

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ АВІАЦІЙНИЙ УНІВЕРСИТЕТ
Факультет лінгвістики та соціальних комунікацій
Кафедра англійської філології і перекладу

МЕТОДИЧНІ РЕКОМЕНДАЦІЇ СТУДЕНТАМ
З ПІДГОТОВКИ ДО ПРАКТИЧНИХ ЗАНЯТЬ
з дисципліни «Практика перекладу галузевої літератури (4 курс)»

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ОПШ:	Германські мови та літератури (переклад включно), перша - англійська

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Матеріали до практичних
занять розглянуті та схвалені
на засіданні кафедри англійської філології і
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Основною метою дисципліни є всебічний розвиток компонентів перекладацької комунікативної компетенції задля виконання різноспрямованих за цільовою мовою (українська та англійська) форм та видів галузевого перекладу, розгалужених за ситуаціями письмової мовленнєвої діяльності перекладача як комуніканта-посередника.

Засвоєння лексичних та термінологічних проблем перекладу передбачає опанування таких тем: способи перекладу лексичних одиниць, перекладацькі лексичні трансформації, переклад термінів (префіксальних, суфіксальних, складних), фальшиві друзі перекладача, переклад слів-реалій, назв, власних імен.

Переклад галузевих текстів передбачає отримання навичок відтворення науково-технічних текстів з тем: «Право», «Технології», «Транспорт», «Філософія», «Політологія», «Психологія», «Радіо інженерія» «Гідрографія», «Астрономія», «Фізика» «Астрофізика», «Штучний інтелект», «Історія релігій», «Математика», «Банківська справа», «Модифікація поведінки», «Археологія», «Антропологія», «Статистика», «Спорт» (засвоєння термінології, вивчення лексичних, граматичних та стилістичних особливостей таких текстів).

Для перекладу та лінгвістичного аналізу текстів студенти можуть користуватись словниками за посиланнями: <https://www.multitran.com/>, <https://dictionary.cambridge.org/ru/> <https://www.merriam-webster.com/>.

Матеріали до практичних занять 1-4

1. Law
2. Translation of dictionary equivalents, the choice of variant equivalent.

1. Translate the text paying attention to the use of terminology.

Impact of the UN on International Law

The UN began its life with a membership of 50 nations. In the 1990s, because of the growth of newly independent nations, that number has reached 180. The **aims and purposes** of the organization encompass **the maintenance of peace and security** and **the suppression of acts of aggression**. The **Charter** also expressly includes among its **objectives** the maintenance of respect for the obligations arising from treaties and other sources of international law. For that reason the Charter established **the International Court of Justice** as one of the most important UN organs and specifically **charged** the General Assembly **with** the progressive development and codification of international law. To carry out this task, the General Assembly has created two **subsidiary organs: the International Law Commission and the Commission on International Trade Law**.

The International Law Commission, on assignment by the General Assembly, has prepared **drafts of treaties** codifying and modernizing a number of important subjects of international law, such as various aspects of **the law of the sea** (1958), diplomatic relations, consular relations, **law of treaties between nations, succession of states in respect to treaties, law of treaties between nations and international organizations**, and immunity states from the jurisdiction of other states. Upon acceptance by the General Assembly, these drafts are submitted to international conferences **convoked** by the UN for the negotiation of the respective conventions.

In some instances, the UN has convoked conferences to negotiate treaties without prior proposal by the International Law Commission. The most important example was the third UN Conference on the Law of the Sea, which terminated its work in 1982 with the draft of a convention for a comprehensive regime governing all aspects of the peaceful use of the oceans. Another example is the text of the convention governing the activities of nations on the moon and other **celestial bodies**, which was adopted by the General Assembly in 1979 and **went into effect** in 1984.

Since the UN Charter bans the use of force against the territorial integrity or political independence of any state, the UN has **refrained from** addressing aspects of **the law of war and neutrality**. Nevertheless, the four Geneva conventions of 1949-the so-called Red Cross Conventions-formulated improved agreements relative to the **amelioration** of the condition of wounded and sick

members of the armed forces in the field and at sea, the treatment of prisoners of war and the protection of civilian persons in wartime, thereby **instilling new life** into the humanitarian principles of international law.

