МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

УКРАЇНСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ НАУКИ І ТЕХНОЛОГІЙ

Т. А. Купцова, І. А. Колієва

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ENGLISH FOR SCIENTISTS

НАВЧАЛЬНИЙ ПОСІБНИК

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Навчальний посібник *Іноземна мова в науковій діяльності. English for Scientists* призначений для вивчення професійно орієнтованої англійської мови здобувачами третього наукового ступеня вищої освіти (доктор філософії) та здобувачами 2 рівня вищої освіти (магістерський) всіх спеціальностей.

Посібник орієнтований на збагачення здобувачами словникового запасу, розвитку вмінь перекладу фахової оригінальної літератури, реферування з метою отримання і використання інформації, необхідної для майбутньої професійної діяльності.

Посібник складається з 11 тематичних розділів, що містять базові навчальні тексти, комплекс комунікативних лексичних вправ, додатку та тренувальних граматичних вправ для покращення знань з граматики. Посібник містить запитання, що пропонуються для усної співбесіди на заліку та екзамені.

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ЗМІСТ

ВСТУП

Навчальний посібник відповідає робочій програмі освітньої компоненти «Іноземна мова в науковій діяльності». Він допомагає системно засвоїти сучасну лексику наукового дискурсу, відпрацювавши її у відповідних вправах на заповнення пропусків (Open Gap-filling), множинний вибір лексики (Multiple Choice), заповнення пропусків з обмеженою кількістю слів (Blanked Gap-filling), словотворення (Word Formation) тощо,що сприяє розвитку навичок науково-професійного спілкування англійською мовою. Кожен розділ включає і мовленнєві ситуації з проблемними питаннями для обговорення,що направлені на активізацію усної комунікації та дискусії, необхідних навичок фахової комунікативної компетенції вітчизняних науковців у контексті розширення міжнародної співпраці.

Навчальний посібник складається з 11 тематичних розділів, додатку та тренувальних граматичних вправ для покращення знань з граматики, що, в свою чергу, удосконалює навички усного та письмового мовлення, робить мовлення більш професійним та дозволяє уникати непорозумінь. Посібник містить запитання, що пропонуються для усної співбесіди на заліку та екзамені.

Навчальний посібник рекомендовано для здобувачів третього наукового ступеня вищої освіти (доктор філософії) та здобувачів 2 рівня вищої освіти (магістерський).

UNIT 1. PURE AND APPLIED SCIENCE

1. Work in groups. Discuss what you know about pure and applied science. Think about the following:

a) difference between pure and applied sciences;

b) mutual dependence between pure and applied sciences.

2. Read the text about pure and applied science. Find:

1 when hypotheses become working rules.

2 examples of the work of the applied scientist.

3 examples of the work of the pure scientist.

4 interaction between pure and applied science.

PURE AND APPLIED SCIENCE

As students of science you are probably sometimes puzzled by the terms «pure» and «applied» science. Are these two totally different activities, having little or no interconnection, as is often implied? Let us begin by examining what is done by each.

Pure science is primarily concerned with the development of theories (or, as they are frequently called, models) establishing relationships between the phenomena of the universe. When they are sufficiently validated these theories (hypotheses, models) become the working laws or principles of science. In carrying out this work, the pure scientist usually disregards its application to practical affairs, confining his attention to explanations of how and why events occur, hence, in physics, the equations describing the behaviour of fundamental particles, or in biology, the establishment of the life cycle of a particular species of insect living in a Polar environment are said to be examples of pure science (basic research), having no apparent connection (for the moment) with technology, i.e. applied science.

Applied science, on the other hand, is directly concerned with the application of the working laws of pure science to the practical affairs of life, and to increasing man's control over his environment, thus leading to the development of new techniques, processes and

machines. Such activities as investigating the strength and uses of materials, extending the findings of pure mathematics to improve the sampling procedures used in agriculture or the social sciences, and developing the potentialities of atomic energy, are all examples of the work of the applied scientist or technologist.

It is evident that many branches of applied science are practical extensions of purely theoretical or experimental work. Thus the study of activity began as a piece of pure research, but its results are now applied in a great number of different ways — in cancer treatment in medicine, the development of fertilizers in agriculture, the study of metal fatigue in engineering, in methods of estimating the ages of objects in anthropology and geology, etc. Conversely, work in applied science and technology frequently acts as a direct stimulus to the development of pure science. Such an interaction occurs, for example, when the technologist, in applying a particular concept of pure science to a practical problem, reveals a gap or limitation in the theoretical model, thus pointing the way for further basic research. Often a further interaction occurs, since the pure scientist is unable to undertake this further research until another technologist provides him with more highly-developed instruments.

It seems, then, that these two branches of science are mutually dependent and interacting, and that the so-called division between the pure scientist and the applied scientist is more apparent than real [1].

3. Translate the following words and word combinations:

Прикладна наука, не мати взаємозв’язків, розвиток теорії, зв’язки між явищами, робочі закони, практичне застосування, встановлення життєвого циклу, чиста наука, збільшення людського контролю, розвиток нових технологій, соціальні науки, практичне поширення, метод оцінки, прямий стимул, подальше дослідження, забезпечувати інструментами, поділ між теоретичною та прикладною науками.

4. Use these nouns to complete the sentences. There are two nouns you do not need.

opportunities curiosity outcomes engineering laboratories gap objective number

1. With the shrinking …… between applied science and pure science, this is truly an amazing time to be involved in the sciences.
2. Pure science seeks to understand the fundamental principles of nature. It is driven by …… and the pursuit of knowledge for its own sake.
3. Pure sciences focus more on theories and predictions to understand the natural world, often conducted in …….
4. A degree in Pure and Applied Science opens doors to diverse career …… in research, technology, healthcare, environmental science, engineering, and more.
5. Basic science has a primary …… of expanding our understanding and knowledge of the fundamental principles and mechanisms that govern natural phenomena.
6. The …… of basic science primarily encompass theoretical advancements, resulting in the creation of novel concepts, theories, and models that deepen our comprehension of the natural world.

5. Read the text below. Use the words given in capitals to form a word that fits in the gap.

Basic science embraces 1) …… **explorate** research methodologies, such as theoretical models, laboratory experiments, and 2) ……**observe,** to delve into fundamental principles and unearth novel insights. Driven by curiosity and the quest for 3) ……**comprehend**, it grants researchers the liberty to traverse diverse paths of 4) ……**investigate**.

In contrast, applied science adopts a targeted problem-solving approach. It applies 5) ……**establish** scientific knowledge and methodologies to tackle specific practical challenges. Applied scientists frequently employ 6) …… **experiment** designs, engineering principles, and iterative processes to craft practical solutions and foster innovations.

6. Read the dialogue and say which problems are discussed and express your opinion.

Is It Worth Doing Science?

James: Hallo, Laura. I'm sorry to be late for the morning session; I've missed the bus and had to go there by taxi.

Laura: Take it easy. There's nothing to worry about. You didn't miss much.

James: What's on the agenda?

Laura: During the morning session only two papers were given.

James: Aha! I've missed two. What was the subject?

Laura: The first paper was «Methods of Science and Scientific Methods». It was followed by the second one «The Layman and his Attitude to Science».

James: Did you find them interesting?

Laura: Both papers were presented in a rather peculiar way. The first speaker followed the classical principle «stand up, speak up, shut up». A number of slides were shown and even some jokes were told.

James: What about the second one?

Laura: As to the second paper, the subject was a bit boring, the presentation monotonous, and the translation poor.

James: Have taken any notes?

Laura: I'm looking through them right now and I can't help feeling frustrated. On the one hand, according to the speaker, there are an ever growing number of scientists in every branch of knowledge. On the other hand, not every researcher qualifies for an academic degree.

James: Obviously female researchers are meant here. They got married too soon and give up science.

Laura: You're being unfair.

James: Actually making a decision on one's career is not easy. Every University graduate is faced with it. If one intends becoming a scientist, before making the final decision he's advised to weigh all the pros and cons, lest he should regret taking the step later your mind, if you're sure that you're capable of doing science, if you're interested.

Laura: And when you've made up in research, stick to the strategy: (1) collect information, (2) put forward a hypothesis, (3) make experiments, (4) confirm your theory with experimental data, and (5) submit your thesis to the Academic Board.

James: Still many people don't enjoy sacrificing their personal life for science. Research will prevent them from visiting friends, going out, playing with their kids.

Laura: I think you're exaggerating.

7. Make up a dialogue on the following situation:

Yesterday I met one of the students of our course. I asked him what he was doing. He answered he was fooling a post-graduate course. I asked him when he had begun studying and who his scientific supervisor was. He said he had been a post-graduate for a year and his scientific supervisor was the head of the department. I was interested to know if he had passed any examination and whether he had published any articles on the subject of his thesis. He answered that one of his articles had already been published; two more would have been published by the end of the year. He added that he had already passed two exams, language and philosophy.

8. Summarize the general information about the investigation of your own.

UNIT 2. FROM THE HISTORY OF SCIENCE

1. Choose the answer

1. Who was the first known Greek philosopher?

a. Aristotle
b. Plato
c. Thales of Miletus
d. Hippocrates

2. What contributions did Copernicus make in the history of science?

a. He discovered that the earth orbited around the sun.
b. He was the first philosopher to break out of the idea that everything occurs due to the gods' whims.

c. He concluded how gravity works by watching an apple fall from a tree.

d. He was the first astronomer and studied the movement of the stars.

3. Who is known for exploring the laws of motion, gravity, and relativity?

a. Archimedes

b. Newton

c. Copernicus

d. Thales

2. Read the text. Are the sentences true (T) or false (F)? How do you know?

1. Studying the history of science provides no insights into the factors that contribute to the modernization and competitiveness of societies.

2. Science defined simply as knowledge of natural processes is universal among humankind, and it has existed since the dawn of human existence.

3. Ancient Greek science began around 300 BC and was focused on organizing the world and gaining knowledge in areas like astronomy, biology, physics and mathematics.

4. The Renaissance was a period of «rebirth» in arts and culture, but not in science.

5. N. Copernicus was the first European scientist to propose that Earth and other planets revolve around the sun, the heliocentric theory of the solar system.

6. Archimedes is generally viewed as the single most important contributor to chemistry during the classical Greek period (and even the period up to the Renaissance in Europe).

FROM THE HISTORY OF SCIENCE

By understanding a little about both history and science, we can gain a more comprehensive perspective on the world around us. As we continue to explore and learn, our understanding of the past and the future will grow, allowing us to make more informed decisions and navigate the complexities of modern life.

Science had its origin in some distant era when people began to show desire to know about their environment and to record what they saw. In time, studies of these observations led to the idea that nature is knowable, that is operates according to ‘laws’. The actual

birth of science took place in prehistoric times, probably in Egypt and Babylonia, more than 2,000 years before our era. But true progress in science did not begin until about the sixth century before our era, when Greek civilization began to flourish. The next 500 years was the age of the great philosophers of antiquity – Thales, Pythagoras, Aristotle, Archimedes, and others. Archimedes discovered some of the basic laws governing mechanisms and floating bodies. To Archimedes we owe the first application of mathematics to the description of nature. He was very far in advance of his time. In the period from the Greeks to the Renaissance few contributions were made to the development of science. First in importance among the scientific achievements of the Renaissance was the idea that the sun, rather than the earth, is the centre of our system of sun, moon, and planets. At the beginning of the sixteenth century, the prevailing idea was that of an earth-centered universe, as described by Ptolemy. The Polish astronomer N. Copernicus assumed that the earth is merely one of the planets and that all of them moved about the sun. It is hard now to understand the courage required to advance an idea of this nature because of the great wave of opposition, which confronted Copernicus.

3. Match the words (1-6) with the definitions (A-F).

1 comprehensive	A to find information, a place, or an object, especially for the first time
2 environment	B complete and including everything that is necessary
3 achievement	C to accept something to be true without question or proof
4 discover	D something very good and difficult that you have succeeded in doing
5 advance	E to go or move something forward, or to develop or improve something
6 assume	F the air, water, and land in or on which people, animals, and plants live

4. Read the text below. Use the words given in capitals to form a word that fits in the gap.

Studying the history of science and technology is important because it helps us understand the development and impact of 1) ……**science** and technological knowledge and practices. It provides insights into the factors that contribute to the modernization and 2) …… **compete** of societies. Additionally, studying the history of science and technology can help in the 3) …… **train** of engineering and technical personnel, as it provides a foundation for understanding the 4) …… **evolve** of scientific and technical knowledge. It also plays a crucial role in the education of STEM professionals, as it supports their ability to invent, innovate, and disseminate new ideas. Furthermore, the history of science and technology can be seen as a liberal art that explores the different 5) …… **possible** and challenges that have shaped our present. By incorporating history into STEM education, students can gain a deeper understanding of the social and cultural contexts in which scientific and technological 6) …… **advance** occur.

5. Fill in the blanks with the correct verbs in proper form:

a) *take, study, learn, speak, read, translate, revise*

I … a post-graduate course at the university. I …here since November. I … English since school. I … English fairly well. I like … and … articles from English and American journals. Now we … the English tenses. We … them for two weeks.

b) *enter, finish (×2), write, work, publish (×2)*

My friend … the post-graduate course two years ago. Peter … the first chapter of his thesis and now he … the second one. He … on his thesis for a year. I think he … it by the end of the next year. Usually a post-graduate student must … two or three articles before presenting his thesis. Peter … already two articles this year.

6. Match the beginnings of the sentences with their endings.

1 Mankind's curiosity does NOT mean	A electricity or space travel to live and enjoy his life.
2 As we became more and more curious	B mankind got smarter and smarter

about nature	over time
3 An intelligent and successful fisherman in the 500's BC doesn't need	C also led (and leads) to progress.
4 But curiosity and discovery and thus scientific advancement is	D smarter over time.
5 The fisherman's IQ could be	E higher than that of many of us today for all we know.
6 And of course a desire to find practical solutions to man's problems (health, transportation, communication etc)	F inevitable over time.
7 This again does NOT mean mankind has gotten	G we made more and more discoveries.

7. Read the text below. For questions (1–7) choose the correct answer (A, B, C).

Mankind's 1) …… does NOT mean mankind got smarter and smarter over time. As we became more and more curious about nature we made more and more discoveries. An intelligent and 2) …… fisherman in the 500's BC doesn't need electricity or space travel to live and enjoy his life. But curiosity and 3) …… and thus scientific 4) …… is inevitable over time. And of course a desire to find 5) …… solutions to man's problems (health, transportation, communication etc) also led (and leads) to progress. This again does NOT mean mankind has gotten 6) …… over time. The fisherman's IQ could 7) …… than that of many of us today for all we know.

1	A curious	B curiosity	C more curious
2	A unfortunate	B miserable	C successful
3	A reward	B discovery	C award
4	A advancement	B winning	C decline
5	A practical	B identified	C development
6	A smart	B smartest	C smarter
7	A be highest	B be higher	C be high

8. Work in groups. Discuss the questions.

1. What are the greatest scientific achievements in history?
2. What major scientific breakthroughs have there been in the last 50 years?
3. Who is the greatest scientist in your country's history?
4. Who is the greatest living scientist in the world?
5. What is there left to discover?
6. Who were the first human beings to do science?
7. Is science capable of providing us with absolute truth?
8. Are there any questions which science cannot answer?
9. Can science and religion live alongside each other?
10. According to science, a human being is just a material object. Do you agree?
11. Can science be dangerous?

UNIT 3. SCIENTIFIC COMMUNITY

1. Work in groups. Think about the following:

a) the roles of the scientific community;

b) who makes up the scientific community;

c) the concept of community science.

2. Read the text. Find:

1 scientific community members

2 activities of scientific community

3 the role of scientific community

4 the roles of the scientific community members

5 importance of collaboration in the scientific community.

SCIENTIFIC COMMUNITY

Scientific community consists of scientists working in a particular field of science and, most importantly, of their relationships and interactions. Beyond the traditional publication of research projects, discussions occurring during conferences, seminars, and

even online through social networks or blogs enable ideas to spread more efficiently and are essential for building a lively and dynamic community. Activities such as organizing conferences and workshops, answering questions and discussing scientific ideas online, contributing to a scientific blog, or participating in open source software projects are typically thought of as outside classic research activity. Having scientists involved in those activities, however, is very important for the community to be dynamic and to promote fruitful discussions and collaborations. Scientific associations have an important role in enabling science by bringing people together and giving them a voice. Moreover, being involved in such activities is individually very rewarding because it enables scientists to acquire new skills not typically taught and to expand their network and interactions.

