer; to be encountered

Exercise 4. Complete the following sentences, choosing one of the four expressions in the brackets; translate the sentences:

1. New technology was developed by (pure science; applied science; engineering; basic research) to solve environmental problems. 2. Researchers aim to discover (fundamental principles; tangible solutions; practical applications; breakthrough technologies) in pure science. 3. The challenges faced in (medicine; biology; pure science; applied science) often lead to new discoveries in the field of research. 4. (Applied science; Engineering; Physics; Chemistry) focuses on turning theoretical knowledge into practical tools and technologies. 5. Breakthroughs in (pure science; social sciences; applied science; art) can lead to innovations in medicine and technology.

Exercise 5. Form nouns of the following verbs;

to enhance; to apply; to exemplify; to lead; to expand; to improve; to innovate; to discover;

Exercise 6. Use either verb in the correct form or a corresponding noun from ex. 5 to fill the gaps in the following sentences:

1. The recent _____ of a new treatment method has revolutionized the medical field.
2. The company's _____ of new technologies has significantly improved their production process.
3. The team's _____ in the field of environmental conservation has earned them widespread recognition.
4. The _____ of the research into renewable energy sources will open up new possibilities for sustainable development.
5. The _____ of customer satisfaction is one of the primary goals of this company.
6. The professor's lecture perfectly _____ the concept of quantum mechanics, making it easier for students to understand.
7. There has been a significant _____ in the company's performance since the new manager took over.
8. The scientist's _____ to renewable energy solutions has been praised by experts in the field.

Exercise 7. Based on the meaning of prefixes translate the following sets of words:

inter- between, from one to another: intra- within;

1. international, interdependent, interchange, interconnected, interchange, interlink,
2. intracellular, intrapersonal, intravenous, intracompany, intra-group, intraoperative

Exercise 8. Translate into English:

1. Точна наука спрямована на розширення знань про навколишній світ без необхідності їх негайного практичного застосування.
2. Прикладна наука використовує основні принципи, відкриті в точній науці, щоб вирішувати реальні проблеми суспільства.

3. Прориви в точній науці часто стають каталізатором для нових інновацій у прикладній науці.
4. Розвиток нових методів лікування може стимулювати нові дослідження в галузі біології чи хімії.
5. Точна та прикладна науки тісно взаємопов'язані і доповнюють одна одну.
6. Принципи, вивчені в точній науці, можуть бути застосовані для створення нових технологій або медичних пристроїв.

Structure Study.

Continuous Tenses.

Exercise 9. Find Present, Past, or Perfect Participles in the text and define their functions.

Exercise 10. Define the functions in which Participle is used in the following sentences:

1. Increasing our understanding of the universe, scientists aim to discover new principles and facts. 2. The discoveries made in pure science often lead to advancements in technology. 3. Having conducted numerous experiments, the researcher was able to confirm the new hypothesis. 4. Researchers are striving to apply the knowledge gained from pure science to solve global challenges. 5. The theories uncovered by pure science form the basis for new technological innovations.

Exercise 11. Translate the first part of the following sentences using the proper form of Continuous tense:

1. Вона аналізувала дані when the unexpected result appeared. 2. Команда обговорювала проєкт when the manager interrupted them. 3. Вони досліджували нові методи while the previous techniques were being tested. 4. Я готував презентацію when I realized I had forgotten a crucial point. 5. Вчений пояснював теорію when the students started to ask questions. 6. Вона працювала над звітом while the others were gathering the necessary data. 7. Ми обговорювали наслідки результатів when new findings emerged.

Exercise 12. Transform the following sentences into passive, leaving out the doer of the action:

1. Scientists conduct experiments to discover new theories. 2. Researchers are studying the impact of climate change on local ecosystems. 3. The team has developed a new method for analysing large data sets. 4. Last year, they discovered a new species of plant in the Amazon rainforest. 5. Next month, the scientists will present their findings at the international conference. 6. By the end of this year, they will have completed the research project.

Exercise 13. Replace the infinitives in brackets by Indefinite or Continuous tenses where necessary:

1. She plans (to conduct) an experiment next week. 2. By the time you arrive, I will finish (to prepare) the presentation. 3. The researcher is expected (to solve) the problem by next month. 4. They plan (to explore) new theories in the upcoming research paper. 5. I am looking forward to (to attend) the conference next week. 6. By the time the conference starts, the team will have finished (to analyse) all the data. 7. He admitted (to make) a mistake in his earlier calculations. 8. They plan (to explore) new theories in the upcoming research paper.

Exercise 14. Translate into English:

1. Вона планує проводити експеримент наступного тижня, щоб перевірити нову теорію, яка може змінити наше розуміння цього явища.
2. Ми почнемо аналізувати результати, як тільки отримаємо дані, і на основі отриманих висновків підготуємо звіт для подальшої презентації на конференції.
3. До того часу, як ви приїдете, я закінчу готувати презентацію, яка детально пояснює результати нашого дослідження та пропонує нові підходи для вирішення проблеми.
4. Очікується, що дослідник вирішить проблему до наступного місяця, після чого він представить результати науковій спільноті та запропонує можливі шляхи подальших досліджень.

5. Вони планують досліджувати нові теорії в майбутній науковій статті, яка зосередиться на аналізі останніх досягнень у цій галузі та їх впливу на практичне застосування.
6. Я з нетерпінням чекаю відвідати конференцію наступного тижня, де науковці обговорюватимуть останні досягнення в галузі досліджень.
7. До початку конференції команда закінчить аналізувати всі дані, підготувавши детальний звіт, який буде представлений під час презентації перед міжнародною аудиторією.

Scientific Writing. Method (Technique Procedure).

Exercise 15. Read and translate adjectives used to evaluate

<i>method</i>	effective, efficient, practical, innovative,
<i>technique</i>	reliable, comprehensive, feasible, cost-
<i>procedure</i>	effective, systematic, time-efficient, proven, innovative, versatile, (in)valid, (in)accurate, useful/useless, out-of-date.

Exercise 16. Combining A, B, and C complete the sentences, characterizing a certain method (technique, procedure).

A	B	C	
The proposed method The procedure The technique we apply(ed) The method we use(d) The above procedure	proves to be seems is is regarded as is known to be is observed as	efficient reliable comprehensive remarkable expanded flexible systematic	to meet demands... to reduce expenses... to adapt to various contexts to outline each step quantitative analysis of the study of... to handle big volumes of data to enhance ... to ensure ...

Exercise 17. Name some methods, techniques, or experimental procedures in your field of research that are:

1. Widely applied in modern times;
2. standard and customary methods;
3. still practiced, but have been updated or refined;
4. ancient and obsolete, no longer relevant or practical.

Exercise 18. Translate into English:

1. Процедура є надзвичайно зручною у використанні, що робить її доступною як для експертів, так і для тих, хто має обмежений досвід.
2. Однак успіх цього методу залежить від прозорості структури, яка чітко окреслює кожен крок.
3. Запропонований метод є водночас ефективним та надійним, забезпечуючи стабільні результати навіть у складних ситуаціях.
4. Застарілі методи здебільшого були відкинуті, оскільки не відповідають сучасним стандартам та вимогам.
5. Модифікована техніка залишається у використанні завдяки своїй ефективності, хоча походить із давніших практик.

Exercise 19. Describe the methods, the technique, and the experimental procedure you have followed (plan to follow) in your research.

Discussion Points

1. What is the aim (object) of pure/applied scientific investigation?
2. How would you describe the relationship and interdependence between these two branches of science?
3. Make a summary of the text.

Assignment 2. Article for Reading and Discussion

Read the article at page 144 and explain:

1. The text highlights how learning a new language can reshape the brain and delay cognitive decline. In your opinion, should language learning be encouraged more in schools and workplaces as a way to promote brain health? Why or why not?
2. Besides cognitive benefits, language learning also fosters social connections and cultural understanding. How do you think being bilingual or multilingual can impact relationships and communication in today's globalized world?

Unit 5

Academic Research

Text:	Academic Research
Grammar:	Perfect Tenses
Scientific Writing:	Evaluating Research
Article:	Characteristics of Good Research

Assignment 1. Read **Text 5** at page 126.

Active Vocabulary

the production of academic research – проведення наукових досліджень

to generate new concepts – створювати нові поняття

synthesis and analysis – синтез і аналіз

to lead to new outcomes – призводити до нових результатів

to find solutions to practical problems – знаходити рішення практичних завдань

to make observations – спостерігати, вести спостереження

to test predictions – перевіряти прогнози

to propose an explanation – пропонувати пояснення

to draw conclusions/ to conclude – робити висновки

to evaluate findings – оцінювати одержані дані (результати)

a peer review process – процес експертної перевірки

to make research public – оприлюднити дослідження

to collect and analyse data – збирати та аналізувати дані

to leverage academic writing tools – використовувати інструменти академічного письма

to meet certain criteria – відповідати певним критеріям

to design a study and develop a scope of work sample – спроектувати дослідження та розробити шаблон/вибірку обсягу роботи

to formulate sound research questions – формулювати обґрунтовані дослідницькі питання

to define appropriate research methodology – визначити відповідну методологію дослідження

to achieve valid, reliable results – досягати вагомих, надійних результатів

qualitative/quantitative research – якісне/кількісне дослідження

case study – тематичне дослідження

to statistically make inferences – робити статистичні висновки

numerical data to discover patterns – числові дані для виявлення закономірностей

explanatory, exploratory or descriptive research – пояснювальні, пошукові або описові дослідження

observational or empirical (experimental) research – спостережні або емпіричні (експериментальні) дослідження

to retain/ refine/ discard/ modify theory – залишати/ вдосконалювати/ відкидати/ змінювати теорію

to separate fact from simple opinion – відокремити факт від простої думки

to provide logical solutions to problems – надавати логічні рішення проблем

to advance knowledge – поширювати знання

Definitions and Samples

Research methodology 1) "is a structured scientific approach used to collect, analyze, and interpret quantitative or qualitative data to answer research questions or test hypotheses"; 2) "describes the techniques and procedures used to identify and analyze information regarding a specific research topic"; 3) "is a process by which researchers design their study so that they can achieve their objectives using the selected research instruments".

Synthesis /ˈsɪnθɪsɪs/ means "combining different ideas or things to make a whole that is new and different from the items considered separately".

Analysis /əˈnæləsis/ means "studying or examining something in detail, in order to discover or understand more about it, or your opinion and judgment after doing this".

Peer review is "the process of someone reading, checking, and giving his or her opinion about something that has been written by another scientist or expert working in the same subject area, or a piece of work in which this is done": "All these papers have been published after being subjected to peer review".

Scope of Work (SoW) is "the area in an agreement where the work to be performed is described".

Case study is "a detailed examination of a particular process or situation over a period of time, especially in order to show general principles".

Theory is "a formal statement of the rules on which a subject of study is based or of ideas that are suggested to explain a fact or event or, more generally, an opinion or explanation".

Conclusion means "the opinion made after considering all the information about something." Collocations: *reach/come to/draw a conclusion*: "We should instead teach students to think independently and to develop their skills for drawing logical conclusions".

(From the Cambridge English Corpus)

Comprehension

1. What has contributed greatly to the production of present-day academic research?
2. How can you define academic research? What synonyms do you know?
3. Is there any difference between academic and professional research? Give your arguments and examples.
4. What are the constituents and goals of any research? What about your own research?
5. What criteria must academic research meet?
6. What does a research methodology refer to? How are research methodologies classified?
7. How can academic research be conducted? How can research function and be grouped into?
8. What are essential components of scientific research?
9. What uses and purposes of academic research do you know? Give examples from your area of science.

Word Study

Exercise 1. Give English equivalents of the following phrases:

тематичне дослідження, досягати вагомих результатів, поширювати знання, відкидати теорію, збирати та аналізувати дані, створювати нові поняття, синтез і аналіз, знаходити рішення, обґрунтовані дослідницькі питання, перевіряти прогнози, призводити до нових результатів, науковий журнал, якісне/кількісне дослідження, обсяг роботи, рецензування (експертна перевірка), відповідати певним критеріям, методологія дослідження, інструменти академічного письма, вести спостереження, виявляти закономірності, оцінювати результати, пропонувати пояснення, робити статистичні висновки, оприлюднити дослідження.

Exercise 2. Complete the following sentences using the text. Pay attention to the prepositions:

1. Academic research is contrasted ..., called applied research as it is carried ... find solutions 2. Theories that stand ... , while those that do not are discarded or modified. 3. Research methodologies are often classified 4. Academic research findings are evaluated ... and made public 5. Scientific research is often referred ... because it involves novel ways to test ideas that can lead 6. Research enables scientists to separate fact 7. Academic research is used in the scientific community to advance knowledge

Exercise 3. Rewrite the following sentences using "both ... and", "either ... or", "neither ... nor":

1. Are theory and observations essential components of scientific research? 2. Although he is not good at exploratory or experimental research, he is rather good at observational and descriptive studies. 3. They are keen on collecting as well as analysing data obtained. 4. Research has the purpose of creating or furthering knowledge or using existing knowledge in a new and creative way. 5. This peer-review does not take into account the new concept proposed by the author and does not evaluate the unique value of his study and findings.

Exercise 4. Read and translate the following pairs of words. Fill the gaps with either word from the pair in the correct form:

to award – award	to honour – honour	to progress – progress
to help – help	to point – point	to review – review

1. Scientists are constantly r... the results of their studies.
2. The whole p... of this meeting was to discuss the future research project.
3. The Humanity in Science A... is open to researchers worldwide.
4. You have made a significant p... in your research.
5. Recently my supervisor h... with a special Academy award.
6. Can you p... out what exactly the research question is?
7. The research work p... and should be completed soon.
8. If you complete a university qualification with h..., you achieve a high standard.
9. The University's goal is h... PhD students to achieve their aspirations.
10. The Nobel Prize is a... according to the will of Swedish inventor Alfred Nobel.
11. This journal always contains Science R... .
12. The references were not much h... .

Exercise 5. Using the following phrases write about:

- 1) the tasks of the PhD student; 2) the tasks of the supervisor; 3) the requirements for the PhD dissertation.

PhD student: to identify a problem; to choose a topic; to collect and analyse data; to leverage academic writing tools; to meet the supervisor; to perform original research; to undertake a programme of research; to write up a dissertation; to communicate the results to peers; to pass qualifying exams; to write papers and reports; to submit the dissertation before the Academic Council.

Supervisor: to help with the selection and planning of a meaningful and appropriate research topic; to facilitate work on a research project or hypothesis; to give advice on current problems; to meet regularly with the doctorate student; to provide

evaluations and assessment of your work; to give feedback and critical remarks; to provide sufficient and appropriate guidance and commentary on progress; to help in writing articles and reports; to encourage publications and participation in conferences; to ensure academic and scholarly integrity both in the student's coursework and research.

PhD Dissertation: to meet the necessary criteria; to have an internal unity; to reflect an author's position, innovation and analytical approach; to be unique, original and have a high level of scientific presentation; to solve important tasks and problems in a specific subject area; to be conducted on the high scientific and technical level; to be both basic and practically useful, relevant and have scientific novelty.

Exercise 6. Using the text write 10 sentences about your Academic Research.

Exercise 7. Translate into English:

1. Наукове дослідження – це дослідження, метою якого є створення чи поширення знань або використання існуючих знань у новий та творчий спосіб для створення нових концепцій та методів.
2. Ваш науковий керівник надасть всю необхідну підтримку та ресурси, які допоможуть вам зрозуміти відповідну теоретичну базу та довідкову літературу, а також опанувати методологічні та технічні навички, необхідні для проведення дослідження.
3. Усі ці статті були опубліковані після рецензування.
4. У більшості випадків дослідницькі питання та цілі відіграють важливу роль у визначенні найбільш прийнятної методології дослідження.
5. Актуальність обраної теми показує, наскільки вона важлива в сучасних умовах для вирішення поточних проблем в обраному напрямі дослідження.
6. Ваше дослідження повинно відповідати певним критеріям та бути цікавим для наукової спільноти, тому необхідно проаналізувати наявні дослідження та актуальні наукові розробки в обраній галузі.

7. Наукове дослідження часто називають творчим процесом, оскільки воно передбачає нові способи перевірки ідей, які можуть привести до появи нових концепцій та інформації.

Structure Study. Perfect Tenses

Exercise 8. Change the verb in the following sentences into the proper perfect tense, add time modifiers, if necessary, translate the sentences:

1. He collects and analyses necessary data to perform original research. 2. Academic research is conducted on the high scientific and technical level. 3. His invention met all the criteria and was recognized by the certificate. 4. Your supervisor will facilitate work on the research project next year. 5. The findings of their research were applied. 6. They pursue qualitative research to prove their theory. 7. I meet my scientific adviser rather often. 8. Why do you apply this research methodology? 9. You will achieve reliable results under his guidance. 10. The Academic Council took the decision to award the candidate the PhD degree. 11. They are passing their qualifying exam now. 12. They were discussing statistical inferences for an hour. 13. The supervisor will be providing appropriate guidance next year.

Exercise 9. Translate the first part of the following sentences into English:

1. Вони досліджують цю проблему since 2022.
2. Наша дослідницька група веде спостереження цього явища for many years.
3. Я підготував шість публікацій since the research project began.
4. Ми залучені до цього проєкту for half a year now.
5. Ми підтримуємо тісні зв'язки з цим науковцем since our meeting at the conference three years ago.
6. Since she graduated from the University вона опублікувала дюжину статей, монографію та отримала ступінь кандидата наук.
7. Керівник переглядав основні розділи дисертації for a fortnight.

8. Вони не одержують від нього надійної інформації since that time.
9. Since the war started вони систематично досліджують цю соціальну проблему.
10. Він отримав несподівані результати since he conducted a series of surveys.

Exercise 10. Replace the infinitives in brackets by proper tense-forms (Indefinite, Continuous, Perfect):

1. Your PhD thesis (to meet) the requirements if you (to leverage) the appropriate academic writing tools.
2. The supervisor (to provide) guidance in planning and carrying out research after the topic (to be selected).
3. She (to pursue) her research after she (to design) her study so that she can achieve her objectives using the selected research instruments.
4. He (to tell) us he (to take part) in the next conference.
5. They (to say) they (to find) solutions to these practical problems in the field.
6. We (to test) the hypothesis just now.
7. She (not to discard) her theory yet.
8. They (to analyse) the numerical data for an hour before they (to discover) these patterns.

Exercise 11. Combine the following pairs of sentences into one according to the given model:

- I. He provided logical solution to the problem. He made his research public. → He had provided logical solution to the problem before he made his research public.
1. The PhD students attended seminars in the core subjects. They passed their qualifying exams successfully.
2. They formulated sound research questions. The students carried out research.
3. The scientific adviser made critical comments. The thesis was submitted to the dissertation committee.
4. The scientist conducted his survey. He published several articles on its results.
5. The Academic Council decided to award the candidate the PhD degree. He brilliantly defended his thesis.
- II. We began to discuss this case study an hour ago. We are still discussing. → We have been discussing this case study for an hour.

1. He began to write his peer-review yesterday. He is still doing it.
2. I began to test my hypothesis a month ago. I am still testing it.
3. They began to apply his device three days ago. Then it led them to negative outcomes.
4. As part of a cooperation agreement with this university, we started to enforce mobility activities eight years ago. Then we decided to expand the scope of the mobility programme.
5. He started to solve relevant tasks and problems in his subject area a year ago. He is doing his research now.

Exercise 12. Complete the following sentences translating the Ukrainian phrases into English:

1. He hasn't analysed all the findings yet, але він їх проаналізує before he draws a conclusion.
2. By the end of the term аспіранти складуть екзамени з профільних дисциплін.
3. Я переглядаю вашу вибірку даних for several hours already.
4. We haven't completed our case study yet але ми його завершимо by November.
5. I will inform you після того, як ознайомлюсь з оновленими положеннями щодо подання дисертацій.
6. I haven't discussed this issue with peers yet, але обов'язково обговорю by the end of the week.
7. Вони чекають на запрошеного доповідача for a quarter of an hour.
8. Вона вже написала статтю і подасть її до фахового журналу by next month.
9. Ми чекали декілька місяців щоб опублікувати наше дослідження на цьому before he showed us 'call for papers' from this journal.

Exercise 13. Transform the following sentences into the passive:

1. I promised him the monograph. (2 variants).
2. He suddenly remembered that he had left his laptop at home.
3. The PhD students will have presented their research by the end of the term.
4. I am busy now, but I shall have given my recommendations to you by 1 pm. (2 variants).
5. The lecturer has just answered all the questions.
6. They have completed their research.
7. His supervisor has offered him a promising research theme (2 variants).
8. They had discussed the research project several times with us before we decided to participate.
9. The dissertation committee will have finished its work by next week.
10. I shall have submitted my paper to this professional journal by tomorrow.

Scientific Writing.

Evaluating Research

Exercise 14. Read and translate adjectives used to evaluate research. Which of the given research synonyms can be matched with the adjectives? Can you give any collocations with other synonyms?

<i>study</i>	experimental, theoretical; field, laboratory;
<i>analysis</i>	initial, pioneer, previous, recent, present,
<i>survey</i>	further;
<i>search</i>	careful, detailed, thorough; promising; applicable fundamental, encouraging, useful, fruitful, profound

Exercise 16. Combining A, B and C compose sentences evaluating research:

A	B	C
This in-depth analysis That fundamental research The pioneer explorations Multidisciplinary studies of such kind The survey we have performed Full-scale investigations in this area	is/ are was were have/has been have/has proved appeared to be	extremely accurate and delve(s) into the intricate details. very thorough and profound. extremely important and useful. completely unbiased and transparent. promising and reliable. quite complete and fruitful. highly-technical and integrative. rather relevant and logical.

Exercise 17. Combining A, B and C write about the purpose of your research:

A			B	C
The aim purpose object objective goal	of	our research this survey these studies the present study that investigation	is was has been will be	to assess the role of... to obtain some information concerning... to establish what factors are... to achieve results ...

Exercise 18. Combining A, B and C write about the results of your research:

A	B	C
The studies we have performed The investigation performed by the authors We carried out several studies which The research we have done The investigation carried out by ...	show(s)/(ed) demonstrate(s)/(d) indicate(s)/(d) reveal(s)/(ed) suggest(s)/(ed)	that the effect is... a similarity between... an increase in... no resistance to... no adaptation to...

Exercise 19. 1. Combining A, B and C formulate a prognosed conclusion from your research or research of other scientists in your field:

A	B	C
These comprehensive studies Our research The performed studies The investigations	concerning... of ... in this area enable(s) have/has enabled	us them the author(s) to draw a conclusion to conclude that... to assume that... to suggest that... to believe that...

Discussion Points

1. What research techniques do you prefer: qualitative, quantitative or mixed? Why? Give arguments.
2. Discuss obstacles you may encounter during your research.

Assignment 2.

Article for Reading and Discussion

Read the article at page 146 and explain:

1. Which of the good research characteristics do you consider to be the most appropriate for your own research? Why? Give examples.
2. Rate the given characteristics on a scale from 1 to 11. Give your arguments.

Unit 6

Research Papers and Reports

Text:	Research Papers and Reports
Grammar:	Modal Verbs and Their Equivalents
Scientific Writing:	Findings
Article:	Academic Discourse

Assignment 1. Read **Text 6** at page 128.

