

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ЧЕРНІГІВСЬКИЙ НАЦІОНАЛЬНИЙ ТЕХНОЛОГІЧНИЙ
УНІВЕРСИТЕТ**

ПРАКТИКУМ

З АНГЛІЙСЬКОЇ МОВИ

(за професійним спрямуванням)

для студентів II курсу напрямку підготовки

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(Гідротехніка, водні ресурси) освітньо-кваліфікаційний рівень бакалавра
(частина 2)*

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Практикум з англійської мови (за професійним спрямуванням) *для студентів II курсу напряму підготовки 194 Гідротехнічне будівництво, водна інженерія та водні технології (Гідротехніка, водні ресурси) освітньо-кваліфікаційний рівень бакалавра (частина 2)* / уклад. О. В. Ніколаєнко, Т. О. Ушата. – Чернігів : ЧНТУ, 2018. – 77 с

Укладачі:

О. В. Ніколаєнко, старший викладач кафедри іноземних мов професійного спрямування,
Т. О. Ушата, , старший викладач кафедри іноземних мов професійного спрямування

Відповідальна за випуск:

Литвин С. В., кандидат педагогічних наук, доцент, завідувач кафедри іноземних мов професійного спрямування

Рецензент:

Литвин С. В., кандидат педагогічних наук, доцент, завідувач кафедри іноземних мов професійного спрямування Чернігівського національного технологічного університету

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Вступ

Метою створення практикуму є формування навичок професійного спілкування студентів напряму підготовки 194 Гідротехнічне будівництво, водна інженерія та водні технології (Гідротехніка, водні ресурси) освітньо-кваліфікаційного рівня бакалавр. Зміст завдань, що поєднують в собі сучасні та традиційні методики, визначено згідно з навчальними потребами фахівців даної галузі. Розділи практикуму побудовано таким чином, щоб студент мав змогу зосередитися на таких видах діяльності як різнопланове читання, включаючи переглядове, вивчаюче, ознайомлююче та пошукове, виконання лексико-граматичних та письмових вправ, а також творчих завдань, що спрямовані на розвиток усного мовлення у професійному контексті. Велика кількість творчих завдань дозволяє розвивати аналітичне, критичне та творче мислення студентів. сприяє формуванню необхідних компетенцій та зміцненню конкурентоспроможності випускників на сучасному ринку праці. Практикум (частина 2) складається з двох модулів, кожен з яких містить професійно орієнтовані тексти, завдання лексико-граматичної спрямованості, на перевірку розуміння текстів за змістом, а також завдання творчого характеру. Практикум також пропонує завдання на розуміння змісту основних навчальних текстів шляхом тлумачення відповідних термінів та вправи на переклад. Завдання мовленнєвого спрямування дозволяють перевірити загальне розуміння прочитаного, закріпити набуті лексичні навички. Завдяки представленим ілюстраціям та рисункам розуміння професійно спрямованого матеріалу стає більш точним та допомагає краще засвоїти лексико-граматичну складову кожного модуля. Практикум визначає порядок виконання завдань по всіх аспектах мовної практики для самостійної роботи і пропонує ілюстрації та рисунки, що спрощують розуміння професійно спрямованого матеріалу й допомагають засвоїти лексико-граматичну складову кожного модуля.

Завдання, що містить практикум, спрямовані здійснювати контроль знань лексико-граматичного матеріалу, передбаченого діючою програмою навчальної дисципліни.

“We can move water easily with plastic pipes. We can move shade around with nursery cloth like a tinker toy for animals and plants. Yet we have developed this necessity to grow food with chemical fertiliser because we have forgotten the magic of manure.”

- **Joel Salatin**

“What vast additions to the conveniences and comforts of living might mankind have acquired, if the money spent in wars had been employed in works of public utility; what an extension of agriculture even to the tops of our mountains; what rivers rendered navigable, or joined by canals; what bridges, aqueducts, new roads, and other public works, edifices, and improvements might not have been obtained by spending those millions in doing good, which in the last war have been spent in doing mischief.”