The stereotype of a scientist (a recluse who speaks in a jumble of technical jargon) doesn't exactly paint a picture of someone whose work depends on communication and community. But in fact, interactions within the scientific community are essential components of the process of science. Scientists don't work in isolation. Though they sometimes work alone (fussing over an experiment in the lab, trekking through the Amazon, scribbling on a notepad at a desk), scientists are just as likely to be found emailing colleagues, arguing with other scientists over coffee, sitting in on a lab meeting, or preparing conference presentations and journal articles. In science, even those few working entirely on their own must ultimately share their work for it to become part of the lasting body of scientific knowledge.

In terms of the process of science, members of the community play several essential and direct roles:

Fact checker / critic: the community evaluates evidence and ideas. The scrutiny of the scientific community helps ensure that evidence meets high standards of quality, that all relevant lines of evidence are explored, that assumptions are reasonable, and that judgments are not based on flawed reasoning.

Innovator/visionary: the community generates new ideas. Interactions within a diverse and creative community spark ideas about new lines of evidence, new interpretations of existing data, new applications, new questions, and alternate explanations — all of which help science move forward.

Watchdog/whistleblower: the community helps eliminate bias and fraud by keeping watchful eye. Though fraud is rare and bias often unintentional, the occasional cases of such offenses are detected through the scrutiny and ongoing work of the scientific community.

Cheerleader/taskmaster: the community motivates scientists. The community offers the prospects of recognition, esteem, and a scientific legacy — payoffs which help motivate many scientists in their investigations.

Interactions within the scientific community and the scrutiny they entail take time and can slow the process of science. However, these interactions are crucial because they help ensure that science provides us with more and more accurate and useful descriptions of how the world works [2].

3. Complete the word combinations with the prepositions in the box. Make up your own sentences using the word combinations.

within	*forward*	*on (3)*	*of*	*through*	*in (2)*	*with*

Consist…, communication … social network, to be involved …, to depend …, to work … isolation, to argue …, to work … the project, to be based … evidence, infraction … a community, to move … .

4. Read the text below. Use the words given in capitals to form a word that fits in the gap.

When it comes to academic research, scientists should not have a monopoly on 1) …… **know** and its possession. If we make a 2) …… **discover**, it is our duty to share it with the world. It is true that academic journals have a central role in 3) …… **disseminate** research, but I think it is a shame that the public do not access these journals, nor are there many 4) …… **general** scientific journals that would be more 5) …… **access** to the public. Anyway, scientists don't publish in generalist journals; they only publish in 6) …… **establish**, rigorous and peer-reviewed journals. This is as it should be, because peer

review is an essential component to producing and communicating quality research, but an unintended consequence of this is that the vast 7) …… **major** of research science is isolated to those 'in the know.'

5. Read the text below. Express your agreement or disagreement with each statement.

Benefits to the scientist:

- Outreach to the public and smaller scientific community can lead to unexpected new connections and new ideas that could stimulate your research.
- Sharing your science with the world directly brings attention and respect for your work, which clearly has career advancement benefits.
- The act of communicating itself helps to better organize thoughts, allows for identifying the critical/most important elements of your work, encourages creating better technical and non-technical presentations of your work, and improves overall writing and oral presentation skills.
- The public (taxpayers) gain a better understanding of your science and therefore may be more entitled to support research funding increases in the future.
- It's fun! Telling others about your work can be very personally gratifying.

6. Read the beginning of the email sent to members of a laboratory. Then answer the questions below.

Dear all,

Sooner or later, issues of Technology Transfer (sharing and using discoveries, inventions, materials, data etc.) will become important in your research career. Protecting your work from competitors and, where appropriate, making it attractive to the commercial sector will be important during your career as a professional scientist. What are the key issuers that you must think about?

1. What is the purpose of the email?

2. What kind of discoveries, inventions, materials and data might you share with other scientists in your field?

3. What do you think are the key issues of technology transfer? [3]

7. Read the dialogue and tell about the participants of the conference. Scientists from different countries representing various sciences have come to attend the conference on «Science and Global Security Problems». We can hear fragments of a talk and an exchange of news between old friends, as well as spontaneous introductions of those who are less fortunate.

Laura: Hallo, James. Glad to see you again.

James: Hallo Laura! Happy to see you. You are looking as charming as ever. Laura: Thanks. Meet Robert Roy, a geologist from Illinois. He has written a paper on the role of soils in prospecting for oil.

James: How do you do, Mr. Roy. Happy to meet you!

Robert: How do you do. It's pleasure.

James: What's your mission here?

Robert: I'm to give a talk on environmental pollution as a result of nuclear tests. This is my friend and colleague, Dr. Ronald Onyx. He works at the laboratory of radioelectronics at Oxford.

Ronald: Good morning, everybody.

James: Good morning. Dr. Onyx, are going to give a paper at the conference?

Ronald: Yes, I'm a contributing participant.

James: What are going to talk about?

Ronald: I haven't decided yet what field to choose.

Susan: Excuse my interrupting you. I'm Susan Dewston, a chemist from Houston. All: Glad to meet you.

Ronald: I believe I've heard your name before, but I can't place it. What's your field of investigation?

Susan: I'm a chemist at a city perfumery. Also I write reviews for the «Chemical News».

Ronald: Oh, I've got it. I heard your name from my friend Rosy Snow. She is a well-known sociologist from Rome. Her goal is to study global sociological problems on the whole, including those of lonely hearts. She is a nice person. Here she is. This is Rosy Snow, a sociologist from Rome.

All: Hallo, Rosy. Pleased to meet you.

Rosy: Glad to see everybody. Romans used to say: «All roads lead to Rome». Now we should say: «All roads lead to peace». That's why I'm here. I'd like you to meet my friend, Clyde Brian. He is a young psychiatrist from Brighton. He is very bright, has an inquisitive mind and is highly competent in his field. Clyde, are going to speak on after-effect of nuclear tests on psychics?

Clyde: Right. To begin with …

Radio Announcement: Attention! Attention! Participants of the conference are invited to proceed to the Conference Hall. The session starts in five minutes.

8. Work in groups. Discuss the questions.

1. Did you enjoy science lessons at school?
2. Which of the sciences interests you most?
3. Which science do you think is the most important?
4. Would you like to work as a scientific researcher?
5. Is science relevant to our everyday lives?
6. What major scientific breakthroughs have there been in the last 50 years?
7. Who is the greatest living scientist in the world?
8. What is there left to discover?
9. What would you say is the purpose of science?
10. Who were the first human beings to do science?
11. What do you understand by the scientific method?
12. Is science capable of providing us with absolute truth?
13. Are there any questions which science cannot answer?
14. Can science and religion live alongside each other?
15. According to science, a human being is just a material object. Do you agree?

16.Can science be dangerous?

17.Would you be happy to donate your body to medical science?

18.Do you enjoy science-fiction novels and movies?

19.Should your government spend more or less money on scientific research?

UNIT 4. HOW TO CONDUCT SCIENCE EXPERIMENT

1. In pairs, discuss the following questions.

1. What processes do you need to describe in your field of research?

2. How much detail do you need to include in your description?

3. What do you think are the most important points to remember when describing a process for other scientists?

2. Read the text. Are the sentences true (T) or false (F)? How do you know?

1. Experimental observations are used to answer questions.

2. Experiments are designed so that one variable is changed and the effects of the change observed.

3. The overall process of any experiment is the same. First a scientist must define the question: what exactly they are trying to find out.

4. Data collection follows data analysis.

5. A scientist is able to draw conclusions after data interpreted.

6. Other scientists find it more difficult to study your data by looking at diagrams than at blocks of text.

7. Graphs, tables, etc are necessary to avoid filling up the text with lists of numbers.

8. When writing a conclusion, there is no need to answer your hypothesis.

9. A hypothesis is a clear statement of the information that the researcher intends to investigate. It is thus a clear statement that is essential before conducting research.

HOW TO CONDUCT SCIENCE EXPERIMENT

Understanding on how to conduct science experiments is crucial for understanding how knowledge is created.

Since before the time of the Ancient Greeks, thousands of years ago, people have tried to find out more about the world around them, wondering how and why things work.

Scientists come up with many great ideas to show how things work, but for an idea to become accepted, it has to be tested.

The tool scientists use to test their theories is called the scientific method. Whether you are studying stars, caterpillars or medicines, this method remains the same.

If you have an idea, or a question, you have to be able to prove it and give evidence so that other scientists can check and test your results.

A researcher can conduct experimental research in the following situations -

1. When time is an important factor in establishing a relationship between the cause and effect.
2. When there is an invariable or never-changing behavior between the cause and effect.
3. Finally, when the researcher wishes to understand the importance of the cause and effect.

Here we are going to show you the best way to design and conduct science experiments.

Steps

- Research
- Problem
- Hypothesis
- Experiment
- Results
- Discussion and Conclusion

Research. The first step in any investigation is to research your topic. This can be done in a variety of ways.

The experiment you are trying to perform might be building upon ones you have done earlier or be a result of something you have noticed in everyday life.

You might, for example, have noticed that mold seems to grow quicker in hot temperatures and want to know if this is true.

You can use the internet, books, magazines or talking to knowledgeable people to try and find some details.

You can then do more research into the project because other people may have performed similar experiments. It is always a good idea to make a list of where you found each piece of information because you may need to use this in your report.

Problem. Now you must try to narrow down your research into one, easily testable, problem. For example, you might decide to find out whether mold grows quicker at higher temperatures. It is much easier to test one thing at a time.

If you wanted to test mold growth with different types of bread or varying amounts of light, it becomes complicated. The scientific way is to test one thing and get the results. Once you have the results for this experiment, you can always test other variables.

Hypothesis. This is where we really start going. The **hypothesis** is one statement of fact that you are going to try and prove or disprove. It could be

«Mold grows quicker at higher temperatures».

«More expensive paper towel brands absorb more water».

It is always a good idea to say why you have picked this hypothesis.

Write down your hypothesis. This is what your experiment is designed around. It must never be changed even if it is wrong. Science is not about right and wrong, just coming to an answer.

Experimentation. There are three important variables you have to remember when you are designing your experiment. *Independent variable* - this is what you change in order to provide a result. In the case of the mold bread experiment, it is temperature. In the case of the paper towel experiment it is the brand. *Controlled variables* - these are the things that never change. *Dependent variable* - this is what you are measuring, how much water the towel absorbs or how much mold grows on the slice.

It is important to make sure that you perform experiments in batches. One result can always be an accident but if you have 3 or more samples for each test under the same conditions then you can take a mean or average for your results.

As much as is possible, you must try and keep everything else the same. The bread you use for the mold bread experiment should be from the same loaf. The plastic bags should be the same. Be careful to make sure that you keep a list of the exact details of everything you use.

For experiments where you took samples outside, it is a good idea to give a map reference and even draw a small map, or use Google maps. Photographs of your methods and apparatus can also be excellent ways of describing your experiment.

Results. Here is where you show your results and let the whole world know what you found at the end of the experiment. You do not need to show all of your calculations; most people know how to take a mean, but you must make it clear that you did use a mean.

In this section describe what you found. Graphs and tables are good ways to present your findings. Other scientists find it a lot easier to study your data by looking at diagrams than at huge blocks of text. Graphs and tables are fine with pen and paper if they are neat. If you know how to use computer programs to draw these, even better.

Discussion / Conclusion. In the discussion, you assess how the results answer the hypothesis and discuss its relevance to the existing knowledge in the field. When writing a conclusion, you should try to answer your hypothesis, as succinctly as possible [4].

3. Complete the following summary on variables using the words.

affects collecting controlled data dependent independent

How much a variable 1) …… a relationship can be discovered by 2) …… experimental 3) …… on changes to the relationship as the variable is changed. In an experiment, there will be:

- one 4) …… variable – this is the feature you are measuring
- one or more 5) ……variables – these are the variables which you change
- one or more 6) …… variables – these are not being tested and they stay the same.

4. The scientific method is a process in which experimental observations are used to answer questions. Complete the collocations for describing the stages in the scientific method using the words and phrases in the box.

a hypothesis an experiment (2) conclusions data(3) the question

analyse ----------	design ----------
collect ----------	draw ----------
conduct (or run) ----------	form ----------
define ----------	interpret ----------

5. Number the stages in order you would normally do them.

6. Match the beginnings of the sentences with their endings.

1. Researchers have	-	A the same dataset can be repurposed for similar research ideas.
2. The subject does not	-	B effect of the hypothesis and further analyze this relationship to determine in-depth ideas.
3.The results are specific	-	C an ideal starting point. The collected data could be used as a foundation to build new research ideas for further studies.
4. It is a critical part of the paper	-	D impact the effectiveness of experimental research. Anyone can implement it for research purposes.
5. Researchers can identify the cause and	-	E where the data collected and analysed is presented in a clear and organised manner.
6. Experimental research makes	-	F firm control over variables to obtain results.

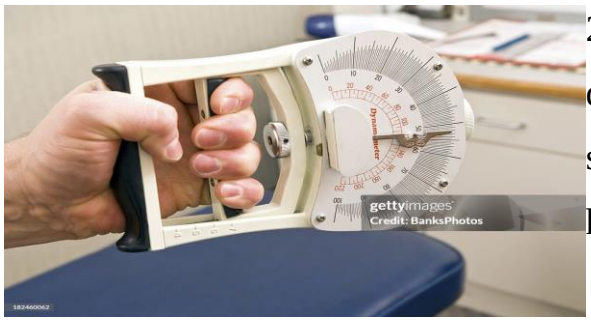
7. Match the words (1-6) with the definitions (A-F).

1 accept	A demonstrate to be the specified thing by evidence or argument.
2 prove	B officially refuse to agree to
3 variables	C evaluate or estimate the nature, ability, or quality of.
4 disapprove	D believe or come to recognize (a proposition) as valid or correct.
5 assess	E the quality or state of being closely connected or appropriate.
6 relevance	F an element, feature, or factor that is liable to vary or change

8. Match the instruments (A-H) to their definitions (1-8).

1. an instrument used to detect and measure ionizing radiation

A Caliper



2. an electronic measuring instrument that displays electrical signals as waveforms on a screen, allowing users to visualize and analyze how voltage changes over time

B Dynamometer

3. a precision measuring instrument used to gauge the dimensions of an object, such as thickness, width, diameter, or depth

C Geiger counter

4. a type of indicator paper that is used to test whether a substance is acidic or basic (alkaline)

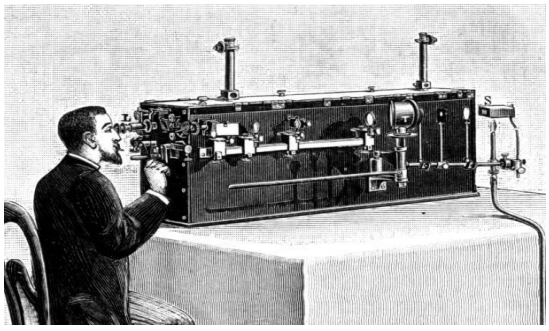
D Litmus paper

5. a device that measures force, torque, or power

E Oscilloscope

6. a scientific instrument used to analyze the spectral components of electromagnetic radiation or other physical phenomena

F Seismograph



7. an instrument that uses interference patterns of waves (usually light) to make precise measurements. These measurements can include distances, wavelengths, refractive indices, and surface irregularities

G Interferometer

8. an instrument used to detect and record ground movement, particularly during earthquakes.

H Spectrometer

9. Read the text below. For questions (1–7) choose the correct answer (A, B, C).

THE IG NOBEL PRIZE

Most scientists dream of 1) …… a Noble Prize. It is the greatest award a scientist can be 2) …… with and often comes after decades of careful research. Most often, winners are scientists who have 3) …… important questions about existence or made discoveries that have helped advance the human race. But not every scientist works on 4) …… projects that, for instance, try to cure diseases or 5) …… life on other planets. There are also scientists who spend their time on the simpler, more mundane questions of science. Take, for example, the group of scientists from Newcastle, UK, who worked 6) ……the fact that cows with pet names produce more milk than cows without pet names, or the team of Australian mathematicians who studies how many times you have to take a group photograph to make 7) …… everyone has their eyes open. Both of these research projects were awarded not Noble Prize, but Ig Noble Prizes. The Ig Noble Prizes began in 1991 to honour scientists who first make people laugh and then make them think. They are organized by a magazine called Improbable Research and, since 1995, the 8) …… have been presented at a ceremony in Harvard University. USA. The committee that chooses the winners often 9) …… former Noble Prize winners as well as university lecturers and sci-fi writers. And 10) …… the fact that the ceremony often involves lots of fun and laughter (including tradition of throwing paper airplanes onto the stage), the organizers always emphasise that the prizes are not meant to make fun of winners. In fact, most winners thoroughly enjoy the occasion and fly across the world just to collect their awards [5].