Active Vocabulary

scholarly publications – наукові публікації

research paper – наукова робота/праця (стаття, дисертація)

precised, well-structured writing – чітке, добре структуроване письмо

well-sourced – з належними посиланнями

consistent writing – послідовне письмо

detailed assignment – деталізоване завдання

to assess writing skills – оцінювати навички письма

to make a contribution to debate – зробити внесок у дискусію

a difficult and arduous task – складне і обтяжливе завдання

to deepen understanding of the topic at hand – поглибити розуміння теми, що розглядається

to present a coherent and logical narrative – презентувати зв'язну та логічну розповідь

to be the least prone to biases – бути найменш схильним до упереджень

to remain dispassionate and impartial – залишатися безпристрасним і неупередженим

to communicate scientific findings – повідомити наукові результати

to craft a compelling story – створити переконливу розповідь
to tailor a message to an intended audience – адаптувати повідомлення до цільової аудиторії
to tie the results to broader knowledge – зв'язати результати із ширшими знаннями
to be inherent in scientific writing – бути притаманним науковому письму
to facilitate the transfer of information – полегшувати передачу інформації
to share original research work with other scientists – ділитися оригінальною науковою роботою з іншими вченими
argument based on in-depth independent research – аргумент, заснований на глибоких незалежних дослідженнях
a science (scientific) report – науковий звіт, наукова доповідь
to be consonant with scientific professionalism – бути співзвучним науковому професіоналізму

Definitions and Samples

A research paper is “a piece of academic writing on a particular subject written by an expert and usually published in a book or journal”: “He will give a paper on thermodynamics at a conference in Berlin”.

A dissertation is “a substantial research project that contributes to the field of study. PhD students write a dissertation to earn their doctorate. The format and content of a dissertation vary widely depending on the academic discipline”.

Scientific finding is “a piece of information that is discovered during an official examination of a problem, situation, or object”: “The findings of the survey puzzle me - they're not at all what I would have expected”.

Scientific report is “a document that describes the process, progress, or results of scientific research or the state of scientific research problem. It might also include recommendations and conclusions of the research”.

Academic (scientific) discourse is “the term that has been used to refer to special purpose language employed by scientists in their formal papers, journals, articles, and text books”.

A narrative is “a particular way of explaining or understanding events”: “There was pressure on academics to construct narratives of the period that were positive.”

(From the Cambridge Advanced Learner's Dictionary & Thesaurus)

Comprehension

1. What do you know about academic writing? Where is it encountered? What skills do you need to practice it?
2. Why is scientific writing often regarded to be a difficult task for PhD students?
3. What is the purpose of scientific writing?
4. Does scientific writing follow a specific format?
5. What are scientific papers written for?
6. What is a research paper? Is it similar to a scientific report? Why?
7. What challenges may you encounter regarding different types of discourse?

Word Study

Exercise 1. Give English equivalents of the following phrases:

наукова праця; формальний стиль письма; типи дискурсу; тема, що розглядається; повідомляти наукові результати; чітке, структуроване письмо; деталізоване завдання; полегшувати передачу інформації, взаємодіяти з різними джерелами; оцінювати навички письма, переконлива розповідь; дисертаційна робота; робити внесок у дискусію; науковий звіт; академічний дискурс; презентувати зв'язну та логічну розповідь; бути притаманним науковому письму; адаптувати повідомлення; аргумент, заснований на дослідженні; цільова аудиторія; підтверджуватися попередніми дослідженнями та новими результатами; дотримуватися певного формату; компоненти письмової роботи.

Exercise 2. Consulting vocabulary to the text and the model paraphrase the following sentences:

Model: Academic writing is *unbiased, well-structured and well-sourced*. – Academic writing is *unprejudiced, properly organized and referenced*.

1. Scientific writing presents a *coherent and logical narrative*. 2. Writing a research paper requires PhD students *to make a significant contribution to the debate*. 3. While communicating scientific findings scholarly publications should *remain dispassionate and impartial*. 4. The general format is *inherent* in most scientific writing and *facilitates* the transfer of information from author to readers. 5. A research paper provides *argument based on in-depth research*. 6. Scientific reports must be *objective and accurate*. 7. Various *types of discourse* have their own *special frameworks* for understanding the different expectations *of a written work*.

Exercise 3. In the following sentences use a verb with 'en' as a prefix or suffix to replace the italicized expression:

1. They *got* their understanding of the topic at hand *deeper*. 2. By discussing the findings, we *made* our knowledge *broader*. 3. Do you know how to *increase the strength of* your power of persuasion? 4. The students need *to make* their academic vocabulary *larger*. 5. The content *was made shorter*. 6. The new proposals were intended *to make* the impact of the reform *softer*. 7. Another defeat in Parliament would *make* the President's ability to govern *weaker*. 8. I need *to make myself harder* against disappointment.

Exercise 4. Replace the italicized phrases by an -ing form:

1. Scientists shouldn't ignore the problems *that exist* in our community. 2. This may explain why the theory *which proved* that climate change is caused by human activity is already hugely popular. 3. We have to evaluate a list of arguments *that consist of* an expression followed by a value. 4. Statistics is a discipline *which affects* all the other sciences. 5. Knowledge is therefore pleasure *that arises* from a man's thinking.

Exercise 5. Arrange the following discourse markers into groups expressing a) beginning, b) continuation, c) digression, d) resumption, e) conclusion:

more to the point; to start with; all in all; in fact; to cut a long story short; to return to the subject; after this; what is more; at first; then/there again; all things considered; as a matter of fact; and

so on/forth; to get back to the point; not to mention; to change the subject; and the like; in addition; in the end; on top of it; at last; in fact; to put it briefly; for that matter; in conclusion; by the way; on the whole; in a word.

Exercise 6. Translate into English:

1. Наукова стаття – це академічна праця, яка містить аналіз, інтерпретацію та аргументацію на основі поглибленого незалежного дослідження.
2. Академічне письмо – це офіційний стиль письма, який використовується в університетах і наукових публікаціях, зустрічається в академічних журналах і книгах на академічні теми.
3. Академічний письмовий текст є формальним і неупередженим, зрозумілим і чітким, добре структурованим, послідовним і містить посилання на попередні дослідження.
4. Такі наукові праці спрямовані на отримання нагального та найбільш ефективного результату.
5. Наукові звіти мають відображати фундаментальний процес наукової роботи – вони мають бути об'єктивними й точними, а також опиратися на факти, ідеї та міркування, які відповідають науковому професіоналізму.

Structure Study.

Modal Verbs and Their Equivalents.

Exercise 7. Fill in the gaps with can/could, may/might or must (or their negative forms):

1. The analysis provided in your paper ... suggest a new direction for future publications. 2. Scientific authors ... use various techniques to communicate their findings. 3. Researchers ... collaborate to share data and resources for a more comprehensive study. 4. Presentation of innovative ideas by our scientists ... be honoured publication of their advancements in this multidisciplinary journal. 5. One ... follow ethical guidelines when submitting research papers involving several authors. 6. The research papers ... be peer-reviewed before being published in reputable

journals. 7. Experimenters ... test their hypotheses using controlled experiments to gather accurate results. 8. Breakthroughs in technology ... significantly accelerate the pace of scientific research. 9. PhD students ... encounter unforeseen challenges, but they ... remain persistent in their work. 10. She ... answer his e-mail yesterday, but today she ... answer it.

Exercise 8. Substitute the modal verbs by their equivalents:

1. While writing your article you *may* analyse samples from different sources to compare and contrast your findings. 2. According to the plan PhD students *must* pass this exam in a year. 3. I *couldn't* help you with your report as I was very busy at the moment. 4. Research papers *must* adhere to specific citation styles, such as APA or MLA. 5. Citations *may* vary depending on the type of source, so writers *must* pay close attention to formatting. 6. She was sure you *could* translate this article after you had translated so many scientific texts. 7. You *may* take this monograph; your supervisor left it for you. 8. The lecturer *must* be here at 9 a.m. 9. He *could* solve the problem after his team-mate had explained it to him. 10. Authors *may* choose to use passive voice to emphasize the action rather than the subject.

Exercise 9. Give Ukrainian equivalents for the following proverbs and sayings:

1. You never know what you can do till you try. 2. A fool may ask more questions than a wise man can answer. 3. What is done cannot be undone. 4. He that wants to eat the fruit must climb the tree. 5. Never put off till tomorrow what you can do today. 6. He who is afraid of wounds must not come near the battle. 7. You may break the body, but you cannot break the spirit. 8. One false move may lose the game. 9. Nothing is so bad, but it might have been worse. 10. One must draw back in order to leap better.

Exercise 10. Translate into Ukrainian the following sayings:

1. The wisest of the wise *can* err (Aeschylus). 2. Don't part with your illusions. When they are gone, you *may* still exist, but you have ceased to live (M. Twain). 3. If I *must* choose between peace

and righteousness, I choose righteousness (T. Roosevelt). 4. Sciences *may* be learned by rote, but Wisdom not (L. Stern). 5. Books must be read as deliberately and reservedly as they were written. (H. Thoreau) 6. Fortune *may* have yet a better success in reserve for you, and they who lose today, *may* win tomorrow (M. de Cervantes).

Exercise 11. Mind the difference in meaning between modal verbs expressing supposition: *must* – певно, напевно; *may* – можливо; *might* – можливо (але малоймовірно); *can't* – не може бути. Make up all possible sentences:

I	must	be at the University now, enhancing his writing by
He	may	refining ideas and structure to make the message
She	might	clearer.
We	can't	be busy next week, presenting her arguments at
You		the symposium.
They		know the solution to the problem.
		be discussing his article at the moment.
		be still looking through the research paper.
		have already finished the research.
		have been adapting his language to suit the
		purpose of his paper.
		have been looking for credible evidence for so long.

Exercise 12. Read the situations and write a sentence for each one using the words in brackets and the correct form of the infinitive:

Model: You made several spelling errors in your paper (I should/ proofread). – I should have proofread my paper to catch any grammatical or spelling errors.

1. He was blamed for plagiarism. (He must/ follow/ the proper citation guidelines to avoid plagiarism). 2. The authors didn't refine their argument before presenting it in the paper. (They should/ refine/ their argument). 3. To my regret I missed the discussion of the new project. (I ought/ be present/ at the discussion). 3. You made several mistakes in your diagrams. (You should/ be more

attentive). 4. You rewrote all the article but it was not necessary. (You needn't/ rewrite/ all the article). 5. John seems to know a lot about academic writing. (John must/ read/ a lot about it). 6. Nobody knew why Jane missed the presentation. (Jane might/ be ill). 7. Sam didn't attend the conference, though he was invited. (Sam might not/ receive/ the invitation in time). 8. Literature review in their paper can weaken their argument. (The academic writers may/ overlook/ key sources in their literature review). 9. The conclusions in his paper aren't strong enough. (He could/ provide / more in-depth analysis to strengthen the conclusions.). 10. Her paper wasn't well-structured that made the ideas not easy to follow. (The author could/ structure/ the paper more clearly).

Exercise 13. Paraphrase the following sentences using the modal verbs (can, may/ might or must) with infinitives in the proper form:

1. Of course, the paper had been revised several times before it was ready for submission. 2. He is probably reading your article at the moment. 3. Perhaps they have been waiting for us to begin the discussion. 4. I refuse to believe that the conference was canceled. 5. It's impossible that she included sufficient evidence to support her claims in the research paper. 6. No doubt she felt that something was wrong. 7. It is possible that she has read the monograph in a fortnight. 8. Perhaps he is taking his English examination now. 9. No doubt, she was disappointed by his argument. 10. I am sure you addressed counterarguments to make your argument more convincing.

Exercise 14. Translate into English:

1. У академічному письмі ви повинні представити чіткі та лаконічні аргументи на підтримку своєї тези.
2. Авторам слід дотримуватися офіційного тону та уникати розмовної лексики.
3. Ви мали підтвердити свої твердження переконливими доказами та надійними джерелами.
4. У вступі має бути чітко викладено мету та обсяг роботи.

5. Академічні роботи можуть включати різні розділи, такі як огляд літератури, методологію та висновки.
6. Ви завжди повинні враховувати свою читацьку аудиторію та адаптувати мову відповідно до мети вашої статті.
7. Стаття могла б бути переконливішою, якби вступ був більш зв'язним та послідовним.
8. Ви можете зіткнутися з труднощами при написанні наукової статті, але вам слід переглянути та вдосконалити свою роботу, щоб підвищити її якість.
9. У академічному письмі ви повинні логічно викладати свої аргументи та підтверджувати їх достовірними доказами.
10. Висновок має підсумовувати основні результати, але він також має запропонувати напрями майбутніх досліджень.

Scientific Writing. Findings.

Exercise 15. Read and translate adjectives used to qualify

Findings results

reliable, trustworthy, empirical, robust, consistent;
 significant, meaningful, (in)essential,
 (un)important;
 novel, innovative, groundbreaking, transformative;
 comprehensive, generalizable, repeatable,
 replicable;
 preliminary, pioneering, recent, outdated;
 contradictory, (in)conclusive, (in)determinate,
 tenuous; validated, corroborated.

Exercise 16. Translate into Ukrainian:

1. The findings from multiple independent sources corroborated the initial conclusions, making the results more credible.
2. The empirical findings were based on years of data collection and provided solid evidence for the proposed hypothesis.
3. The study's reliable findings showed that the questionnaire was effective across multiple social groups.
4. The researchers made a novel discovery that opens up new possibilities for understanding the brain's neural networks.
5. The contradictory findings from these two studies suggest that more work is needed to resolve the disagreement.

6. The preliminary findings suggest that there might be a link between the phenomena observed, but further research is needed.
7. The robust findings from this study were replicated in various settings, suggesting a strong correlation.
8. The groundbreaking findings of the experiment have the potential to revolutionize the field of renewable energy.
9. The transformative findings in this study could lead to significant advancements.

Exercise 17. Combining A, B, C complete the sentences characterizing the findings obtained, presented or reviewed:

A	B	C	
What we (have) found	is/seems	rather	significant
These findings	are	very	convincing
The findings of the study	seem	quite	important
The results of the research by ...			promising
The results presented in the paper			reliable
The findings of recent studies on ...			robust
The results we (have) obtained from			contradictory
The findings they (have) reported			comprehensive
Our experimental findings			consistent
These preliminary results			conclusive

Exercise 18. Combining A, B and C write 5 sentences characterizing the results you have obtained in agreement with some assumptions, concepts or theories:

A		B		C
These findings	are	very	similar to	those obtained by...
Our results	appear	much	the same	those reported /
The data	to be	exactly	as	presented by...
The data obtained		slightly	different	those presented
Some of these findings		somewhat	from	by...
		totally		those published
		quite		in...
				those available in...
We would like to present some results which	are	coincident	with	the theory of...
		comparable		the current
These and other		in line		concepts about...
		in keeping		the views /
				the findings by...

findings The results we report	show	(good) agreement		most other data about... the assumption that... other data on...
	fully	agree coincide		
	fit in			

Exercise 19. Combining A, B and C complete the sentences, showing the interpretation of certain findings or the results, you have obtained in your research:

A	B		C
The above findings All these findings Some of these results	have	interpreted	as follows...
	been	viewed	in terms of the current theory
	can be	approached	from a different angle
From the results obtained On the basis of these findings	could be		
	we	conclude	that...
	it	can be concluded	
	one	can conclude	

Exercise 20. Combining A, B and C complete the sentences showing the way the findings could be presented or summarized:

A	B		C
The findings Our results The basic results	are	presented	as follows...
	have been	shown	in figure 2
	may be	summarized	in tables ... in the diagram ...
This table Figure 1	presents summarizes shows	the data the results	from recent observations of...
		obtained provided collected	in the experiments with by the authors by the experiments on ...

Exercise 21. Write a detailed account of your recent investigation findings.

Exercise 22. Translate into English:

1. Ці новаторські відкриття кидають виклик існуючим знанням або відкривають нові шляхи дослідження.

2. Отримані результати суперечать іншим дослідженням або теоріям.
3. Останні висновки стосовно цієї проблеми не підтверджують загальноприйняту концепцію.
4. Деякі з цих результатів можна розглянути з іншої точки зору.
5. З наведених даних можна зробити висновок, що ці процеси взаємопов'язані.
6. Його комплексні висновки охоплюють широкий діапазон факторів та змінних величин.
7. Перевірені результати підтверджують точність попередніх досліджень, зміцнюючи загальну сукупність доказів.
8. Основні результати наших досліджень викладені в діаграмі.
9. Результати були непереконливими, і дослідникам радили бути обережними і не робити остаточних висновків на основі цих даних.
10. Результати цього дослідження можна назвати узагальнюючими, що робить їх дуже актуальними для майбутніх досліджень.

Discussion Points

1. Speak about your experience in academic writing. Do you have any scientific publications?
2. Discuss the importance of scientific writing in your research.
3. How good are you at academic writing? What skills would you like to improve or what knowledge would you like to enhance?

Assignment 2.

Article for Reading and Discussion

Read the article at page 149 and explain:

1. What is the difference between academic discourse and academic writing?
2. What are the basic features of academic writing?
3. What is the function of peer-reviews in scientific writing?
4. Is there any fixed organizational structure for writing scientific papers?
5. Why do scientific authors need to reference the existing studies?

Unit 7

Scientific Communication

Text:	Scientific Communication
Grammar:	Sequence of Tenses. Direct and Reported Speech
Scientific Writing:	Evidence
Article:	Encourage Your Audience to Participate

Assignment 1. Read **Text 7** at page 130.

Active Vocabulary

to convey – передавати, виражати

accessible – доступний

to grasp – зрозуміти, осягнути

impact – вплив

to spread – поширювати

to counteract – протидіяти

misconceptions – хибні уявлення, непорозуміння

misleading – оманливий, той, що вводить в оману

to foster – сприяти, заохочувати

transparency – прозорість

accountability – підзвітність, відповідальність

despite – незважаючи на

to face – стикатися з

to struggle – боротися, мати труднощі

to overshadow – затьмарювати, перекривати

falsehoods – неправда, брехня

to constraint – обмежувати

to neglect – нехтувати, занедбувати

relatable – близький, зрозумілий (такий, з яким можна себе ототожнити)

to concern – стосуватися, турбувати
indispensable – незамінний, необхідний

Definitions and Samples

policymaker — a person responsible for creating rules, laws, or guidelines that govern a society or organization

preventive measures — actions taken to stop something bad or harmful from happening in the future

credible sources — reliable and trustworthy origins of information that can be believed or trusted

conspiracy theory — a belief that certain events or situations are the result of a secret and often malicious plot by powerful groups

to make sound decisions — to make well-informed, rational, and sensible choices based on evidence and careful consideration

Comprehension

1. Why is scientific communication important for building public trust in science?
2. What are some challenges that scientists face in effectively communicating their research to the public?
3. How do effective communication strategies, such as simplifying language and using visuals, help make complex scientific information more accessible?
4. Why is it important for scientists to actively engage with the public through platforms like social media?
5. What role do transparency and accountability play in fostering trust between scientists and the public?
6. In what ways can misinformation about science spread?
7. How can scientists ensure their findings are accessible to both experts and non-experts without losing accuracy?
8. What strategies can scientists use to make their research more relatable to different audiences and address concerns effectively?

Word Study

Exercise 1. Give English equivalents for the following words and phrases:

наукова комунікація; довіра суспільства; важливі питання; здоров'я та зміни клімату; виклики; подолати труднощі; ефективні стратегії комунікації; візуальні матеріали; доступний; дезінформація; соціальні мережі; сприяння довірі; зрозумілий, близький для аудиторії; нефахівці; вирішувати занепокоєння; взаємодіяти з громадськістю.

Exercise 2. Complete the following sentences using information from the text:

1. Effective scientific communication is essential for building ... in science, especially when addressing issues like ... and ... 2. One of the main ... scientists face is explaining complex research in a way that is ... for both experts and ... 3. By using ... and simplifying ..., scientists can make their findings more ... and easier to understand. 4. Social media platforms are an important tool for scientists to ... with the public and correct ... 5. ... and ... are vital for creating trust between researchers and the public, as they allow people to evaluate the accuracy of the information shared. 6. To counteract, scientists need to actively engage in public discussions and share ... information. 7. Scientists can make their research more ... to various audiences by presenting it in a way that addresses their ... and concerns. 8. The challenge of communicating scientific information clearly can be ... , but by following the right ... , scientists can overcome these difficulties.

Exercise 3. Give synonyms to the following words:

to share, available, to hold, influence, to distribute, reference, untruthful, clarity, investigation, to cooperate, terminology, fragile, intrigue, scheme, to ignore.

Exercise 4. Give opposites to the following words:

accessible, accurate, trust, reliable, transparent, complex, engage, effective, clear, benefit.

Exercise 5. Recall the prepositions:

to play a crucial role..., to convey information ..., build trust in..., to engage ... the public, to prevent the spread ..., to pose a challenge ..., to foster understanding ..., to grasp the significance ..., to share findings ..., to benefit ... clear communication.

Exercise 6. Translate into English:

1. Наукова комунікація відіграє вирішальну роль у подоланні розриву між науковцями та суспільством.
2. Ефективне передавання інформації допомагає зміцнити довіру до науки.
3. Наукові відкриття часто містять складну термінологію, яка може бути важкою для розуміння.
4. Під час пандемії COVID-19 чітка комунікація була необхідною для пояснення важливості вакцинації.
5. У цифрову епоху неправдива інформація може швидко поширюватися в соціальних мережах.
6. Коли науковці відкрито діляться своїми результатами, це сприяє більшій прозорості та співпраці.
7. Одним із викликів наукової комунікації є використання надмірно складної мови.
8. Використання візуальних матеріалів, таких як графіки та інфографіка, допомагає краще донести інформацію.

Structure study**Sequence of Tenses. Direct and Reported Speech.**

Exercise 7. Report the following statements applying the rules of Sequence of tenses. First, start your sentence with the words "He said that", then with the words "He told me that":

1. Scientific communication is very important.
2. I have read an article about misinformation.
3. Scientists will simplify their language in the future.
4. We are discussing the role of social media in science.
5. I conducted research on public trust in science last year.
6. They were explaining the importance of clear communication.
7. People should verify information before sharing it on-

line. 8. I can present my findings at the conference. 9. The researcher had already published his study before the debate started. 10. If scientists neglect communication, their work may not reach the public.

Exercise 8. Open the brackets using the infinitives in the proper tense-form:

1. Scientists aim (to make) scientific discoveries more accessible to the public. 2. He claims (to analyse) the data thoroughly before drawing conclusions. 3. The researcher was glad (to receive) recognition for her groundbreaking study. 4. They appear (to struggle) with simplifying complex terminology for non-experts. 5. The professor is known (to contribute) significantly to the field of scientific communication. 6. The team was expected (to publish) their findings by the end of the year. 7. The scientist pretended (not know) about the controversy surrounding his research. 8. They were fortunate (to secure) funding for their long-term project. 9. The study seems (have influence) public opinion on climate change.

Exercise 9. Rewrite the following sentences in Reported Speech, replacing the word "said" by one of the words given below. Use each word only once: agreed, insisted, exclaimed, whispered, apologized, admitted, claimed, suggested, protested, boasted, shouted.

1. "I can't believe how fast time is passing," he said. 2. "We should try to finish the project this week," she said. 3. "I don't know what you're talking about!" he exclaimed. 4. "It's too late to change the plan," she whispered. 5. "I'm sorry for not replying to your message sooner," he apologized. 6. "Yes, I took part in the competition," she admitted. 7. "Our team is ready to take on this challenge," he claimed. 8. "Why don't we start with a smaller task?" she suggested. 9. "I never agreed to these changes!" he protested. 10. "I won the first place in the competition!" he boasted. 11. "Look out for the mistake in the report!" he shouted. 12. "We are planning to organize a meeting next week," she said.

Exercise 10. In Reported Speech use the verbs to tell, to order, to command, to urge, to forbid for commands; to ask, to request for requests; to offer, to propose, to suggest for offers. Write the following in the reported speech using corresponding verbs for commands, requests and offers.