International law **regulates intercourse** among nations in peacetime and provides methods for the settlement of disputes by means other than war. Apart from procedures made available by the UN, these methods include direct negotiation between disputants under the established rules of diplomacy, **the rendering of good offices** by a disinterested third party, and recourse to the International Court of Justice. Other peacetime aspects of international law involve **the treatment of foreigners and of foreign investments; the acquisition and loss of citizenship; and status of stateless persons; the extradition of fugitives; and the privileges and duties of diplomatic personnel.**

2. Match the words on the left to their definitions on the right

- | | |
|----------------------|---|
| 1. aims and purposes | a) natural objects visible in the sky |
| 2. convoke | b) a version of some document that you make before you make the final version |
| 3. negotiate | c) to begin to function, to operate, in force |
| 4. celestial bodies | d) to call together, to meet or assemble |
| 5. refrain from | e) the satisfying of a claim or demand |
| 6. to go into effect | f) smth. intended or desired to be attained by one's efforts |
| 7. amelioration | g) to abstain from an impulse to say or to do smth. |
| 8. draft of treaties | h) the state of being given the rights, privileges and duties of a citizen |
| 9. citizenship | i) the state of being made better |
| 10. settlement | j) to deal with other as in preparation of treaty or contract |

3. Translate the sentences using active vocabulary

- Цілі та завдання організації охоплюють: дотримання миру та безпеки, придушення актів агресії.
- Статут ООН передбачає також поважне ставлення до обов'язків, обумовлених договорами та іншими джерелами міжнародного права.
- У випадку порушення договору однією з сторін, вони можуть розірвати договір в односторонньому порядку.
- Міжнародна правова комісія за дорученням Генеральної Асамблеї готує проекти угод, що систематизують та модернізують значну кількість угод міжнародного права, серед яких різноманітні аспекти морського права, закон про договори між державами, правонаступність держав стосовно договорів тощо.
- Після укладання та підписання багатостороннього договору всім державам слід дотримуватися його положень.
- Країни, що не приєднуються до договору про ненапад або не пов'язані угодою про роззброєння можуть завдати значних збитків економічному та військовому секторам.
- Після схвального рішення Генеральної Асамблеї проекти передаються на міжнародні конференції, які скликає ООН для обговорення відповідних конвенцій.
- Міжнародне право регулює стосунки між державами у мирний час і забезпечує методи для врегулювання конфліктів методами іншими ніж війна.
- До інших аспектів Міжнародного права належать ставлення до іноземців та іноземних інвестицій, набуття та втрата громадянства, статус особи без громадянства, екстрадиція біженців тощо.

10. Оскільки Статут ООН забороняє використання сили проти територіальної цілісності чи політичної незалежності будь-якої держави ООН не послуговується законом про війну та нейтралітет.
4. Translate the following sentences, paying attention to the terms that have to be translated based on the choice of variant equivalents.
 1. *Conflict* may according to some theorists, have a positive social function.
 2. One such refinement is a *damping device* that shortens the time required for the swinging of the *weighing arm* to cease.
 3. Acetylcholine acts like a "key" – it is released from one *cell*, which it activates by fitting into a "lock", called a *receptor*.
 4. In CAD, engineers use specialized computer software to create models that represent the *geometry* and other characteristics of objects.
 5. In the fields of geomorphology and hydrology, aerial photographs find application in *watershed studies*, flood control and evaluation of water pollution and shoreline changes.
 6. Many analog devices have been replaced by digital devices, mainly because *digital instruments* can better deal with the problem of *unwanted information* or *noise*.
 7. *Policy* is guided by the recognition that crime is often socially produced, that criminals suffer from "*problems in living*", and that only truly dangerous offenders should be incarcerated.
 8. If a *template* matches some area of the *sample image*, the *image* might contain the corresponding object; unfortunately, the match is usually imperfect due to *image noise*, *object variation*, *object rotation*, changes in lighting and other factors.
 9. To encipher a message or datum requires knowing *n* plus *number e*, the latter also known to everyone. Although everyone can encipher a message or datum using the known numbers, decipherment can be accomplished only by someone who knows *n* and a *private number*, *d*.
 10. The *personality structure* and life history of the psychopath are quite different from those of the person whose antisocial or criminal behavior is related to some underlying emotional disturbance, and from those of a person whose antisocial behavior results from living in a criminal subculture or in an environment in which such behavior is expected or rewarded.
5. Read the article carefully, find the answers to the following questions, and translate the article considering the use of terminology.
 1. What has caused the government to begin a prison building program?
 2. How is it suggested in the article that the parole system actually increases the number of people in prisons?
 3. What happens when a person on a suspended sentence commits a crime?
 4. Why is the government in a dilemma?

Punishment takes many forms

Once again, rising crime and the workings of **the penal system** are back in the news. Parliament has recently voted on **capital punishment**, police chiefs have voiced their concern at the growth of violent public disorder and there have been riots at several British jails.

Meanwhile, the British Home Office has been criticized over the rising prison population and overcrowding. Forced to deal with a steady increase in **convictions** for violent crime, it has launched an extensive prison-building programme. Providing more jails, however, merely tackles the symptoms, for the size of the prison population is affected by two factors: the number of **offenders**, and the **sentencing policy** of the courts. Thus, the government has also had to consider ways to reduce the prison population through the use of **non-custodial alternatives**.

The most widely used device for reducing the number of prisoners in jail is the **remission and parole system**. This enables prisoners who have behaved themselves to "earn" their release before their original sentence has been completed. Some theorists believe that the over-use of this system has

encouraged the British courts **to impose sentences** of up to a third longer than they might have previously, in order to compensate for potential early release.