1	A	winning	B	gaining	C	earning	D	acquiring
2	A	awarded	B	granted	C	honoured	D	conferred
3	A	addressed	B	answered	C	referred	D	put
4	A	pilot	B	study	C	research	D	investigation
5	A	create	B	uncover	C	discover	D	reveal
6	A	off	B	around	C	through	D	out
7	A	ensure	B	assured	C	sure	D	aware
8	A	rewards	B	awards	C	prices	D	decorations
9	A	consists	B	composes	C	covers	D	includes
10	A	although	B	even	C	despite	D	though

UNIT 5. DATA COLLECTION

1. Work in groups. Think about the following:

What data will you collect?

How do you plan to use these findings?

How to refine your research questions to ensure they are valid and reliable?

2. Read the text. Find:

1 the main techniques of data collection

2 the methods of Primary data collection

3 the main steps in the collection of Primary data

4 the difference between Primary data collection and Secondary data collection

6 the choice of choosing the right method of data collection

DATA COLLECTION

Data collection is the process of collecting and evaluating information or data from multiple sources to find answers to research problems, answer questions, evaluate outcomes, and forecast trends and probabilities. It is an essential phase in all types of research, analysis, and decision-making, including that done in the social sciences, business, and healthcare. Primary and secondary methods of data collection are two approaches used to gather information for research or analysis purposes. Let's explore each data collection method in detail:

1. Primary Data Collection

The first techniques of data collection is Primary data collection which involves the collection of original data directly from the source or through direct interaction with the respondents. This method allows researchers to obtain firsthand information tailored to their research objectives. There are various techniques for primary data collection, including:

a. Surveys and Questionnaires: Researchers design structured questionnaires or surveys to collect data from individuals or groups. These can be conducted through face-to-face interviews, telephone calls, mail, or online platforms.

b. Interviews: Interviews involve direct interaction between the researcher and the respondent. They can be conducted in person, over the phone, or through video conferencing. Interviews can be structured (with predefined questions), semi-structured (allowing flexibility), or unstructured (more conversational).

c. Observations: Researchers observe and record behaviors, actions, or events in their natural setting. This method is useful for gathering data on human behavior, interactions, or phenomena without direct intervention.

d. Experiments: Experimental studies involve manipulating variables to observe their impact on the outcome. Researchers control the conditions and collect data to conclude cause-and-effect relationships.

e. Focus Groups: Focus groups bring together a small group of individuals who discuss specific topics in a moderated setting. This method helps in understanding the opinions, perceptions, and experiences shared by the participants.

2. Secondary Data Collection

The next techniques of data collection is Secondary data collection which **involves** using existing data collected by someone else for a purpose different from the original intent. Researchers analyze and interpret this data to extract relevant information. Secondary data can be obtained from various sources, including:

a. Published Sources: Researchers refer to books, academic journals, magazines, newspapers, government reports, and other published materials that contain relevant data.

b. Online Databases: Numerous online databases provide access to a wide range of secondary data, such as research articles, statistical information, economic data, and social surveys.

c. Government and Institutional Records: Government agencies, research institutions, and organizations often maintain databases or records that can be used for research purposes.

d. Publicly Available Data: Data shared by individuals, organizations, or communities on public platforms, websites, or social media can be accessed and utilized for research.

e. Past Research Studies: Previous research studies and their findings can serve as valuable secondary data sources. Researchers can review and analyze the data to gain insights or build upon existing knowledge.

The choice of qualitative data collection method will depend on the research question, the type of data needed, and the resources available. Each method has its own strengths and limitations, and researchers should carefully consider which method will best suit their research goals.

For example, if the research question is focused on understanding the experiences of a specific group of individuals, interviews or focus groups may be the most appropriate methods. On the other hand, if the research question is focused on understanding a particular behavior or phenomenon, observations or document analysis may be more suitable [6].

3. Match the words (1-7) with the definitions (A-G).

1 evaluate	A appropriate to the current time, period, or circumstances; of contemporary interest
2 appropriate	B have or include (something) as a necessary or integral part or result
3 relevant	C have a strong effect on someone or something
4 involve	D form an idea of the amount, number, or value of; assess
5 impact	E coming from the original source or personal experience; gained or learned directly
6 firsthand	F predict or estimate
7 forecast	G suitable or proper in the circumstances

4. Use these words to complete the sentences. There are two words you do not need.

data .... secondary .... impact .... evaluate ..... primary .... forecast .... involves first-hand .... relevant research

1. The agency will …… both competing proposals and release an analysis of the options in the spring, to take effect as early as the summer.
2. This compliance requirement …… technology, people and process.

3. For this second part he has consulted historical documents, but he stops at the year 1087, just when he has reached the period about which he might have been able to give us some …… information.

4. In other words, if we could know exactly all these conditions, we should be able to …… with mathematical certainty the course which the agent would pursue.

5. If you're concerned my little project might …… your security, don't be alarmed.

6. Is this information …… to the qualifications for this position?

7. …… data collection is the process of gathering data directly from the source, whether it be individuals, organizations, or communities. This data is collected through various methods such as surveys, interviews, observations, and experiments

8.Due to the presence of the Internet and electronic media, …… data are easily available, such as books, articles, magazines, newspapers, websites, blogs, government records (such as census data), podcasts, etc.

5. Read the text below. Use the words given in capitals to form a word that fits in the gap.

In qualitative research, the choice of tools often depends on the research question, the study context, and the studied 1) …… **populate**. The key is selecting tools that align with the research objectives and capture the depth and breadth of 2) …… **quality** data.

Types of Qualitative Data Collection Methods

Qualitative data collection gathers non-numerical data through various methods, such as interviews, 3) …… **observe,** and document analysis. 4) …… **Research** use it to understand individuals' or groups' experiences, perspectives, and 5) …… **behave**.

Qualitative data collection methods are commonly used in qualitative inquiry. This research approach aims to understand the meaning and context of human experiences. This approach is based on the belief that reality is subjective and can only be understood through the eyes of the individual 6) …… **experience** it.

Several methods can be used to collect qualitative data. Some of the most common methods include:

- Interviews: Interviews involve asking individuals or groups a series of questions to gather information about their experiences, opinions, and perspectives. Interviews can be structured, semi-structured, or unstructured, 7) ..... **depend** on how much control the researcher wants over the conversation.
- Observations: Observations involve watching and recording the behavior and 8) ..... **interact** of individuals or groups in their natural environment. This method lets researchers collect data without talking to 9) ..... **participate**, which can give a better idea of how they behave.
- Focus Groups: Focus groups involve bringing together a small group to discuss a specific topic or issue. This method helps researchers collect data from different viewpoints, which is 10) …… use for studying group dynamics and social interactions.

- Document Analysis: Document analysis involves examining 11) …… write or visual materials such as diaries, letters, photographs, or videos to gather data. This method can provide insight into the thoughts, feelings, and experiences of individuals or groups over time.

6. Agree or disagree with the following statements.

1. In the realm of data, accuracy and reliability reign supreme.
2. Without integrity, data loses its essence.
3. In an interconnected digital world, ethical considerations (privacy concerns, data misuse) are more pressing than ever.
4. In our tech-driven age, collecting data brings tech-specific challenges: Data Storage Issues, Data Security Concerns.
5. The labyrinth of data collection is complex, but navigating it is essential for sound research and informed decision-making.

UNIT 6. SCIENTIFIC REPORT

SCIENTIFIC REPORT

The purpose of a scientific report is to talk the reader through an experiment or piece of research you've done where you've generated some data, the decisions you made, what you found and what it means.

Lab or experimental reports in the Sciences have a very specific structure, which is often known as **IMRAD**:

- **I**ntroduction
- **M**ethods
- **R**esults and
- **D**iscussion.

Під час написання реферату після вихідних даних статті, насамперед, говоріть про **тему роботи**, тобто повідомляйте про те, що вивчається, описується, обговорюється і т.п. Для української мови найбільше характерні речення з присудком у пасивному стані та зворотнім порядком слів (присудок – підмет), а для англійської мови – речення з присудком у пасивному стані з прямим порядком слів (підмет – присудок).

Зразок: 1. Вивчається ізотопічний ефект в кристалах. The isotopic effect in crystals is studied. Частіше використовується Present Indefinite, а в тих випадках, коли необхідно підкреслити доконану дію – Present Perfect, Past Indefinite. При повідомленні про об'єкт дослідження використовуються дієслова:

1) *study* – вивчати, досліджувати, *investigate* - вивчати (ретельно, всебічно), розслідувати, *examine* - розглядати, перевіряти, *analyze* – досліджувати, вивчати (з елементами аналізу), *consider* - вивчати, розглядати (враховуючи різні параметри); 2) із загальним значенням опису *describe* – описувати, давати опис, *discuss* – обговорювати, описувати, викладати, *outline* –коротко описувати, окреслювати, 3) із загальним значенням отримання *obtain* – отримувати, *determine* – визначати, отримувати, знаходити, *find* – знаходити, виявляти, *establish* – встановлювати, точно визначати, *calculate, compute* – отримувати шляхом обчислення, *estimate, evaluate* – оцінювати, підраховувати, визначати кількість, якість.

Наступні дієслова також можуть бути корисними для повідомлення про тему роботи: *develop (method, technology, device), design (device, scheme), construct, fabricate, create (a device), assemble (a device), solve (problem, equation), make, carry out, perform (experiment, study, work).* Якщо при повідомленні про виконану роботу вам необхідно щось логічно виділити, то можна користуватися наступними дієслівними словосполученнями: *pay (give) particular (special, specific, great, primary), attention to, emphasize, give emphasis to, place emphasis on.*

Умови експерименту. Якщо необхідно вказати, за яких умов (температурі, тиску, напрузі і ін.) проводиться дослід або явище, використовують поєднання іменників з прийменником at: *at the temperature (of), at the pressure (of), at the speed (of).* Уточнення може бути передано прикметниками: *certain, definite, ordinary, different, similar, variable, stable* і т.д.

Способи, методи. Слова зі значенням «метод, спосіб, методика, прийом, підхід, процедура» – *method, technique, procedure, approach, way* – не мають однозначних відповідностей в українській й англійській мовах. Вживаючи їх необхідно враховувати, який зміст вкладається в поняття. *Method* – метод, спосіб, *technique* – метод, спосіб, методика, техніка (проведення дослідження), *procedure* – метод, прийом, процедура, операція, *approach* – метод, підхід (до рішення). Якщо виникають труднощі з вибором слова, використовуйте «method», так як воно має найбільш широке значення, або звіртеся зі словником. Для характеристики методу, способу можна використовувати наступні прикметники: *main, chief, basic, principal* – основний, головний, *modern, current, up-to-date* – сучасний, *usual, conventional* – звичайний, *promising, perspective* – багатообіцяючий, перспективний, *improved, modified* – удосконалений, видозмінений, *exact, accurate* – точний, *valuable, useful* – цінний, корисний тощо.

Мета, призначення. Для позначення мети, призначення дослідження можна вжити наступні іменники *the aim, the object, the purpose, the task* – мета, призначення, задача – з наступним дієсловом be + to Infinitive. Приклад: The aim (object, purpose) of the study is to determine the causes of air pollution. Також використовуються фрази: *(The study) is designed to* - призначено, має на меті, *is intended for* – зроблено з метою.

Приклад: The study was intended to establish temperature dependence. Це дослідження призначалось (було проведене) для встановлення температурної залежності.

Галузь застосування. Для повідомлення про застосування пристрою (методу, інструменту) можна вжити наступні іменники, дієслова і словосполучення: *application* – застосування, *to use. employ, apply (to), utilize* – застосовувати, використовувати, *be used (employed, applied (to), utilized), find use, find (have) application, be applicable* – використовуватися, застосовуватися, отримувати застосування. Приклади: The approach is applicable to pure samples only. Цей підхід (метод) застосуємо тільки до чистих зразків. This device has found application in geophysics. Цей прилад знаходить застосування в геофізиці. Іменник «application» можна охарактеризувати наступними прикметниками: *wide* – широкий, *limited, few* – вузький, обмежений, *different, various* - різний, різноманітний, *modern* – сучасний, *recent* – новий, самий новий, *promising, perspective* – перспективний, *possible* – можливий. Приклад: Possible application of the device in radio astronomy is discussed. Обговорюється можливість застосування пристрою у радіоастрономії.

Результат. При повідомленні про результати роботи вам знадобляться наступні іменники: *result (on, of)* – результат, *findings (on)* – дані (про, відносно) дослідження (частіше геологічні та археологічні), *data (on, concerning, as to)* – дані, відомості (про, відносно, що стосується), *evidence (for, of, on)* – докази, свідчення, *fact (of, that)* – факт. Ці іменники вживаються з дієсловами: *obtain* – отримувати, *find* – знаходити, *give, present, provide* – давати, представляти, *report* – повідомляти, *treat* – обробляти, *check, test, verify* – перевіряти, *collect* – збирати, *summarize, sum up* – узагальнювати, підводити підсумки, *extend to* – розповсюджувати на. Приклад: New data on (concerning) the behaviour of the substance were obtained. Отримані нові дані про поведінку (що стосуються поведінки) цієї речовини.

Висновки. Заключні речення рефератів часто вводяться за допомогою наступних слів і словосполучень: *conclude* – дійти висновку, *make, draw, reach a conclusion, come to a conclusion that...* – дійти висновку, що, *... lead to a conclusion, make it possible to conclude that ...* – приводити до висновку, що ..., *it may be noted (stated) that* – можна відзначити (стверджувати), що ..., *thus, therefore, consequently,*

as a result – таким чином, отже, в результаті. Приклад: The author comes to conclusion that this method is applicable in the field of power generation. Автор приходить до висновку, що метод застосуємо в області отримання енергії [7].

1. Fill the gaps with the correct word from the box.

subheading information recommend aim

1. You might be asked to write a report when a person in authority needs _____.

2. In the first line of the introduction, you should say what the _____ of the report is.

3. A report should be divided into paragraphs, each with a clear _____ on the left.

4. At the end of the report, you will probably be asked to _____ what should be done.

2. Match the words and phrases with their purpose in the box.

Summarise what you found out Conclude by giving your recommendations Say why you are writing the report Say how you got your information

1. _____The aim of this report is to ...

2. _____It is based on a survey of ...

3. _____The majority/minority of ...

4. _____I would recommend that we ... / Perhaps we should consider ...

3. Complete the second sentence to make recommendations in a more formal way.

1. We should organise an interview. – Perhaps we could consider _____

2. We should make a book. – I would recommend _____

3. We should prepare questions for the interview. – It would be advisable _____

4. We should invite all students. – I would recommend _____

5. We should use a microphone for the interview. – Perhaps we could consider _____

6. We should choose representatives from each group. – It would be advisable _____

7. We should print the book professionally. – Perhaps we could consider _____

8. We should give students adequate time to prepare their contributions. – I would recommend _____

UNIT 7. SCIENTIFIC METHOD

1. Work in groups. Discuss what you know about the scientific method. Think about the following:

- What is the difference between a hypothesis and a theory?
- What are the different types of variables in an experiment?
- Why is replication important in scientific experiments?
- How does the scientific method help us understand the world around us?

2. Read the text about scientific method and answer the following questions to the text.

1. What is the importance of applying the scientific method?
2. When is the scientific method used?
3. Why is probability theory crucial to the scientific method?
4. How do you develop theories when you use the scientific method?
5. What is the role of hypothesis in scientific methods?
6. What is the difference between empirical and qualitative research?
7. Is all qualitative evidence empirical and all empirical evidence qualitative?

SCIENTIFIC METHOD

The scientific method is the process of objectively establishing facts through testing and experimentation. The basic process involves making an observation, forming a hypothesis, making a prediction, conducting an experiment and finally analyzing the results. The principals of the scientific method can be applied in many areas, including scientific research, business and technology.

Scientific method, mathematical and experimental technique employed in the sciences. More specifically, it is the technique used in the construction and testing of a scientific hypothesis.

The process of observing, asking questions, and seeking answers through tests and experiments is not unique to any one field of science. In fact, the scientific method is applied broadly in science, across many different fields. Many empirical sciences, especially the social sciences, use mathematical tools borrowed from probability theory and statistics, together with outgrowths of these, such as decision theory, game theory, utility theory, and operations research. Philosophers of science have addressed general methodological problems, such as the nature of scientific explanation and the justification of induction.