1. "Will you give me your telephone number?" 2. "Please close the door". 3. "Can you help me with this project?" 4. "Could you tell me what time it is?" 5. "I suggest going to the new restaurant". 6. "Don't leave the room!" 7. "Would you like me to help you with your homework?" 8. "Can you send me the details of the meeting?" 9. "Let's meet at 6 PM". 10. "Could you give me a ride home?" 11. "I urge you to think about your future carefully". 12. "Would you like to join us for dinner?"

Exercise 11. Make these questions indirect using the reporting words and phrases "ask", "wonder", "want to know", "request":

1. "What time does the meeting start?" my colleague asked me.
2. "Where did you buy that jacket?" Tom wanted to know.
3. "Can you finish the report by tomorrow?" the manager asked.
4. "Why haven't you replied to my email?" Sarah wondered.
5. "How many people will attend the event?" the organizer asked.
6. "Did you receive my message?" John wanted to know.
7. "Who is responsible for this project?" my boss inquired.
8. "When will the new software be available?" they requested.
9. "What is the best way to get to the airport?" the driver asked.
10. "How much will the tickets cost?" the customer wanted to know.
11. "Did you enjoy the concert?" the interviewer asked.
12. "Are you going to the conference next week?" my friend wondered.

Exercise 12. Translate into English:

1. Він поцікавився, коли його стаття буде опублікована.
2. Вони запитали, чи можливо зустрітися завтра.
3. Керівник поцікавився, хто відповідальний за проєкт.
4. Студент запитав, чому ми ще не відправили звіт.
5. Вона запитала, скільки часу займає ця процедура.
6. Ми запитали, чи є у вас будь-які плани на вихідні.

7. Ми знали, що офіційною мовою конференції буде англійська, і писали свої резюме англійською.
8. Журналіст поцікавився, скільки буде коштувати новий проєкт.
9. Вони запитали, чи можемо ми продовжити обговорення наступного тижня.
10. Викладач поцікавився, де можна знайти більше інформації про цю тему.
11. Вона наголосила на тому, що це дослідження буде особливо перспективним в найближчому майбутньому.
12. Менеджер запитав, чи буде змінено розклад заходів на наступний тиждень.

Scientific Writing. Evidence.

Exercise 13. Read and translate adjectives used to qualify evidence

compelling, reliable, credible, strong, conclusive, substantial, inconclusive, ambiguous, persuasive, irrefutable, weak, contradictory, preliminary, definitive, corroborative, concrete

Exercise 14. Translate into Ukrainian:

1. The compelling evidence presented in court convinced the jury of the defendant's guilt.
2. The research team collected reliable data over several years to support their findings.
3. The prosecutor provided credible witnesses, making the case more convincing.
4. The new study presents conclusive evidence that climate change is accelerating at an alarming rate.
5. The inconclusive evidence left the investigators with more questions than answers.
6. His statement was supported by corroborative evidence, which helped establish the truth of his claims.

Exercise 15. 1. Combining A, B and C complete the sentences showing availability or lack of evidence, its characteristics and what it suggests.

A			B	C
For this moment we have	some a bit of enough	evidence	relying on persuading showing	that the system is running smoothly
At present we see	plenty of hardly any		to rely on to persuade to show	that the process is happening that the change results from... a fundamental change in... connection between... the level at which...
There is So far there is Currently, we observe	insufficient not much		which relies on that persuades which shows	
Up until now, there has been			in favour of favouring supporting	the earlier hypothesis these perspectives that presumption

Exercise 18. Translate into English:

1. Ми знайшли достатньо доказів, щоб підтвердити його невинуватість.
2. Надійні свідчення допомогли слідчим відновити хронологію подій.
3. Ці недостатньо точні дані не можуть бути використані для остаточних висновків.
4. Його заяви не мали переконливих доказів, тому вони не були прийняті судом.
5. Всі записи та документи підтверджують, що він був присутній на місці події.
6. Ми не знайшли жодних вагомих доказів, які б спростували його аргументи.
7. Надано достатньо доказів, щоб підтримати цю теорію.
8. Відсутність незалежних свідчень ускладнює доказування факту.
9. Невизначені результати не дозволяють зробити однозначний висновок.
10. На основі належних доказів суд дійшов висновку про його провину.

Exercise 19. Characterize and give possible interpretation of the evidence obtained on the problem you are investigating.

Discussion Points

1. Speak about the role of scientific communication in promoting scientific ideas.
2. Can you share your experience from the most recent scientific conference or symposium you attended?
3. Why is it crucial to have detailed feedback and criticism in advancing research?
4. What are the steps involved in writing a scientific paper or article?

Assignment 2.

Article for Reading and Discussion

Read the article at page 152 and explain:

1. The article highlights different ways speakers engaged their audience, such as interactive activities and personal storytelling. Which of these strategies do you find most effective in making a presentation memorable, and why?
2. Overcoming challenges, such as technical glitches and language barriers, is an important skill for public speakers. How do you think handling these difficulties with confidence can impact a speaker's credibility and connection with the audience?

Unit 8

Academic Integrity

Text:	Academic Integrity
Grammar:	Subjunctive Mood. Conditional Sentences
Scientific Writing:	Assumption
Article:	How electric vehicles could improve our mental health

Assignment 1. Read **Text 8** at page 133.

Active Vocabulary

integrity – доброчесність
ethical – етичний
accountability – відповідальність
fabrication – фальсифікація
falsifying – підробка, спотворення
plagiarism – плагіат
citation – цитування
cheating – шахрайство (списування)
unauthorized – несанкціонований
credibility – достовірність
violation – порушення
consequences – наслідки
expulsion – відрахування
fairness – справедливість
adhere (to standards) – дотримуватися (стандартів)
to submit – подавати, надсилати

Definitions and Samples

academic integrity – the practice of maintaining honesty, ethics, and responsibility in academic work. Example: Univer-

sities emphasize academic integrity to ensure fairness among students.

cheating — dishonest behaviour in academic settings, such as using unauthorized materials in exams. Example: Using a hidden phone during a test is a form of cheating.

fabricating data — creating false information or results in academic research.

Example: A researcher who fabricates data risks damaging their academic reputation.

falsifying research — altering or manipulating research findings dishonestly.

Example: Falsifying research results can lead to severe academic penalties.

academic probation — a warning status given to students who violate academic integrity or fail to meet performance standards.

Example: Repeated plagiarism can result in academic probation or even expulsion.

trustworthy learning environment — a setting where students and teachers respect academic integrity and honesty. Example: A trustworthy learning environment encourages students to work ethically.

Comprehension

1. What are the main components of academic integrity, and why is it important in educational settings?
2. How can plagiarism occur in academic work, and what are the consequences of failing to properly cite sources?
3. In what ways does cheating undermine the educational process, and what are some common examples of cheating?
4. Why is fabricating data considered a serious violation of academic integrity, and how can it affect research credibility?
5. What role do educational institutions play in promoting academic integrity, and what consequences can result from violations of these principles?
6. How can maintaining academic integrity contribute to a fair and trustworthy learning environment?

Word Study

Exercise 1. Give English equivalents of the following words and phrases and use them in the sentences of your own:

академічна доброчесність, етична поведінка, відповідальність за роботу, несправедливі переваги, порушення академічної доброчесності, плагіат, правильне цитування, фальсифікація даних, шахрайство на іспитах, несанкціоновані ресурси, фальшиві результати досліджень, дотримання стандартів, наслідки порушення, навчальне середовище на основі довіри, серйозні наслідки.

Exercise 2. Find in the text synonyms to the following words:

important, behaviour, actions, to work, to risk, change, result

Exercise 3. Compose the pairs of opposites:

integrity	unfounded
ethical	to compromise
credible	to neglect
responsible	prejudice
to ensure	corruption
to maintain	to breach
to uphold	immoral
fairness	unreliable
trustworthy	negligent
to contribute	to deter

Exercise 4. Complete the sentences using the text:

1. Academic integrity is essential because it promotes and trust in the educational system. 2. Plagiarism involves Someone else's ideas without giving proper credit. 3. Cheating undermines the process and creates an unfair advantage. 4. Fabricating data in research is a serious violation that can lead to damaged 5. Maintaining academic integrity helps ensure that students are treated 6. When students the rules of academic integrity, they contribute to a fair and honest environment. 7. The consequences of academic misconduct can be severe,

including or academic probation. 8. Students are encouraged to always proper citation to avoid plagiarism. 9. Upholding academic integrity requires students to act with honesty and in their work. 10. Violations of academic integrity can have long-term on a student's academic career.

Exercise 5. Join the two halves of these sentences so that they make good sense:

1. Academic integrity ensures that all students are treated _____.
A. with honesty and responsibility in their academic work.
B. fairly and according to the same rules and standards.
2. Plagiarism can occur when a student uses someone else's work _____.
A. without providing proper citation or credit.
B. to make their work seem more successful than it is.
3. Cheating undermines the educational process _____.
A. and prevents students from achieving true academic success.
B. by giving some students an unfair advantage.
4. Fabricating data is a breach of academic integrity _____.
A. that can seriously damage the credibility of research.
B. but may be overlooked if the research is convincing enough.
5. Maintaining academic integrity helps create a _____.
A. trustworthy learning environment where ideas are shared with respect.
B. competitive atmosphere where only the best students succeed.
6. The consequences of violating academic integrity can include _____.
A. academic probation, expulsion, or failure.
B. additional time for revision and the opportunity to improve.
7. Students who do not properly cite their sources are at risk of _____.
A. being accused of plagiarism and facing serious academic penalties.

- B. gaining higher marks due to the perceived quality of their work.
8. Respecting academic integrity is essential for _____.
A. ensuring that academic achievements are meaningful and credible.
B. gaining a competitive advantage in the academic world.
9. Submitting dishonest work can have serious repercussions _____.
A. for a student's reputation and future academic opportunities.
B. but it can also lead to more lenient grading in certain cases.
10. Academic institutions have strict policies in place _____.
A. to ensure fairness and prevent dishonest practices like cheating.
B. to encourage students to work together and share ideas openly.

Exercise 6. Translate into English:

1. Академічна доброчесність є основним принципом, що забезпечує чесність та відповідальність у навчальному процесі.
2. Плагіат може включати використання чужих ідей чи текстів без належного посилання на джерело.
3. Порушення академічної доброчесності, таке як обман на іспитах, може серйозно вплинути на майбутнє студента.
4. Кожен студент має дотримуватись стандартів академічної доброчесності, щоб зберегти справедливість у навчанні.
5. Фальсифікація даних у наукових дослідженнях порушує етичні норми і ставить під сумнів достовірність результатів.
6. Порушення правил академічної доброчесності може призвести до серйозних наслідків, таких як відрахування або академічний попередження.
7. Використання несанкціонованих ресурсів під час іспиту або завдання є чітким порушенням академічної доброчесності.
8. Чесність у науковій діяльності забезпечує, що майбутні дослідження можуть спиратись на надійні та правдиві дані.
9. Підтримка академічної доброчесності допомагає створити навчальне середовище, засноване на довірі та взаємоповазі.

10. Для того, щоб успішно завершити навчання, студенти повинні демонструвати повагу до інтелектуальної власності та дотримуватись етичних норм.

Structure study.

Subjunctive Mood. Conditional Sentences.

Exercise 7. Make the following conditional sentences unreal, first referring them to the present / future, then referring them to the past. Add time modifiers, if necessary, translate into Ukrainian as in the model.

Model: 1. If they finish the project on time, they will receive a bonus. 2. If they finished the project on time, they would receive a bonus. 3. If they had finished the project on time, they would have received a bonus.

1. If he comes early, we shall discuss this problem. 2. If she works hard, she will pass the exam. 3. If they invite us, we shall attend the meeting. 4. If you study well, you will improve your skills. 5. If the weather is nice, we shall go for a walk. 6. If he listens carefully, he will understand everything.

Exercise 8. Following the model, make inversion and translate the sentences.

Model: If he had driven more carefully, he wouldn't have had an accident. → 1. Had he driven more carefully, he wouldn't have had an accident. 2. He wouldn't have had an accident had he driven more carefully.

1. If she had studied harder, she would have passed the exam. 2. If they had left earlier, they wouldn't have missed the train. 3. If he had told me the truth, I wouldn't have been angry. 4. If we had taken an umbrella, we wouldn't have gotten wet. 5. If you had reminded me, I wouldn't have forgotten the meeting. 6. If she had listened to my advice, she wouldn't have made a mistake.

Exercise 9. Rewrite the following sentences according to the model. Remember that after "unless" the verb is used in the affirmative.

Model: You will not improve your English if you do not practice regularly. → You will not improve your English unless you practice regularly.

1. She will not go to the party if she does not receive an invitation.
2. We cannot start the meeting if everyone does not arrive on time.
3. You will not pass the exam if you do not study hard.
4. They will not succeed if they do not work as a team.
5. I will not help you if you do not ask politely.
6. The train will not leave if the conductor does not give the signal.

Exercise 10. Use the verb in brackets in the correct form:

1. If only you had let me know, I (to go) there immediately.
2. If she (to take) my advice, she wouldn't be in trouble now.
3. Had they known about the delay, they (to leave) earlier.
4. If he (to study) more, he would have passed the exam.
5. Unless you (to apologize), she will never forgive you.
6. If I (to be) you, I wouldn't sign that contract.
7. Were he to ask for help, I (to assist) him.
8. If it (to rain) tomorrow, we will cancel the picnic.
9. If only I (to know) how difficult the task was, I would have prepared better.
10. Should you (to need) any further information, feel free to contact me.
11. If he (to work) harder, he could be promoted.
12. Had we taken a different route, we (to avoid) the traffic.
13. If she (to call) me earlier, I might have been able to help.
14. If they (to arrive) on time, they will get good seats.
15. Were I in your place, I (to accept) the offer.
16. If you (to heat) water to 100°C, it boils.
17. If he (to explain) the problem clearly, we could have solved it faster.
18. Had you followed my instructions, you (not/to make) such a mistake.
19. If you (to pay) more attention, you wouldn't have misunderstood the question.
20. Unless she (to practice) regularly, she won't improve her skills.

Exercise 11. Translate into English:

1. Якби я знав про це, я б допоміг тобі.
2. Якби ти вчився більше, ти б здав екзамен.
3. Якби ми раніше поїхали, ми б уникли затору.
4. Якби ти не запізнився, ми б вже почали зустріч.
5. Якби вони були обережніші, вони б не потрапили в аварію.

6. Якби вона попросила про допомогу, ми б її підтримали.
7. Якщо завтра буде дощ, ми скасуємо поїздку.
8. Якби я був на твоєму місці, я б прийняв цю пропозицію.
9. Якби він більше тренувався, він би став кращим футболістом.
10. Якщо ви будете працювати швидше, ми закінчимо раніше.
11. Якби я знав про цю проблему, я б заздалегідь її вирішив.
12. Якби ми прийняли інше рішення, наслідки були б зовсім іншими.

Scientific Writing. Assumption.

Exercise 12. Read and translate adjectives used to qualify

assumption basic, false, correct, wrong, reasonable, unfounded, logical implicit, explicit, dangerous, bold, underlying, flawed, unquestioned, dubious

Exercise 13. Translate into Ukrainian:

1. His entire argument is based on the false assumption that everyone agrees with him.
2. The scientist challenged the underlying assumption behind the experiment's methodology.
3. It would be a bold assumption to think that the project will be completed ahead of schedule.
4. Many business decisions fail due to flawed assumptions about market trends.
5. The lawyer questioned the unfounded assumption that the witness was telling the truth.
6. A reasonable assumption is that inflation will continue to rise if no action is taken.
7. She operated on the implicit assumption that her colleagues would support her proposal.
8. His theory collapses if the logical assumption of cause and effect is removed.
9. The manager warned against making dangerous assumptions about the competitor's strategy.

10. The researchers proceeded with their study on the correct assumption that the data was accurate.

Exercise 14. 1. Combining A and B complete the sentences characterizing an assumption. 2. Characterize the assumption you proceed from in your research.

A	B		
It is widely accepted Scholars often begin Researchers have worked This hypothesis is founded The proposed framework relies Many experts operate Statistical evidence leads us	under with on from to	the assumption	that data accuracy is guaranteed that external factors influence decision-making. that language shapes thought. that social structures impact individual choices. that economic growth leads to higher employment. that the results will be consistent. that all variables remain constant.

Exercise 15. Translate into English:

1. Якщо б я був на твоєму місці, я б не робив таких поспішних висновків.
2. Ймовірно, вона прийшла до такого рішення через свою неухважність до деталей.
3. Можливо, він вже знав про цю ситуацію, але вирішив не говорити нічого.
4. Я припускаю, що вони вирушать у подорож, оскільки вже забронювали квитки.
5. Здається, він знає більше, ніж хоче сказати, хоча ми не можемо стверджувати цього точно.
6. Якщо врахувати всі факти, можна зробити висновок, що проблема була викликана недбалістю.
7. Я б припустив, що вони не встигли завершити проєкт через технічні проблеми.

8. Виходячи з того, що я чую, можна вважати, що рішення вже ухвалене.
9. Можливо, це лише тимчасова проблема, і вона буде вирішена найближчим часом.
10. Я впевнений, що ми зможемо знайти спільне рішення, якщо не будемо поспішати з висновками.

Exercise 16. Write an account of assumptions you make in your research and of those made by other workers in your field on the topic you are investigating.

Discussion Points

1. How can educational institutions effectively promote academic integrity among students, and what role do teachers play in this process?
2. In what ways can academic integrity violations, such as plagiarism or cheating, impact the reputation of an academic institution and the credibility of its research?
3. What are the potential long-term consequences for students who engage in dishonest academic practices, and how might these consequences affect their future careers?

Assignment 2.

Article for Reading and Discussion

Read the article at page 154 and explain:

1. How can the widespread adoption of electric vehicles contribute to improving mental health, particularly in urban environments?
2. What are the challenges and opportunities of making electric vehicles more accessible in developing countries, and how can they contribute to better public health?

Unit 9

Science and International Cooperation

Text:	Science and International Cooperation
Grammar:	Verbals. Infinitive Forms and Complexes. Gerund
Scientific Writing:	Hypothesis
Article:	Education Transforms Lives

Assignment 1. Read **Text 9** at page 135.

Active Vocabulary

collaborative efforts – спільні зусилля
to advance scientific research – просувати наукові дослідження
to address global challenges – вирішувати глобальні проблеми
to require collective action – вимагати колективних дій
to accelerate research – прискорювати дослідження
to share insights – ділитися уявленнями (думками, розумінням)
global research networks – глобальні дослідницькі мережі
to tap into diverse expertise – отримати доступ до різноманітних знань
groundbreaking discoveries and solutions – новаторські відкриття та рішення
to access cutting-edge research – отримати доступ до передових досліджень
cross-cultural exchange – міжкультурний обмін
to pool resources – об'єднувати ресурси
to enhance financial support – посилити фінансову підтримку
to avoid biases – уникати упереджень
to improve the robustness of research outcomes – покращити надійність результатів дослідження

a large-scale project – масштабний проєкт
to tackle research – займатися дослідженнями
to foster collaboration – сприяти співпраці
to align research standard – узгодити стандарт дослідження
to ensure equitable access – забезпечити справедливий доступ
to maintain ethical standards – підтримувати етичні стандарти
science diplomacy – наукова дипломатія
to drive innovation and advancement – стимулювати інновації та прогрес
to promote sustainability – сприяти сталому розвитку

Definitions and Samples

A proxy war is "a military conflict in which one or more third parties directly or indirectly support one or more state or non-state combatants in an effort to influence the conflict's outcome and thereby to advance their own strategic interests or to undermine those of their opponents. Proxy wars enable major powers to avoid direct confrontation with each other as they compete for influence and resources" (Britannica).

A cyberwar is "a war conducted in and from computers and the networks connecting them, waged by states or their proxies against other states. Cyberwar is usually waged against government and military networks in order to disrupt, destroy, or deny their use" (Britannica).

Pandemic is "an outbreak of infectious disease that occurs over a wide geographical area and that is of high prevalence, generally affecting a significant proportion of the world's population, usually over the course of several months" (Britannica).

A research network is "a collaborative system or platform that connects researchers, institutions, organizations, and resources to facilitate the sharing of knowledge, data, and expertise in a specific field or across various disciplines. These networks enable individuals or groups to work together on projects, conduct joint studies, and share resources such as databases, tools, and publications. Research networks can be formed at local, national, or international levels and often involve collaboration between

academic institutions, research labs, government agencies, private companies, and non-governmental organizations.

Preprint servers are “online platforms or repositories where researchers can share their scientific manuscripts or research papers before they have been peer-reviewed and formally published in academic journals. These platforms allow researchers to disseminate their findings rapidly to the scientific community and the public, receive feedback, and establish priority for their work”.

Research standards are “a set of established guidelines, principles, and practices that ensure research is conducted with rigor, accuracy, ethics, and transparency. They guide researchers in how to conduct experiments, collect and analyse data, report results, and interact with colleagues and the broader community. Research standards help maintain trust in the scientific process and ensure that the outcomes of research are reliable and valid.”

Comprehension

1. What does international cooperation in science refer to?
2. Why are global challenges such as climate change and pandemics difficult for a single country to solve alone?
3. How does sharing of knowledge benefit scientific research and innovation?
4. What are some examples of global research networks that foster international cooperation?
5. How do collaborative databases like GBIF and ICGC contribute to scientific progress?
6. What is the role of open access in promoting international scientific collaboration?
7. How does cross-cultural exchange enhance the quality of research in international collaborations?
8. How does pooling resources from multiple nations help with large-scale scientific projects?
9. What is the role of organizations like the UN, WHO, and IPCC in fostering international scientific cooperation?
10. How can science diplomacy help strengthen international relations between countries?

Word Study

Exercise 1. Give English equivalents of the following phrases:

Глобальні дослідницькі мережі; сприяти співпраці; стимулювати інновації та прогрес; міжкультурний обмін; масштабний проєкт; спільні бази даних; вирішувати глобальні проблеми; займатися дослідженнями; вимагати колективних дій; спільні зусилля; ділитися розумінням; об'єднувати ресурси; наукова дипломатія; платформи для співпраці; сприяти сталому розвитку; покращити надійність результатів дослідження; підтримувати етичні стандарти; уникати упереджень; отримати доступ до різноманітних знань; посилити фінансову підтримку; просувати наукові дослідження.

Exercise 2. Complete the following sentences using the text:

1. International collaboration allows scientists to share
2. Scientific collaborations can drive technological ... and contribute to ..., particularly in emerging nations that may lack resources for
3. International cooperation in science refers to ... between countries, organizations, and institutions to advance ..., and address
4. Global cooperation helps in aligning ..., ensuring ..., and addressing ... like intellectual property rights and data privacy.
5. Many international collaborations encourage ... to scientific publications, making knowledge freely available to everyone.
6. Many scientific projects rely on large, shared ... accessible to the international community.
7. Open-access ... and ... are examples of platforms that allow researchers from any part of the world to access ... without barriers.

Exercise 3. Pick out all compound nouns in the text.

Compound nouns and noun phrases are frequently used for the reason of conciseness, e.g., research outcomes – the outcomes of the research. Continue the list using the text.

Exercise 4. Take words from list A and add them to the appropriate words in list B to form compound nouns; translate them.

A: data, health, research, case, probability, government, open-access, science, mercury, life, property, space, climate;

B: column, diplomacy, exploration, change, network, journal, study, theory, organization, privacy, rights, agency, cycle.

Exercise 5. Form compound nouns from each of the following phrases. Remember to be careful about plurals.