The courts also have the power to impose **a suspended sentence**. Thus, if a suspended sentence of, for example, two years is imposed, the offender will not have to go to prison; but if he or she is convicted of another crime within these two years, then the new sentence will have the original sentence added to it. There is some evidence that the suspended sentence is used too frequently, with the result that the number of prisoners actually increases. Some reports indicate that as many as half of those given suspended sentences would not have been given a jail sentence for their first offence and are consequently sentenced twice over for their second offence.

Another option is the Community Service Order, whereby the judge can sentence a criminal to a maximum of 240 hours of **community-based practical work**. This serves both as a way of making amends to society and of avoiding the potentially harmful consequences of a period in prison.

The most common alternative to jail is a fine. Although appropriate for **minor offences**, fines are seen by the public as too **lenient a punishment** for those guilty of violent crime. Judges who impose fines are frequently the target of bitter criticism in the press, and are therefore reluctant to use this cost-effective and straightforward form of punishment.

One or two ideas have surfaced in the last few years, the most revolutionary being the use of **electronic tagging**. Ministers have decided to introduce a pilot scheme whereby British offenders will be forced to wear an electronic device while they are **on probation**, enabling their whereabouts to be monitored by police. There are also plans to extend the community service order to include help for the aged and sick.

However, all these initiatives illustrate an underlying dilemma: by building new prisons and by encouraging the courts to impose alternative punishments, the government is trying to pursue two contradictory policies at once. The problem with increasing the number of prisons is that more places tend to result in more prison sentences. Research recently published in the United States indicates that those states which embarked on prison building programmes ended up increasing their prison populations, while those which closed down a number of prisons actually reduced the number of people in jail to proportionally lower levels.

6. Translate the following words and word combinations into English in a quick manner.

Вести судове засідання, головувати; звинувачуваний, позивач, система покарань, смертна кара, довічне ув'язнення, громадські роботи, умовний вирок, помилювання, виносити вирок, звільняти, звільняти під заставу, незначне правопорушення, м'яке покарання, фальшивомонетник, аферист, кримінальне минуле, ув'язнювати, в'язні, штат розвідки, правоохоронні органи, хабарництво.

7. Think of the proper translation of the following words and word combinations into Ukrainian.

Prison/ jail (*Am*), to put in prison, to put smb under arrest, to release from prison, prisoner/ inmate, prisoner of war, to imprison, imprisonment, prison term;
incarceration, to be incarcerated, the rate of incarceration;
custody, to be in custody/ to be remanded/held in custody, to be apprehended;
to convict smb of smth, convict, to be convicted of smth, to have conviction for smth, to overturn the conviction;
to outlaw, an outlaw;
to appeal, appeal, to appeal against the conviction, to dismiss an appeal;
evidence, forensic evidence, to produce evidence, to consider the evidence/ testimony/ proof;
witness, a witness for the prosecution/ for the defence, a witness to a crime;
charges against smb, to be charged with, to drop charges against smb;
to plead guilty/ not guilty to a crime, plea;
bail, on bail, to be put on bail, to stand bail for smb;
parole, on parole, to be released on parole, remission and parole system, non-custodial alternatives
the age of criminal responsibility;

sentence, lenient sentence, suspended sentence, to pass a sentence, to impose a sentence, to suspend a sentence, to complete a sentence, to serve a prison sentence;
 penalty;
 probation, to be put on probation, to be on probation;
 to suspect smb of smth, suspect, to be under/ beyond suspicion, suspicious-looking to be represented by a lawyer;
 investigation, to undertake investigation;
 inquiry, to make inquiries/ inquest;
 to find smb guilty/ not guilty, to give smb a free pardon, to acquit smb, to find the case not proven;
 major crime, petty crime, minor offence;
 a hole-in-the-wall cash dispenser.

8. Give the proper translation of the following offences and inherent words into Ukrainian.

Unlawful possession of a weapon, blackmail, burglary, robbery, armed robbery, shoplifting, petty theft, kidnapping, arson, trespassing, murder, manslaughter, felony, smuggling, bigamy, conspiracy, espionage, treason, fraud, forgery, baby- or wife battering, rape, assault, mugging, driving without due care and attention, drug peddling, hijacking, carjacking, joyriding, sexual abuse, bribery, bribe-taking, corruption, embezzlement, obscenity, libel, slander, perjury, an offence against property;
 to be robbed at gunpoint, to raid, raider, smash-and-grab raid, ram-raid heist, squatters, ravers, hunt saboteurs;

Some of the sentences: to impose a fine, to pay compensation, to give smb community service, to be banned from driving, to endorse smb's licence, revocation of a privilege (e.g. driver's licence, hunting permit), to put smb on probation, life imprisonment, death penalty/ capital punishment.