The scientific method is critical to the development of scientific theories, which explain empirical (experiential) laws in a scientifically rational manner. In a typical application of the scientific method, a researcher develops a hypothesis, tests it through various means, and then modifies the hypothesis on the basis of the outcome of the tests and experiments. The modified hypothesis is then retested, further modified, and tested again, until it becomes consistent with observed phenomena and testing outcomes. In this way, hypotheses serve as tools by which scientists gather data. From that data and the many different scientific investigations undertaken to explore hypotheses, scientists are able to develop broad general explanations, or scientific theories.

Empirical evidence, information gathered directly or indirectly through observation or experimentation that may be used to confirm or disconfirm a scientific theory or to help justify, or establish as reasonable, a person’s belief in a given proposition. A belief may be said to be justified if there is sufficient evidence to make holding the belief reasonable.

Empirical evidence can be quantitative or qualitative. Typically, numerical quantitative evidence can be represented visually by means of diagrams, graphs, or charts, reflecting the use of statistical or mathematical data and the researcher's neutral noninteractive role. It can be obtained by methods such as experiments, surveys, correlational research (to study the relationship between variables), cross-sectional research (to compare different groups), causal-comparative research (to explore cause-effect relationships), and longitudinal studies (to test a subject during a given time period).

Qualitative evidence, on the other hand, can foster a deeper understanding of behaviour and related factors and is not typically expressed by using numbers. Often subjective and resulting from interaction between the researcher and participants, it can stem from the use of methods such as interviews (based on verbal interaction), observation (informing ethnographic research design), textual analysis (involving the description and interpretation of texts), focus groups (planned group discussions), and case studies (in-depth analyses of individuals or groups).

Empirical evidence is subject to assessments of its validity. Validity can be internal, involving the soundness of an experiment's design and execution and the accuracy of subsequent data analysis, or external, involving generalizability to other research contexts [8].

3. Here are the 8 steps in scientific research. Put the actions in the correct order.

- Observation.
- Report findings.
- Experiment.
- Analyze Results.
- Problem.
- Conclusion.
- Hypothesis.
- Collect Data.

4. Read the extract and choose the correct word from the list

obtained to look for revised to remain re-examine develop support examine

If your data does not 1) …… your research hypothesis, you will need to revise it or 2) …… a new one. You should 3) …… your data carefully and identify any patterns or anomalies, 4) ….. your research question, and/or revisit your theory 5) …… any alternative explanations for your results. Based on your review of the data, literature, and theories, modify your research hypothesis to better align it with the results you 6) ……. Use your 7) …… hypothesis to guide your research design and data collection. It is important 8) …… objective throughout the process.

5. Match the beginnings of the sentences with their endings.

1. The Scientific Method is not a formula, but rather a process with a number of	A between the correlation of two or more things happening in association with each other and the actual cause of the phenomenon we observe.
2. The research method depends largely	B hypotheses, think of ways that you could confirm or disprove each hypothesis through experimentation. This is known as falsifiability.
3. The Scientific Method enables us to test a hypothesis and distinguish	C on exactly what they are studying.
4. While the hypothesis predicts	D sequential steps designed to create an explainable outcome that increases our knowledge base.
5. After you have developed some possible	E explore numerous factors to determine which ones might contribute to the ultimate outcome.
6. When conducting an experiment, researchers might	F what the researchers expect to see, the goal of the research is to determine whether this guess is right or wrong.

6. Read the information about the difference between the words *investigation* and *research*. Use these words to complete the sentences.

While both investigation and research involve seeking information, they differ in their approach and purpose. Investigation is a more focused and often formal process of inquiry, typically driven by a specific event or question, while research is a broader, systematic study aimed at discovering, interpreting, or revising knowledge.

Here's a more detailed breakdown:

Investigation:

- **Purpose:** To uncover facts, often in response to a specific problem, incident, or question.
- **Scope:**

Narrower and more focused, aiming to answer specific questions related to a particular event or situation.

- **Approach:**

May involve gathering evidence, interviewing witnesses, analyzing data, and drawing conclusions to understand what happened and potentially how to prevent similar occurrences.

- **Examples:**

Investigating a crime, a workplace accident, or a bridge failure.

Research:

- **Purpose:**

To expand knowledge, explore new ideas, and contribute to a body of understanding on a particular topic.

- **Scope:** Broader and more systematic, involving a range of activities to explore a subject in depth.
- **Approach:**

May involve literature reviews, data collection, analysis, and interpretation to develop new insights or test existing theories.

- **Examples:**

Conducting a study on the effects of a new drug, researching the history of a specific civilization, or analyzing market trends.

In essence:

- An investigation is often triggered by a specific event and seeks to understand what happened.
- **Research**: is a more general pursuit of knowledge, aiming to build a deeper understanding of a subject.

While investigations can be a part of research, and research can inform investigations, they are distinct processes with different primary goals [9].

1. His …… on climate change won him an award.
2. The agency will …… the company's safety practices.
3. The journalist decided to …… the politician's background.
4. ….. ways to use less energy.
5. The laboratory is at the forefront of cancer …… .
6. These ideas have long been the subject of medical …… .
7. The rocket was launched from the space …… base.

7. Read the text below. Use the words given in capitals to form a word that fits in the gap.

History of the scientific method

The discovery of the scientific method is not credited to any single person, but there are a few notable figures who contributed to its 1) ……**develop.**

The Greek philosopher Aristotle is considered to be one of the 2)…… **early** proponents of logic and cycles of observation and deduction in 3) …… **record** history. Ibn al-Haytham, a mathematician, established 4)…… **string** testing methodologies in pursuit of facts and truth, and he recorded his findings.

During the Renaissance, many 5)…… **think** and scientists continued developing rational methods of establishing facts. Sir Francis Bacon emphasized the importance of inductive 6)…… **reason**. Sir Isaac Newton relied on both inductive and deductive reasoning to explain the results of his experiments, and Galileo Galilei emphasized the idea that results should be 7)…… **repeat**.

Other well-known contributors to the scientific method include Karl Popper, who introduced the concept of 8)…… **false**, and Charles Darwin, who is known for using multiple communication channels to share his conclusions [10].

8. Work in groups. Discuss the questions.

1. What is a significant outcome in research?
2. The more data we can work with, the better the processes and outcomes will be.
3. What is the expected outcome in a research sample?
4. What points must be kept in mind in the interpretation of your results?
5. What does it mean to be perfectly satisfied with the outcome of the experiment?

UNIT 8. DISCUSSION SECTION

1. Work in groups. Think about the following:

- What do the results tell us about the research problem?
- What are the implications of the findings for theory and practice?
- How might the limitations affect the interpretation of the results?

2. Read the text about discussion section. Decide which statement below you agree with.

1. The text made me think a bit differently about the key elements of the discussion section.
2. I found some of the information contradictive.
3. The information how to avoid common mistakes is valuable.
4. Limitation sentence starters are useful.
5. There is a bit in the text I didn’t get.

DISCUSSION SECTION

The discussion section is where you delve into the meaning, importance, and relevance of your results.

It should focus on explaining and evaluating what you found, showing how it relates to your literature review and paper or dissertation topic, and making an argument in support of your overall conclusion. It should not be a second results section.

There are different ways to write this section, but you can focus your writing around these key elements:

- **Summary:** A brief recap of your key results
- **Interpretations:** What do your results mean?
- **Implications:** Why do your results matter?
- **Limitations:** What can't your results tell us?
- **Recommendations:** Avenues for further studies or analyses

There is often overlap between your discussion and conclusion section, but these are usually separate sections. However, in some cases, these two sections are combined.

If you're unsure about your field's best practices, check out sample dissertations in your field or your departmental guidelines.

What not to include in your discussion section

There are a few common mistakes to avoid when writing the discussion section of your paper.

- **Don't introduce new results:** You should only discuss the data that you have already reported in your results section.
- **Don't make inflated claims:** Avoid overinterpretation and speculation that isn't directly supported by your data.
- **Don't undermine your research:** The discussion of limitations should aim to strengthen your credibility, not emphasize weaknesses or failures.

Step 1: Summarize your key findings

Start this section by reiterating your research problem and concisely summarizing your major findings. To speed up the process you can use a summarizer to quickly get an overview of all important findings. Don't just repeat all the data you have already reported

- aim for a clear statement of the overall result that directly answers your main research question. This should be no more than one paragraph.

Many students struggle with the differences between a discussion section and a results section. The crux of the matter is that your results sections should present your results, and your discussion section should subjectively evaluate them. Try not to blend elements of these two sections, in order to keep your paper sharp.

Examples: Summarization sentence starters

- The results indicate that …
- The study demonstrates a correlation between …
- This analysis supports the theory that …
- The data suggest that …

Step 2: Give your interpretations

The meaning of your results may seem obvious to you, but it's important to spell out their significance for your reader, showing exactly how they answer your research question.

The form of your interpretations will depend on the type of research, but some typical approaches to interpreting the data include:

- Identifying correlations, patterns, and relationships among the data
- Discussing whether the results met your expectations or supported your hypotheses
- Contextualizing your findings within previous research and theory
- Explaining unexpected results and evaluating their significance
- Considering possible alternative explanations and making an argument for your position

You can organize your discussion around key themes, hypotheses, or research questions, following the same structure as your results section. Alternatively, you can also begin by highlighting the most significant or unexpected results.

Examples: Interpretation sentence starters

- In line with the hypothesis…
- Contrary to the hypothesized association…
- The results contradict the claims of Smith (2022) that…

- The results might suggest that *x*. However, based on the findings of similar studies, a more plausible explanation is *y*.

Step 3: Discuss the implications

As well as giving your own interpretations, make sure to relate your results back to the scholarly work that you surveyed in the literature review. The discussion should show how your findings fit with existing knowledge, what new insights they contribute, and what consequences they have for theory or practice.

Ask yourself these questions:

- Do your results support or challenge existing theories? If they support existing theories, what new information do they contribute? If they challenge existing theories, why do you think that is?
- Are there any practical implications?

Your overall aim is to show the reader exactly what your research has contributed, and why they should care.

Examples: Implication sentence starters

- These results build on existing evidence of…
- The results do not fit with the theory that…
- The experiment provides a new insight into the relationship between…
- These results should be taken into account when considering how to…
- The data contribute a clearer understanding of…
- While previous research has focused on *x*, these results demonstrate that *y*.

Step 4: Acknowledge the limitations

Even the best research has its limitations. Acknowledging these is important to demonstrate your credibility. Limitations aren't about listing your errors, but about providing an accurate picture of what can and cannot be concluded from your study.

Limitations might be due to your overall research design, specific methodological choices, or unanticipated obstacles that emerged during your research process.

Note You should only mention limitations that are directly relevant to your research objectives. Then, share how much impact they had on achieving the aims of your research.

Here are a few common possibilities:

- If your sample size was small or limited to a specific group of people, explain how generalizability is limited.
- If you encountered problems when gathering or analyzing data, explain how these influenced the results.
- If there are potential confounding variables that you were unable to control, acknowledge the effect these may have had.

After noting the limitations, you can reiterate why the results are nonetheless valid for the purpose of answering your research question.

Examples: Limitation sentence starters

- The generalizability of the results is limited by…
- The reliability of these data is impacted by…
- Due to the lack of data on x, the results cannot confirm…
- The methodological choices were constrained by…
- It is beyond the scope of this study to…

Step 5: Share your recommendations

Based on the discussion of your results, you can make recommendations for practical implementation or further research. Sometimes, the recommendations are saved for the conclusion.

Suggestions for further research can lead directly from the limitations. Don't just state that more studies should be done - give concrete ideas for how future work can build on areas that your own research was unable to address.

Examples: Recommendation sentence starters

- Further research is needed to establish…
- Future studies should take into account…
- Avenues for future research include… [11].

3. According to the text, are the sentences true (T), false (F) or not mentioned (N)?

1. The discussion section is one of the final parts of a research paper, in which an author describes, analyzes, but does not interpret their findings.

2. A conclusion is brief and touches on the main points of the paper, the discussion is much longer and more detailed.

3. To recommend a few areas where further investigation may be crucial is important.

4. Addressing limitations does not help build your credibility as a writer, because the reader sees that you have thought critically about what your study does and does not cover.

5. The discussion section is critical for presenting a comprehensive and balanced interpretation of research findings. It allows authors to engage in scientific dialogue, highlight the significance of their work, and guide further research in the field.

6. Implications state the importance of your study and how your findings may be relevant for the fine-tuning of certain practices, theoretical models, policymaking, or future research studies.

7. A thorough interpretation of results in research may assist guarantee that the findings are legitimate and trustworthy and that they contribute to the development of knowledge in an area of study.

4. Read some examples of the discussion sections and use the words given in capitals to form a word that fits in the gap.

1. Our aims were to compare the 1)…… **effective** and …… **user-friendly** of different storm detection software for storm 2)……**track**. On the basis of these aims, we ran multiple experiments with the same conditions using different storm 3)…… **detect** software. Our results showed that in both speed and 4)……**accurate** of data, 'software A' performed better than 'software B'.

2. Our analysis predicts that climate change will have a 5)…… **signify** impact on wheat yield. This finding undermines one of the central pieces of evidence in some previous 6)…… **simulate** studies that suggest a negative effect of climate change on wheat yield, but the result is 7)…… **entire** consistent with the predictions of other research that suggests the overall change in climate could result in increases in wheat yield.

3. Our study highlights useful insights about the potential of biomass as a 8)…… **new** energy source. Future research can extend this research in several ways, including research

on how to tackle challenges that hinder the 9)…… **sustainable** of renewable energy sources towards climate change 10)…… **mitigate**, such as market failures, lack of information and access to raw materials.

4. The results of this study indicate significant differences between classical music and pop music in terms of their effects on memory recall and cognition. This implies that as the 11)…… **complex** of the music increases, so does its ability to facilitate cognitive processing. This finding aligns with the well-known «Mozart effect», which suggests that listening to classical music can enhance cognitive function [12].

5. Complete sentences 1-5 with the words in the box/ there may be more than one possible answer.

On the other hand	*As a result*	*Therefore*	*In contrast to*	*Moreover*

1. ……these two broadly defined approaches, the view taken in this book is best characterised as a discourse-as-process view.
2. Our hypothesis is what we can use to derive a prediction from. …… our prediction should be a future outcome of testing our hypothesis.
3. ……, technological advances compound engine makers' problems.
4. ……, there were huge limitations in using existing adult education institutions for radical education and action.
5. …… according to characteristics of operation units in Heilongjiang power system, a reasonable and effective repair programme is made by leveling risk method to improve power supply reliability.

6. Match the beginnings of the sentences with their endings.

1. The background information you described in the introduction section	A observations that are most relevant to the topic under investigation.
2. In the text, a systematic description of your results, highlighting for the reader	B while tables are ideal for presenting detailed numerical data.
3. Data and patterns within the data are	C should provide the reader with any

	additional context or explanation needed to understand the results.
4. Graphs and charts are great for showing trends and relationships,	D compared with the findings from other studies to make more generalized points.
5. With patience, persistence, and attention to detail, you can craft a results section that effectively communicates your findings,	E while outcomes are more encompassing and can be felt over a longer period.
6. Results are often more immediate and specific,	F contributing to the collective pool of scientific knowledge.

7. Read the information about the difference between the words *impact* and *influence*. Use these words to complete the sentences.

«Impact» refers to the immediate and direct effect or consequence of something, while «influence» describes the ability to indirectly affect or change something or someone over time. «Making a difference» implies a more sustained and positive change.

Here's a more detailed breakdown:

Impact:

- **Definition:** Impact refers to a strong and often immediate effect, whether positive or negative, on a person, situation, or thing.
- **Example:** A sudden change in the weather might have an immediate impact on outdoor events.
- **Key characteristic:** It often signifies a forceful and noticeable change.

Influence:

- **Definition:**

Influence is the power to affect someone's behavior, opinions, or decisions without direct control.

- **Example:**

A parent's values can influence their child's choices even after the child has grown up.

- **Key characteristic:**

Influence is often indirect and can be subtle, acting over a period of time.

Making a difference:

- **Definition:**

Making a difference implies a positive and lasting change that has a significant impact on something or someone.

- **Example:**

Participating in a volunteer program could make a difference in the lives of the people you help.

- **Key characteristic:**

It suggests a positive and enduring change, going beyond a temporary impact.

In essence, while impact can be a forceful and immediate event, influence is a more subtle and long-term force, and making a difference implies a positive and lasting impact.