1. A cooperation between governments. 2. A study of a particular case. 3. The theory of social proof. 4. A project of software development. 5. A partnership with limited liability. 6. Techniques of motivation applicable to business. 7. A team of researchers working together on a common research topic. 8. Interpretation of photographs taken by X-rays. 9. The network of interconnected researchers or research institutions that collaborate. 10. The membership organization for attorneys specializing in family law. 11. A paper that reports original research findings.

Exercise 6. The suffix -ify forms verbs from the corresponding adjectives, e.g.:

amplify (from ***ample***) – to increase or enhance the details or strength of something, often used to describe expanding research findings;

diversify (from ***diverse***) – to make something more varied or diverse, often referring to broadening the scope of research or perspectives in collaboration;

harmonify (from ***harmonious***) – to bring different research methods or results into agreement or unity.

Form verbs from the following adjectives and explain their meaning:

Clear; intense; pure; simple; specific; quantitative; just; united;

Exercise 7. Translate into English.

1. Міжнародне співробітництво сприяє розвитку розгалужених глобальних дослідницьких мереж, які дозволяють науковцям використовувати різноманітні знання та ресурси.

2. Дослідницькі мережі передбачають співпрацю між академічними установами, дослідницькими лабораторіями, приватними компаніями, урядовими та неурядовими організаціями.
3. Дослідницькі стандарти скеровують дослідників у тому, як проводити експерименти, збирати й аналізувати дані, звітувати про результати та взаємодіяти з колегами та широким співтовариством.
4. Платформи для співпраці дозволяють дослідникам швидко поширювати свої висновки серед наукового співтовариства та громадськості, отримувати відгуки та встановлювати пріоритети для своєї наукової роботи.
5. Такі організації, як Організація Об'єднаних Націй (ООН), Всесвітня організація охорони здоров'я (ВООЗ), а також багатонаціональні дослідницькі організації, відіграють ключову роль у розвитку міжнародної наукової співпраці.
6. Міжнародне співробітництво в галузі науки має важливе значення для вирішення нагальних глобальних проблем, розвитку знань і забезпечення справедливому доступу до наукових переваг.
7. Обмін знаннями, дотримання етичних стандартів і сприяння розвитку через міжнародну наукову співпрацю є важливими для вирішення глобальних проблем.

Structure Study. Verbals.

Infinitive Forms and Complexes. Gerund.

Exercise 8. Write various forms of the infinitive according to the model:

a) Indefinite Passive (to translate – to be translated):
to diversify, to defend, to enhance, to tell, to write, to align;

b) Continuous Active (to translate – to be translating):
to develop, to discuss, to maintain, to promote, to examine;

c) Perfect Passive (to translate – to have been translated):
to send, to finish, to ensure, to foster, to investigate;

d) Perfect Continuous (to translate – to have been translating):
to collaborate, to study, to teach, to look through, to explore.

Exercise 9. Choose the right form of the infinitive:

1. The article is difficult...
a) to have translated; b) to be translating; c) to translate.
2. They proved unable ... the dispute.
a) to settle; b) to have been settled; c) to be settled;
3. The students are glad ... this lecture.
a) to be delivered; b) to have delivered; c) to be delivering;
4. You seem ... the argument.
a) to be lost; b) to have lost; c) to have been lost;
5. He pretended ... when the Professor came.
a) to have read; b) to be reading; c) to be read.

Exercise 10. State the function of the Infinitive.

1. It is never late to learn. 2. To acquire knowledge is the first duty of a student. 3. His intention is to get into the Academy. 4. She had learned to deal with real clients at a local law clinic. 5. Here is the Scopus article to be translated. 6. Our aim is to master English perfectly. 7. Laws were not made to be broken; they were made to stay within. 8. He asked me to present my research. 9. Sometimes you retreat in order to advance. 10. It is important to check the findings regularly.

Exercise 11. Make up 5 sentences from each table.

I	saw	me	share/ sharing insights.
He	heard	him	enter/ entering the University library.
She	watched	her	conduct/ conducting the survey.
We	noticed	us	read/ reading the report.
You	made	you	perform/ performing the computation.
They	let	them	discuss/ discussing the findings.

I He She We You They	want(s) wanted expect(s) expected should like would like	me him her us you them	to speak several languages fluently. to work on the arguments for debate. to dwell on the subject of research. to answer the collaborates' proposal. to thank our foreign colleagues for the invitation. to complete the research by the end of the year.
I He She We You They	consider(s) believed thought knew supposed assume(s)	me him her us you them	to be an unbiased scholar. to be reliable research partners. to be about thirty-five. to be renowned scientists. to be a person devoted to science. to be the author of the hypothesis.

Exercise 12. Change the following complex sentences into simple ones using the Objective Infinitive/ Objective Participle Complexes as in the model:

International organizations expect that researchers from different countries will cooperate to solve global problems effectively. → International organizations expect *researchers from different countries to cooperate* to solve global problems effectively.

1. Many experts believe that international teams will produce more comprehensive research despite cultural challenges. 2. I heard as he argued/ was arguing with the opponent at the international symposium. 3. We expected that he would come to the conference on time. 4. He observed foreign colleagues as they discussed/ were discussing the findings of his research. 5. My wish is that scientists should share data internationally to speed up innovation and gain diverse insights. 6. Linguists observe that scientists use English as a common medium to overcome language barriers. 7. We consider that you signed the collaboration agreement. 8. Economists expect that joint projects will help to distribute research funding more evenly across nations. 9. Researchers report that scientific discoveries should be shared globally for the benefit of all humanity. 10. Diplomats believe that government support will foster international scientific partnerships.

Exercise 13. Make up 5 sentences from each table.

I He She We You They	am is are was were	mentioned reported said	to process the data. to conduct cross-cultural exchange. to be enhancing financial support. to have completed the research project. to be analysing the survey. to have been writing thesis for years.
I He She We You They	am is are was were	supposed expected believed known considered	to arrive at the conference. to be very persistent in maintaining ethical standards. to be interested in the humanities. to have finished the review. to have graduated from the University.
I He She We You They	am is are was were	noticed heard seen watched	to leave the Assembly Hall. to discuss global research challenges. to perform the computation. to be promoting the innovation. to be delivering the report. to check the records.
I He She We You They	seem(s) appeared happened proved chanced	to amplify the cooperation agreement. to have integrated diverse cultural perspectives in the research. to know about the breakthroughs in renewable energy. to be shifting toward global problem-solving. to have found inconsistencies in the findings. to have been pooling resources and expertise for a long time.	

Exercise 14. Transform the following complex sentences into simple ones using the Subjective Infinitive Complex:

1. They know that joint research projects increase innovation across borders. 2. It is believed that international scientists have solved a key problem in nuclear fusion. 3. It is supposed that scientific partnerships improve diplomatic relations between

nations. 4. It is believed that researchers from multiple countries are working on a unified climate model. 5. They reported that the spaceship had reached the Moon. 6. It is supposed that multinational research groups have made progress in AI safety standards. 7. It was expected that global initiatives would reduce the cost of large-scale research projects. 8. It seems that he is delivering his report at the moment. 9. It turned out that global teams work more effectively on pandemic response than isolated groups of scientists. 10. It proved that you were right in your assumptions on the success of large-scale scientific ventures.

Exercise 15. Transform the sentences using the Subjective Infinitive Complex instead of the Objective Infinitive Complex according to the model:

I saw them produce more comprehensive research due to international collaboration. → They were seen to produce more comprehensive research due to international collaboration.

It is probable that collaboration between space agencies will conduct joint space mission. → Collaboration between space agencies is likely to conduct joint space mission.

1. You expect international collaboration to lead to faster vaccine development. 2. They saw the professor approach a small group representing international scientific community. 3. We heard the Committee chairman give his speech. 4. Everybody supposed the international team to have completed their research project. 5. We all believed him to have defended his thesis successfully. 6. It is probable that global problems will be addressed more effectively due to mutual cooperation. 7. Despite time zone differences, it is probable that engineers will design technology to enable real-time collaboration.

Exercise 16. Transform the following complex sentences into simple ones using the Absolute Participle Construction as in the models:

Model 1: As all protocols were followed, the experiment was approved by all participating countries. → All protocols being

followed; the experiment was approved by all participating countries.

1. As the need for urgent solutions increased, global research efforts intensified. 2. As I live far from the Research Institute, I go there by car. 3. As multiple teams contributed their expertise, the solution was proposed in record time. 4. As the monograph is very popular, it is easy to find it. 5. As researchers from various countries were working together, the project progressed faster than expected.

Model 2: As the conference was held virtually, more scientists were able to attend from remote locations. → The conference held virtually, more scientists were able to attend from remote locations.

1. As their goals were clearly defined, the international partners divided the work among themselves effectively. 2. As the Conference Proceedings were being printed, we hoped to get them soon. 3. As the equipment was being examined, we couldn't start our experiment. 4. As language barriers were overcome, collaboration between foreign labs became more efficient.

Model 3: As the data had been shared, the international team began the analysis phase immediately. → The data having been shared; the international team began the analysis phase immediately.

1. As he had been in the International Panel on Climate Change, we asked him to tell us about it. 2. As the work had been finished, we thanked all the participants. 3. After their findings had been published, the scientists received recognition from institutions worldwide. 4. As the funding had been secured, the multinational research team launched the new project.

Exercise 17. State the function of the gerund in the sentences:

1. Funding joint scientific projects demonstrates a commitment to collective progress. 2. Waiting for the Professor was a lame excuse for doing nothing. 3. We could not help admiring the trust built among our research institutions that led to stronger partnership. 4. They enjoyed participating in international con-

ferences as it helped to exchange ideas and form collaborations. 5. After two years of analysing and combining diverse expertise international team finally found more innovative solution. 6. He admitted falsifying the data during the collaboration. 7. The certificate requires completing the course. 8. They avoided discussing controversial topics during the international summit.

Exercise 18. Use gerunds instead of subordinate clauses.

1. When you consider the problem, be sure to refer to the cutting-edge research on the subject (in). 2. When the international delegation completed the tour over our country, they left for home (on). 3. Before you go to attend the seminar, make sure you have prepared for it well enough. 4. Scientists improve transparency and accelerate scientific progress, if share research data openly (by). 5. The PhD students developed their speaking skills because they practised public speeches regularly (through).

Exercise 19. Translate into English using the Subjective Infinitive Construction and the Objective Infinitive Construction.

1. Міжнародну співпрацю вважають ключем до глобальних наукових проривів.
2. Ми очікуємо, що вони опублікують результати міжнародного проєкту цього місяця.
3. Організація хоче, щоб країни учасники поділилися своїми науковими розробками.
4. Їхній проєкт, як очікується, матиме великий вплив на світову науку.
5. Я чув, як вони обговорювали спільний дослідницький проєкт.
6. Ці дослідники здаються здатними швидко адаптуватися до нових умов.
7. Їхню команду вважають однією з найуспішніших у сфері штучного інтелекту.
8. Вони дозволили нам приєднатися до міжнародного консорціуму.
9. Ми змусили міжнародну команду змінити підхід до експерименту.

10. Ці результати, як повідомляється, отримані внаслідок спільної праці.

Scientific Writing. Hypothesis.

Exercise 20. Read and translate adjectives used to evaluate

Hypothesis

scientific, original, preliminary; proven, basic, alternative;
innovative, theoretical, stimulating, promising;
tentative, plausible, reasonable, strong, sound, working;
(in)correct, (un>true, (in)valid, (im)probable, (un)reliable, (un)founded, (un)satisfactory, (il)logical, (un)clear, (un)tested;
falsifiable, flawed, vague, ambiguous, weak, controversial;
interesting, attractive, fascinating, well-defined.

Exercise 21. Read and translate the following passage from Britannica; answer the questions below:

"A scientific hypothesis is an idea that proposes a tentative explanation for a phenomenon that's been observed. It is both falsifiable and testable. Falsifiability is evident in the if/then statement of the hypothesis, and its testability is evident in its ability to be supported or refuted by scientific observation or experimentation. A scientific theory differs because it's a broad general explanation that incorporates usually multiple hypotheses or multiple observations".

(Encyclopaedia Britannica)

Do you support the author's explanation? Why? / Why not? In your opinion, what is the main difference between a scientific theory and scientific hypothesis?

Exercise 22. Memorise the main roles of a hypothesis. Add others, more specific ones, in the context of your research.

A hypothesis is a testable statement that proposes a possible explanation for an observation, phenomenon, or scientific problem. As the starting point for all scientific investigation the hypothesis is necessary. Without it, science would lack structure and the ability to systematically test ideas about the world.

The hypothesis plays a central role in the scientific method;
Guides research and experimentation. It gives direction to scientific inquiry by identifying what you're trying to test or discover.

Creates a focused question. A good hypothesis narrows down what you're investigating, making it easier to design experiments and collect relevant data.

Allows for testing and validation. Hypotheses are testable, meaning you can conduct experiments to support or refute them. This process helps build scientific knowledge.

Drives scientific discovery. Testing hypotheses leads to new insights, theories, and even technologies.

Promotes objectivity. By starting with a specific hypothesis, scientists can remain unbiased, relying on data rather than assumptions or opinions.

Exercise 23. Combining A, B and C write about the purpose of the hypothesis you suggest in your research and give the essence of the hypothesis you have advanced:

Essence of the hypothesis you have advanced				
A	B		C	
The hypothesis A number of hypotheses	is/are was/were have/has been	offered suggested put forward	to explain to account for	that interesting phenomenon. the mechanism of... the process of... the causes of... the changes in ...
The authors We / I	offered suggested	this hypothesis		
The hypothesis Our working hypothesis	holds claims maintains implies	that	the effects are caused by... the interaction is due to... the modifications result from... the structure remains ... the observed effect is ...	
According to the suggested hypothesis As follows from the hypothesis				

Exercise 24. Combining A, B and C complete the sentences characterizing the ways of verifying a hypothesis / you verify your hypothesis:

A		B	C	
We	performed	a number of experiments several sets of studies many special surveys	to test	our hypothesis. this hypothesis. the validity of... the hypothesis that...
I	carried out		to prove	
They	initiated attempted		to check to verify	
We have undertaken			to support	
They undertook			to disprove	
			to substantiate	

Exercise 25. Translate into English.

1. Увагу дослідників привернула його оригінальна гіпотеза завдяки нестандартному підходу до проблеми.
2. Базова гіпотеза зазвичай формує фундамент усієї теорії і використовується для пояснення інших явищ.
3. Ваша альтернативна гіпотеза суперечить загальноприйнятій теорії, але має переконливі аргументи.
4. Теоретична гіпотеза міжнародної команди дослідників ще не має експериментального підтвердження, але логічно обґрунтована.
5. Як відомо, робоча гіпотеза використовується тимчасово до отримання нових даних.
6. Доведена нами гіпотеза стала основою для подальших розвідок у цій галузі.
7. Необґрунтована гіпотеза дисертанта не витримала критики і була відкинута науковим співтовариством.
8. Їх суперечлива та розпливчата гіпотеза ускладнює формулювання чітких завдань та викликає багато дискусій серед учених через неоднозначність інтерпретації результатів.
9. Стимулююча гіпотеза молодих науковців відкриває нові горизонти та надихає учених на проведення міждисциплінарних досліджень.

Discussion Points

1. What existing research or theory is your hypothesis based on?
2. What assumptions underlie your hypothesis, and are they justified?
3. How does your hypothesis contribute to solving real-world problems or advancing science?
4. Speak about the joint research projects developed by you/ your department /university/institute.
5. Are there prospects for international cooperation in your research area? What benefits can joint scientific projects bring to Ukrainian science?

Assignment 2. *Article for Reading and Discussion*

Read the article at page 156 and explain:

1. How does UNESCO view the role of education in achieving peace, poverty eradication, and sustainable development?
2. What is the role of digital technologies and innovation in transforming education according to UNESCO?
3. UNESCO emphasizes a human-centered approach to using technology in education. What does that mean to you?
4. What strategic actions is UNESCO taking to support the integration of technology in education?
5. Why is ethical oversight crucial in using Artificial Intelligence in education?
6. What competencies should future education systems develop to prepare learners for the AI era?
7. What kind of knowledge and skills should students learn today to thrive in an AI-driven future?

Unit 10

Science and the Future

Text:	Science and the Future
Grammar:	Types of Sentences
Scientific Writing:	Theory
Article:	Investing in the Future

Assignment 1. Read **Text 10** at page 137.

Active Vocabulary

crucial role – вирішальна роль
scientific discoveries – наукові відкриття
major advancements – значні досягнення
artificial intelligence (AI) – штучний інтелект (ШІ)
to automate tasks – автоматизувати завдання
personalized treatments – персоналізоване лікування
space exploration – дослідження космосу
signs of life – ознаки життя
climate change – зміна клімату
renewable energy sources – відновлювані джерела енергії
fossil fuels – викопне паливо
targeted therapies – цільові методи лікування
ethical questions – етичні питання
scientific progress – науковий прогрес
sustainable world – стійкий світ

Definitions and Samples

to push the boundaries – to go beyond what is normally possible or accepted, often in science or innovation.

Example: Scientists continue to push the boundaries of medical research to find new treatments.

a quantum leap – a sudden, significant improvement or change.
Example: The development of AI has been a quantum leap in technology.

on the cutting edge – being at the forefront of new developments or innovations.

Example: Space exploration is on the cutting edge of scientific discovery.

light years ahead – far more advanced than others in terms of technology or knowledge.

Example: Some countries are light years ahead in renewable energy research.

the sky's the limit – there are no limits to what can be achieved.
Example: With advancements in AI, the sky's the limit for future possibilities.

Comprehension

1. How has science improved our quality of life over the past century?
2. In what ways is artificial intelligence (AI) used in modern science?
3. What are some concerns related to AI, according to the text?
4. Why is space exploration considered an important scientific field?
5. How does climate science contribute to a sustainable future?
6. What advancements has medical science made in recent years?
7. Why is it important for scientists, governments, and the public to work together in scientific progress?

Word Study

Exercise I. Give English equivalents for the following words and phrases and compose sentences of your own:

відчуття провини, невід'ємна частина, займатися благодійністю, значний внесок, викликати занепокоєння, перспективи розвитку, прагнути вдосконалення, відстоювати права, запобіжні заходи, мати вплив на, перевищувати очікування, долати перешкоди, недооцінювати значення, на межі виживання,

дотримуватися традицій, спростувати твердження, виявляти ініціативу, досягнути суть, розширювати горизонти, гостра потреба

Exercise 2. Each suffix in list A can be connected to three words in table B. Form these words and translate them.

A: -tion; -ous; -ive; -ment; -ic; -able; -al; -ance; -ity;

B:

explore	electric	resist
danger	innovate	achieve
import	perform	curios
develop	person	communicate
depend	improve	predict
historic	observe	differ
effect	vary	science
experiment	rely	ambition
sensitive	vary	nation

Exercise 3. Using words formed in Exercise 2 fill in the blanks in the following sentences:

1. The ... of new technologies has greatly improved our daily lives.
2. Scientists continue their ... of space to learn more about distant planets.
3. Her ... in public speaking helped her deliver an impressive presentation.
4. Solar energy is a more ... source of power compared to fossil fuels.
5. The company showed great ... in developing new products for the market.
6. He is very... and always looks for new challenges to achieve his goals.
7. The economic crisis had a strong ... on global markets.
8. Climate change is a... issue that requires immediate action.

Exercise 4. Complete the following sentences using the text:

1. Scientific discoveries have led to major advancements in ... , ... , and ... , improving our quality of life. 2. One of the most exciting areas of modern science is ... , which is used to automate tasks and assist in research. 3. AI helps doctors ... diseases more accurately and develop ... treatments for patients. 4. Scientists are working on sending humans to ... and searching for signs of ... beyond Earth. 5. Climate scientists study ... and develop new technologies to reduce ... and protect natural resources. 6. Renewable energy sources, such as ... and ... power, are helping to decrease dependence on fossil fuels.

Exercise 5. See if you can recall the corresponding word combinations:

WHO, NATO, WTO, OECD, IPCC

Exercise 6. Translate into English:

1. Наукові відкриття значно покращили нашу якість життя та змінили спосіб роботи, комунікації та дослідження світу.
2. Однією з найбільш захоплюючих галузей сучасної науки є штучний інтелект, який автоматизує багато процесів.
3. Штучний інтелект допомагає лікарям точніше діагностувати захворювання та розробляти індивідуальні методи лікування.
4. Вчені працюють над відправленням людей на Марс та пошуками ознак життя за межами Землі.
5. Дослідження змін клімату є важливими для майбутнього нашої планети.
6. Відновлювальні джерела енергії, такі як сонячна та вітрова енергія, стають все більш поширеними.
7. Медична наука робить вражаючі кроки вперед, пропонуючи нові методи лікування та вакцини від захворювань.
8. Науковий прогрес стикається з етичними питаннями, які потребують ретельної уваги.

Structure study.

Types of Sentences

I. **Subject clauses** are introduced by **that, whether, if, who, what, which (whoever, whatever, whichever), where, when, why, how, which** are translated as:

that – те, що what – те, що if, whether – чи who – той, хто; хто which – хто з, котрий з; whatever – все, що; щоб не	where – те, де; питання в тому, де when – те, коли; питання в тому, коли why – те, чому; питання в тому, чому how – те, як; питання в тому, як how + adjective – наскільки + прикметник; те, як + прикметник
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Exercise 7. Translate the following sentences:

1. Те, що ми маємо доступ до новітніх технологій, змінює наше життя.
2. Важливо, щоб наука розвивалася у напрямку, що приносить користь людству.
3. Те, як штучний інтелект допомагає в медицині, вражає багатьох людей.
4. Я не знаю, чому клімат змінюється так швидко, але це серйозна проблема.
5. Той факт, що люди все більше звертаються до відновлювальних джерел енергії, дуже важливий для майбутнього.
6. Те, що вчені продовжують досліджувати космос, дозволяє нам розширювати горизонти пізнання.
7. Важливо, щоб молоді дослідники мали можливість працювати в міжнародних проєктах.
8. Те, як нові медичні технології змінюють лікування хвороб, викликає багато сподівань.
9. Я не впевнений, чому багато людей сумніваються у використанні генетичних технологій.
10. Те, як уряди реагують на зміни клімату, має великий вплив на глобальну ситуацію.

II. Object clauses are introduced by the same words as the subject clauses

Exercise 8. Translate the following sentences:

1. I believe that scientific progress will continue to improve our quality of life. 2. She didn't realize that climate change was affecting the environment so rapidly. 3. The researchers found that renewable energy sources could significantly reduce pollution. 4. We are not sure whether artificial intelligence will have a positive or negative impact on jobs. 5. He doesn't understand why the government hasn't taken more action to address the issue of climate change. 6. They suggested that we invest in new technologies to improve healthcare. 7. The professor explained that AI could revolutionize the way we approach medical research. 8. We are concerned about whether the advancements in genetic engineering are being used ethically. 9. I wonder if the new space missions will reveal any signs of life beyond Earth. 10. She didn't know how scientists could overcome the challenges of sending humans to Mars.

III. Predicative clauses are introduced by the same words as subject and object clauses. The verb **to be** which is used before the clause is often translated as **полягає в тому, що; являє собою те, що; це те, що...**

Exercise 9. Translate the following sentences:

1. The fact that we are running out of natural resources is a serious concern. 2. It is clear that technological advancements have changed the way we live. 3. What we need most is a long-term solution to climate change. 4. The main issue is that we are not doing enough to protect the environment. 5. It is important that we continue to support scientific research for future generations. 6. The problem is that many people still do not understand the risks of pollution. 7. What matters most is that we take immediate action to reduce carbon emissions. 8. The biggest challenge is that not all countries have the resources to tackle climate change. 9. It is obvious that artificial intelligence will

have a huge impact on various industries. 10. The reason for the delay is that the research team encountered unexpected difficulties.