1. Treaties
2. The use of transcoding and calquing during the translation of lexical units.

1. Match the words on the left with the definitions on the right. Give Ukrainian equivalents of the words.

1) damages	a) An adjective referring to a judge or to the law
2) commit	b) A disagreement or argument between parties
3) judicial	c) An agreement reached after an argument
4) innocent	d) Any act which is not legal
5) offence	e) A set of arguments or facts put forward by one side in a legal proceeding
6) lawyer	f) to make an allegation in legal proceedings
7) dispute	g) Money claimed by someone as compensation for harm done
8) tribunal	h) A specialist court outside the judicial system which examines special problems
9) case	i) to hold someone legally so as to charge them with a crime
10) judge	j) not guilty of a crime
11) plead	k) A person who makes a claim against someone in a civil court
12) defendant	l) An official who presides over a court
13) claimant	m) To send someone to prison or to a court.
14) settlement	n) Someone who is accused of a crime in a criminal case
15) arrest	o) A person who has studied law and can act for people on legal business

2. Translate the following types of treaties:

Global –	Multilateral –
International –	Formal –
State –	Draft –
Union –	Commercial –
Bilateral –	Economic –

Military –

Political –

Binding –

Unequal –

Cooperation –

Friendship –

Non-aggression –

Peace –

Arms –

Disarmament –

Non-proliferation –

Test ban –

Defence –

Extradition –

Boundary –

Restricted –

3. Put the right word in the gaps (sometimes several variants are possible) and translate the sentences into English:

draw up

become a party to

reject

review

breach

repudiate

conclude

break

be bound by

prepare

amend

enter into

violate

vote against

adhere to

abrogate

1. In September 2010 Japan _____ a commercial treaty with China.
2. Only the US – a major arms manufacturer - _____ the treaty, saying it wanted to rely on existing agreements. A total of 139 states voted for the motion.
3. Countries which do not _____ the treaty can be expelled as members.
4. The US _____ later the treaty entirely, saying it would harm its economy.
5. So the original treaties will have to be _____ or a new treaty signed.
6. In May, the Nuclear Non-proliferation Treaty undergoes one of its five-yearly _____
7. It was argued on Tuesday that throwing out Scottish peers with hereditary titles would be a _____ of the 1707 Treaty of Union between England and Scotland.
8. The Maori rebels say this would infringe their ancestral rights and _____ treaty obligations made to their tribal leaders when New Zealand came under European rule in 1840.
9. The Copenhagen UN summit – between 7-18 December – aims to _____ a treaty to succeed the 1997 Kyoto Protocol, although observers say this is unlikely.
10. More than 100 other countries have also signed the treaty, but will not _____ its restrictions until they agree to ratify it. And that is where the battle is going to be.

4. Translate the sentences into English.

1. Так, у Російській Федерації з Туреччиною ось вже 85 років діє безстроковий договір про дружбу та братерство, що встановив нові кордони між СРСР і кемалістською республікою.
2. Угоди стосовно скорочення стратегічних наступальних озброєнь відкриють шлях до принципового зміцнення і розширення Договору про нерозповсюдження ядерної зброї.
3. На початку березня українське посольство прибуло до Москви з проектом договору із 23 пунктів.
4. Дуже важливо, щоб ми могли повернутися до ситуації, коли всі держави, які підписали цей договір, дотримуються його положень.
5. Сполучені Штати є практично єдиною країною, яка відмовляється приєднатися до договору про протипіхотні міни, Конвенції про права дитини чи Міжнародного кримінального суду. Коли ж вона ратифікує договори про права людини, вона робить їх недійсними стосовно офіційних осіб США.
6. Договір укладено з метою використання на взаємовигідних умовах існуючої системи транспортування нафти, ефективної її експлуатації, утримання в належному стані, а також для взаємовигідних дій при її технічному обслуговуванні.
7. У випадку не виконання сторонами узятих на себе зобов'язань, вони можуть в односторонньому порядку вийти з договору.
8. Україна зможе автоматично після розірвання договору зажадати від Росії вивести Чорноморський флот.

5. Translate the following sentences, paying attention to the use of transcoding.

1. In astronomy, for example, bolometers measure the energy of starlight.
2. Typical condensation polymers are polyamides, polyesters, and certain polyurethanes.
3. Creosote is an excellent antiseptic and was formerly used for treatment of chest infections.
4. The rotor of a helicopter usually has two or more blades radiating symmetrically from a central hub.

5. Although the proton is not an elementary particle (it contains three constituent quarks), its mass is of special importance.
6. By using so-called super heaters, modern boilers can achieve almost 90 per cent fuel efficiency.
7. A blasting cap[or exploder is a small charge of a detonator designed to be embedded in dynamite and ignited either by a burning fuse or a spark.
8. An accelerator card allows a user to upgrade a system to a faster microprocessor without having to replace the cards, drives, keyboard, or case.
9. Although composite materials have certain advantages over conventional materials, composites also have some disadvantages.
10. Desegregation is the abolition of social segregation according to ethnic background.