1. The force of the …… burst both tires and plucked off a wheel.
2. Many other medications have an …… on cholesterol levels.
3. The article explores the …… of Information and Communication Technologies on scientific research and innovation in higher education institutions.
4. The tool assembly includes a shock absorber to absorb …… from the work tool at the end of a stroke.
5. …… is the sudden application of a force.
6. Social networks are making a huge …… on sales, with fans recommending brands to hundreds of their friends.
7. Christopher hoped to exert his …… to make them change their minds.

8. Write a concluding paragraph for the discussion section including the limitations and future directions of the research.

9. Work in groups. Discuss the questions.

1. What experiments did you conduct and what were the results?
2. What do the results mean?
3. What were the important results from your study?
4. How did the results answer your research questions?
5. Did your results support your hypothesis or reject your hypothesis?
6. What are the variables or factors that might affect your results?

UNIT 9. RESEARCH RESULTS

1. Work in groups, discuss the following questions.

1. How is the information in the result section different from the discussion section?
2. Why might some researchers present the results and discussion together as one section?
3. What is the difference between a discussion and a conclusion?

2. Read the text. Discuss what you think the words and phrases in bold in the text mean.

RESEARCH RESULTS

You have prepared a detailed − but concise − Methods section. Now it is time to write the Results of your research article. This part of the paper reports the findings of the experiments that you conducted to answer the research question(s). The Results can be considered **the nucleus of a scientific article** because they **justify your claims**, so you need to ensure that they are clear and understandable. You are telling a story − of course, a scientific story − and you want the readers to picture that same story in their minds. Let's see how to avoid that **your message ends up as in the 'telephone game'.**

The Results Section: Goals and Structure

Depending on the discipline, journal, and the nature of the study, the structure of the article can differ. We will focus on articles were the *Results* and *Discussion* appear in two separate sections, but it is possible in some cases to combine them.

In the *Results* section, you provide an overall description of the experiments and present the data that you obtained in a logical order, using tables and graphs as necessary.

The *Results* section should simply state your findings **without bias** or interpretation. For example, in your analysis, you may have noticed a significant **correlation between two variables** never described before. It is correct to explain this in the *Results* section. However, speculation about the reasons for this correlation should go in the *Discussion* section of your paper.

In general, the *Results* section includes the following elements:

- A very short introductory context that repeats the research question and helps to understand your results.
- Report on data collection, recruitment, and/or participants. For example, in the case of clinical research, it is common to include a first table summarizing the demographic, clinical, and other relevant characteristics of the study participants.
- A systematic description of the main findings in a logical order (generally following the order of the *Methods* section), highlighting the most relevant results.
- Other important secondary findings, such as **secondary outcomes** or **subgroup analyses** (remember that you do not need to mention any single result).
- Visual elements, such as, figures, charts, maps, tables, etc. that summarize and illustrate the findings. These elements should be cited in the text and numbered in order. Figures and tables should be able to stand on its own without the text, which means that **the legend** should include enough information to understand the non-textual element.

How to Write the Results Section of a Research Paper: Tips

The first tip − applicable to other sections of the paper too − is to check and apply the requirements of the journal to which you are submitting your work.

In the *Results* section, you need to write concisely and objectively, leaving interpretation for the *Discussion* section. As always, 'learning from others' can help you. Select a few papers from your field, including some published in your target journal, which you consider 'good quality' and well written. Read them carefully and observe how the *Results* section is structured, the type and amount of information provided, and how the findings are exposed in a logical order. **Keep an eye on** visual elements, such as

figures, tables, and supplementary materials. Understand what works well in those papers to effectively convey their findings, and apply it to your writing.

Your *Results* section needs to describe the sequence of what you did and found, the frequency of occurrence of a particular event or result, the quantities of your observations, and **the causality** (i.e. the relationships or connections) between the events that you observed.

To organize the results, you can try to provide them alongside the research questions. In practice, this means that you will organize this section based on the sequence of tables and figures summarizing the results of your statistical analysis. In this way, it will be easier for readers to look at and understand your findings. You need to report your statistical findings, without describing every step of your statistical analysis. Tables and figures generally report **summary-level data** (for example, means and standard deviations), rather than all **the raw data**.

Following, you can prepare the summary text to support those visual elements. You need not only to present but also to explain your findings, showing how they help to address the research question(s) and how they align with the objectives that you presented in the *Introduction*. Keep in mind that results do not speak for themselves, so if you do not describe them in words, the reader may perceive the findings differently from you. Build coherence along this section using goal statements and explicit reasoning (guide the reader through your reasoning, including sentences of this type: 'In order to…, we performed….'; 'In view of this result, we ….', etc.).

In summary, the general steps for writing the *Results* section of a research article are:

1. Check the guidelines of your target journal and read articles that it has published in similar topics to your study.
2. Catalogue your findings in relation to the journal requirements, and design figures and tables to organize your data.
3. Write the *Results* section following the order of figures and tables.
4. Edit and revise your draft and seek additional input from colleagues or experts [13].

3. Answer the following questions to the text.

1. Why is the Results section considered the nucleus of the scientific article?
2. What does the Results section include?
3. How are the findings exposed?
4. How must the results be organized?
5. In what way are the statistical findings presented?
6. What are the general steps of writing the Result section?

4. Use these words and word combinations to complete the sentences. There are two words you do not need.

to illustrate results depicts relevant labelled descriptive statistics and inferential statistics hypothesis comparison data collection

1. I have completed my …… and analyzed the results.
2. I have included all results that are …… to my research questions.
3. I have concisely and objectively reported each result, including relevant …….
4. I have stated whether each …… was supported or refuted.
5. I have used tables and figures …… my results where appropriate.
6. All tables and figures are correctly …… and referred to in the text.
7. There is no subjective interpretation or speculation on the meaning of the …….

5. Match the beginnings of the sentences with their endings.

1 Clear communication of the findings of research is	A goal of scientific writing
2 The culmination of the publication process provides not	B generally listed as the first author of a research paper
3 Publication of scientific papers is one way to advance evidence-based practice in many disciplines	C essential to the growth and development of science and professional practice.
4 Accurate and clear expression of your thoughts and research	D to advance evidence-based practice in many disciplines

information should be the primary	
5 The abstract is a summary	E provide a critical and comprehensive analysis of existing research on a specific topic.
6 Research review articles	F only satisfaction for the researcher and protection of intellectual property, but also the important function of dissemination of research results, new ideas, and alternate thought; which ultimately facilitates scholarly discourse.
7 The person who did the research and wrote the paper is	G of the article or study written in 3rd person allowing the readers to get a quick glance of what the contents of the article include.

6. Read the information about the difference between the words *assumption* and *undertaking*. Use these words to complete the sentences.

An assumption is something accepted as true without proof, while an undertaking is a formal promise or commitment to do something, often involving effort or responsibility. Essentially, an assumption is a belief, and an undertaking is a pledge to act.

Here's a more detailed breakdown:

Assumption:

- **Definition:**

An assumption is a belief that something is true, even if it hasn't been proven.

- **Usage:**

It's often used in situations where something is taken for granted, or when making predictions or calculations.

- **Examples:**

«The assumption is that the price will continue to rise». or «People make assumptions about others based on their appearance».

Undertaking:

- **Definition:** An undertaking is a formal promise or commitment to perform a specific task or action.
- **Usage:** It often implies a significant effort or responsibility.
- **Examples:** «The company made an undertaking to clean up the pollution caused by its factory». or «A lawyer might give an undertaking to the court to ensure a client's appearance».

Key Differences:

- **Nature:**

An assumption is a belief, while an undertaking is an action or promise to act.

- **Level of Certainty:**

Assumptions are often made without certainty, while undertakings are usually intended to be certain and binding.

- **Formal vs. Informal:**

Assumptions can be informal and unspoken, while undertakings are often formalized in writing or through a legal process.

In legal contexts, «undertaking» can refer to a formal legal promise, whereas «assumption» might relate to the assumption of risk or the assumption of contractual obligations.

1. There can be no assurance that such estimates and …… will prove to be correct.
2. He advised us against such a risky …….
3. These include …… about the availability of funding and other parameters.
4. And that is a large …… that is why the Space Force was established.
5. Many scientific ….. about Mars were wrong.
6. Devising a control system to fit all the parts together was a major ……
7. Not unsurprisingly, his critique of the flotilla is based on such an ……

7. You have to prepare a speech about your scientific research. Do it using the following phrases and word combinations.

I would like to begin with .....

The key thing I'd like to start with is.....

The subject of my speech is .....

I'm going to deal with .....

I'd like to fix (draw) your attention on (to) the following questions.....

These assumptions call attention to .....

On the other hand .....

It is safe to say that .....

In order to go more thoroughly into this problem .....

It is essential for .....

In addition to .....

As mentioned above .....

It is necessary to determine here .....

It should be stressed here .....

Here is an illustrative explanation of. .....

Previous investigations show .....

From the viewpoint of..... .....

Perhaps it will be polemic to .....

In this sense I would like to emphasize .....

I would like to raise some questions related to .....

Thus, we come to the following conclusion .....

Thank you for attention .....

8. Match the words (1-18) with the definitions (a-s)

1 abstracts (n)	a protection against plagiarism
2 article (n)	b list of different parts within a certain form
3 bibliography (n)	c list of sources at the end of a paper
4 body (n)	d a statement or theory that is put forward as a premise

	to be maintained or proved
5 copyright (n)	e sources of information
6 data (n)	f a quotation from a text or speech
7 knowledge (n)	g according to date or time
8 draft (n)	h a piece of writing included with others in a newspaper, magazine, or other print or online publication
9 endnotes (n)	i early writing attempts
10 footnote (n)	j completely remove or get rid of (something)
11 outline (n)	k middle portion of writing containing examples, facts, illustrations
12 summary (n)	l a rewording of something written or spoken
13 thesis (n)	m alphabetized description of a book
14 quote (v)	o (of an argument or point) having a sound basis in logic or fact; reasonable or cogent
15 chronological (adj)	p a special note found at the bottom of a page or writing
16 eliminate (v)	q a shortened version of the original
17 paraphrase (v)	r short selections from the original
18 valid (adj)	s information that is capable of being learned

9. Work in groups. Discuss the questions.

1. What were the strengths and limitations of your study?
2. What other published works support your findings?
3. What other published works contradict your findings?
4. What possible factors might cause your findings different from other findings?
5. What is the significance of your research?
6. What are new research questions to explore based on your findings?

UNIT 10. INNOVATIVE MIND

1. In pairs, discuss the following questions.

1. What is an innovative mind about?
2. What are the key characteristics of an innovative scientific mind?
3. How can scientific innovation lead to societal benefits?

INNOVATIVE MIND

2. Read the text. Discuss what you think the words and phrases in bold in the text mean.

to persist — to continue the course of action in spite of opposition or warning укр. уперто робити

persistence — укр. завзятість, наполегливість

to discourage — to take away courage, confidence or hope from укр. розчаровувати, зневірятися

to hesitate — to pause before making a decision or taking an action укр. вагатися hesitant — showing uncertainty about deciding to act укр. той, що вагається

to nurture — to give care to, to cause or encourage to develop укр. плекати

to compartmentalize — to divide into separate divisions; to categorize укр. розділяти, катетеризувати

pathbreaker — укр. першовідкривач

to build on — to use as a base for further development укр. ґрунтуватися, базуватися

pedigree — ancestry укр. родовід

anything but — far from, not at all укр. все, що завгодно (будь-що), тільки не straightforward — not difficult to understand or explain, simple; not hiding anything укр. простий, нескладний

Many scientists agree that the most important characteristics of the innovative mind are an open mind and persistence in the face of discouragement. The two are related. Great innovators intrinsically enjoy their work, and therefore keep an open mind. Not fearing

failure, they have little hesitancy in trying something new, like fine artists who say, «You've got to draw it wrong before you draw it right». Even if an experiment fails, they learn from it. Another important thing is freedom that really **nurtures discovery**. Successful innovators follow different patterns of inventions. A common characteristic, however, is the ability **to step back and view a larger picture.** For innovative process both mental and experimental models are equally important. Prior to synthesizing the invention, the innovator compartmentalizes experiential knowledge. Metaphorically speaking, **one puts all the things one knows on cards and throws them into the air**. As they hit the floor in interesting combinations, new insight may be revealed. Inventors indeed do combine patience, skill and pragmatism with an intense, sometimes **romantic refusal to give up**.

Pathbreakers usually build on the work of others before them; rarely does genius come without a pedigree. Consider the laser. Its origins go back to fundamental research on microwave spectroscopy, which, in 1954, led to the operation of the first maser (that is still in use in radio astronomy). But by the late 1950s the laser emerged (now applied in printing, telecommunications, optical scanning, the precision cutting of materials, the reproduction of music etc.) In other instances, curiosity plays a key role. Thus the question arises: «What is innovation?» As a matter of fact — how is innovation really defined? The answer is anything but straightforward. Anyway, some inventors are lucky, some are just doing their jobs — but all help define **the essence of innovation** on which technological progress ultimately depends. A closely related issue is creativity. There is no doubt that many important engineering discoveries were the eagerly anticipated results of careful studies and calculations. Thomas Edison's light bulb was the culmination of many years of methodical research. However, careful planning does not **rule out the possibility** of spontaneous discovery. Some important innovations are the result of serendipity - accidental discoveries that have opened up unexpected fields of exploration. We CAN be more creative; the question is HOW **to unlock your creativity** to improve the quality of your ideas. How do you **instill more creativity** in the process? One trick is to try phrasing ideas in statements that begin with «What if...» and/or «I wish...». Don't be afraid **to let your imagination and intuition run free.** One of the classical creativity-enhancing

techniques is the so-called «brainstorming», which can be too messy, though. There is at least one better way. Called «synectics», this method combines brainstorming with a more disciplined **harvesting of ideas** that are organized into categories and reduced to a manageable number of options. The method, developed by William Gordon, states: «Trust things that are alien, and alienate things that are trusted». This encourages, on the one hand, fundamental problem-analysis and, on the other hand, the alienation of the original problem through the creation of analogies. It is thus possible for new and surprising solutions to emerge. Another way of being more creative is to look at things from different perspectives. We tend to stick with the current paradigm - the way it's done today - so try to view the world (and your problem) differently. Try stirring up ideas by talking to people from different (sub) cultures and professions, and keep your eyes open when you're traveling (another rich source of ideas) [14].

3. Answer the following questions to the text.

1. What are the most important characteristics of innovators?
2. What does the author mean by the phrase «You've got to draw it wrong before you draw it right»?
3. How do we call a person that pushes the boundaries of knowledge by exploring uncharted territory, challenging existing assumptions, or offering novel perspectives on a topic?
4. What were many important engineering discoveries were the eagerly anticipated results of?
5. How to unlock one's creativity?

4. Use these words to complete the sentences. There are two words you do not need.

innovative to unlock creativity spontaneous pathbreaker discoveries invention persistence experiment

1. Ames Laboratory creates …… materials, technologies and energy solutions.
2. Since the …… of the e-cigarette in 2003, many have been using it to quit.
3. Your lofty goals can be attained if you combine enough passion and ……. .

4. As one of the most influential female CEOs in the world, she's a …… and a trailblazer and an inspiration to women everywhere.

5. Much of Tesla's early work in electrical engineering and many of his ….. were of importance.

6. We have reached the limit of what our …… can do with this configuration.

7. We need imaginative solutions …… in public services and realise economic benefits, by unleashing the promise of a competitive and vibrant geographic information industry.

8. The discovery of the phenomena that underlie the formation of …… coherence of excitons is certain to produce a better scientific understanding of this new state of matter.

5. Match the words (1-10) with the definitions (A-J).

1 alleviate	A not having more than one possible meaning
2 manuscript	B something that you think is true without having any proof
3 draft	C to say or show that something is true
4 unambigious	D to make problems or suffering less extreme
5 submit	E a piece of writing or a plan that is not yet in its finished form
6 revise	F to send a document, plan, etc to someone so that they can consider it
7 assumption	G to change something so that it is more accurate
8 confirm	H a piece of writing that has been written, but not yet published
9 predict	I to say what you think will happen in the future
10 contradict	J if two things are so different that they cannot both be true.