IV. Attributive clauses are introduced by the relative pronouns **who** (nominative case) – **whom** (objective case) for people; **that** (nominative and objective cases) – for people and things; **which** (nominative and objective cases) – for things. Relative pronouns in objective case can be **left out**.

Note. 1) **that** refers to a noun that comes before it and "repeats its meaning". Such a noun is called an antecedent:

e.g., These are the facts **that** (antecedent) were described in the paper.

The reference book **that** (antecedent) you want is a rare edition.

That is especially common after the following words **all, every(thing), some(thing), any(thing), no(thing), none, little, few, much, only**.

e.g., You can have everything that you need for the experiment.

2) **What** introduces **object clauses** and means **the things that** it includes a relative pronoun that and its antecedent at the same time. What cannot be used if there is already an antecedent.

Compare:

1. Do you want to hear **the words that** he said? (that he said — attributive clause).

2. Do you want to hear **what** he said? (what he said — object clause, in which what = the words that).

Exercise 10. In the following sentences pick out the attributive clauses. Write which word is a relative pronoun (if any) and which word is its antecedent.

1. The book that you gave me is really interesting. 2. The scientist who discovered the cure for the disease was awarded a Nobel Prize. 3. The team, which conducted the groundbreaking research,

is presenting its findings tomorrow. 4. The car that I bought last year has already broken down. 5. The experiment, which was conducted over several months, yielded surprising results. 6. The country where I was born is known for its rich history and culture. 7. The teacher, whose lectures are always engaging, inspired me to pursue a career in science.

Exercise 11. Join each of these sentences into a complex one by using relative pronouns who, whom, which, that, whose.

1. I know a doctor. She works at the local hospital. 2. They visited a museum. It is known for its art collection. 3. I have a friend. His brother is an engineer. 4. The book is on the shelf. It explains the history of space travel. 5. The man is an expert. You spoke to him yesterday. 6. The house is very old. It belongs to my grandparents. 7. The professor is very knowledgeable. I took a course with him last year. 8. She bought a laptop. It was on sale. 9. The restaurant is popular. We had dinner there last night. 10. The woman is an artist. I admire her work.

Exercise 12. Translate the following sentences:

1. The scientist who developed the new treatment for cancer is receiving international recognition. 2. The technology that is used to study climate change is constantly improving. 3. The professor whose research on space exploration is groundbreaking is giving a lecture today. 4. The machine which is used for medical diagnostics has become an essential tool in hospitals. 5. The student whom we interviewed for the scholarship is very talented. 6. The article that was published last week discusses the future of artificial intelligence. 7. The researchers whose work is focused on renewable energy are presenting their findings next month. 8. The company that developed the new vaccine has been working with several international health organizations.

V. Among adverbial clauses we distinguish those of manner (how?), time(when?), place (where?), reason (why?), purpose (with what purpose?), condition (on what condition?).

Exercise 13. Study the following examples, define the kind of adverbial clauses and translate the sentences:

1. When the researchers finished the experiment, they analysed the data. 2. If artificial intelligence is used responsibly, it can greatly benefit society. 3. Although the project was challenging, they managed to complete it on time. 4. Because of the advancements in medical research, new treatments are now available. 5. She explained the concept as clearly as possible. 6. Unless we find a solution, the issue will continue to grow. 7. While the team was working on the project, new challenges emerged. 8. In case you need assistance, feel free to ask for help. 9. The new technology is revolutionary, although it is still in the testing phase. 10. As soon as the new vaccine is approved, it will be available to the public.

Scientific Writing. Theory.

Exercise 14. Read and translate adjectives used to qualify

theory

scientific, complex, abstract, fundamental, theoretical, hypothetical, practical, innovative, established, proven, unproven, comprehensive, refined, evolving, controversial, emerging, logical, pioneering, relevant, sceptical

Exercise 15. Translate the following sentences:

1. According to the scientific theory, the Earth revolves around the Sun. 2. His innovative theory on artificial intelligence challenges traditional thinking in the field of technology. 3. The fundamental theory of evolution has been widely accepted by the scientific community. 4. The theoretical theory of relativity explains the relationship between time and space. 5. She presented a controversial theory that suggests humans might have been living on Mars in ancient times. 6. The emerging theory of climate change highlights the urgent need for global action to protect the environment.

Exercise 16. 1. Combining A, B and C complete the sentences showing the postulate from which a theory proceeds or the

main idea which it is based on or underlying assumption. 2. Write a similar sentence concerning the theory you proceed from in your research.

A		B		C		
The main ideas The researchers These workers We	prove refine established formulated suggested	innovative	theory	which	is based was developed	on the underlying assumption
		complex				core principle of....
		logical				
		interesting				
		new				from the idea that....

Exercise 17. Translate into English:

1. Теорія еволюції доводить, що види змінюються з часом через природний відбір.
2. Згідно з цією теорією, всесвіт виник у результаті Великого вибуху.
3. Його теорія стверджує, що мова є основним чинником розвитку культури.
4. Багато науковців ставляться до цієї теорії скептично через відсутність достатніх доказів.
5. Основним припущенням цієї теорії є те, що люди діють у власних інтересах для досягнення максимального блага.
6. Теорія відносності Альберта Ейнштейна змінила наше розуміння часу та простору.
7. У рамках цієї теорії передбачається, що всі речовини складаються з елементарних частинок.
8. Нові відкриття вчених підтримують теорію кліматичних змін, що стосується людської діяльності.
9. Теорія ймовірності широко використовується в статистиці та дослідженнях ризику.
10. Відповідно до цієї теорії, все в природі підпорядковується законам фізики, які однакові для всіх спостерігачів.

Exercise 18. Write a detailed account of the theory you proceed from in your investigation.

Discussion Points

1. How have scientific discoveries in the past century contributed to advancements in medicine and technology?
2. In what ways is artificial intelligence being used to improve healthcare and scientific research?
3. What are some of the challenges scientists face in space exploration, and how are they being addressed?
4. How are renewable energy sources expected to impact our future, and why are they becoming more common?

Assignment 2.

Article for Reading and Discussion.

Read the article at page 158 and explain:

1. What steps can the EU take to ensure that scientific research effectively contributes to solving social and economic challenges?
2. What role should science play in addressing Europe's growing dependence on imported energy and other strategic resources?

SUPPLEMENT 1

Text 1

THE PHD QUALIFICATION

Earning the highest qualification is a goal for many professionals. It can help them obtain employment in a university setting. Doctorate degrees are the highest level of education you can achieve in many countries. However, there are some qualifications considered higher than a PhD such as professional degrees, habilitation degrees, doctor of science and doctor of technology.

Deciding to do a PhD can be a very challenging decision. Many people make the decision without really understanding or knowing what a PhD student is or does.

A PhD student is a postgraduate enrolled in a doctoral degree program. PhD students typically perform original research and write up a dissertation to communicate the results to their peers. In Ukraine universities also require PhD students to take exams as part of their course.

A PhD student schedule is dependent on the field, supervisor and subject area; students may have classes alongside their dedicated research time. However, there are some things that are common for every PhD student in order to obtain a doctorate.

A typical PhD programme involves a combination of coursework and independent research. Students are expected to build upon their existing knowledge by taking advanced courses in their discipline or related areas, while also conducting original research that contributes to the larger body of knowledge in the field. The PhD programme provides for attending seminars, taking qualifying exams in the core subjects, in philosophy and English, preparing research publications and reports on the work carried out.

The PhD dissertation is a substantial document that presents original research and analysis in a specific field. It is the culmination of years of hard work, dedication, and focus on a

particular topic and research issue. The dissertation should demonstrate the student's mastery of their chosen field of study and their ability to communicate their findings effectively. A thesis should also present an innovative contribution to the existing body of knowledge on the subject.

In order to qualify for the PhD, a candidate must complete all of the program coursework requirements and write and defend a dissertation that presents original research. The dissertation must be approved by their faculty dissertation committee in order to complete the degree and further defended before the Academic Council. If the dissertation meets all necessary requirements the Academic Council takes the decision to award the postgraduate the PhD degree.

Regardless of the field, completing a PhD is an impressive accomplishment that requires tremendous effort over an extended period of time. As a degree holder a person may pursue research or teaching positions in universities, as well as leadership roles in private businesses. Having a PhD degree is a mark of distinction that can give an advantage career-wise. A PhD degree can also provide the holder with the skillset to become an expert in the field, allowing to become an authority on certain topics.

Text 2

THE SCIENTIFIC ATTITUDE

Science is the range of disciplines which seek to answer questions about the world. Scientific research can be used to solve real world practical problems or it can be of purely academic nature.

The spirit of enquiry and exploration lies at the root of science. Scientific investigations build scientific knowledge by providing information about how a system operates under a specific set of conditions. Science has no place for unquestioned acceptance of claims. Being rational and loyal to facts forms the essential grain of scientific thinking. A person with a scientific temper is not quick to conclude based on what is told and is open to ideas being refuted by evidence. Scientific attitude comprises objectivity, critical thinking, and open-mindedness.

A scientific attitude is an attitude that is indicated by the existence of logical thinking based on facts and considered according to the basic scientific theory. This includes *critical attitude* (handling discourses from unprejudiced point of view), *logical attitude* (application of logical principles, rigorous standards of evidence, and careful reasoning to the analysis and discussion), *curious attitude* (pertinent and habitual curiosity, an active desire to learn or to know), *systematic, procedural attitude* (using systematic observations and following rules and requirements) and *consistency*.

Scientific attitude can be also defined as a tendency to think and act in certain ways, such as establishing cause-and-effect relationships, being willing to change one's views based on evidence, and questioning assumptions. Some key characteristics of scientific attitude are objectivity, open-mindedness and honesty. The examples of ways and techniques to develop these attitudes in PhD students include wide reading, studying superstitions, hands-on activities, and the personal influence of their teachers. Developing a scientific mindset will help students think critically and reject dangerous ideas like fanaticism.

The major components of a scientific attitude are making initial observations, asking questions, and collecting or finding evidence. Since critical thinking is using facts to formulate thoughts about something, all of those scientific attitudes in action relate to critical thinking: critical-mindedness, suspended judgement (scepticism), respect for evidence (reliance on fact), honesty, objectivity, willingness to change opinions, open-mindedness, questioning attitude, and tolerance of uncertainty. They allow scientists to consider all possibilities and systematically question all information in the course of research.

Consequently, intellectual honesty and open-mindedness are built-in components of scientific thought. Scientific thinking is the process of reviewing ideas using science, observations, investigational processes, and testing them to gain knowledge. The goal of scientific thinking is to make outcomes of knowledge that may be meaningful to science.

Text 3

THE SCIENTIFIC METHOD

The scientific method is a systematic and rigorous approach used by scientists to investigate the natural world, develop explanations, and test their validity. It's a base of scientific inquiry, designed to minimize bias and ensure that findings are reliable and reproducible. Rather than relying on assumptions or personal beliefs, the scientific method emphasizes empirical evidence and logical reasoning.

The process typically begins with observation, where a researcher identifies a specific problem or question. This is followed by formulating a hypothesis, which is a testable prediction that offers a possible explanation for the observed phenomena. Once a hypothesis is established, experiments are designed to test its validity. These experiments must be conducted under controlled conditions to ensure reliable results. Observations can be made in a variety of ways – through direct sensory experiences, existing research, or unexpected phenomena that challenge current understanding. These initial observations spark curiosity and set the foundation for further investigation.

Data collection is a crucial phase, researchers gather quantitative or qualitative information from their experiments. After data collection, analysis is performed to determine whether the evidence supports or refutes the hypothesis. This may involve statistical analysis or other methods to interpret the data effectively.

If the hypothesis is supported, it may be further tested and refined through additional experiments. If it is not supported, the researcher may return to the drawing board to revise the hypothesis or explore alternative explanations. The final step involves sharing results with the scientific community, often through results of the experiment are shared with the broader scientific community via peer-reviewed publications, allowing others to replicate the findings and contribute to the ongoing dialogue in the field.

The final step in the scientific method is communication. Once a conclusion has been reached, the unity, typically through

peer-reviewed publications. Peer review is an essential aspect of the scientific process, as it allows other experts in the field to evaluate the validity of the findings, assess the methodology, and suggest potential improvements. Sharing results also invites others to replicate the experiments, contributing to the robustness and credibility of the findings.

The scientific method is foundational to scientific inquiry, emphasizing critical thinking, scepticism, and empirical evidence. It encourages continuous questioning and exploration, which are essential for advancing knowledge and understanding in various scientific disciplines.

Text 4

PURE AND APPLIED SCIENCE

Science is often divided into two main categories: pure science and applied science. Both types play an essential role in the advancement of human knowledge and technology, but they have different goals and approaches.

Pure science is focused on expanding knowledge for the sake of understanding the natural world. It is often referred to as "basic" or "fundamental" science because it aims to discover new facts, principles, and theories. Researchers in pure science are not immediately concerned with how their findings might be used in the real world. Instead, they seek to answer fundamental questions about the universe, such as how atoms behave or how cells work. Examples of pure science include fields like physics, chemistry, biology, and astronomy. For instance, a physicist might study the properties of light without any immediate plan for practical applications.

In contrast, applied science builds upon the foundational knowledge established by pure science to address practical, real-world challenges. Applied scientists leverage the theories and principles uncovered by pure science to innovate and create new technologies, treatments, and methodologies. For instance, an applied physicist may apply the principles of light studied in pure science to enhance communication systems or develop advanced medical devices. Disciplines such as engineering, medicine, and environmental science exemplify applied science in action. Researchers in these fields focus on solving concrete problems, striving to enhance human well-being by meeting specific societal needs.

Although pure and applied science are distinct fields, they are inherently interconnected. The breakthroughs made in pure science often serve as a catalyst for innovations in applied science. Conversely, the practical challenges encountered in applied science can generate new research questions and drive further exploration in pure science. For instance, the development of novel medical treatments may prompt investigations

into the underlying mechanisms of diseases, sparking new avenues of research in biology or chemistry.

In conclusion, both pure and applied science are indispensable for advancement. Pure science lays the groundwork for understanding, while applied science takes this knowledge and transforms it into tangible solutions that enhance our daily lives. Together, they propel innovation and deepen our comprehension of the world around us.

Text 5

ACADEMIC RESEARCH

Today's technology has vastly improved our access to knowledge. As such, this has contributed to the production of notable academic research. Research is a common activity in academic institutions all over the world. Also called basic, scientific or scholarly research, academic research is defined as research that has the purpose of creating or furthering knowledge or using existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings. This could include synthesis and analysis of previous research to the extent that it leads to new and creative outcomes.

In many cases, academic research is contrasted to professional research, called applied research as it is carried out to find solutions to practical problems.

Research is systematic exploration of natural or social phenomena. It consists of identifying a problem or a phenomenon which needs explaining, making observations and collecting data, proposing an explanation, making a hypothesis based on that proposed explanation and then finally testing those predictions, analysing the data and drawing conclusions. So, the goals of research are to describe, explain and predict.

Academic research tends to be theoretically focused, and its findings are evaluated through a peer review process and made public through scholarly journals and academic conferences. Academic research writing involves more than just choosing a topic, collecting and analysing data, and leveraging academic writing tools. To be considered academic, research must meet certain criteria.

A sound research question is one of the most important characteristics of research. With a clear research question, researchers can design a study and develop a *scope of work* sample that includes selecting appropriate participants, determining the measurement instruments, collecting and analysing data, and drawing conclusions based on the results. As such, numerous frameworks like the *FINER* (*Feasible, Interesting, Novel, Ethical, Relevant*) criteria have been invented to help researchers

formulate sound research questions. In most cases, research questions and objectives play a significant role in defining the most appropriate research methodology to use.

A good **research methodology** is another quality of research. It refers to the systematic procedures or techniques a researcher uses to ensure that his study achieves valid, reliable results. Research methodologies are often classified into *qualitative research* (subjective, seeking a human's experience as a narrative; involves collecting and analysing subjects' beliefs, experiences, and behaviours: interviews, focus groups, and case studies), *quantitative research* (objective, seeking to statistically make inferences about a sample to generalize; involves the collection and analysis of numerical data to discover patterns, test relationships, and make predictions), and *mixed-methods research*.

Scientific research is often referred to as a creative process because it involves novel ways to test ideas that can lead to new ideas and information. It can be conducted in a clinical or laboratory setting and it can function as *explanatory, exploratory, or descriptive*. Also, research can be grouped into different categories based on various factors. It can be *observational* or *empirical (experimental)*.

Both theory and observations are essential components of scientific research. Theories that stand up to their tests are retained and refined, while those that do not are discarded or modified. In this way, research enables scientists to separate fact from simple opinion. Relying solely on observations for making inferences and ignoring theory is not considered valid scientific research.

Academic research has several uses and purposes: documentation, discovery, innovation and renewal, providing logical solutions to problems, forecasting the future, etc. Mostly, it is used in the scientific community to advance knowledge about a variety of scientific areas. For instance, educators use it to create educational and vocational training programs as well as identify the best teaching practices. Having good information generated from research aids in making wise decisions both in public policy and in our personal lives.

Text 6

RESEARCH PAPERS AND REPORTS

Academic writing is a formal style of writing used in universities and scholarly publications, encountered in journal articles and books on academic topics. PhD students are expected to write their essays, research papers, and dissertation in academic style. In general, academic writing is formal and unbiased, clear and précised, well-structured and focused; it is well-sourced, correct and consistent.

Research papers are similar to academic essays, but they are usually longer and more detailed assignments, designed to assess not only students' writing skills but also their skills in scholarly research. Writing a research paper requires PhD students to demonstrate strong knowledge of their topic, engage with a variety of sources, and make an original contribution to the debate.

Scientific writing is often a difficult and arduous task for many PhD students. However, effective writing can deepen understanding of the topic at hand by compelling the writer to present a coherent and logical narrative that is supported by previous research and new results.

Scientific research is important because it is the best systematic approach developed to determine what is true in the world. When practiced properly, it is the least prone to biases and the most likely to approximate how things work in the world around us. Writing about science as a narrative is often not done properly, largely because students were not probably taught to remain dispassionate and impartial while communicating scientific findings. The purpose of scientific writing is not explaining what scholars did or what they learned, but rather what they want their audience to understand. Successful writing starts with researching how the work fits into existing literature, crafting a compelling story, and determining how to best tailor a message to an intended audience.

Clear scientific writing generally follows a specific format with key sections: an introduction to a particular topic, hypotheses to be tested, a description of methods, key results, and finally, a

discussion that ties these results to broader knowledge of the topic. This general format is inherent in most scientific writing and facilitates the transfer of information from author to readers.

Scientific papers are for sharing original research work with other scientists or for reviewing the research conducted by others. As such, they are critical to the evolution of modern science, in which the work of one scientist builds upon that of others. A research paper is a piece of academic writing that provides analysis, interpretation, and argument based on in-depth independent research.

Unlike scientific papers, the purpose of a science report is to clearly communicate your key message about why your scientific findings are important. In order to do this, you need to explain why you are testing a hypothesis, what methodology you used, what you found, and why your findings are meaningful. Scientific reports must reflect the fundamental process of doing science – they must be objective and accurate, and must rely on facts, ideas, and thinking that are consonant with scientific professionalism.

There are always philosophical challenges in making distinctions among different professional or scientific discourses, but the various types of discourse have their own special ways of speaking, special frameworks for understanding the different expectations between scientific writing and literary or creative writing due to many particular components of a written work – its purpose, scope, audience, voice, use of language, style, and so on.

Text 7

SCIENTIFIC COMMUNICATION

Scientific communication plays a crucial role in bridging the gap between scientists and the public. It involves conveying complex scientific information clearly and accurately to diverse audiences, including researchers, policymakers, and non-experts. Effective communication not only helps build public trust in science but also enables informed decision-making on critical issues such as climate change, healthcare, and technology.

One of the main reasons scientific communication is essential is its ability to make complex information accessible. Scientific discoveries often involve specialized knowledge and technical language that can be difficult for non-experts to understand. By translating these findings into simpler terms, scientists can help the public grasp the significance of new research and its potential impact on society. For example, during the COVID-19 pandemic, clear communication from scientists and health officials was vital in helping people understand the importance of vaccines, masks, and other preventive measures.

Another key aspect of scientific communication is its role in combating misinformation. In the digital age, false information can spread rapidly through social media and other online platforms. Effective communication from credible sources can help counteract misinformation by providing accurate and reliable information. When scientists actively engage with the public, they can correct misconceptions and prevent the spread of misleading claims.

Additionally, scientific communication fosters greater transparency and accountability in research. When scientists share their findings openly and explain their methods clearly, it becomes easier for others to evaluate the validity of their work. This transparency builds trust and encourages further research and collaboration across disciplines.

Despite its importance, scientific communication faces several challenges. One of the most significant is the use of jargon and technical language. Scientists often use specialized termi-

nology that can confuse non-experts, making it difficult for them to understand the main points. Simplifying language without losing accuracy is a delicate balance that many scientists struggle to achieve.

Another challenge is the rise of misinformation and distrust in science. Conspiracy theories and false claims can easily overshadow accurate information, especially on social media platforms. Scientists need to actively engage with the public to correct these falsehoods and rebuild trust in scientific institutions.

Time constraints also pose a challenge. Many researchers have demanding schedules that leave little time for public communication. However, if scientists neglect this responsibility, their findings may remain confined to academic circles without benefiting the broader public.

To overcome these challenges, scientists can adopt several effective strategies for communicating their findings:

Simplifying Language: Using clear and straightforward language is essential when addressing non-experts. Avoiding jargon and breaking down complex concepts into simpler terms can make scientific information more understandable.

Storytelling Techniques: Presenting scientific findings as stories with clear beginnings, middles, and ends can make them more relatable and memorable. For example, explaining a medical breakthrough by describing a patient's journey can help the audience connect emotionally with the information.

Visual Aids: Graphs, infographics, and videos can help convey complex data more effectively than text alone. Visual representations can simplify statistics and show trends clearly, making the information easier to grasp.

Engaging on Social Media: Social media platforms offer powerful tools for reaching a wide audience quickly, like Twitter, YouTube, or Instagram.

Active Listening: Effective communication is a two-way process. Scientists should not only share information but also listen to the audience's concerns and questions. Addressing these questions openly can help build trust and credibility.

Scientific communication is an indispensable part of modern society. It ensures that scientific knowledge reaches a broad audience, supports informed decision-making, and helps counteract misinformation. By adopting clear language, storytelling techniques, visual aids, and active engagement, scientists can communicate their findings more effectively and foster a better understanding of science in society. In doing so, they contribute to a more informed and scientifically literate public, capable of making sound decisions for the future.

Text 8

ACADEMIC INTEGRITY

Academic integrity is the practice of being honest, ethical, and responsible in all aspects of academic work. It is a core principle in educational settings that promotes fairness and trust among students, teachers, and researchers. Maintaining academic integrity involves ensuring that all work is completed honestly and that the work of others is properly acknowledged and cited. This includes avoiding dishonest practices such as plagiarism, cheating, and falsifying research.

Plagiarism occurs when a person uses someone else's words, ideas, or work without giving proper credit. This can include copying and pasting information from the internet, submitting someone else's paper as your own, or not properly citing sources. It is essential to understand that even paraphrasing someone else's ideas without proper citation can be considered plagiarism. By always providing proper citations and references, students can avoid this unethical behaviour.