6. Translate the following sentences, paying attention to the use of calquing.

1. The cosmological theory called the big bang theory assumes that the universe began from a singular state of infinite density.
2. The mathematical compass is a manual mechanical device for drawing circles and transferring geometric dimensions. Commonly, two legs are hinged with a pivot to form an inverted vee, one leg having a sharp point and the other fitted with a pen or pencil.
3. Chair and table legs were usually carved in the shape of a curved animal leg terminating in a bull hoof or lion paw.
4. Engine-propeller combinations on single-engine aircraft are usually located in the nose, or forward-most, section of the fuselage and pull the aircraft through the air.
5. In other words the vacuum that existed at the time of the big bang was not a stable but an unstable, high-energy vacuum.
6. Later in the 1970s a group led by Steve Jobs and Steve Wozniak found Apple Computer in a garage in Silicon Valley. Their focus was on making the personal computer more “user-friendly.”
7. In July 1993 the Clinton administration renounced the Strategic Defense Initiative because it represented a violation of the 1972 ABM treaty.
8. During the twentieth century the suburbs of London continued to grow until 1935, when a Green Belt law was instituted to control further growth beyond a ring of parks.
9. The dasheen is sometimes grown as an ornamental houseplant called “elephant’s ear” because of its, heart-shaped leaves.
10. The federal anticrime act of 1984 put the burden of proof of insanity on the defendant for federal crimes.

1. Technologies, inventions
2. The use of contextual replacement and modulation during lexical units translation

1. Translate the texts into Ukrainian paying attention to the translation of terms.

Technology

Inventions Today

In former years inventors worked alone, often secretly. They used their own money and told no one of their work until it was **protected by patent**. Their **background and training** were largely practical. Their solitary habits earned them a reputation, sometimes justified, of being eccentric.

The individual inventive effort of past years is now largely taken over by organized research. Large corporations employ their own scientists and spend as much as 5 or 6 per cent of their income on research. Many of them carry on general, or fundamental, research. They try to

find new scientific facts rather than work on problems that will yield immediate money-making devices. Yet this fundamental research often leads to popular and **salable products**. From such investigation conducted by one large company have come **nylon, cellophane, orlon, and dacron**.

Universities also do a great amount of fundamental research. For example, the University of Wisconsin **holds a patent** on a method of increasing the vitamin D content of foods. **Patent royalties** help support university laboratories and many industries also give money to universities for research purposes. Commercial laboratories, on the other hand, do research for other companies **on a fee basis**.

The principal funder of invention in the United States is the federal government. The majority of the federal money spent for research and development and hence, presumably, for discoveries and inventions has gone to **the aircraft and missiles industry** and to the electrical equipment and communications industry. This distribution of funds has been criticized by some for creating an imbalance in inventive activity and for being directed toward practical applications rather than basic knowledge.

The United States is not unique in its emphasis on research and development and in the large-scale **support accorded** science and technology. Throughout the world, discovery and invention have become major tools for achieving national objectives. In Japan, priority is given to technical education, and scientists and engineers are **granted preferential treatment**.

Likewise Great Britain has increased its support of scientific and technological inventions. In the 1960s many Britons complained of **a brain-drain** as British scientists and engineers were **lured to** other countries. As a result, Great Britain set about strengthening its higher educational system in science and technology in order **to regain the premier** scientific and technological **position** it enjoyed during the 19th century. Even in, the so-called underdeveloped nations there is an attempt to promote inventions and discoveries, or at least to adapt those of the developed Western nations to their own needs.

Inventive Processes

The way for a new invention is prepared by all the previous related inventions and discoveries. James Watt, for example, could devise **a rotary steam engine** only because there was **a long series of inventions** before it, including the **crank, gear, wheel, lathe**, thermometer, **strong cast iron**, knowledge of heat, evaporation, and condensation, and a method of measuring the heat energy in steam.

Invention today is tied to industrial methods and production. An invention does not come into common use, and thereby encourage further invention, until it has been mass-produced and fitted with standardized, **interchangeable parts**. Only by being made in large quantities and by being widely distributed is it actually tested through use. This wide use produces further improvements and changes, which may in themselves, become new inventions.

A distinguishing feature of 20th century research is the fact that it represents systematized invention: it is largely devoted to technological research, discovery, and innovation. In order to accomplish this, many persons are brought together from **a wide array of disciplines** to form the research team, each member contributing his own specialized knowledge. At the same time, modern research embodies a new methodology based on the systematic application of science to technology. Thus, **the long line of inventions** that started in the prehistoric past appears to be continuing.

History of Technology

Technology refers to the ways in which people use discoveries **to satisfy needs** and desires and to alter the environment to improve their lives. From the very beginning of human life on earth, people have had to work to obtain food, clothing, and shelter. Throughout human history, men and women have invented tools, machines, materials, and techniques to make their work easier. They also discovered power sources such as waterpower and electricity to increase their work rate.

Technology, therefore, involves the use of tools, machines, techniques, and sources of power to make work easier and more productive. It is the human activity that changes the material

world to satisfy human needs. As such, technology comprises the vast body of knowledge and devices by which humans have progressively **mastered** their **natural environment** over the centuries.