6. Read the text below. Use the words given in capitals to form a word that fits in the gap.

The dual nature of curiosity, 1) …… **encompass** both state and trait dimensions, highlights its 2) …… **complex** in educational contexts. Research has shown that individuals with high levels of trait curiosity are more likely to engage in and benefit from learning activities that satisfy their intrinsic 3)……**motivate** drives. Furthermore, curiosity drives learners to explore beyond what is necessary, leading to enhanced 4)……**understand** and retention of information. In the realm of science education, curiosity plays a particularly significant role. The 5)……**explore** nature of science makes it an ideal domain for curiosity-driven learning approaches. Curiosity prompts students to delve into scientific 6)……**inquire** and experiments, fostering a deeper engagement with the material. This engagement is crucial for the development of critical thinking and problem-solving skills, which are essential components of scientific literacy. Research has identified several methods for measuring curiosity, including the Curiosity and 7)……**Explore** Inventory scale, which assesses the intensity and frequency of curious feelings and behaviors. However, accurately capturing the full extent of curiosity remains challenging due to discrepancies in definitions and its 8)……**subject** nature. Additionally, the 9)……**act** between curiosity and other psychological factors such as anxiety and self-efficacy complicates its measurement and interpretation in educational contexts [15].

7. Comment the following quotations expressing you agreement or disagreement with them.

1. For good ideas and true innovation, you need human interaction, conflict, argument, and debate. *Margaret Heffernan*

2. There is no innovation and creativity without failure. Period. *Brene Brown*

3. Innovation is hard. It really is. Because most people don't get it. Remember, the automobile, the airplane, the telephone, these were all considered toys at their introduction because they had no constituency. They were too new. *Nolan Bushnell*

4. A dream will not become an innovation if there is no realization. *Ciputra*

8. Work in groups. Discuss the questions.

1. What are the steps of the scientific research?
2. What does each project begin with?
3. What drives the scientists?
4. What is scientific assumption? How is it evaluated?
5. What is the procedure of manuscript before publishing?
6. How long can the scientific discussion last?
7. Why are scientific articles of great importance?

UNIT 11. COMPUTER TRANSLATION BLUNDERS

Ляпи машинного перекладу (Computer Translation Blunders) Користуючись програмами машинного перекладу, зважайте на те, що комп'ютер найчастіше видає на екран примітивну кальку з українського оригіналу. Річ у тім, що машина «бачить» і копіює поверхневу структуру речення і одне з кількох можливих значень слова. Якщо програма «не знає» якогось слова, то вона просто транслітерує його (наприклад: Особливу увагу приділено вивченню кардіоцентричного погляду на ... Particular attention is paid to kardiotsentricheskoho view on …). Щоправда, комп'ютерний переклад дає читачеві можливість зрозуміти, про що йдеться, але не більше. Найчастіше легше самому зробити переклад, аніж правити комп'ютерні «ляпи». Переклад – не механічна, а творча робота, і машина аж ніяк не замінить людського розуму, гнучкості, уміння бачити в тексті глибинні структуру й зміст.

Розглянемо деякі типові помилки машинного перекладу. Ігнорування різниці між структурою українського та англійського речення, наприклад, порушення послідовності «підмет – присудок – додаток»: Розглядаються особливості реалізації ідей класичної педагогіки в умовах переходу до інформаційної цивілізації... – *Examined as in the conditions of passing to informative civilization the ideas of classic pedagogics will be realized …*

Ігнорування полісемії і синонімії:

Оригінал	Помилковий переклад	Редакторський варіант
наукове розуміння	*scientific understanding*	*scientific interpretation*
Автор виходить з (припущення) ..	The author goes out of …	The author proceeds from … (the author assumes …)
поширення ідей	the distribution of ideas	the dissemination (spread) of ideas
Висвітлено (якесь явище)	It is lit	… is described
напрями трансформування	directions of transformations	the transformation trends
напрям дослідження	direction of study	the area of study
Міжвоєнний період	intermilitary period	the inter-war period

У наведених вище прикладах автор (комп'ютер?) ігнорує багатозначність слів мови-оригіналу і синонімію цільової мови, віддаючи перевагу побутовим значенням (go out – «виходити з кімнати тощо»).

Ігнорування реалій. Іспанський філософ Ортега-і-Гассет (Ortega-y-Gasset), як відомо, це одна людина, а не дві. Але машина цього не знає і спокійно видає кальку Ortega-and-Gasset. Ще один приклад абсурдного перекладу: Підготовка іноземних громадян – *preparation of foreign citizens*. У цьому випадку комп'ютер не враховує відмінностей між вітчизняною та англомовною фразеологією сфери вищої освіти (правильно було б – *education of international students*). До речі, слово «вітчизняний» (тобто «український») слід перекладати тільки Ukrainian (типові помилки: *native* «місцевий, тубільний», *domestic* «місцевий, домашній»).

Завдання. Порівняйте і прокоментуйте авторський (машинний?) переклад і переклад, запропонований редактором:

Досліджується вплив владних структур на сферу проведення масових свят в Україні в період 60-80 рр. XX ст. – In article is investigated, what influence to the domain of execution of mass holidays in Ukraine rendered power structures in the period of 60-80 years of the XXth century. – The paper explores the impact of the authorities on managing mass festivals in Ukraine in1960s-80s. Знайдіть і прокоментуйте помилки комп'ютерного перекладу (із статей, що надійшли до редакції); запропонуйте правильний варіант:

Досліджуються особливості імпорту кінопродукції в 1920-х рр. – In the article are investigating features of Kino production in 1920th; на честь великого музиканта – in honour a large musician; в XIX веке – in XIX age; хореографічний почерк – choreographic handwriting; внесок в науку – payment to science; підготовка співаків – preparation of singer; музичне відділення (школи) – musical separation; професійна підготовка кадрів – vocational training of shots; середня освіта – average education.

Деякі автори створюють собі додаткові труднощі, залучаючи до перекладу третю мову – російську. Знайдіть помилки, що виникли через подвійний переклад: «розв'язати проблему» – decide a problem; «державне утворення» (Київська Русь) – state education [16].

GRAMMAR PRACTICE

LINKING SENTENCES AND CLAUSES

Exercise 1. Match the clauses to make sentences and choose the most suitable linking word from the box to join them. Decide if each sentence contains two main clauses or a main clause and a subordinate clause.

after	although	and	if	or	that	unless	when

1. Did the doctor say exactly ….	A we'd just had it serviced
2. It was the finest portrait ….	B you'll be able to go back to work?
3. Our car broke down last week …	C we can stay in a cheap hotel.
4. Your order will be cancelled ….	D he smashed the World Record.
5. The policeman was rushed to hospital ….	E you follow the rules properly.
6. We can either go camping ….	F the artist had ever painted.
7. Usain Bolt won the gold medal ….	G we don't receive payment by the due date.
8. I'm not going to play this game ….	H he had been stabbed in the park.

Exercise 2. Complete the sentences with a suitable subordinating conjunction from the box. There four extra conjunctions.

as long as	as though	by the time	except if	except that	for fear that
given that	in order that	so as to	so much that	that	the moment

1. It shouldn't matter what our employees look like, they can do the job.
2. …. the dispute has already been resolved in principle, a formal agreement should be forthcoming in the next day or two.
3. Dave is so involved in his psychology studies that he analyses people …… they start talking to him!
4. Many wealthy business people employ accountants …… they can find all the legal ways of not paying tax.

5. The new model is hardly any different from the last, ….. it can reach 50 kph in under eight seconds.

6. The instructions for this task are so confusing ….. it's a wonder that any students understand it at all!

7. Is Mrs Hardback the owner of the hotel? She certainly behaves …. she is.

8. That comedian at the club last night was hilarious. I laughed …. my sides were hurt.

Exercise 3. Find and correct six mistakes in these sentences. Find the correct sentences.

1. The rules at that school were so strict as to it was inevitable to break them occasionally.

2. The match went to penalties, and Inter-Milan lost so their top striker missed the first one.

3. The medical insurance is valid for one year on condition that we are immediately informed of any change in the insured person's circumstances.

4. Tarantino's latest film has a so violent scene as the censors refused to pass it.

5. Honestly, Jim, you talk as though you've been to law school, but we all know you haven't!

6. Please initial each page of the document as indicated, except where a full signature is required.

7. You'll have to meet Wendy at the station tonight. I won't be home enough early to get to the station in time.

8. Ben's explanation for his behavior at the ceremony was so ridiculous as to we laughed out loud.

9. The government will increase payments to the disabled and the elderly in order that they may have a comfortable and dignified life.

Exercise 4. Write the second sentence so it has a similar meaning to the first. Use the words in brackets.

1. Although the earthquake appeared horrific at the time, there were few fatalities. ……. (though)

2. Warnings of the flood were given well in advance, yet people didn't leave their homes. (spite)

3. Very little of the remaining stock sold, despite the low prices in the sale. (even though)

4. The magazine had tried introducing several new features. Nevertheless, circulation continued to drop. …. (although)

5. The Scots won the battle, even though they had a far smaller force. …. (despite)

6. Although this may seem difficult now, you'll soon wonder why it caused so many problems. …. (though)

7. I adore children but I can't accept that kind of behaviour from any child. …. (much as)

Exercise 5. Match each headline (1-10) with a sentence (A-J). Then write one sentence containing a relative clause (defining or non-defining) to combine each headline and sentence that accompanies it. Use the present perfect tense in the main clause.

1. SCIENTISTS DISCOVER NEW WONDER-CURE FOR CANCER	A He was disgraced in a financial scandal.
2. BODY OF MAN FOUND IN RIVER SEVERN	B They were spoiled in the recent US presidential election.
3. FASHION ICON QUANT LEAVES BUSINESS	C His contract with Ferrari finishes at the end of the season.
4. GLOBAL WARMING CONFERENCE ENDS WITHOUT AGREEMENT	D It was held in The Hague.
5. IRVINE NARROWLY MISSES FORMULA 1 WORLD CHAMPION TITLE	E She shared the house with her British husband.
6. HAND COUNT OF VOTES CONTINUES	F It was in danger of closing through lack of funds.
7. LONDON ZOO REMAINS OPEN	G She refused to diet to a size 12.
8. POLITICIAN HANDS IN RESIGNATION	H The man jumped off the Severn Bridge.

9. SIZE 16 MODEL WINS NEW ESTÉE LAUDER CONTRACT

10. FAMOUS SINGER'S UK HOME BURGLED

I They have been studying cancer genes for years.

J She is famous for inventing the mini-skirt.

1. Scientists ……
2. The body of a man ……
3. The fashion icon Mary Quant ……
4. The global warming conference ……
5. Formula 1 driver Eddie Irvine ……
6. The hand count of votes ……..
7. London Zoo ……..
8. The politician ……
9. The size 16 model …….
10. The famous singer's house in the UK …….. [17, 18, 19, 21].

ADVERBIAL CLAUSES

Exercise 1. Underline the best variant.

1. Tina was given the job, *even though \ seeing that* she did not have the required experience.
2. *Seeing that \ Considering that* it's his birthday today, Tom has decided to take a day off.
3. This is *the way \ as if* we deal with hooligans in this country.
4. We'd better take some money with us, *seeing that \ in case* we can't find a cash machine.
5. *However \ Much as* I admire his earlier work, I think that his recent novels are rather poor.
6. *The moment \ until* you see anything move, press this alarm bell.
7. *No matter what \ However* you say, I still can't really forgive you for what you have done.
8. Unfortunately Carol didn't pass the exam, *although \ however* she studied really hard.

9. *As soon as \ Everywhere* I look these days, I seem to see people dressed the same.

10. *In case \ Considering that* she's only been learning the piano for six months, john plays really well.

Exercise 2. Rewrite each sentence without the word or words underlined, and using a word or words from the box.

anywhere	as soon as	now	once	until	when	whenever	where

1. Any time you're in the area, drop in and see us. ……
2. The moment I saw you, I knew I liked you! ……..
3. Anna starting training as a ballet dancer at the age of six. ……..
4. I won't leave before you come back.
5. You can park your car wherever you like outside. ……
6. You're finally here, so you'd better sit down.
7. When the exams are out of the way we can start learning something new.
8. The memorial shows the site of the plane crash.

Exercise 3. Choose the best word, A, B or C, for each gap.

1 …. we have become accustomed to the idea of space travel, and in films and fiction it seems 2 ….. space travel is inevitable, it appears unlikely that human beings will ever get any further than Mars, our nearest neighbor. 3 ….. films we make about space travel, the fact is that it remains technologically challenging, and extremely expensive. 4 …. the distances involved are immense, any voyage outside our solar system would take hundreds of years using current technology. 5 …. human beings went into space, they would have problems of how to eat and breathe, and their spaceship would have to carry vast amounts of fuel 6 …. cover the distance. Even Mars is 7 ….. far away that it would take about six months to get there. 8 …. the distance between Earth and Mars varies, astronauts would have to wait for nearly two years 9 …. they could return using the shortest journey time. 10 …. it could cost as much as $100 billion, a manned mission to Mars is planned in the near future.

1 A Since	B Although	C So
2 A the moment	B since	C as though
3 A Although	B Considering	C No matter how many
4 A Since	B In order that	C So
5 A Wherever	B Although	C Before
6 A even though	B in order to	C as if
7 A so	B as	C after
8 A So	B Wherever	C As
9 A when	B since	C before
10 A As if	B Even though	C So that

Exercise 4. Find the correct sentences and <u>underline</u> and correct any mistakes.

1. Not knowing the way, I got lost several times.
2. After leaving the room, the telephone rang.
3. Having lost my money, the conductor wouldn't give me a ticket.
4. While falling asleep, there was a loud knock at the front door.
5. By forcing open the window, I was able to get into the house.
6. Not wishing to be a nuisance, I left as early as I could.
7. Having opened the box, it turned out to be empty.
8. Though feeling tired, Helen went out clubbing with her friends.
9. Having asked my name, I was taken to meet the prime minister.
10. On arriving at the station, the train had already left.

Exercise 5. Write a new sentence with the same meaning, containing the word in capitals and a participle clause.

1. As it was a public holiday, there was a lot of traffic on the roads. …… BEING
2. When I opened the letter, I realized it was from Professor Brown. …… ON
3. The palace was destroyed by fire during the war but later reconstructed. …. THOUGH
4. As Jane walked from the room, tears streamed from her eyes. ……. STREAMING
5. I broke the camera as I tried to remove the memory card. IN

6. My hair has become soft and shining since I've used my new shampoo. …….. USING

7. John was taken to hospital after he was knocked down by a car. …… BEING

8. After he had been shown to his room, George lay down on the bed and slept. HAVING [17, 18, 19, 21].

INFINITIVE CONSTRUCTIONS

Exercise 1. Form the Objective-with-the-Infinitive Constructions out of the elements in brackets.

1. I don't wish … (you, to understand) me.

2. When he came in, he wanted to call you, but I persuaded (he, to wait) until morning.

3. Then she turned to the window and asked … (I, to open) it.

4. I saw … (my mother, to pause) and … (to put) her hand on her forehead.

5. He flushed indignantly but forced … (oneself, to answer).

6. I felt they expected … (I, to say) clever things but I could say nothing.

7. From now on I"ll have … (you, to know) this is my business.

8. The coach made … (the team, to train) harder and harder.

9. I forced … (he, to eat) after luncheon. I induced … (he, to lie) down but he couldn't sleep.

10. She persuaded … (he, to see) a doctor.

Exercise 2. Paraphrase the following sentences as in the example using the Objective-with-the-Infinitive Construction.

1. I don't think Ann should watch the late film. – I don't want …

2. She is going to tidy her clothes away. Her mother asked her to do it.

– Her mother wants …

3. It's Mary's turn to do the washing-up. I insist on it. – I insist on …

4. Why don't you come to my party? I would like …

5. Mark fell into the swimming pool on his wedding day. I'll never forget that. – I'll never forget …

6. You have to finish this project today. I want you …

7. I don't think my secretary should attend the meeting. – I don't want …

Exercise 3. *Paraphrase the following using the Subjective Infinitive Constructions.*

1. He was taken aback. …… (to seem).

2. She is busy today. ……. (to seem).

3. The situation has changed a lot. …… (to appear).

4. The Carpathian Mountains were visited by numerous skiers last winter. …. (to know).

5. He didn't have any money with him. ….. (to happen).

6. Nobody knew the way, so I had to return. ……. (to happen).

7. His plan is rather unrealistic. ….. (to appear).

8. She wasn't properly dressed. ….. (to happen).

9. He was in high spirits when he got out of the train. …. (to seem).

10. He lived with an uncle and aunt on the outskirts of a little Kentish town by the sea. ….. (to know).

11. Ann would never speak to me again. ….. (unlikely).

12. He got a scholarship to Wenham. …. (to know).

13. The path is used quite often nowadays. ….. (to appear).

Exercise 4. Complete the following so as to use the Subjective Infinitive Constructions.