- **Benjamin Franklin**

Module 5

WATER DISTRIBUTION SYSTEMS

Vocabulary Work

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

to design (v)	- розробляти
to distribute (v)	- розповсюджувати
consumer (n)	- користувач, покупець, споживач
to treat (v)	- переробляти, обробляти, обходитися, поводитися, ставитися,
chlorinate (v)	- хлорувати
recontaminate (v)	- повторно зараження (забруднення)
diameter (n)	- діаметр
flange (n)	- фланець, борт, гребінь
nipple (n)	- патрубок, ніпель
compression (n)	- стискання, компресія
joint (n)	- стик, шов, місце з'єднання, вузол, шарнір
to withstand (v)	- протистояти, вистояти, витримати
to weld (v)	- зварювати
problematic (adj.)	- сумнівний, проблематичний
galvanized (part.)	- оцинкований
leakage (n)	- витік

2. Match the words and word phrases in column A with their translation in column B.

A	B
1. water pipe	a) забезпечувати міста
2. drinking water	b) фізичне пошкодження
3. distribution network	c) цементні труби
4. the end-user	d) питна вода
5. large diameter	e) знижувати популярність
6. to supply towns	f) труба для постачання води
7. individual outlets	g) патогенні мікроорганізми
8. metallic pipes	h) загальна вартість
9. plastic pipes	i) розподільна система
10. cement pipes	j) кінцевий споживач
11. most durable	k) сантехнічне обладнання ванної кімнати
12. to decline popularity	l) через, завдяки
13. water pressure	m) пластикові труби
14. physical damage	n) найнадійніший
15. the total cost	o) великий діаметр
16. due to	p) тиск води
17. pathogenic microorganisms	q) металеві труби
18. bath fixture	r) окремі помешкання

3. Translate these groups of international words into Ukrainian:

- stimulate (v) – stimulating (adj);
- farm (n) – farmer (n) – farming (n);
- method (n) – methodical (adj) – methodology (n);
- energy (n) – energetic (adj) – energetically (adv);
- electric (adj) – hydroelectric (adj) – electrical (adj) – electrically (adv) – electricity (n);
- to navigate (v) – navigation (n) – navigational (adj);
- to reserve (v) – reservoir (n);
- temperature (n) – thermal (adj);
- to act (v) – action (n) – active (adj);
- to accumulate (v) – accumulator (n) – accumulated (adj) – accumulating (adj);
- channel (n) – channeling (adj);
- serious (adj) – seriously (adv) – seriousness (n);

- climate – climatic (adj) – climatically (adv);
- to populate (v) – population (n) – populating (adj) – populated (adj) – unpopulated (adj);
- organ (n) – organism (n);
- to plan (v) – plan (n) – planned (adj) – unplanned (adj);
- toxic (adj) – toxicity (n);
- to act (v) – act (n) – acting (adj) – acted (adj);
- to control (v) – control (n) – control (adj) – uncontrolled (adj);
- role (n) – role (adj).

4. Match the words with their synonyms and translate the pairs you will get:

- | | |
|------------------|------------------|
| 1. pipe | a) long-lived |
| 2. network | b) array |
| 3. supply | c) tube |
| 4. distribution | d) substantially |
| 5. wastewater | e) jurisdiction |
| 6. variety | f) efficient |
| 7. extremely | g) provide |
| 8. significantly | h) immensely |
| 9. durable | i) conveyance |
| 10. control | j) system |

5. Match the words given below with their definitions:

1. distribution (n), 2. recontamination (n), 3. wastewater (n), 4. durable (adj.), 5. corrosion (n), 6. consumer (n), 7. disinfectant (n), 8. alloy (n), 9. standard (n), 10. remote (adj.)

1. Any chemical agent used chiefly on inanimate objects to destroy or inhibit the growth of harmful organisms;
2. Far distant in space; situated at some distant away;
3. The movement of services or goods from the source through distribution channel to the final consumer and the movement of payment in the opposite direction to the producer;
4. An approved model, considered by an authority or by general consent as a basis of comparison;
5. Water that has been used in washing, flushing, manufacturing;
6. Subsistence composed of 2 or more metals;
7. The process of intruding pathogen microorganisms and other impurities after treatment while transporting through water distribution system;
8. Able to resist wear, decay, rust well;
9. A person or organization that uses a commodity or service;
10. Red or orange coat of the surface of iron, when exposed to air and moisture.