Of course, when we speak of technology today we are looking at it in a much narrower sense. Generally, we are referring to industrial technology, or the technology that began about 200 years ago with the development of **power-driven machines**, growth of the factory system, and mass production of goods and that created the basis for our modern society. Today we often say that we live in an age of technology meaning that **the pace of invention** and change has increased **with amazing rapidity**. In fact, the rate of change in science and technology has become so increasingly **swift** that according to one estimate, 90 percent of all the scientists who had ever lived were alive and active in the 1970s. This increased scientific activity has brought new ideas, processes, and inventions in an ever-growing amount.

This brings us to another characteristic of modern technology, its relationship to science. Today, science and technology are closely related. Many modern technologies such as nuclear power and space flight depend on science and the applications of scientific knowledge and principles. Each advance in pure science creates new opportunities for the development of new designs and ways of making things to be used in daily life, and in turn, technology provides science with new and more **accurate instruments** for its investigations and research. This has been a recent phenomenon, however, with its beginnings in the 16th century. Before then, science and technology were separate fields with separate identities. Science involved the ideas and investigations of philosophers who **sought knowledge** of the natural and physical world.

The scientific revolution that began in the 16th century was the first time that science and technology began to work together. Thus, Galileo, who made revolutionary discoveries in astronomy and physics, also built an improved telescope and patented a system of lifting water. Francis Bacon favored experimental science and suggested that scientists learn the methods of **craftspeople** while craftspeople learn more about science. Bacon, Descartes, and other scientists **envisioned** a time when humans could master the environment. Ever since, science and technology have grown closer together.

However, it was not until the 19th century that technology truly was based on science and inventors began to build on the work of scientists. For example, Thomas Edison built on the early experiments of Faraday and Henry in his invention of the first practical system of electrical lighting. So too, Edison carried on his investigations until he found **the carbon filament** for **the electric light bulb** in a research laboratory he started in Menlo Park, New Jersey. This was the first true modern technological research. It is generally agreed that 'Man is **a toolmaking animal**.' In a sense the history of technology is the history of "man," or all humankind. One of the major determining characteristics of human behavior is **the fashioning of tools**. This is a pattern of innovation requiring thought rather than a pattern of instinctive behavior characteristic of other animal species. It is this ability to apply technological methods that separates humans from animals. Humans have technology, while other animals do not. Since toolmaking is an important aspect of human nature, the history of technology is the history of humans. Thus, we must begin our investigation of technology at the very beginning of human history.

The Effects of Technology

Modern technology has had a tremendous effect on the lives of people throughout the world. Inventions such as the automobile influenced where people lived and worked and how they spent their leisure time. Radio and television changed people's entertainment habits and brought them information about world events as they happened while the telephone revolutionized communications. Today, technology has brought goals into reach that few would have dreamed were possible 100 years ago. Humans have the capability **to conquer hunger, cure and prevent many diseases**, and transport goods and people **swiftly and easily** all over the world. Even space travel has become a reality.

Over the centuries of human history, technology has benefited people by increasing their production of goods and services, reducing the amount of labor needed to produce goods and

services, making labor easier, and **bringing higher living standards**. Technology has made a **tremendous increase** in the production of goods and services possible and today workers can produce many more goods than workers of 100 years ago. For example, in the 1800s, people and animals provided the work force on American farms while today machines do most of the work. Machines have reduced the amount of labor needed to produce goods, thereby increasing **worker productivity** and giving them more leisure time. In the 1800s, factory workers toiled 12-16 hours a day, 6 days a week, and vacations were unheard of.

Today, most American and European workers work 8 hours a day, 5 days a week, and have paid holidays and vacations. Technology has also made work easier as machines perform most of the laborious functions that used to be done by hand. Finally, the increased production of goods has produced high living standards in the world's industrialized nations where people are better fed, clothed, and housed than ever before in history. Technology has also increased our **life span** as better health care, nutrition, and sanitation have helped **to eliminate and control disease**.

Despite the many benefits technology has brought, it also has created serious problems. Although technology has enabled people in the industrialized nations of the world to live better and fuller lives, only a small part of the world's population enjoys the full benefits of modern technology.

Moreover, the industrialized nations have **been plagued by** the undesirable side effects of technology such as air and water pollution. These side effects are largely the result of the fact that most technological innovations were put into use without any consideration or realization of possible harmful side effects.

Thus, the advent of the automobile opened up wondrous new possibilities but as more and more automobiles came onto the roads, traffic, noise, and air pollution from exhaust fumes also came in its wake. Among the most unwelcome effects of technology have been environmental pollution and **the depletion of the world's natural resources**. Today, most industrialized nations face problems of air, water, soil, and noise pollution. Although automobile exhaust and factory smoke and waste are **the chief culprits**, the products as well as the processes of industrialization also contribute to pollution.