1. The girls seem …

2. The weather appears …

3. You are supposed …

4. Our friends are sure …

5. It is wonderful how everything seems …

6. He said somebody was supposed …

7. Everything that morning seemed …

8. I will not deny that several times I was tempted …

9. None will accompany me and I am forced …

10. It's hard for us to understand how such thing is permitted …

11. What time are you supposed …?

12. The train was seen …

13. This was supposed …

14. They might be made …

15. As a result, when they were told …, they did it.

Exercise 5. Point out the Objective-with-the-Infinitive Constructions and the Subjective Infinitive Constructions. Translate the sentences into Ukrainian.

1. A moment's reflection made him realize that he was right.

2. He sat down again and appeared to be lost in thought.

3. I watched the carriage turn round the corner.

4. She watched John pace up and down the room.

5. She and I are said to be alike.

6. The job turned out to be the biggest thing of its kind that I have ever been in.

7. They are sure to know each other.

8. I've never seen him fly into a rage.

9. The book proves to be useful once again.

10. The Tower of London is known to have been founded by Julius Caesar.

11. She did not seem to notice us.

12. He was seen to cross the street and turn round the corner.

13. We want all transport workers to be paid well.

14. Urgent matters are sure to take up much time.

15. The literature of any nation can't be said to have established itself until it has produced something unique.

Exercise 6. Form the for-to-Infinitive Constructions using the words in the brackets in the appropriate form.

1. I am going to ring the bell for … (the visitors, to go).

2. My friend motioned for … (I, to come in).

3. It is not necessary for … (I, to explain) that we are twins.

4. It was easy enough for … (the drivers, to get) in that way.

5. He didn't answer and I waited for some time for … (he, to speak).

6. Now I long for … (they, to return) to me.

7. It would be fine for … (her folks, to have her back home) after so much travelling around the world.

8. It is not easy for … (I, to get hold) of it.

9. She often wondered whether it was time for … (she, to go).

Exercise 7. Rewrite the sentences using for-to-Infinitive Constructions.

1. He shouldn't play his music so loud. - It's too late...

2. Barry must go to the bank today. – It's necessary …

3. They must finish their homework. – It's important …

4. No one has taken my order yet. - I am still waiting …

5. You should move to the town centre. - It will be more convenient …

6. John should learn a foreign language. - That would be a nice idea …

7. There are shops in the hotel. Guests can do their shopping. - There are shops in the hotel…

8. The teacher spoke loudly. Everybody could hear him. - The teacher spoke loudly …

9. I've brought some magazines so that you can read them. – I've brought some magazines …

10. Children shouldn't play with matches. – It's dangerous…

Exercise 8. Complete the following so as to use the for-to-Infinitive Constructions.

1. The best thing for …

2. I am very anxious for …

3. It took a moment for …

4. It would be much easier for …

5. She was sitting and waiting for somebody …

6. It is not for her …

7. It would be more sensible for …

8. There will be many interesting people for you …

9. She has arranged everything for …

10. It took ten minutes for …

11. It is a joy for him …

12. It was easy enough for …

13. It would be hard for her …

14. It is unusual for …

15. It's time for … [20]

INDIRECT SPEECH

Exercise 1. Find eleven mistakes in the following text and correct them.

I went over to Sheffield to see Sam the other week. When I turned up at his place, he was obviously in a funny mood. I asked him what the problem is, but he doesn't want to tell me very much. He did say he was fed up with living here, and that perhaps he will start looking for a job somewhere else in the next few days. I asked if everything was OK with your girlfriend? He told everything was fine, but I didn't really believe him. I asked what did he think about taking a day off and going fishing, but he said he was much too busy this week. I decided there wasn't much I can do for him, so I said goodbye and came back home. I don't think I would see him again soon.

Exercise 2. Choose the correct verb forms (one or both in each case), and put in suitable words from the box.

afterlife authority contemporaries continent independent microscopic planet possessions preserve reincarnation sacrifice soul

1. The Greeks believed that there *are / were* many gods. Zeus had …. over the sky, his brother Poseidon over the seas, and his brother Hades over the underworld.

2. The Aztecs believed that human ……. *is / was* necessary in order to protect humanity from the anger of the gods.

3. Eratosthenes proved that the world *is/was* round, but most of his …..... believed that it *is / was* flat.

4. The ancient Egyptians believed that the body *contains/ contained* a ....., the 'ka', which *continues / continued* to exist after death but which *can / could* not exist without the body. So they did their best to …… the body.

5. Many ancient civilisations believed that it *is / was* important to bury dead people's …….. with them for use in the ..... .

6. Many Indian religions teach .....: the belief that people *are / were* born again after they die.

7. Galileo proved that the …….. Jupiter *has / had* four moons.

8. Columbus thought that the American ……. *is / was* India.

9. Louis Pasteur proved that many illnesses *are/were* caused by ..... bacteria.

10. Einstein proved that time and space *are/ were* not ..... of each other.

Exercise 3. Underline the best option.

1. When I got to the office, they told me that Mr Adams *already left \ had already left.*

2. My teacher warned me that if I *was \ had been* late, they wouldn't let me into the examination.

3. Harry told us he *is \ was* catching the first bus to New York the next day.

4. The students going on the trip wanted to know what time they *would \ will* get back.

5. Sam told the police he *didn't know \ hadn't known* what had happened.

6. It says here that the plane *crashed \ crashes* soon after taking off.

7. Alan told me he had no idea what *was \ is* going on.

8. The customers said angrily that they *were waiting \ had been waiting* for more than two hours.

9. Erica told me she *won't \ wouldn't* be back until the following Tuesday.

10. The professor told us that the Moon *is \was* more than 380,000 km from the Earth.

Exercise 4. Rewrite the sentence as reported speech, beginning as shown, and backshifting tenses.

1. I wouldn't lend my car to just anyone, said Andy. – Andy said that ….
2. I'm not very satisfied with my job, said Peter. – Peter said ….
3. I'm not going to worry about the money until I hear from the bank, said Ann. – Ann said …
4. I don't know where Bill is living at the moment, said Nicky. – Nicky said ….
5. Emma hasn't had her operation yet, her brother told me. – Emma's brother ….
6. If you eat too much, you'll feel ill, my mother told me. – My mother told me ….
7. We'll be writing to you later this week, they told Maria. – They told Maria …..
8. The prices won't rise before the end of the year, Mr Dablin said. – Mr Dablin said ….
9. If the police had noticed Jack's car, they would have arrested him, explained the lawyer. – The lawyer explained ….
10. I'll let you know if I have any more problems, carol told me. – Carol told me ….

Exercise 5. Rewrite the historic predictions below as direct speech, then match them to the person who said them from the list below.

1. He said that aeroplanes were interesting toys, but did not have any military value. - ….
2. He said that whatever young Einstein did, he would amount to nothing. - …
3. This person said it would be years, and not in their lifetime, before a woman would become British prime minister. - …
4. He said that he thought there was a world market for perhaps five computers. - ….
5. he said that television wouldn't stay popular for more than six months, because people would soon get tired of staring at a wooden box every night. - …
6. They said they didn't like their sound, and that guitar music was on the way out. - ….
7. They said that the telephone had too many shortcomings and was of no value to them. - …
8. He said that the horse was here to stay, but the car was only a novelty. - …

1. President of Michigan Savings Bank, 1903, advising Henry Ford's lawyer not to invest in the Ford Motor Company.

2. Darryl F Zanuck, 1946, Hollywood film producer

3. Decca Recording Co. rejecting the Beatles, 1962

4. Albert Einstein's teacher to his father, 1895

5. British politician Margaret Thatcher, 1974, before she became prime minister

6. Western Union Telegraph Company, 1876

7. Thomas Watson, chairman of IBM, 1943

8. Marshal Ferdinand Foch, of France, in 1911 [17, 18, 19].

PASSIVES

Exercise 1. Make the sentences passive.

1. People think the government will fall. (It) …….

2. Everybody knows he is violent. (He) ……...

3. They say there is bad weather on the way. (There) ……

4. They believed that fresh air was bad for sick people. (It) ……

5. Some people claim that there are wolves in the mountains. (There) …..

6. They think that the man holding the hostages is heavily armed. (The man) …..

7. They say he is in an agitated state. (He) ….

8. People suggest that the rate of inflation will rise. (It) ….

9. They report that she died in a plane crash. (She - perfect infinitive) …..

10. People believe that there are 6,000 different languages in the world. (There) ….

11. We understand that she left the country on Friday. (It) ……

12. They think that there is oil under Windsor Castle. (There) ….

13. People believed that the earth was the centre of the universe. (The earth) ….

14. They know that he has been married four times. (He) ….

Exercise 2. Rewrite the sentence using a passive form so that it does not contain the words <u>underlined</u>.

1. <u>They</u> are collecting the rubbish on Tuesday this week. ….

2. The police have already arrested both of the suspects. ….

3. We have decided that your contract will not be renewed.

4. Someone stole my bike last week.

5. The chef cooked the fish perfectly.

6. We'll reach a decision next week.

7. The builders completed the building at the end of last month.

8. People deliver all our products to your door.

9. We have asked Jane to take over the job until the end of May.

10. While they were making the film, the money ran out.

Exercise 3. Complete the text with a passive or active form of the verb in brackets, in a suitable tense according to the context.

Traditional cheeses 1 (produce) …….. in many regions of the UK and 2 (name) ….. after the area in which they 3 (first develop) …… . Cheddar, a hard cheese with a strong, nutty taste, is the most popular and 4 (now make) ……. all over the world. A 'true' Cheddar must come from the counties of Somerset, Dorset or Devon in southwest England or specifically from the Somerset village from which it 5 (take) … its name.

Wensleydale 6 (come) …. from the Yorkshire Dales (valleys) in northern England. Originally made from sheep's milk, it 7 (base) …… on a recipe introduced by the Cistercian monks in the 11th century and has a mild refreshing flavor.

Traditional Lancashire, from northwest England, has a light, salty flavor. During the Industrial Revolution (around 1760-1830), Lancashire cheese 8 (become) …. the staple food of the mill workers. Caerphilly, a crumbly cheese, 9 (soak) ….. overnight in salt water to seal in the moisture. It was popular with the local coalminers who 10 (lose) …. a lot of salt during their work underground. Blue Stilton, made only in the counties of Leicestershire, Nottinghamshire and Derbyshire, 11 (prize) …. as the 'king' of British cheeses.

Exercise 4. Rewrite each sentence so that it contains a passive verb and by + an agent or with + an instrument.

1. A number of trainee doctors examined Dora. - …
2. The extent of the flood-damage has surprised everyone. - ….
3. Someone used a counterfeit key to open the security door. - …
4. The freezing conditions put off many would-be shoppers. - ….
5. Someone used a brick to smash the window. - ….
6. The high cost of gas and electricity is hitting some families hard. - ….
7. The force of the explosion blew in the windows on nearby buildings. - ….
8. The high winds damaged several buildings. - …
9. Somebody used a blunt instrument to hit the security guard on the head. - …
10. The unusually high tide completely washed away the sea wall. - …

Exercise 5. Complete the sentence using a passive, so that it means the same as the first sentence.

1. The managing director promised me a pay-rise. – I ….. by the managing director.
2. They sent me the contract by courier the next day. – The contract ….
3. A multi-national company is taking over our firm. – Our firm ….
4. Several people noticed the man trying to climb in the window. - ……. by several people.
5. They awarded David a medal for bravery. – David …
6. They made Susan take the exam again. – Susan …
7. An elderly aunt gave Peter the paintings. – Peter ….
8. The police are going to look into the case. - ……. by the police.
9. They considered any further rescue attempts pointless. – Any further ….
10. They elected John president of the second term. – John ….. [17, 18, 19, 21].

ELLIPSIS

Exercise 1. In each of these pairs of sentences, at least one of the choices is correct, and both may be. Choose the correct ones.

1. A The invigilator came in and he sat down without acknowledging the candidates.

B The invigilator came in and sat down without acknowledging the candidates.

2. A The orchestra's temporary musician plays the piano much better than the usual pianist.

B The orchestra's temporary musician plays the piano much better than the usual pianist plays.

3. A It was thought that the suspect had also targeted a late-night shopper, but it transpired that he couldn't have.

B It was thought that the suspect had also targeted a late-night shopper, but it transpired that he couldn't have done it.

4. A The newcomers resented our presence at the celebrations and we resented.

B The newcomers resented our presence at the celebrations and we theirs.

5. A The tests didn't yield conclusive results, although they had been expected to.

B The tests didn't yield conclusive results, although they had been expected.

6. A The instructions explain clearly how to grow the plants but not when to grow them.

B The instructions explain clearly how to grow the plants but not when to.

Exercise 2. Delete the words in these sentences that can or should be omitted.

1. The students could either take the exam in June or they could take it in December.

2. The children were delighted with the party lights and they wanted to see them turned on again.

3. We enquired whether the new restaurant would be open on Sunday evenings, like the one it replaced, but the new owners could only tell us that it might be open on Sunday evenings.

4. The casual labourers didn't earn much money during the summer, though they had expected to earn some.

5. The young woman plays the violin superbly and her brother plays the cello equally well.

6. Baxter’s sick tonight, which is unfortunate as he can play better than all the others can.
7. We thought that the old woman had been looking after the house, but she can’t have been looking after it as she was in hospital at the time.
8. The task states that candidates should not write more than the number of words given, but it doesn’t state how man words that is.

Exercise 3. Improve this short text, using ellipsis where possible. You should be able to shorten it in five places.

This popular course examines literature from the last twenty years and it examines literature from a variety of countries across the English-speaking world. It was due to be replaced this year, but because of its popularity it has not been replaced; instead, it will run for two more years.

The course is a compulsory Level 3 component in Literature degrees and the course forms an optional part of the English language degree.

For this course you are required to have studied at least two previous literature courses at Level 2 and you are required to have passed them with Grade 3 minimum. If registering for this course from another educational institution, you may be asked to provide proof of previous study and you may be required to take an internal test.

Exercise 4. Cross out the words in these sentences that can be omitted.
1. We can go to the theatre tonight if you want to go to the theatre.
2. Even though it is possible to go skiing in Scotland, the British have always been worse skiers than most Europeans have been.
3. Why hasn’t the new shopping centre been opened yet? But it has been opened.
4. Will Julie be going to the club’s New Year’s party this year? I think she gets back from holiday on 30th December, so she could be going.
5. We haven’t earned any money this summer. I really expected us to earn some.
6. He told me that he was going to leave his wife and I asked him why he was going to leave her.
7. Clare is working a lot at the moment and she's getting up really early.

8. Some people give up sugar completely, but I didn't want to give up sugar completely.

9. They were getting ice creams because I said they could get ice creams.

10. They invited me to go to Sandra's cottage this weekend but I don't really want to go to Sandra's cottage for the weekend.

Exercise 5. Read the following text about the Inuit system of adoption. Mark four omissions and write the omitted words. Underline twelve substitute words, then write the words they replace.

The Inuit system of child adoption, although archaic, appears much more humane than our own in the so-called civilized world, where childless couples must apply through faceless agencies for the opportunity to adopt. They must undergo a series of intrusive interviews and examinations and, if successful, will then be put on a waiting list for an unspecified period of time. An Inuit couple wanting to adopt simply makes it known and soon enough they will receive a call from a woman who is prepared to give up her child. This may be because she already has too many children and does not want another one, or the call may come from a relative or friend who wishes to help someone less fortunate than themselves. Traditionally, the couple would be asked if they would like the child and, if so, a simple handover would take place. Today, however, this has been replaced by bureaucracy in the form of civil registration, although the tradition itself has not. It survives even at the end of the twentieth century. [17, 18, 19].

INVERSION AND FRONTING

Exercise 1. Underline the best word or phrase.

1. *Not only* \ *Rarely* do you see top-rate cameras which are also easy to use.

2. *Should* \ *Were* the strike go ahead, it could severely damage the company.

3. *Never I have seen* \ *Never have I seen* such a dramatic end to a football match.

4. *What he is talking about* \ *What is he talking about*, I have no idea.

5. Only the two members of the French team *managed* \ *did* they manage to finish the race.

6. *As it may seem strange \ Strange as it may seem*, he is actually one of the richest men in the world!

7. Hardly had the train pulled out of the station *when \ than* there was a loud screeching sound.

8. Suddenly, *ran into the room \ into the room ran* a huge dog.

9. *Had we known \ Had we to have known* in advance, we could have done something about it.

10. Not until the wreckage had been examined *could \ was* terrorism be ruled out.

11. *Hardly \ Little* did I know that it would be another three years before I saw her again.