Cheating is another violation of academic integrity, often seen in exams, assignments, or group projects. It can involve using unauthorized resources during an exam, collaborating with others inappropriately on individual assignments, or submitting work that was not completed by the student. These actions not only undermine the educational process but also violate the trust that is essential in academic environments.

In addition to plagiarism and cheating, fabricating data is also a breach of academic integrity. This can happen in research, where students or researchers create false data or results to make their work seem more credible or successful. Academic integrity requires that all research and findings are reported truthfully and accurately, even if the results are not what was expected.

Maintaining academic integrity is important for several reasons. First, it ensures that all students and researchers are treated fairly. When everyone follows the same rules and standards, no one has an unfair advantage. Second, academic integrity helps build a trustworthy learning environment where

ideas and knowledge are shared with respect. Finally, it ensures that academic achievements are meaningful and credible so that future work can rely on the integrity of past research and findings.

Educational institutions have clear policies and guidelines to promote academic integrity. These rules are designed to protect the value of academic qualifications and ensure that students' work is original. Violations of academic integrity can result in serious consequences, such as failing grades, academic probation, or even expulsion. Therefore, students must understand and adhere to these standards to maintain their academic reputation and contribute to a positive and fair learning environment.

In conclusion, academic integrity is a crucial part of education. It requires students to act with honesty, respect, and responsibility in their academic work. By understanding and practicing academic integrity, students not only uphold the values of their institution but also prepare themselves for future success based on their own abilities and efforts.

Text 9

SCIENCE AND INTERNATIONAL COOPERATION

International cooperation in science refers to the collaborative efforts between countries, organizations, and institutions to advance scientific research, share knowledge, and address global challenges. Here are the most essential points:

Global Challenges: Many scientific issues, such as global security, proxy wars, cyber warfare, climate change, pandemics (COVID-19), biodiversity loss, and space exploration, require collective action due to their global nature. No single country can solve these problems alone.

Knowledge Sharing: International collaboration allows scientists to share data, expertise, and resources. This accelerates research, promotes innovation, and helps avoid duplicating efforts. International cooperation fosters the development of extensive *global research networks*, which allow scientists to tap into diverse expertise and resources. Networks such as The Human Genome Project, Global Health Initiatives, and International Polar Year bring together researchers from various countries to share data, insights, and methods. These collaborations lead to groundbreaking discoveries and solutions that individual countries may not be able to achieve independently.

Collaborative Databases: Many scientific projects rely on large, shared databases accessible to the international community. Examples include the Global Biodiversity Information Facility (GBIF) and the International Cancer Genome Consortium (ICGC). By centralizing data, these platforms enable researchers worldwide to analyse trends, test hypotheses, and build on each other's work.

Open Access and Publication: Many international collaborations encourage open access to scientific publications, making knowledge freely available to everyone. Open-access journals and preprint servers (arXiv, bioRxiv) are examples of platforms that allow researchers from any part of the world to access cutting-edge research without barriers.

Cross-Cultural Exchange: Knowledge sharing also promotes cross-cultural exchange, as scientists from different cultural and regional backgrounds bring diverse perspectives to problem-solving, helping to avoid biases and improving the robustness of research outcomes.

Funding and Resources: Pooling resources from multiple nations enhances the financial and material support available for large-scale projects: the European Organization for Nuclear Research (CERN) or the International Space Station (ISS). This helps in tackling research that is too costly or complex for a single country.

Collaboration Platforms: Scientific organizations such as the United Nations (UN), World Health Organization (WHO), and the International Panel on Climate Change (IPCC), as well as multinational research collaborations like the European Space Agency (ESA), play key roles in fostering international science cooperation.

Policy and Ethical Standards: Global cooperation helps in aligning research standards, ensuring ethical guidelines are followed, and addressing concerns like intellectual property rights and data privacy.

Impact on Development: Scientific collaborations can drive technological advancements and contribute to economic development, particularly in emerging nations that may lack the infrastructure or resources for cutting-edge research.

Diplomatic Relations: Science diplomacy – where science is used as a tool for international relations – can strengthen ties between countries, creating bridges and fostering peaceful collaboration.

International cooperation in science is essential for addressing pressing global issues, advancing knowledge, and ensuring equitable access to scientific benefits. Knowledge sharing, maintaining ethical standards, and fostering development through international scientific cooperation are essential to addressing global challenges. These efforts not only drive innovation and advancement but also promote equality, sustainability, and the wellbeing of communities worldwide.

Text 10

SCIENCE AND THE FUTURE

Science has always played a crucial role in shaping the future. Over the past century, scientific discoveries have led to major advancements in medicine, technology, and environmental protection. These developments have improved our quality of life and changed the way we work, communicate, and explore the world.

One of the most exciting areas of modern science is artificial intelligence (AI). AI is being used to automate tasks, improve healthcare, and even assist in scientific research. For example, AI helps doctors diagnose diseases more accurately and develop personalized treatments for patients. However, there are also concerns about how AI might impact jobs and privacy.

Another key scientific field is space exploration. Scientists are working on sending humans to Mars, exploring distant planets, and searching for signs of life beyond Earth. Recent missions to the Moon and Mars have provided valuable information about our solar system and increased our understanding of the universe.

Climate science is also essential for our future. Researchers are studying climate change and developing new technologies to reduce pollution and protect natural resources. Renewable energy sources such as solar and wind power are becoming more common, helping to decrease our dependence on fossil fuels.

Medical science continues to make remarkable progress, offering new treatments and cures for various diseases. Advances in genetics and biotechnology have allowed scientists to develop targeted therapies for cancer and other serious illnesses. Additionally, new vaccines and medical technologies are helping to prevent and treat diseases, improving public health worldwide.

The new paradigm of the scientific and technological revolution has made rapid progress, and the world has entered a new era of innovation with profound changes. Current emphases are

on outer space and genetic control. Creative scientific research and development will become the main activity of humanity.

While science offers many opportunities, it also presents challenges. Ethical questions arise in fields like genetic engineering, AI, and biotechnology. It is important for scientists, governments, and the public to work together to ensure that scientific progress benefits everyone and does not harm the planet.

Science is a powerful force that shapes the future. Whether in medicine, space exploration, AI, or climate science, its impact on our lives will continue to grow. By supporting scientific research and innovation, we can create a better and more sustainable world for future generations.

SUPPLEMENT 2

Article 1

HOW TO SELECT A RESEARCH TOPIC?

Choosing the right research topic is a crucial step in the academic research process. A well-chosen topic can spark interest and lead to a successful research project. Here are some critical considerations for selecting an effective research topic:

Identify Your Interests: Start by exploring areas that fascinate you. Think about subjects you've enjoyed in your courses or issues you are passionate about. A topic that genuinely interests you will keep you motivated throughout your research.

Consider Relevance and Significance: Assess the relevance of your topic to your field of study. Is it addressing a current issue or gap in research? Selecting a topic that contributes to existing knowledge can enhance the impact of your work and attract the attention of readers and researchers alike.

Review Existing Literature: Conduct a preliminary literature review to understand your area's current state of research. This will help you identify gaps, ongoing debates, and under-explored topics. It can also spark new ideas and refine your research question.

Narrow Down Your Focus: Once you have a broad topic in mind, narrow it down to a specific research question. A focused topic will make your research more manageable and provide a clear direction. Ask yourself, "What specific aspect of this topic do I want to explore?"

Seek Feedback: Discuss your topic ideas with peers, mentors, or instructors. Their feedback can provide valuable insights and help you refine your question. They may also suggest additional angles to consider or highlight potential challenges.

Assess Feasibility: Consider the resources available to you, such as time, funding, and access to data. Ensure that your chosen topic can be realistically researched within these constraints. A

feasible topic will save you from unnecessary stress later in the research process.

Align with Assignment Guidelines: If your research is tied to a specific assignment or project, make sure your topic aligns with the provided guidelines. This alignment will help you stay focused and meet the requirements of your academic institution.

By following these steps, you can select a research topic that interests you and contributes to your field. A well-chosen topic sets the foundation for a successful research project, making the entire process more enjoyable and fulfilling.

From Research.com

Article 2

THE STRUCTURE OF A PHD DISSERTATION

Writing a PhD dissertation is a crucial moment in the life of a researcher. This work must meet three main parameters: relevance, practical significance and reliability.

The structure of a dissertation does not depend on its type (doctoral or PhD), as well as on the profile of the work and the topic. The structure of a dissertation consists of nine key elements:

Cover page. The title page of the dissertation contains the full name of the educational institution and its administrative area, the name of the institution or research institution, the author's surname, name and middle name, the title of the research, code, speciality, information about the supervisor, city and year of completion;

Abstract. The abstract of the dissertation is a brief overview of the work in two languages – Ukrainian and English, which includes information about the content and results of the research, the personal contribution of the dissertator, the testing of the results and the number of scientific publications on the topic of the dissertation. The abstract is followed by keywords that reflect the main content of the research.

Table of contents. The table of contents should include the names of the structural elements, their headings with appropriate numbering and page numbers. Sections may contain subsections, paragraphs, and subparagraphs for better organisation of the material and easier understanding by the reader. Headings in the table of contents should not be abbreviated or changed.

List of symbols. The dissertation should include a list of conventions, symbols, units, abbreviations or terms, if they are important for understanding the text, with their decoding at the first mention. Repeated terms are not included in the list to avoid unnecessary burden.

Introduction. In the introduction to the dissertation, you state the essence of the work, justify the relevance of the topic,

formulate the purpose and objectives of the study. Indicate the methods used, what is the scientific novelty and practical significance of the work, and describe the procedure and structure of the research. The introduction in a dissertation should take up no more than 10% of the total text. The structure of the introduction is as follows:

The main part. The main body of the dissertation includes a literature review, a description of trends and methods, a description of the study, a presentation of the results, a comparison with other studies, and a justification for further research. References to scientific works from the abstract should also be included in the list of references.

Conclusions. The conclusions summarise the main scientific and practical results of the dissertation that have solved the scientific problem and provide information on the possible use and implementation of the results. This part takes 5-7 pages or 9-14 thousand characters.

List of references. Here you should create a list of references of your choice, using one of the following methods: in the order of references in the text, in alphabetical order of the names of the first authors or titles, or in chronological order.

Appendices (if necessary). The appendices may include auxiliary material necessary for the full perception of the thesis, such as mathematical proofs, tables of digital data, test reports, etc. The volume of the appendices should not exceed the volume of the thesis, and they can be placed as a separate part. The 2020 standards allow the use of both alphabetical order and sequence of mention in the thesis when placing the appendices.

*From "Scientific Papers":
'PhD dissertation: features and requirements'*

Article 3

WHY DRINKING COFFEE CAN BENEFIT YOUR HEALTH

A cup of coffee is the first thing many of us reach for in the morning to get our caffeine fix. We've been drinking it for centuries, and an increasingly large body of research shows that drinking that cup of coffee can actually do us some good.

It's now been shown that coffee could have a protective effect on our health, and studies have linked drinking it to a reduced risk of some cancers, including colon, reptile, and breast cancer. Other health benefits have also been found. In one study of half a million coffee drinkers over a period of 16 years, those who drank more also had a lower risk of dying from heart disease and cancer, as well as an overall lower risk of death. Three cups per day was found to be optimum for the protective benefits. As many of these studies are correlational, we don't know exactly why coffee is so beneficial, but there are several compounds that could play a role in improving our health.

Coffee contains polyphenols. These are antioxidants, also found in many fruits and vegetables, which have a protective effect. One of these polyphenols, chlorogenic acid, can help protect against anxiety and depression. It contains fiber and prebiotic compounds, which nourishes our gut microbiome. It's rich in bioactive substances, one of which is caffeine, which has been shown to boost feelings of alertness, our metabolism, and stimulates our mood. Of course, if you drink too much, it could have adverse effects, such as dizziness and difficulty sleeping. And for those who prefer not to consume caffeine, decaf coffee still contains antioxidants. So, as you drink your morning cup of joe, know that doing so could help you live longer.

From A BBC Studios

Article 4

LEARNING A NEW LANGUAGE IS HARD, BUT YOUR BRAIN WILL THANK YOU

Every night, no matter how exhausted I am, I carve out at least 5 to 10 minutes for a quick lesson on my language learning app. I might not be fluent yet, but according to the experts, my daily lessons have serious brain-boosting benefits. "Learning a new language can be immensely helpful for cognitive health, particularly as we age. This is because language learning engages a wide range of complex cognitive abilities, including memory, attention, and problem-solving, which can help to create and strengthen connections in the brain", explains Dr. Roy Hamilton, MD, trustee of the McKnight Brain Research Foundation.

The benefits go beyond protecting the brain against the effects of aging. Experts also note that language learning can help foster social connections and empathy. We are all citizens of the world, and it's important for us to stay connected with other cultures and people from different backgrounds.

Of course, knowing the benefits doesn't necessarily make the process easy. Learning a new language takes time, practice, and diligence. Even if you stick with it every day for a long time, it can still be a struggle. But that's exactly why learning a new language can be so beneficial. It challenges your brain in unique ways that, ultimately, help your mind stay healthy and strong.

According to psychotherapist Kristie Tse "Learning a new language has profound benefits for brain health. It encourages the brain to be flexible and adaptable, as it requires quick thinking and problem-solving skills to comprehend and construct new sentences".

Cognitive Benefits. Learning a new language doesn't just make you sound smarter. In one analysis, 90% of the studies they examined found that learning a new language leads to improvements in other academic subjects as well. Dr. Hamilton also points to research findings showing that people who speak two or more languages have a delayed onset of dementia compared

to those who only speak one. "Speaking more than one language may improve so-called executive functions, such as the ability to switch fluidly between mental tasks, and may even positively impact other cognitive skills like visual-spatial abilities and reasoning", Dr. Hamilton says.

Emotional Benefits. On an emotional level, developing new language skills can also give you a greater sense of confidence and purpose. Such benefits can spill over into other areas of your life. You might not be a polyglot yet, but tackling one language can give you the boost in self-efficacy you need to keep working toward your language-learning goals.

Social Advantages. Hint: Knowing more than one language can be a great conversation starter. People are often interested in learning more about your learning journey. Plus, learning a new language can be a great opportunity to meet new people and forge new friendships over your shared interests. Building these meaningful connections not only helps widen your social circle (and improves your social support system), but it also brings a deeper sense of cultural perspective.

Researchers have found that the brain actually starts to rewire itself in response to learning a new language. Such changes not only challenge your brain, but they can also help you stay more adaptable as you age.

From VeryWELL mind By Kendra Cherry, MEd

Article 5

CHARACTERISTICS OF GOOD RESEARCH

Characteristics of good research outline a few essentials by which a study, at every level, produces trustworthy, meaningful, and useful results. Characteristics maintain the integrity of the research process by ensuring findings apply to a larger body of knowledge.

Objectivity. In research, objectivity generally refers to not holding any biases and remaining neutral in the study's design and interpretation. Studies generally are expected to have no association with some or other preconception, nor with personal contact, so as not to distort data findings in any way.

Reliability. Reliability in research means that there is consistent reproduction of results under similar circumstances. So, a reliable study would provide constant findings over time. This means that the results are not due to random fluctuation or even due to external fluctuation.

Validity. Validity is the degree to which a study measures what it intends to measure. A valid research study reflects accurately the concepts or phenomena under investigation in a manner that conclusions drawn are appropriate and meaningful.

Precision. Accuracy of research is the obtainment of correct data and results that mimic the natural truth of the phenomenon under study. Accuracy is achieved through the precision in measurement and proper data collection, which are significant determinants of good accuracy.

Credibility. Credibility implies that the researcher and his/her research process are trustworthy and expert. In this scenario, only credible research is carried out by being transparent, based on established methods, and supported by evidence from reliable sources.

Generalizability. Generalization is the extent to which the findings of a research study may be transferred beyond the case sampled to a larger population or setting. A good research study

considers sample size and selection so its findings may be reasonably extended to other contexts.

Empirical Research. Empirical research, as opposed to theory or logic, is based on observable and measurable evidence. It involves establishing or proving facts through collecting data, either directly or through experimentation, to answer empirical research questions in a concrete and verifiable way.

Systematic and Logical. Good research is conducted with a systematic and logical approach-all of which have a planned step-by-step process executed on the basis of sound reasoning. Such logic minimizes errors and works out a coherent, clear line from hypothesis to conclusion.

Controlled Factors. Controlling factors in research are controlling variables that may interfere with the results, ensuring that only what the study intends to is being tested. By controlling extraneous factors, researchers are able to isolate the independent variable's effects on the dependent variable.

Cyclical. The research process is cyclical, refining and iterating. Researchers repeatedly return to their questions, methods, and interpretations, often changing their approach in response to new insight or discovery.

Replicable. Replicability is a constituent of good research, meaning that the study may be repeated by other researchers who would get similar results. The replicability of study means that the findings are not due to chance or error, which thereby enhances the reliability and validity of the study.

Overall, proper research would mean that a study is capable of producing reliable, valid, and meaningful results. It starts with a clear and focused research question or hypothesis, which serves as the guide and purpose throughout the course of the investigation. It should be systematic and structured in determining data collection techniques, sampling, and analysis methods while keeping in mind variables, controls, and also ethical considerations. One of the main features that guarantee research free of personal influence and bias is objectivity. This ensures that it gets authentic and unbiased results. It must also be reliable and valid, which means that the results of the study are consistent,

replicable, and truly reflective of the phenomena being investigated.

Good research also places much emphasis on empirical methods, preferring observable and measurable data over speculation and should be flexible enough for new findings to emerge or challenges, changing patterns, and phenomena as the investigation unfolds. It should ultimately make the study generalizable so that its findings may be applied even beyond the sample or particular context. This contributes to more generalized knowledge in the discipline.

From "Qualities of Good Academic Research"

Article 6

ACADEMIC DISCOURSE

Academic discourse is a technical form of writing and speaking that communicates scientific information to other scientists in a document, book or presentation. It requires a lot of research and exact wording and can include grant requests, peer reviews and summarized findings. Scientific writing has certain features that help set it apart from other technical documents and styles of writing. These features typically include:

Precision. Scientific writing relies on unequivocal accuracy, as the mission of a scientific document is to provide relevant and factual information to the scientific community. Precision in scientific literature can take the form of the following writing elements:

Objectivity: A scientific paper takes an objective viewpoint toward the subject, meaning that it doesn't offer the author's opinion. Instead, the author focuses on presenting and analysing facts.

Thoroughness: Scientific writers offer as many details in their publications as are necessary for their readers to thoroughly understand the subject.

Exact language: A scientific paper minimizes the use of figurative or imaginative language. Scientific writers use words and phrases that convey their literal meaning.

Clarity. Scientific writers typically write for their peers, but even scientists expect clarity in the writing. The writer clarifies the meaning of any uncommon terms and summarizes the results of the writing in a way that anyone can understand. Writers explain any experimentation and its results, using the metric system for measurements to ensure consistency and readability for a worldwide audience. Clarity also helps the writer establish a trusted voice within the scientific community.

Peer reviews. Some scientific documents contain peer-reviewed changes or information directly within the document. Colleagues in the same industry often review one another's work to verify the results of experiments, confirm hypotheses or hold

one another accountable for honesty and clarity. Typically, a writer includes any peer requests or findings in revised versions of the document to uphold their commitment to honesty and integrity in the face of new information.

Primary audience. A scientific document is almost always for a specific audience. Good scientific writing includes information that applies to the audience and is easy to understand. This requires a good balance of scientific terms and common language to ensure readability.

Formal language. Keeping language formal in scientific writing helps maintain professionalism on behalf of the writer. Using common language can help appeal to a larger audience, but be mindful of the words and phrases you use in your writing. You can use synonyms for simple words and avoid things such as slang or idioms. Formal language also includes proper punctuation and grammar, so check your work before you submit it.

Organization. Scientific papers follow a clear organizational structure. Here's the standard organizational system for a scientific paper:

Introduction: The introductory section provides the audience with the background information they need to know to understand the purpose and findings of your scientific inquiry. An introduction also gives you an opportunity to explain the unique value of your study and findings.

Materials and methods: This section explains how you conducted your study or experiment. A section on your materials and methods offers enough details that someone else could potentially recreate your experiment.

Findings: The results section provides an objective explanation of what you discovered during your study or experiment. In this section, scientific authors summarize all the relevant qualitative and quantitative from their various charts, graphs or other data findings.

Discussion: The discussion section gives you a chance to interpret the potential implications of your study or experiment. If someone might draw multiple theories from your results,

discuss all of these possible interpretations and give an outline for potential future studies.

Conclusion: In your conclusion, reiterate the main points of your paper and explain the significance of your studies or experiment.

Awareness of existing scientific literature. Most scientific authors express their awareness of the existing body of scientific literature and knowledge pertinent to their studies. Science is a continually evolving field where professionals continually make new discoveries, studies, connections and experiments based on the findings of previous scientists. A scientific author references the existing studies or experiments related to their findings and explains how their research connects to, revises or builds upon previous knowledge.

Scientific writing is important because it helps communicate the findings of scientists; it is a form of communication used to transmit scientific ideas. Written texts can survive for thousands of years which makes written information very durable.

From "Characteristics of Scientific Texts"

Article 7

ENCOURAGE YOUR AUDIENCE TO PARTICIPATE

Even though the goal of going to a conference in a different country is to meet new people, attendees still end up networking, and sitting next to the people they know.

Maria Giudice who was the opening speaker at the Frontiers of Interaction conference had a wonderful and warm strategy for getting people to open up to each other. Maria's talk was on The Rise of the DEO, an executive who embraced design thinking. She started her talk by mentioning the importance of giving hugs as a leader. She then pushed the point further, by persuading EVERYONE in the audience to take 5 minutes to give at least 3–5 people they didn't know the audience a hug.

Sure, the first hug was a little awkward because I was hugging someone who was more than a foot taller than me. But over the 5 minutes, myself and others opened up and really enjoyed it. In fact, it ended up making the conference a lot more cordial. On the second day of the conference, I noticed people continuing to meet in the hallways and hug new people!

We all know that at some point during our talk, people in the audience will pull out their mobile phones or laptops. We don't know if this means they are tuning out or tweeting about us. Micael Dahmén began his talk by encouraging participants to pull out their mobile phones and send a message to someone they were thinking about while at the conference. He circled back at the end and asked if anyone had received a reply. The audience interaction doesn't always have to be correlated to the content of your talk.

DON'T BE AFRAID TO TELL YOUR STORY. Since attendees are coming from all over the world, we cannot assume they know anything about who we are or the work we've done. Soulaïma Gourani did a great job of weaving in stories from a number of her previous roles into her talk. She even admitted to being fired 3 times! Sharing her successes and failures, gave audience mem-

bers a sense of her rich background while learning from her experiences. Take the time to identify a few events in your life that flow well, and leave audiences with a sense of who you are. Don't just focus on what your company does or the product it sells.

HANDLING TECHNICAL GLITCHES WITH GRACE. I really loved the way both Soulaïma and David Rose, the author of *Enchanted Objects*, handled themselves when their slides just wouldn't show up or advance. Soulaïma apologized that the audience couldn't see her visuals, but proceeded to speak without missing a beat. It showed how strong her narrative was, and that she could deliver a killer speech without slides. While David, ditched the clicker and gave the A/V person a simple cue to advance the slide by snapping. People weren't distracted and were impressed by his creative approach. Don't rely on slides, demos, or videos. Get comfortable going off the script.

YOUR ACCENT IS ONE OF MANY. If you usually feel self-conscious about your accent, presenting amongst other speakers whose first language isn't English, will put you at ease. The audience is already primed to hear a variety of accents, and yours ends up bringing out your personality.

Plus, audiences tend to be a lot more forgiving on pronunciation when English isn't their first language. They also pay closer attention to what the speaker is saying! For native speakers like myself, you realize the importance of slowing down and avoiding too many colloquialisms.