Thus, some chemical insecticides pollute the soil and water and also endanger plant and animal life. Power plants that burn coal and oil to generate electricity **spew tons of pollutants** into the air. The increased production techniques brought by technology have also led to a great **depletion of the world's natural resources**. As power production increases to meet ever-increasing production demands, the supply of fuels is rapidly decreasing. Many fear we are in danger of running out of oil and other resources that are **not replaceable**.

Other serious challenges have been created by technology. Perhaps the most important is controlling nuclear energy. Nuclear weapons threaten the very existence of our world. Although nuclear energy has been put to productive uses such as nuclear power plants to generate electricity, these too have proved to be dangerous. Events such as the Chernobyl disaster show that nuclear power plants can endanger human life if radiation **leaks into the air**. Moreover, **disposing of nuclear waste**, which remains dangerous for thousands of years, is a **troublesome problem** that still awaits solution. Still another serious challenge is the world's growing population, which is a direct result of medical technology and its new drugs and techniques. As **life expectancy** goes up and the birth rate rises, population increases cause serious problems in the poorer developing nations where hunger and poverty remain a fact of life.

2. Translate the following sentences into English using highlighted vocabulary from the above text.
1. Університети також здійснюють велику кількість фундаментальних досліджень. Наприклад, університет Вісконсіна володіє патентом на метод збільшення вміст вітаміну Д в харчових продуктах.

2. Плата за право користуватися патентом допомагає підтримувати університетські лабораторії і багато галузей промисловості також дають гроші університетам на дослідницькі цілі.
3. З іншого боку, комерційні лабораторії здійснюють дослідження для інших компаній на платній основі.
4. Велика Британія збільшила свою підтримку наукових і технічних винаходів. В 60-х роках багато британців скаржились на еміграцію наукових і творчих робітників, оскільки британських науковців та інженерів переманювали до інших країн.
5. Таким чином, деякі хімічні інсектициди забруднюють ґрунти і воду і також загрожують рослинному та тваринному існуванню. Електростанції, що спалюють вугілля і нафту, щоб виробити електрику викидають тони забруднюючих речовин в повітря.
6. Збільшення виробничих технологій, що спричинене технологічним розвитком також призвело до великого вичерпання світових природних ресурсів.
7. Зі зростанням виробництва електроенергії для задоволення всезростаючих виробничих потреб, постачання палива різко зменшується.
8. Багато людей боїться, що ми в небезпеці вичерпання нафти та інших природних ресурсів, що не є відновлюваними.
9. США не єдині, хто робить наголос на розробці і розвитку і великомасштабній підтримці, яка надається науці та техніці.
10. Навіть у так званих нерозвинених державах є спроби просувати винаходи та відкриття, чи принаймні пристосовувати винаходи розвинених Західних держав до своїх власних потреб.
11. Саме людська діяльність змінює матеріальний світ для задоволення людських потреб.
12. Людство здатне долати голод, лікувати і запобігати багатьом хворобам, доставляти товари і людей швидко і легко по всьому світу.
13. Із підвищенням середньої тривалості життя і зростанням рівня народжуваності, збільшується кількість населення, що створює серйозні проблеми в бідних країнах, що розвиваються, де бідність і голод залишаються правдою життя.

3. Translate the following words and word-combinations into Ukrainian in a quick manner.

To protect by patent, background and training, salable products, hold a patent, patent royalties, on a fee basis, aircraft and missiles industry, accord support, grant preferential treatment, brain-drain, to lure to, to regain the premier position, rotary steam engine, crank, gear, wheel, lathe, strong cast iron, interchangeable parts, wide array of disciplines, long series of inventions, long line of inventions, to embody, to satisfy needs, to alter the environment.

4. Translate the following words and word-combinations into English in a quick manner.

Продуктивність праці, підкорити навколишнє середовище, механічне обладнання, темп винаходів, з надзвичайною швидкістю, точні прилади, здобувати знання, кваліфіковані робітники, передбачати, вуглецева нитка, електрична лампочка, тварина, що здатна виробляти знаряддя праці, розробка знарядь праці, долати голод, лікувати і запобігати багатьом хворобам, швидко і легко, покращувати рівень життя, значне збільшення, важко працювати, тривалість життя, усувати і контролювати хвороби, бути ураженим, з'явитися, вичерпання світових природних ресурсів, головні винуватці, викидати забруднюючі речовини, задовольняти всезростаючі потреби виробництва, невідновлювані ресурси, виробляти електроенергію, просочуватися в повітря, утилізація ядерних відходів, складна проблема, середня тривалість життя.

5. Read the article, answer the questions and translate it.

A Perched on the edge of a cold, windswept dune in North Carolina, I was about to fulfill a dream I shared with Leonardo da Vinci: To fly. The Renaissance genius spent years deciphering the flight of birds and devising personal flying machines. On his deathbed in 1519, Leonardo said one of his regrets was that he had never flown. Five hundred years of innovation since then had produced the hang glider I held above my head, simple and safe enough to be offered as a tourist entertainment. But despite those centuries of adventure and experimentation, personal flight—the ability to bound from Earth like a skylark, swoop like a falcon, and dart as blithely as a hummingbird—remains elusive.