12. *Should \ Were* the alarm to ring, leave the building immediately.

Exercise 2. Choose the best option, A, B or C, to complete the sentences.

1. …… how serious the situation was.

2. Just as the players took their places on the court, …..

3. …… my bag I really can't remember.

4. ……, everyone would probably have escaped from the building.

5. At no time …… on the plane in any danger.

6. …… second thoughts, don't hesitate to phone me.

7. Strange ….., I actually enjoy working underground.

8. Jane …. the train but also lost her luggage.

9. ……, we might consider making another offer.

10. Without warning, onto the stage …. brandishing a knife.

11. Suddenly the sky went dark, and ….. the rain.

12. …… is this piece of equipment to be removed from the building.

1 A Little anyone did realize	B Little realized anyone	C Little did anyone realize
2 A did the rain pour down	B down poured the rain	C did pour down the rain
3 A Where I've left	B Where have I left	C Where left I
4 A Had it not been locked the fire door	B Had not been locked the fire door	C Had the fire door not been locked
5 A were the passengers	B the passengers were	C were they the passengers
6 A Should have you	B Should you have	C Should you had
7 A as does it sound	B sound though it is	C as it may sound
8 A not only did she miss	B not only missed	C not only did miss
9 A Were it the situation to change	B Were a change in the situation	C Were the situation to change
10 A did jump a man	B jumped a man	C did a man jump
11 A there down came	B came down	C down came
12 A On no account	B Hardly	C Rarely

Exercise 3. Write a new sentence with the same meaning, containing the word in capitals.

1. If we took no action, the situation would only become worse. ……WERE
2. A member of the government rarely admits to making a serious mistake. … DOES
3. You are not to leave this room under any circumstances. ……. NO
4. The police only later revealed the true identity of the thief. …… DID
5. Although Andrew tried hard, he couldn't pass his driving test. ….. MIGHT
6. If you'd consulted me at the outset, I could have given you the right advice. … HAD
7. If you offered me a higher salary, I would take the job. ….. WERE
8. If the weather worsens, the match will probably be cancelled. ….. SHOULD
9. It was only after checking the accounts that they realized money was missing. …DID
10. The breach of security has not affected the examination results in any way. …. NO

Exercise 4. Put one suitable word in each space.

1. Rarely …… we find students who are willing to think for themselves.
2. …… in the polar regions does the temperature fall to such a low level.
3. Little …… anyone suppose that Mrs Robertson was an enemy agent.
4. Scarcely ….. everyone left the building when there was a huge explosion.

5. Seldom ….. so many people voted for such an unlikely candidate.

6. Not until doctors examined Ben later ……. anyone realize that he had been shot.

7. No sooner had we reached the bottom of the mountain …… it started snowing heavily.

8. …… no circumstances are bags to be taken into the library.

9. Only ….. the airline official checked again did she realize I had been given the wrong ticket.

10. Not only did Harrison break into the house, ….. he also attacked one of the occupants.

11. Never …. there been a better time to buy a new car.

12. Not only … she finish the test before the others in the class, but she also got the best mark.

Exercise 5. In twelve of the following sentences there are mistakes with word order and missing auxiliaries. Find the mistakes and correct them.

1. They're going to complain about this and so are we.

2. Little we knew the full extent of his involvement in the fraud.

3. The sales director is resigning and so most of the marketing team are.

4. I tried to get there by nine, only was there a traffic jam on the motorway.

5. Over there stood the three-metre tall statue of Shevchenko.

6. The embassy refuses to intervene. Well, so it be.

7. Tomorrow the first day is of the rest of your life.

8. Long live the glorious republic!

9. No way is the boss treating me like that and getting away with it!

10. Under no circumstances latecomers will be admitted to the auditorium.

11. Armando and Josephine are quite destitute and such the condition is of many of the refugees.

12. Now the time is for wise investors to think seriously about buying Treasury Bonds.

13. Rarely had we encountered such friendly and positive attitudes.

14. Oh look – here comes the procession at last.

15. Not since Kubrick's *2001* a director has made such an intellectually challenging sci-fi movie.

16. The government's proposals are unrealistic, as those are of the opposition.
17. Opposite this house ran the old city walls.
18. Only with the greatest of luck he managed to escape from the rising flood waters.
19. May John and Carol have a long a happy life together.
20. No doubt didn't he realize the consequences of his actions. [17, 18, 19].

CLEFT SENTENCES

Exercise 1. Read the review and complete the article with phrases from A-L below (not all the phrases are needed). There is one place where two phrases can be used.

If you're looking for some good books to take on holiday and you like a good detective thriller, you can't do better than the Stieg Larsson *Millennium* trilogy. The three books centre around an unlikely heroine – an anti-social egotistic young woman called Lisbeth Salander. (1) …. is make this anti-hero a vulnerable and therefore not entirely unlikeable character, which is no mean feat. While the writing (or at least the translation) is fairly mediocre, (2) …. hooks the reader – these books are fast-moving, sometimes shocking journeys into the criminal underworld in the company of Salander and investigative journalist Mikael Blomqvist. It is through the Blomqvist character (3) …. with one of the protagonists – he is a hard-bitten journalist but remains sympathetic and keeps his integrity through a series of misadventures.

The characters and general feel of the novels are introduced in *The Girl with the Dragon Tattoo*, and developed through the series. (4) …. is the graphic violence, although this is kept to a minimum and is never gratuitous.

This trilogy has enjoyed enormous success, and the one thing (5) …, one has to conclude, is the untimely death of its author, himself an investigative journalist who delved into organized crime and neo-Nazism in Sweden. This, of course, led to endless conspiracy theories – was Larsson murdered? Had he uncovered some awful criminal organization at the heart of Swedish political life? (6) …. is the entirely natural, albeit tragic, cause of death – a massive heart attack.

a) the thing that some readers might find off-putting

b) it is the place that

c) it makes these theories unlikely that

d) that has helped fuel its success

e) it is the pace what

f) that the reader can identify

g) why it has been so popular

h) what makes these theories highly unlikely

i) how the reader can identify

j) what some readers might find off-putting

k) it is what Larsson manages to do

l) what Larsson manages to do

Exercise 2. Rewrite the sentences, making them more emphatic.

1. I was most unhappy with the service.

What …… (to be unhappy with)

2. I can't stand the noise.

It's …… (the noise).

3. John didn't pay for the wedding ring, Sarah did.

It ….. (John).

It …….. (Sarah)

4. He's always late. It really annoys me.

What ….. (to annoy)

5. Did you choose the furniture?

Was …… (you)

6. The waiter's attitude made things worse.

It ……. (waiter's attitude)

7. I love autumn because of the colour of the leaves.

What …… (autumn)

8. Her terrible accent annoyed me most.

What ……. (to annoy)

9. I bought it because it was a bargain.

It was ……..(to be a bargain)

10. In the end Martha went to the police.

What …… (go to the police)

Exercise 3. Read the information in the box then complete the replies. Each reply must contain a cleft sentence.

Nick turned up late for work on Monday because he got stuck in a traffic jam on the ring road. Luckily Nick has a mobile phone so he was able to phone his boss and warn her that he would be late. She was furious but managed to reschedule an important meeting for the afternoon.

1. Didn't the boss turn up late on Monday? – No, it ….. late on Monday.

2.Nick was late because he overslept, wasn't he? No, it ….. that he was late.

3. How on earth did Nick let the boss know he'd be late? Well, what ….. call her from his mobile phone. 4.Wasn't Nick late on Wednesday? No, ……. that he was late.

5. Nick's boss had to start the meeting without him, didn't she? No, what she …….. the afternoon.

6. Didn't Nick get stuck in a traffic jam in the town centre? No, not in the town centre; it …… got stuck.

7. Didn't the boss have to reschedule that meeting because the client didn't turn up? No, it ….. had to reschedule the meeting.

8. Nick rang the boss to give her the sales figures, didn't he? No, it …. That he rang her.

9. I heard the boss was a little annoyed with Nick for being late. No, she wasn't «a little annoyed». What …….!

Exercise 4. For each of the sentences below, write a new sentence as similar as possible in meaning to the original sentence, but using the words given in bold.

1. We just need 5 minutes to fix it. ……. **all**
2. Sebastian left the job because of the long working hours. …….. **why**
3. We have to wait here. …….. **this**
4. Jennifer started the strike. …….. **person**
5. I'm not questioning his dedication. …….. **isn't**
6. These men a re totally ruthless. ……..**what**
7. I used to live around the corner. …… **the place**
8. It was your next door neighbor who complained. …….. **the one**
9. We inherited everything except the house…… **only thing**
10. You know the sales assistant told me exactly the same thing. …… **that's**

I want you to copy this down in your notebooks. …… **to do**

11. First of all we checked the insurance details. …….. **first thing**
12. The climbers reached the peak at six o'clock. …… **was**
13. We're taking the au-pair with us. …….**doing**
14. Before leaving we switched off the power supply. …… **last thing**
15. They moved to Andalucia because of the climate. …… **reason**
16. The company has imposed a ban on private e-mails. ……. **has done**
17. The only thing we want is our money back. ……. **all**
18. Our boss told us the news. …… **it**
19. I want you to appreciate that it's not my fault. ….. **what**
20. The introduction of stamp duties led to the loss of the American colonies. ….. **that**

Exercise 5. Using the given sentences, create cleft sentences to emphasise the information in bold. Use the words given. Do not change the tense of the original sentences.

1. Jana most likes **the opportunity to work with people from different cultures** in this project.

The thing ……..

2. **The convenient location** made us rent the offices.

It …….

3. **Hana** is responsible for ordering snacks for the department party.

It ……

4. Michael needed **30 minutes** to finish the executive summary.

All ……..

5. I want to **finish** my PhD before I apply for another job.

What ……..

6. We should **focus on** quality, not quantity.

What ……..

7. In our office, I admire **my line manager David** the most.

In our office, the person ……..

8. **Two years ago**, Tomas started to realize that this job might cost him his personal life.

It …… [17, 18, 19].

APPENDIX

Ознайомтесь з варіантами перекладу деяких стандартних зворотів (кліше), характерних для авторських анотацій та резюме у вітчизняній науковій періодиці.

Актуальне питання an up-to-date issue

Вивчено... The article explores (examines) … Можливий варіант у пасивному стані: ... is/are explored (examined)

Визначено особливості... The specific features of … are outlined

Визначити основну думку (причини) identify the main argument (the causes)

Висвітлено проблему ... The issue concerning … is highlighted

Виходячи з досвіду ... Judging by the experience of … On the basis of … **Виявлено...** … is/are found out

Відповідно, ... Accordingly, …

В контексті ... within (in) the context of …, from the perspective of …, in relation to …

В умовах … in/under the conditions of …

Головну (основну) увагу приділено... Particular (special) attention is paid (drawn) to… The author focuses on …

Детально описано … is/are described in detail

Доведено факт ... The author has established the fact that …

Доведено, що... it is shown that … The author shows (demonstrates) that … The author argues that …

Досліджено... The paper/author explores… (examines …, studies…, investigates…, describes …, considers …). Можливий варіант у пасивному стані: ... is/are explored (examined, etc.)

Зазначено, що... The author states (shows, points out, explains, indicates, develops the view) that … It is claimed that …

За цих умов (обставин) under these conditions (circumstances)

Звернути увагу на ... draw attention to …

Здійснене дослідження the study, this study (типова помилка: the conducted study)

Здійснювати дослідження conduct a study

Зображено... is shown (demonstrated)

З позиції ... from the standpoint of …

Зроблено спробу визначити .... An attempt is made at identifying (defining) … **Лежати в основі** underlie

Наведено аналіз ... The article provides an analysis of … The article provides a detailed examination of …

Наведено дані про ... Data are given about …

Наведено приклади ... This article provides examples of … … gives examples showing…

Наведено характеристику... … is/are described

На підставі (на основі, на базі)... considering …, drawing on …, proceeding from …, having analyzed …, … is based on …

На початку / наприкінці (80-х. рр. XX ст.) in the early / late 80s of the 20th century (1980s)

На прикладі (на матеріалі ...) the case of, by …ing, proceeding from, having analyzed …, … is based on …, using … as an example (Типова помилка: by the example of …)

На сучасному етапі at present

Окреслено коло питань стосовно ... is/are … highlighted

Окреслено характерні риси... Characteristic features of … are outlined

Описано ... The paper/author describes (offers a description of…). Або: ... is/are described

Особливу увагу приділено ... Particular (special) attention is paid to… The paper concentrates on … focuses on ... Extensive coverage is given to … Much attention is given to …

Охарактеризовано... The author explores (describes, examines, analyzes)… is/are described (identified)

Піднімати питання ... raise the issue of …

Показано вплив... The influence (impact, effect) of … on … is shown

Показано значення... The importance (significance) of .. for … is stressed **Показано на прикладі (проілюстровано)** ... is exemplified by …

Пояснити на прикладі ... illustrate by …ing

Представлено огляд... This paper presents a review of …

Проаналізовано особливості... characteristic (specific, distinctive) features of ... are analyzed. Або: The author analyzes … (presents/provides an analysis of …) **Проблему розглянуто шляхом** ... The study investigates this issue by examining …

Розв'язати проблему find a solution to the problem

Розглядаються проблеми... The issues addressed are …

Розглянуто... (У статті розглянуто...) The paper deals with … This article discusses the issue of... The study is concerned with … The paper describes … The paper is concerned with … The author considers … Або: … is (are) described (discussed, considered, etc.)

Систематизовано й узагальнено... … is/are systematized and summerized **Стаття присвячена питанням...** The article is devoted to… The article deals (is concerned) with… The paper touches upon the issue of… The study addresses the problems of … уникайте: dedicated to …)

Стисло описано ... is/are described in short

Сфера досліджень the field (area) of research

Установлено місце та роль... The position (place) and role of … are identified

Установлено факт … The author has established the fact that …

Уточнено... is/are specified

Запитання, що пропонуються для усної співбесіди на залік та екзамен.

1) What are you? What is your profession? - Where do you work? - What higher school did you graduate from? When?

Let me introduce myself. My name is … Now I work as an economist in a joint-stock company. I graduated from… and got a qualification of an economist-specialist of Finance and Credit.

2) What field are you interested in? *I am interested in dealing in securities.*

3) What literature in your specialty do you read?

I often read such journal as «Money and Credit», «Money», «Banks and Banking».

4) Why did you decide to be a scientist? Was it your own decision?

In order to develop my scientific outlook I have decided to take a post graduate course at … . I entered this course in …

5) How many exams did you take entering post-graduate course?

I took three exams in special subject, in Philosophy and in English.

6) Was it an easy year in respect of your studies? Why do you think so?

7) What were you doing from entrance till final examinations?

This year was quite difficult; I've had to combine my work and studies, to attend classes in Philosophy and English, to read a lot of material for them getting ready for final examinations.

8) Do you prefer dealing with pure or applied sphere of science?

I prefer dealing with applied sphere of science.

9) Have you any articles published? *I don't have any articles published yet, but I'm working at.*

10) Have you started collecting and working up the material for your thesis?

11) What does your research deal with?

12) What is the subject of your study?

13) What methods of investigation do you use in the preparatory work?

14) Do you need any equipment in your research?

15) Does this research have any practical value for the branch of industry you work in?

16) What is the practical use of your work?

17) What advantages does it have as compared to similar ones?

18) What are the most interesting aspects of your research work?

I have already started collecting and working up the material for my thesis. My future research deals with the Ukrainian security market and general principles of functioning of similar markets abroad. The subject of my research is different kinds of securities and stock exchanges where the given financial instruments circulate. My thesis consists of two chapters. The first chapter is devoted to the analysis of stock price fluctuations, indicators, indexes and factors. In the second chapter I am going to work out some new rules and principles to receive legible formulations. The most interesting aspect, I think, is an attempt to formulate some laws of a revolution in the field of securities in the contemporary Ukrainian economic environment. I hope my future research will be of great importance and serve as guidance to forecast different situations at the Ukrainian security market. I don't use any special equipment except my notebook.

19) Are you satisfied with the result reached?

20) When do you plan to submit your thesis?

Of course, I'm not satisfied with the result reach. I have a long way to go. I plan to submit my thesis in …

21) Who is your scientific supervisor? My scientific supervisor is Mr… He is a professor, Doctor of Economics.

22) What role does the English language play in your life and study?

The English language plays an important role in my life and study. I think of improving my speaking skills, so I'll be able to talk to foreign specialists on my own, to take part in scientific conferences abroad. But now I am reading a lot of specialized and scientific books and journals in English searching the material for my thesis.

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