From "What I've learned from Speakers Around the World"

Article 8

HOW ELECTRIC VEHICLES COULD IMPROVE OUR MENTAL HEALTH

The link between air and noise pollution and mental health, I think, is a commonsensical one, and once we hear about it, we do relate to it. There are lots of physical health impacts of traffic pollution and emissions on human health. But people are surprised when they hear about how mental health can also get severely impacted.

There are associations with anxiety and mood disorders like depression. We have very strong evidence that neurodevelopmental disorders are severely affected because of poor air quality. Noise pollution is also something that has been underappreciated.

In bigger cities, there is constant auditory as well as visual stimulation. Perinatal women in particular, are likely to experience low birth weight if exposed to very loud noise. Young children feel particularly disturbed by surroundings that are not peaceful. So, it disrupts their cognitive and emotional processes.

It is an adverse experience to be constantly bombarded with high levels of sounds of all sorts. As someone who is pretty noise-sensitive themselves, I'm embracing the shift to quieter mobility. So electric power adoption for transport is racing ahead of other alternatives like hydrogen or ammonia as fuels. Wide-scale adoption of electric vehicles is going to help mental health because it's going to produce cleaner air and less noise in cities. And those can be stress factors for many of us. Right now, about 10% of the cars sold worldwide are electric vehicles, with the market share doubling every year and a half.

Less noise in general is a very positive thing for a very busy, loud urban setting. In developing countries, there is unregulated vehicular pollution. There is a massive expansion of the economy. So, developing countries need to embrace electric vehicles much more. If there is a challenge, it's just translating the technology into those accessible, affordable forms. Electrifying two-

and three-wheel transport like electric motorbikes and electric rickshaws gets really effective. We're seeing a host of great innovations happening in those aspects. We are looking at a cleaner environment where nobody is inhaling vehicular fumes. It will be a population level enhancement of health. We're going to see within a decade even better, lighter battery technologies. And I'm pretty sure it's going to dominate all the lighter forms of road transport that it can. Investment needs to happen in order for these technologies to become accessible to people. And the case needs to be built that in the overall development of transport policies, mental health should also be factored in.

From A BBC Studios Natural History

Article 9

EDUCATION TRANSFORMS LIVES

Education transforms lives and is at the heart of UNESCO's mission to build peace, eradicate poverty and drive sustainable development. It is a human right for all throughout life. The Organization is the only United Nations agency with a mandate to cover all aspects of education. It has been entrusted to lead the Global Education 2030 Agenda through Sustainable Development Goal 4.

UNESCO provides global and regional leadership in education, strengthens education systems worldwide and responds to contemporary global challenges through education with gender equality as an underlying principle.

Digital technologies have evolved from stand-alone projects to networks of tools and programmes that connect people and things across the world, and help address personal and global challenges. Digital innovation has demonstrated powers to complement, enrich and transform education, and has the potential to speed up progress towards SDG 4 for education and transform modes of provision of universal access to learning. It can enhance the quality and relevance of learning, strengthen inclusion, and improve education administration and governance. In times of crises, distance learning can mitigate the effects of education disruption and school closures.

The strategy supports human-centred innovation in the use of technologies for education to help ensure equitable and inclusive quality education and lifelong learning opportunities for all. Technology should be designed to serve people in accordance with internationally agreed human rights frameworks and principles. The strategy aims to nurture and scale up technological innovations in education that contribute to more just, equitable, peaceful and sustainable knowledge societies.

In order to support Member States' efforts to harness technological innovation for education, the strategy is articulated around three intersectoral and interconnected functions, each of

which has priority action areas. These include (i) observatory of technological transformations in education; (ii) technical assistance and capacity development and (iii) development and implementation of standard-setting instruments.

The rapid development of Artificial Intelligence (AI) is having a major impact on education. Policy-makers and educators have entered uncharted territory that raises fundamental questions on how the future of learning will interact with AI. Advances in AI-powered solutions carry enormous potential for social good and the achievement of the Sustainable Development Goals. Making this happen requires system-wide policy adjustments and calls for robust ethical oversight as well as in-depth engagement with practitioners and researchers globally.

The growing use of novel AI technologies in education will only benefit all of humanity if – by design – it enhances human-centred approaches to pedagogy, and respects ethical norms and standards. AI should be geared to improving learning for every student, empowering teachers and strengthening learning management systems. Beyond this, preparing students and all citizens to live and work safely and effectively with AI is a shared challenge at global level. Future learning and training systems must equip all people with core AI competencies, including understanding of how AI collects and can manipulate data, and skills to ensure safety and protection of personal data. Finally, AI by nature transcends the sectors, the planning of effective AI and education policies requires consultation and collaboration with stakeholders across disciplines and sectors.

AI and education: Guidance for policy-makers' is developed within the framework of the implementation of the Beijing Consensus, aimed at fostering AI-ready policy-makers in education. It adds to the growing body of UNESCO's intellectual work in the field, and will be of interest to a range of practitioners and professionals in the policymaking and education communities. It aims to generate a shared understanding of the opportunities offered by AI for education, as well as its implications for the essential competencies required by the AI era.

From UNESCO Articles on the Global Education

Article 10

INVESTING IN THE FUTURE

Modern science has its beginnings in Europe with the natural philosophy of Galileo Galilei and Sir Isaac Newton at a time when scientific theories became independent of the constraints of religion and theology. Moreover, with the foundation of scientific academies (notably the Accademia dei Lincei, the Royal Society and the Académie des Sciences) Europe returned to the ancient Greek ideal of a place where thoughts and theories could be exchanged without restriction. Since the 16th century, European science has been flourishing, largely because of its close ties with the humanities in a multicultural society.

Scientific research and technological advances have made Western Europe one of the strongest economic powers on the planet. But a changing world, particularly population growth in the Third World, is creating hitherto unknown problems for European politics and society. To maintain its social and economic security, Europe will have no choice but to address and ultimately resolve these challenges. Science and technology will play an important role in this process, and the problem is that, unlike the USA, the EU has no long-term strategy or vision of how to pursue research and use this knowledge on a European scale.

Europe's research is still excellent if we take the number of Nobel prizes awarded for natural science as an indicator: 50% of the laureates come from Western Europe. Moreover, more than one-third of the world's scientific publications come from Western Europe, which has even increased its share during the last decade.

The EU is the largest economic market and has the largest Gross National Product in the world. Include the current EU applicants (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Slovenia and Turkey) and its population increases to 540 million, and the GNP to US\$ 8900 billion. Indeed, the EU has the critical mass to perform long-term research that can contribute to the solution of social problems of world-wide impact. However, the

economic power of the EU is not translated into political decision-making regarding science and technology. The EU and the USA spend about the same amount on R&D, but in the USA the funds are more focused and therefore more efficiently spent.

Europe must make a commitment to a long-term strategy for the funding and management of scientific research. Such a vision must take into account the necessity of basic human needs, such as energy, food, health, water, and even the availability of mineral resources – bearing in mind the environmental impact these decisions may have.

The EU depends on imports of important mineral resources of strategic value. At the same time, energy requirement is likely to increase in the future, thus making Europe more dependent on imports of foreign oil and coal. At present, Europe accounts for about 20% of the energy consumption worldwide, while it produces only about 65% of the energy it consumes.

In conclusion, it is time to begin discussing what the public expects from science. If the general areas discussed above are to be covered by a strategic vision for science in the EU, the next step will be to discuss how to identify and include specific topics in this general framework and how to implement them through science, education and the establishment of research infrastructures. I propose that the European Commission prepares a document to be widely publicised and discussed at all levels in the 15 EU member states. Later on, it should be discussed, and eventually approved, by the Heads of State and Governments. Science is important for economic and industrial development, and discussion on a long-term vision should not wait until the European Institutions have been defined. In fact, discussions leading to a European vision of science and technology in the future could contribute to indicating the needs and means for further integration.

From "Articles from EMBO Reports are provided courtesy of Nature Publishing Group"

SUPPLEMENT 3

Tests

Test 1.

Assignment 1. Choose the correct variant.

1. He is ... of science.
a) man b) men c) a man
2. I have ... you need.
a) a book b) the book c) book
3. It is dark here. Will you switch on ..., please?
a) light b) a light c) the light
4. They got ... letters yesterday.
a) a six b) six c) the six
5. ... letters they've got yesterday are from the same person.
a) a six b) the six c) six
6. It is not my ...
a) a fault b) the fault c) fault
7. Jack has not ... in his pocket.
a) a penny b) the penny c) penny
8. Could you pass me ..., please.
a) the salt b) salt c) a salt
9. Chernivtsi is situated on ... river.
a) a Prut b) the Prut c) Prut
10. He is ... talented engineer I have ever met.
a) a most b) the most c) most

Assignment 2. Choose one word that best completes the sentence.

1. The primary ... of science is to find the cause of any natural phenomenon.
a) course b) aim c) object
2. We can formulate the hypothesis on the ... of these facts.
a) foundation b) support c) basis
3. Every new ... deepens our knowledge about the surrounding world.
a) recovery b) opening c) discovery

4. Scientific inventions ... the life of humanity.
a) approve b) improve c) prove
5. We know that the Earth ... of more than one hundred substances.
a) composes b) is made up c) involves

Assignment 3. Complete the sentences so that they make sense.

1. The problem I am investigating now deals with...
2. Much further research is needed...
3. The mechanisms of memory still present ...
4. It seems difficult to analyze the problem...
5. It was quite impossible to obtain accurate data ...
a) ... a very puzzling problem.
b) ... in all its complexity.
c) ... with the existing techniques.
d) ... to study the hereditary factors.
e) ... environmental control in industrial zones

Test 2.

Assignment 1. Choose the correct variant.

1. That's ... I can do for you.
a) the last b) less c) the least
2. To my mind this solution is ... than the other one.
a) reliable b) more reliable c) most reliable
3. I know the facts ... than you do.
a) best b) better c) well
4. He is ... inventor of the present.
a) the talented b) the most talented c) the more talented
5. Where is my book? I remember I ... put it here half an hour ago.
a) put b) putted c) puts
6. My friend ... the show a week ago.
a) sees b) saw c) seed
7. ... you attend the next conference?
a) are...going to b) will c) do
8. Are you sure he called me yesterday? – I am sure he ...
a) had b) does c) did

9. We'll go there if he ... in time.
a) will come b) come c) comes
10. She ... someone to help her.
a) need b) needs c) is in need.

Assignment 2. Choose the word that best completes the sentence.

1. There is no ... between these facts.
a) cause b) attitude c) relation
2. Check all the data...
a) convenient b) available c) impartial
3. These experiments ... his hypothesis.
a) identify b) verify c) establish
4. Scientists always ... the evidence of truth.
a) look at b) look for c) look after
5. Use this information to the fullest ...
a) content b) extent c) intent

Assignment 3. Complete the sentences so that they make sense, translate them.

1. No detailed information about this phenomenon is ...
2. The information the authors have presented here suggests...
3. The bulk of this information has been provided ...
4. This information, though essential, seems too fragmentary...
5. This very valuable information can be used...
a) ...that the changes observed were due to external factors alone.
b) ...so far available in literature.
c) ...as a basis for further intensive research in this area.
d) ...by intensive studies with isolated particles.
e) ...to permit any such conclusions.

Test 3.

Assignment 1. Choose the correct variant.

1. He ... to be here half an hour ago.
a) was supposed b) is supposed c) has

2. Am I ... to call him back?
a) suppose b) supposing c) supposed
3. I promise that the letter ... to you as soon as possible.
a) has delivered b) will deliver c) will be delivered
4. Everybody knows that the Sun is the origin source of all the energy ... in fuels.
a) stores b) stored c) storing
5. The weight of a body ... as the force of gravitational attraction exerted on the body by the Earth.
a) defines b) is defined c) define
6. Detailed attention ... to the problems concerning the experiment.
a) gave b) was given c) will give
7. Generators are usually serviced in the manner ... above.
a) is explained b) explained c) will be explained
8. The new instrument developed at this plant ... in two weeks.
a) is tested b) was tested c) will be tested
9. The principle of this device ... in detail in the previous article.
a) was described b) is described c) will be described
10. The material ... to in this report is difficult to find.
a) referring b) is referred c) referred

Assignment 2. Choose the word that best completes the sentence.

1. To solve this problem you have ... several theorems.
a) to imply b) to apply c) to modify
2. This experiment involves ... of steps.
a) a consequence b) a sequence c) set
3. This explanation does not ... for all your results.
a) answer b) account c) fit
4. The ... of the problem is not quite exact.
a) definition b) conclusion c) adoption
5. Your English has ...
a) modified b) improved c) changed

Assignment 3. Complete the sentences so that they make sense, translate them.

1. The experiments we have performed are...

2. One of the aims of the experiments described here was...
3. The first experiments of this kind were attempted...
4. The experiments performed with this technique provided...
5. As can be concluded from these experiments...
 - a) ...as early as the 1940's.
 - b) ...the first experiments of this kind and, therefore, not fully reliable.
 - c) ...considerable evidence for our assumption.
 - d) ...the current concept is basically correct.
 - e) ...to check the validity of the existing hypothesis.

Test 4.

Assignment 1. Choose the correct variant.

1. Don't enter the classroom. The students...there.
 - a) were examined b) are being examined c) will be examined
2. This time tomorrow you...
 - a) are interviewed b) were interviewed c) will be interviewed
3. This research...still...when I joined the group.
 - a) is being conducted
 - b) was being conducted c) will be conducted
4. These articles ... now.
 - a) are copied b) are copying c) are being copied
5. Jane ... when I entered the room.
 - a) spoke b) was speaking c) was spoken
6. He was looking through the magazine when he... this article.
 - a) was seeing b) saw c) was seen
7. ... "mathematical chemistry" the researcher turned chemistry into precise science.
 - a) created b) being created c) having created
8. The scientist his research, made an outstanding discovery.
 - a) continuing b) was continuing c) being continued
9. This fact... firstly by the famous naturalist, was "re-discovered" 115 years later.
 - a) was being noted b) noted c) was noted
10. A neutron is a particle ...no electrical charge.
 - a) carrying b) carried c) carries

Assignment 2. Choose the word that best completes the sentence.

1. This problem primarily ... with practical application.
a) belongs b) concerns c) confines
2. Don't ... his research; it is worth attention.
a) disgrace b) disregard c) destroy
3. Our results have ... connection to those, reported in his article.
a) appearing b) appropriate c) apparent
4. The solution proposed reveals considerable...
a) limits b) boundaries c) limitations
5. Our test was ... to estimating the temperature.
a) confined b) confirmed c) concluded

Assignment 3 Complete the sentences so that they make sense, translate them.

1. The newly-developed method makes it possible...
2. Paramagnetic resonance techniques...
3. Neutron scattering, known as neutron diffraction appears...
4. Using radioactive dating techniques geologists have suggested...
5. The advantage of this sensitive technique is...
a) ...to be most promising.
b) ...to formulate a number of hypotheses.
c) ... the relative ease with which the components can be separated.
d) ...are frequently used in studies of different states of water in the living cell.
e) ...an appreciably greater age for the Earth than was supposed before.

Test 5.

Assignment 1. Choose the correct variant.

1. His last article ... just ...
a) has been published b) has published c) was published
2. We hoped that some progress ...
a) was made b) made c) had been made
3. The scholars ... a discussion for 2 hours already.
a) have been having b) have c) had had

4. Have some pause in the discussion. – Thank you, we ... some already.
a) have b) had c) have had
5. I was sure I ... him before.
a) saw b) seen c) had seen
6. When he got to the laboratory, the experiment ... yet.
a) did not start b) had not started c) had not been started
7. Your assistant ...us any explanation yet.
a) have not given b) has not given c) has not been given
8. We ... our research by next year.
a) shall complete b) shall have completed c) shall be completing
9. This is the most exciting discovery I ... about.
a) ever heard b) have ever heard c) had ever heard
10. I hope I ... my thesis by the end of the year.
a) shall write b) shall have written c) shall be writing.

Assignment 2. Choose the word that best completes the sentence.

1. Students start ... research from the very first years at the University.
a) to carry on b) to carry out c) to carry away
2. He was awarded for valuable ... to national science.
a) deposit b) contribution c) distribution
3. This program ... for both theoretical and practical courses.
a) provides b) supplies c) prepares
4. To my regret your qualification does not meet our ...
a) inquiries b) requirements c) requests
5. Do you have any time...my draft?
a) to look at b) to inspect c) to review

Assignment 3 Complete the sentences so that they make sense, translate them.

1. Such studies are of particular importance as...
2. Previous investigations using the outdated methods...
3. The present research was performed with a view...
4. These detailed studies undertaken only recently have now resulted...
5. More recent investigations with this technique were confined...

- a) ...proved rather inadequate.
- b) ...to demonstrate crystal growth phenomena.
- c) ...they may provide valuable information on molecular interactions.
- d) ...to only one aspect of the problem discussed.
- e) ...in the discovery of the mechanism underlying such interactions.

Test 6.

Assignment 1. Choose the correct variant.

1. You ...see the documents. They are ready.
a) must b) may c) might
2. He has not come yet. He...his way.
a) was allowed to lose b) can have lost c) might have lost
3. You...go there at once – he needs your help.
a) can b) might c) must
4. He... the first prize. He looks so happy.
a) must win b) can win c) must have won
5. You...be more attentive, today we start a very important experiment.
a) must b) might c) can
6. 6. You...keep this journal. I don't need it.
a) must b) have to c) may
7. ... I take your text-book? I have left mine at home.
a) must b) may c) might
8. We ... him the invitation yesterday. He won't be able to arrive in time.
a) might send b) should have sent c) could send
9. She... English at the University. At the conference she spoke the language perfectly.
a) may learn b) might learn c) might have learned
10. Where is he? – He ... his philosophy exam now.
a) may take b) must be taking c) could have taken

Assignment 2. Choose the word that best completes the sentence.

1. Our investigation is carried out ... with a long-range state program.

- a) on agreement b) in harmony c) in accordance
- 2. How can you conduct this experiment with such an ... equipment.
 - a) irregular b) unsatisfactory c) inadequate
- 3. The objective of their research was very carefully...
 - a) arranged b) foreseen c) predetermined
- 4. A new laboratory was ... for conducting research in this area.
 - a) set up b) fixed c) placed
- 5. This discovery seems ... to have industrial application.
 - a) most frequently b) similarly c) most likely

Assignment 3. Complete the sentences so that they make sense, translate them.

- 1. These data were obtained from studies...
- 2. The above findings suggest...
- 3. Our recent results are much the same...
- 4. These findings can be interpreted...
- 5. It is clear that these data...
 - a) ...a highly-specific mechanism involved in the process.
 - b) ...as those we reported earlier.
 - c) ...performed in our laboratory.
 - d) ...have to be supported experimentally.
 - e) ...in terms of molecular interaction.

Test 7.

Assignment 1. Choose the correct variant.

- 1. He said that he...there 5 years before.
 - a) lived b) had lived c) would live
- 2. They know that he... in several days.
 - a) comes b) would come c) will come
- 3. I was sure that he always ...his promise.
 - a) keeps b) had kept c) kept
- 4. Show us what article...
 - a) you have read b) have you read c) will you read
- 5. She asked what... at their next meeting.
 - a) they will discuss b) would they discuss c) they would discuss

6. His secretary said that someone had rung him up...
a) an hour ago b) an hour before c) in an hour
7. We all knew that the Sun...the centre of our Universe.
a) was b) is c) were
8. He wanted to know where we should meet ...
a) tomorrow b) the next day c) the day after tomorrow
9. It's a shame but he couldn't even tell when ...
a) Shevchenko was born b) was Shevchenko born
c) Shevchenko had been born
10. We knew that he... 3 foreign languages.
a) had spoken b) speaks c) spoke

Assignment 2. Choose the word that best completes the sentence.

1. Scientific ... is vital to the progress of ideas.
a) speculation b) interrogation c) communication
2. Citations in scientific papers emphasize their ... nature.
a) primary b) dependent c) derivative
3. What ... are included into the program of the conference?
a) episodes b) events c) experiences
4. Mind the deadline for submitting ... of papers.
a) the notes b) the extracts c) the abstracts
5. Thorough... helps to improve one's work.
a) arguments b) advice c) criticism.

Assignment 3 Complete the sentences so that they make sense, translate them.

1. We know that there is still no clear-cut evidence...
2. There is now detailed evidence that...
3. Until recently there was no definitive evidence supporting...
4. There is every reason to treat the evidence...
5. The evidence which is now available...
a) ...either one or the other of the theories.
b) ...can be easily explained in the light of the proposed theory.
c) ...as to the full meaning of these events.
d) ...the processes are interrelated.
e) ...as quite conclusive.

Test 8.

Assignment 1. Choose the correct variant.

1. If I had had a dictionary, I ... the text.
a) should translate b) would translated
c) should have translated
2. They insisted that the environmental problems ... carefully.
a) should be dealt with b) should be dealing with
c) should have dealt with
3. It is necessary that she ... her experiments.
a) should have completed b) should complete
c) should be completing
4. If we took a taxi, we ... in time.
a) would be b) would have been c) were
5. They will not send you an invitation ... they know your permanent address.
a) less b) lest c) unless
6. If he had had time, he ... your letter.
a) would answer b) should answer c) would have answered
7. If the Government had not supported our campaign, we ... such results.
a) shouldn't have gained b) should have gained
c) shouldn't gain
8. Life on our planet would be impossible if there ... no air to breathe.
a) were b) was c) is
9. Our environment would have been clean if there ... water contamination.
a) were b) was c) had been
10. The Earth will not stay healthy unless all people ... it.
a) protected b) will not protect c) protect

Assignment 2. Choose the word that best completes the sentence.

1. ... of natural resources is constantly growing.
a) construction b) destruction c) consumption
2. Rare ... of fauna and flora are under protection.
a) sorts b) kinds c) species

3. No plant can survive in Polar ...
a) suburbs b) outlets c) environment
4. Water...is a global problem.
a) exhaust b) contamination c) uncleanness
5. Nobody could have predicted harmful human ... on nature.
a) contact b) collision c) impact

Assignment 3. Complete the sentences so that they make sense, translate them.

1. What we earlier assumed seems...
2. We proceeded from the assumption...
3. There is an assumption that...
4. What the authors have reported is in good agreement ...
5. Our recent assumptions have been substantiated...
a) ...that the same process may be involved in each case.
b) ...with the assumption that the changes vary in each individual case.
c) ...totally wrong.
d) ...by more than one set of experiments.
e) ...antimatter is comparatively stable in the presence of ordinary matter.

Test 9.

Assignment 1. Choose the correct variant.

1. I want you ... there in time.
a) to be b) will be c) are
2. Everybody knows him ... promising scientist.
a) is b) be c) to be
3. We stood there and watched the plane ... off.
a) take b) took c) to take
4. I am sure about it because I heard ... say it several times.
a) she b) her c) hers
5. I don't understand why you let your brother ... to you like this.
a) speak b) to speak c) spoke
6. Everyone is believed ... the customs declaration.
a) filled in b) has filled in c) to have filled in

7. She is known ... for the exams.
a) be preparing b) preparing c) to be preparing
8. He seems ... for a long time already.
a) to be speaking b) to have been speaking c) to speak
9. The letter is said ...
a) to have been typed b) to have been typing c) to be typed
10. They are certain...with us.
a) to have agreed b) to agree c) have agreed

Assignment 2. Choose the word that best completes the sentence.