B Leonardo drew hundreds of images of birds on the wing, trying to decode their secrets, and drafted meticulous plans for flying machines not unlike today's gliders and helicopters. But he never figured out the physics of flight. It took more than 300 years and many more failed experiments until Sir George Cayley, a British engineer, determined that flight required lift, propulsion, and control. He built a glider with a curved wing to generate lift. It gained enough speed to fly but crashed after only a few hundred years.

C The best success in purely human-powered flight came in 1988, when the Daedalus, a lightweight aircraft built by a team at the Massachusetts Institute of Technology, flew 71.5 miles from the Greek island of Crete to Santorini. The 69-pound craft, pedaled by a Greek Olympic cyclist, got caught in turbulence as it approached the beach at Santorini. It crashed in the sea, a few yards from the shore.

D Inventors continue to try to bring the comic book fantasy of personal jet flight to life, and Yves Rossy has come closest. This Swiss pilot flings himself out of an aircraft wearing a six-foot-wide carbon-fiber wing of his own invention, powered by four tiny jet engines. In May, Rossy leaped from a helicopter above the Grand Canyon and flew eight minutes before parachuting to Earth. The jets give him powered ascent and the oomph to do loops. That freedom doesn't come easy; it took Rossy years to master his tiny craft. "I steer myself in space with only my body," he explains. "To go left, I turn my shoulders left, and that's it!" He says it's like parachuting with a wing suit.

E You won't catch me jumping out of a plane with a wing strapped to my back. But I yearn for even a small measure of Rossy's *joie de vol*. After five runs off the Outer Banks dune last April, I was getting closer—able to fly into the wind, then floating gently down onto my feet. It was as if the glider wasn't there.

F But I wanted more. Sandra Vernon, a 47-year-old mother of three in my class on the dune, egged me on. She'd been flying towed tandem flights, pulled up to 2,000 feet behind an ultralight. This usually grants a hang glider a good ten-minute flight back down to Earth, even if there are no rising thermals to help keep the craft aloft. "I'm short, I'm chubby, I'm not spry," Vernon says. "I wish I had been doing this in my 20s. You can't help but love it."

G Challenge accepted, I strapped myself into the harness of a tandem glider with instructor Jon Thompson. He warned that the moment when the towplane released us would remind me of going over the top of a roller coaster. I'm a coaster fan. This was nothing like that. It felt like falling headfirst off the top of a 2,000-foot-tall building. "You can fly now," Thompson said, genially offering me the controls. "No!" I shouted over the wind. In a few moments the glider gained lift and leveled off. My terror waned, and I took control. I banked left, then right—more of a pigeon than a sooty shearwater but flying all the same.

6. In which section of the above written text are the following mentioned?

- | | |
|---|----------------------------|
| improving one's performance with practice | 1 <input type="checkbox"/> |
| flying with an experienced professional | 2 <input type="checkbox"/> |
| the first glider ever to fly a short distance | 3 <input type="checkbox"/> |
| disappointment over an unfulfilled dream | 4 <input type="checkbox"/> |

2. Perpetual Motion is a long-held concept of a system that could provide useful work indefinitely, once set in motion.
3. The whole product development process is increasingly multidisciplinary.
4. However, these optimistic expectations had already begun to be undermined in the 1930s.
5. The barometer is thus the basis for all meteorological prediction.
6. Local government is ill fitted to resist any encroachment on its powers by the central government.
7. Although homeopathy is discounted by most doctors, it is still widely practiced.
8. One of the major handicaps faced by offenders in their attempts to earn a legitimate livelihood is an inadequate education.
9. Air offers about 15000 times as much resistance to heat flow as a good thermal conductor such as silver does, and about 30 times as much as glass.
10. While social issues receive enormous media attention and are of critical concern to Aboriginal people themselves, they are merely one element of the bigger picture.

10. Translate the sentences into Ukrainian paying attention to the use of modulation.

1. No one norm is always obeyed; and no one person obeys all norms.
2. A simple concept, fugacity, allows for the nonideal behavior of gases.
3. Such operating modes require elaborate "executive"
4. Programs to attend to the administration of the various tasks.
5. One of the species will be eliminated unless it can evolve to occupy a slightly different niche.
6. Humanistic psychologists focus on the ways in which individuals evolve health personalities and the means they employ to achieve this goal.
7. Hydroelectricity is produced from the energy of falling water; among renewable energy sources, it is the most technically mature; only wood makes a larger contribution worldwide.
8. The intimate relation between instrumentation and the generation and testing of scientific theories has always been apparent to the productive scientist.
9. A different line of thought suggests that works of art are not like objects even on a first impression.
10. Often, managing conflict involves the passage of laws.