1. What are the ... of this process.
a) essence b) characteristics c) nature
2. Nobody could imagine the ... of the problem we faced.
a) complexion b) completeness c) complexity
3. In his report the speaker ... the possible directions of further investigations.
a) draw b) designed c) outlined
4. World scientific congresses provide for... of information and coordination of research.
a) explanation b) disintegration c) dissemination
5. We develop a... project with our colleagues from Lviv Polytechnic University.
a) combined b) common c) joint

Assignment 3. Complete the sentences so that they make sense, translate them.

1. There exist a number of working hypotheses...
2. Discussing this hypothesis requires...
3. This hypothesis can hardly be regarded...
4. Dr. X's hypothesis...
5. To check this hypothesis...
a) ...some specific interdisciplinary knowledge.
b) ...as a true one at present.
c) ...regarding brain development.
d) ...we have made a number of experiments.
e) ...is no longer valid.

Test 10.

Assignment 1. Choose the correct variant.

1. In the case ... we are considering the current remains unchanged.
a) – b) if c) whom
2. The equipment ... we use today guarantees complete safety.
a) which b) whatever c) –
3. The next question is ... to solve this problem.
a) where b) how c) whenever
4. It was pointed out ... the results were misleading.
a) what b) that c) when
5. ... the warm air rises; the cooler air takes its place.
a) why b) as c) how
6. The problem is...the effect might be.
a) that b) when c) what
7. He asked me to tell him ... I was leaving.
a) why b) how well c) where
8. That is ... all the students praise him.
a) when b) why c) as
9. You will not understand it ... you read more about it.
a) in order to b) what c) unless
10. Soon he had everything ... he needed.
a) because b) – c) what

Assignment 2. Choose the word that best completes the sentence.

1. He proposed an ... new treatment of this well-known phenomenon.
a) almost b) whole c) entirely
2. Our fascinating discovery ... much research in this direction.
a) forced b) led c) necessitated
3. Experiments being completed, we tackled the ... problems.
a) entering b) coming c) emerging
4. This piece of research is an example of how optics and medicine ...
a) converse b) converge c) convert
5. The State pays an increasing attention to the development of ... programs.
a) PR b) R & D c) Ph.D.

Assignment 3. Complete the sentences so that they make sense, translate them.

1. This theory rests on the idea that...
 2. The theory of evolution...
 3. We developed this theory...
 4. The theory they have created implies...
 5. I have never doubted that the theory of plate tectonics...
 - a) ...to explain the unity of this process.
 - b) ... the pulses are emitted from near the surface of the star.
 - c) ...is most suitable for the explanation of continental drift.
 - d) ...owes its origin to Darwin.
 - e) ...that all behaviour is determined by physiological processes.
- (From 'English for Science Students'
by O. Burbak, T. Romanova)*

Test 11

Task 1

Read the text below. Match choices (A-H) to (1-5). There are three choices you don't need to use. Write your answers on the separate answer sheet.

Peggy Whitson – the former Iowa farm girl – racked up 377 days in space on her two missions, more than any other US astronaut. Her space walks totaled nearly 40 hours, more than any other woman astronaut's. She's now a walking laboratory for the long-term effects of zero gravity (zero-g) on the human body. And hers, by the way, is ripped like an Olympic athlete.

Name: Peggy Whitson.

Age: 48.

Astronaut since: 1996.

1____: Two six-month tours on the International Space Station, in 2002 and 2007–2008.

2____: «With no gravity for resistance, muscles and bones deteriorate quickly up there, so every day we do an hour of cardio on a specially designed cycle or treadmill and an hour of resistance training. You need strength for space walks, as every motion works against the pressure of the space suits we wear,

and it's very fatiguing. Exercising always made me feel more positive and upbeat afterward, too».

3____: «As we orbited every 90 minutes, the view of the Earth's curvature was incredible. You could see the layers of atmosphere extend beyond the surface to meet with the blackness of space beyond. It seemed impossibly thin, yet it carried all the shades of blue: closest to the planet a glowing blue, like sunlit water over white sand, extending to the deepest blue-purple mixture that holds the blackness at bay».

4____: «At first, being back on the Earth is not pleasant. My agility and quick motions, like playing basketball and the timing to dribble and do a layup, were severely hindered. But I had my physical fitness assessment about a month after my return, and I'm back to preflight norm, which I'm really happy about».

5____: «Exploration is a very important part of who we are, and if we want

to literally expand our horizons, we have to keep doing it. Construction of the International Space Station shows we can expand those horizons culturally as well».

- A. Returning to Gravity
- B. Space Time
- C. Staying in Shape
- D. Imagine Being in A Confined Space
- E. Poetic Moment
- F. Love and Friendship
- G. Inspiration
- H. Family Life

Task 2

Read the text below. For questions (6-10) choose the correct answer (A, B, C or D). Write your answers on the separate answer sheet,

Japanese culture is very different from that of European countries. A very strict code of etiquette is supposed to be obeyed. There are specific ways to do particular things and

certain rules to follow to avoid insulting a person. Although walking and eating is widely accepted in Western cultures, in Japan it's seen as sloppy. The exception is eating an ice-cream cone on the street. Tipping is a common thing in Europe and America but not in Japan. There tipping may be considered rude or at least cause confusion. Sleeping on somebody's shoulder in the train is by contrast a common thing. If a person in Japan falls asleep with his or her head on another person's shoulder, it's a usual practice to tolerate it. People work very long hours, get tired and many of them often fall asleep in the train. Number four in Japan is considered extremely unlucky like number 13 in Western culture. The Japanese try to use it as little as possible. The reason why this number is avoided is that it sounds very similar to the word which means «death». The practice of avoiding number four is common not only in Japan but also in many East Asian and South-east Asian regions. Oshiya, or «pushers», are people designated to push passengers into a crowded subway car during rush hours. They wear uniforms, white gloves and hats and they are paid to make sure everybody gets in and doesn't get caught in the doors. Slurping noodles is, surprisingly for a European, seen as polite. For the Japanese it means that a person is enjoying the meal. The habit of slurping noodles also helps to avoid having a burnt tongue while eating as they are generally served steaming hot and slurping helps to cool down the food.

6. Why is the Japanese way of life strange for Europeans?

- A. Because the Japanese have very strict rules of behaviour.
- B. Because European culture is a far cry from Japanese one.
- C. Because the Japanese follow the rules of etiquette.
- D. Because the Japanese try to avoid insulting other people.

7. Which of the following is not advisable to do in Japan?

- A. Eating anything while walking unless it's an ice-cream cone.
- B. Avoiding tipping in restaurants.
- C. Sleeping on somebody's shoulder in the train.
- D. Getting tired after working long hours.

8. What is true about number four?

- A. It is much alike with «death».
- B. It's unlucky because it resembles number 13.
- C. It's a common practice to avoid it in some Oriental countries.
- D. In Japan they don't have this number.

9. What is a «pusher's» job?

- A. To push people into crowded subway cars.
- B. To push people in the subway during rush hours.
- C. To wear white gloves and hats.
- D. To be paid if everybody enters the subway.

10. Why is slurping noodles not seen as rude in Japan?

- A. Because it helps not to get burnt.
- B. Because they cook very tasty noodles.
- C. Because noodles are usually served very hot.
- D. Because it shows the person likes the meal.

Task 3

Read the text below. Match choices (A-H) to (11–15). There are three choices you do not need to use. Write your answers on the separate answer sheet.

11. *National Geographic Society*

Celebrating its 120th year, the iconic and beloved National Geographic Society is one of the largest, most well-funded and most prominent environmental organizations. Focusing on science-based research and general interest as well as conservation efforts, Nat Geo is decidedly environmentalist without that being the overt thrust of the organization, choosing instead to celebrate amazing wonders of the Earth and its creatures.

12. *Earth Liberation Front*

Famously activist, the Earth Liberation Front organization is an anonymous, independent and mysterious environmentalist group promoting civil disobedience and economic sabotage. Numerous cases of arson, SUV bombing and other «extreme» actions have

earned the ELF environmentalists a militant reputation. They maintain no office or press contacts and many environmentalists have been keen to distance themselves from the ELF.

13. ***The National Wildlife Federation***

The National Wildlife Federation is dedicated to preserving animals in the United States and works with local agencies in the 48 contiguous states. It is one of the largest environmental organizations, with over 4 million members participating in grass-roots efforts on a variety of wildlife issues. The organization was actually founded by a cartoonist named Jay Darling (aka «Ding» Darling) in 1936 with the support of President Franklin Delano Roosevelt.

14. ***The Natural Resources Defence Council***

The Natural Resources Defence Council works to protect wildlife and wild places and to ensure a healthy environment for all life on the Earth. The NRDC combines hundreds of active lawyers with over 1.2 million members to create direct and legislative change. The focus is on preventing climate change and saving endangered species, among other goals.

15. ***Wildlife Conservation Society***

Devoted to saving wildlife, the Wildlife Conservation Society is unique in that it runs a large system of urban parks. The official statement reads: the Wildlife Conservation Society «saves wildlife and wild lands through careful science, international conservation, education, and the management of the world's largest system of urban wildlife parks». The mission of the organization is to connect humans with wildlife in the hope that interaction will inspire preservation of endangered species.

This organization _____

- A. exists primarily to support bird conservation.
- B. is aimed at facilitating interaction between humans and wildlife in order to inspire preservation of endangered species.

- C. is one of the most well-funded principal environmental organizations.
- D. is known for its militant and aggressive environmentalists.
- E. is often completely ignored by the current White House administration.
- F. is environmental and a lot of its members are lawyers.
- G. has the creator who was a cartoonist before.
- H. is an independent non-governmental environmental international group of leading respected scientists.

Task 4

Read the text below. Choose from (A–H) the one which best fits each space (16–21). There are two choices you do not need to use. Write your answers on the separate answer sheet.

Recently, a couple in New Zealand was forbidden from naming their baby son 4Real. Even though New Zealand has quite liberal rules about naming children, names (16) _____ are not allowed. They decided to call him Superman instead.

In many countries around the world, unusual names for children are becoming more popular, especially since the increasing trend for celebrities to give their children strange names.

Some parents choose names which come (17) _____. For example, there have been six boys named Gandalf after the character in the «Lord of the Rings» novels and films. Equally, names relating to sport are fairly common – since 1984, 36 children have been called Arsenal (18) _____

Other parents like to make up names, or (19) ____ their own version, a method demonstrated by Jordan, the British model, who recently invented the name Tiamii for her daughter by combining the names Thea and Amy (the two grandmothers).

(20) _____ much stricter rules when it comes to naming children. Countries including Japan, Denmark, Spain, Germany and Argentina have an approved list of names from which parents must choose. In China, there are some rules about (21). _____ – no foreign letters or symbols are allowed. As a result, a

couple was recently banned from calling their baby.

In Britain, some names which were previously thought of as old-fashioned have become more popular again, such as Maisie or Ella for a girl, or Alfie or Noah for a boy. But the most popular names are not the unusual ones. The top names are fairly traditional – Jack, Charlie and Thomas for boys and Grace, Ruby and Jessica for girls.

Use of English

Task 5

Read the text below. For questions (22-31) choose the correct answer (A, B, C, or D). write your answers on the separate answer sheet.

Closed-circuit television CCTV, also known as video surveillance, is the use of video cameras to (22) _____ a signal to a specific place on a limited set of monitors. Its main difference (23) _____ broadcast television is that the signal is not openly transmitted. The term is mostly applied to cameras which are used for (24) _____ in areas that may demand (25) _____. These include banks, airports, military, institution, stores, etc. CCTV equipment may also be used in industrial plants to (26) _____ different processes from a control room. These systems allow continuous filming or only as required to monitor a particular event. The first CCTV system (27) _____ by Siemens AG in 1949 and a patent for the home security system was received in 1969 by Mari Van Brittan Brown. The ever-growing use of CCTV cameras in (28) _____ city centres is a controversial issue. On the one hand the advantages of using them include a possibility of constant recording as a crime deterrent. On (29) _____ hand, arguments for the right of privacy take place. The initial argument regarding the positives of CCTV is that it prevents criminals from committing crimes (30) _____ public. However, it's hard to measure the success of CCTV cameras because their aim is largely preclusive. Protestors of CCTV cameras speak about defending areas around the world. In recent years, the use of body-worn video cameras (31) _____ as a new form of surveillance.

	A	B	C	D
22	transmit	transform	translate	transparent
23	at	with	from	in
24	looking	recording	watching	surveillance
25	to monitor	monitor	monitored	monitoring
26	observe	maintain	lead	stop
27	presented	is presented	presenting	was presented
28	huge	large	great	grand
29	another	other	the other	others
30	at	on	in	among
31	was introduced	has introduced	has been introduced	introduced

Use of English

Task 6

Read the text below. For questions (32-41) choose the correct answer (A, B, C or D). Write your answers on the separate answer sheet.

The Happiness was walking in the forest (32) _____ the nature when suddenly it fell into a deep hole. It couldn't get out (33) _____ the hole, so it was sitting and waiting for somebody who (34) _____ help it. Soon it heard a man by. The Happiness asked the man for help, but the man (35) _____ what he would receive for that. «What do you want to get? » asked the Happiness. «I want a big beautiful house (36) _____ the sea», was the reply. The man's wish came true and the man ran away happily (37) _____ the Happiness sitting in the hole. The Happiness had nothing to do but wait for somebody else. (38) _____ man was passing by and again the Happiness asked him for help. That man demanded a luxurious automobile. After he had got the car, he forgot about the Happiness immediately and went away. The Happiness felt hopeless and miserable. It was getting dark and (39) _____ seemed to be able to help it. Suddenly one more man appeared «Take me out of here, please! » the Happiness shouted (40) _____. The man came up to the hole, pulled the Happiness out of it and continued his way. The Happiness ran after the man asking what the man (41) _____ to become happy. But the man said, «Nothing. Thank you». And the Happiness followed the man and never left him.

	A	B	C	D
32	enjoyed	enjoying	enjoyment	enjoy
33	from	back	up	of
34	could	will be able	was	can
35	wondered	interested	thought	bargained
36	looking	overlooking	outlooking	looking at
37	having leaving	left	leaving	having left
38	Different	The other	Another	Other
39	anybody	everybody	nobody	all
40	depressively	desperately	determined	definitely
41	want	wanted	was wanting	has wanted

GLOSSARY

Abstract – A concise summary of the main points of a research paper or article.

Academic Tone – Formal, objective, and evidence-based style of writing.

Active Voice – A sentence structure where the subject performs the action (e.g., "The student wrote the essay").

Analysis – Detailed examination of elements or structure of something.

Annotated Bibliography – A list of citations followed by a brief evaluation or summary.

Appendix – Supplementary material at the end of a document.

Argument – A logical series of statements used to persuade or present a point of view.

Argumentation – The act of forming reasons, drawing conclusions, and applying them to a case in discussion.

Audience – The intended readers of a piece of academic writing.

Assumption – An idea accepted without proof, often forming the basis for arguments.

B

Background Information – Contextual details that help readers understand the topic.

Bias – A prejudice or subjective lean in presenting information.

Bibliography – A list of all sources consulted, even if not directly cited.

Body – Main part of the paper where arguments, evidence, and analysis are presented.

Body Paragraphs – The central paragraphs of an essay where key points are developed.

Brainstorming – Generating ideas before writing.

C

Case Study – A detailed examination of a particular instance or example.

Citation – A reference to a source used in the text.

Citation Style – A set format for citing sources (e.g., APA, MLA, Chicago).

Clarity – Writing that is clear and easy to understand.

Claim – A statement used as the main point in an argument.

Coherence – Logical flow and connectivity between ideas.

Conclusion – Final section that summarizes the main points and often offers recommendations.

Context – The background or situation in which something is discussed.

Contribution to Knowledge – How a study adds new insights to the field.

Counterargument – A viewpoint that opposes the main argument.

Counterclaim – An opposing viewpoint to the main claim of an argument.

Critical Analysis – Evaluating ideas through questioning, comparison, and reasoning.

D

Data Analysis – Interpretation of collected data to identify patterns or trends.

Data Collection – The process of gathering information for analysis.

Deduction – Reasoning from general principles to a specific case.

Deductive Reasoning – Reasoning from general principles to specific conclusions.

Definition – Explanation of a term or concept within the academic context.

Discussion – Section where results are interpreted and related to the research question.

Dissertation/Thesis – A research paper written as part of a degree program.

Drafting – Writing the first version of the paper.

E

Editing – Fixing grammar, spelling, and formatting issues.

Empirical Evidence – Information acquired by observation or experimentation.

Essay – A short piece of writing on a particular subject.

Ethos – Appeal to ethics or credibility of the writer.

Evaluation – Judging or determining the value, significance, or quality of something.

F

Feedback – Input from peers, instructors, or reviewers to improve the work.

Findings – The results or discoveries made during research.

Footnote/Endnote – Notes placed at the bottom or end of the text providing additional information.

Formality – The level of academic tone and structure appropriate to scholarly writing.

Framework – The structure supporting the argument or theory in research.

G

Gap in Literature – An area not yet explored or sufficiently covered in existing research.

H

Harvard Style – A popular author-date citation format.

Hedging – Using cautious language (e.g., "might," "could," "suggests") to avoid overgeneralization.

Hook – The opening sentence(s) designed to grab the reader's attention.

I

Implication – A possible consequence or significance of a result or argument.

Inductive Reasoning – Reasoning from specific observations to broader generalizations.

Inference – A conclusion reached on the basis of evidence and reasoning.

In-text Citation – A brief reference within the text directing readers to the full citation.

Interpretation – Explaining the meaning or significance of data or evidence.

Introduction – The opening section that introduces the topic, purpose, and thesis.

J

Journal Article – A scholarly paper published in an academic journal.

L

Limitations – Aspects of a study that may affect the validity or generalizability of results.

Literature Review – A survey of scholarly sources related to a specific topic.

Logical Fallacy – An error in reasoning that weakens an argument.

M

Main Idea – The central point or message of a paragraph or section.

Methodology – A detailed plan or system used to conduct research.

Mixed Methods – Combining qualitative and quantitative approaches.

Modality – Words that express possibility, necessity, or obligation.

N

Narrative – A story or account, sometimes used to structure a qualitative research paper.

Narrowing the Topic – Focusing on a specific aspect of a broader subject.

O

Objective Tone – Writing that avoids personal bias and uses neutral language.

Outline – A structured plan or summary of the key sections of a paper.

Outlining – Creating a structured plan before drafting.

P

Paragraph Unity – Ensuring each paragraph focuses on a single idea.

Paraphrase – Restating a passage or idea in different words while maintaining meaning.

Passive Voice – The action is done to the subject (e.g., "The essay was written by the student").

Peer Review – Evaluation of scholarly work by others in the same field.

Peer-Reviewed Journal – An academic publication where submitted

articles are reviewed by experts.

Plagiarism – Using someone else's work without giving credit.

Point of View – The perspective from which the writing is presented.

Position Paper – A written stance on a controversial issue supported by evidence.

Primary Source – Original material or evidence (e.g., historical document, experiment data).

Proofreading – Final check for surface-level errors.

Q

Qualitative Research – Research based on non-numerical data like interviews or observations.

Quantitative Research – Research based on numerical or statistical data.

R

Rationale – The underlying reason for a decision or approach.

Reference List – Full bibliographic information of sources cited.

Referencing – Giving credit to sources of information used in the text.

Reflective Writing – A piece that explores personal experiences or learning.

Refutation – The act of disproving an opposing argument.

Register – The level of formality in writing.

Reliability – The consistency of a research method or instrument.

Report – Structured document describing and analysing information.

Research Paper – A detailed piece of writing presenting original research and analysis.

Results – The outcomes of the research or experiment.

Revision – The process of refining ideas, structure, and expression in writing.

S

Sample Size – The number of observations or participants in a study.

Scholarly Source – A publication written by experts and reviewed by peers.

Secondary Source – Analysis or interpretation of a primary source.

Scope – The boundaries or extent of the study.

Signposting – Phrases or words used to guide the reader through the argument or structure.

Source Integration – Blending source material into your writing smoothly.

Structure – The overall organization of an academic text.

Summary – A condensed version of the main points of a source or paper.

Synthesis – Combining ideas from different sources to create new insights.

T

Tertiary Source – Summarized or distilled versions of primary and secondary sources (e.g., encyclopaedias).

Theoretical Framework – A structure that supports the research by grounding it in theory.

Thesis Statement – The central argument or claim of an essay.

Topic Sentence – The sentence that expresses the main idea of a paragraph.

Transition – Words or phrases that link ideas, paragraphs, or sections (e.g., "however," "furthermore").

U

University Standard – Writing conventions expected in academic institutions.

V

Validity – The degree to which a method or result accurately reflects the concept being measured.

Variables – Elements in a study that can be measured or manipulated.

Voice (Active/Passive) – Refers to the subject performing or receiving the action in a sentence.

HOW TO RENDER ARTICLES/ THESES / MONOGRAPHS

1. The title of the article/ thesis/ monograph	The article/ thesis/ monograph is headlined... The heading of the monograph I have read is...
2. The author(s) of the paper. When and where the paper was published.	The author of the paper is... The monograph is written by... It is (was) published in... It was published on...
3. The main idea of the paper. The purpose/ aim/ objective of the paper.	The main idea of the thesis is... The paper delves into... The article is devoted to... The monograph deals with... The article touches upon... The purpose of the paper is to give the reader some information on... The aim of the monograph is to provide the reader with some material (data) on...
4. The contents of the paper. Some facts, experiments, figures. Findings. Conclusion.	The author starts by mentioning (about/ that) ... The author writes/ states/ stresses/ points out that... The paper describes... According to the article... Further the author reports that... The article goes on to say that... The author comes to the conclusion that...
5. Your personal opinion of the paper.	I find the paper informative / of great value / important.

LATIN ABBREVIATIONS AND THEIR EQUIVALENTS

cf./ but compare this to – порівняйте з
ecd / circa (cca./ cir.)/ approximately – приблизно, біля
e.g., / exempli gratia/ for example – наприклад
et al./ et alii/ and others – та інші
etc./ et cetera/ and so on and so forth – і тому подібне, і так далі
et seq./ et sequential/ and the following – і наступні
h.l./ hoc loco/ in this place – в цьому місці
ib., ibid/ibidem/ in the same place – там само
id. / idem/ the same – той же
i.e., / id est/ that is /to say/ – тобто
inf./ infra / below – нижче
int.al. / inter alia/ among other things – між іншим
i.e., / idem quod/ the same as – те саме, що
l.c./ loco citato/ in the place cited – в цитованому місці
l.l./ loco laudato/ in the place mentioned – в згадуваному місці
m.m./ mutatis mutandis/ – з відповідними змінами
n.b./ nota bene/ pay attention – примітка
passim / here and there/ throughout – наскрізно
q.e.d./ quod erat demonstrandum/ which was to be proved – що
потрібно було довести
q.v./ quod vide/ see/that word/ – дивись, див. /це слово/
sc./scilicet/ that is /to say/ – тобто, а саме
sic / thus / that's actually what it says – саме це
sup./ supra / above – вище
s.v. / sub verbo / under the word / see – дивись у
v., vs./ versus/ against – проти (порівняно з) ...
vid./ vide/ see – дивись, див.
v. infra/ vide infra/ see below – див. нижче
v. supra/ vide supra/ see above – див. вище
viz./ videlicet/ namely – а саме
v.v./ vice versa/ conversely – навпаки
versus (vs)/ against / as opposed to – проти

(From <https://writingcenter.unc.edu/tips-and-tools/latin-terms-and-abbreviations/>)

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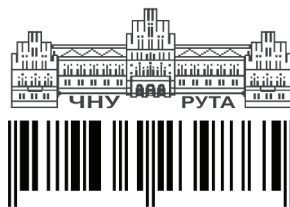
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