6. Compose the sentences of your own using the words and word combinations given below:

water pipe, drinking water, distribution network, the end-user, large diameter, to supply towns, individual outlets, metallic pipes, plastic pipes, cement pipes, most durable, to decline popularity, water pressure, physical damage, the total cost, due to, pathogenic microorganisms, bath fixture

7. Translate the following sentences into Ukrainian. Try not to look up any words, but work from memory:

1. In order to fulfill the water demand of the continuously growing population we need to provide the sufficient and uniform quantity of water through the designed network of pipes is known as water supply.
2. Infrastructure for the collection, transmission, treatment, storage, distribution of water for homes, commercial establishments, industry, and irrigation, as well as for such public needs as fire fighting and street flushing.
3. Water supply systems must also meet requirements for public, commercial, and industrial activities. In all cases, the water must fulfil both quality and quantity requirements.
4. Today, a water supply system consists of infrastructure that collects, treats, stores, and distributes water between water sources and consumers.
5. The purpose of distribution system is to deliver water to consumer with appropriate quality, quantity and pressure.

Text A.

1. Read the words to the text “Water distribution system” and their translation. Try to memorize these words so that to be able to grasp the main idea and the details of the text below more profoundly.

to transport water to	- транспортування води
to design networks	- розробляти мережу
to prevent recontamination	- запобігати повторному зараженню
to supply consumers with	- постачати споживачам (щось)
to be divided into	- розділений на
to withstand high water pressure	- протистояти високому тиску води
the conveyance of water and wastewater	- транспортування води та нечистот
to cause rust	- спричиняти іржавіння
to give an unpalatable taste and smell	- надавати неприємного смаку та запаху
under corrosive conditions	- за умов іржавіння
to be suited for	- підходити для
to come in different size	- представлений в різних розмірах
for layout and joining	- за монтаж та з'єднання
expansion and contraction	- розширення та стиснення

to make up	- складати
push-on joints	- муфти для стискання стиків
to assemble	- монтувати
leakage control	- контроль над протіканням
to reduce loss of leakage	- знизити втрати води у зв'язку з протіканням
to cause diseases	- викликати хвороби
to be required	- бути потрібним

2. Translate the text without a dictionary.

Water distribution system



A water pipe is any pipe or tube designed to transport drinking water to consumers. If the water is treated before distribution or at the point of use depends on the context. In well planned and designed water distribution networks, water is generally treated before distribution and sometimes also chlorinated, in order to prevent recontamination on the way to the end user. The varieties of water pipes include large diameter main pipes, which supply entire towns, smaller branch lines that supply a street or group of

buildings, or small diameter pipes located within individual buildings. Water pipes can range in size from giant mains of up to 3.65 m in diameter to small 12.7 mm pipes used to feed individual outlets within a building. Materials commonly used to construct water pipes include polyvinyl chloride (PVC), cast iron, copper, steel and in older systems concrete or fired clay. Joining individual water pipe lengths to make up extended runs is possible with flange, nipple, compression or soldered joints.

Types of Pipes

Pipes come in several types and sizes. They can be divided into three main categories: metallic pipes, cement pipes and plastic pipes. Metallic pipes include steel pipes, galvanised iron pipes and cast iron pipes. Cement pipes include concrete cement pipes and asbestos cement pipes. Plastic pipes include plasticised polyvinyl chloride (PVC) pipes.

Steel Pipes

Steel pipes are comparatively expensive, but they are the strongest and most durable of all water supply pipes. They can withstand high water pressure, come in convenient (longer) lengths than most other pipes and thus incur lower installation/transportation costs. They can also be easily welded.

Galvanised Steel or Iron Pipes

Galvanised steel or iron is the traditional piping material in the plumbing industry for the conveyance of water and wastewater. Although still used throughout the world, its popularity is declining. The use of galvanised steel or iron as a conveyer for drinking water is problematic where water flow is slow or static for periods of time because it causes rust from internal corrosion. Galvanised steel or iron piping may also give an unpalatable taste and smell to the water conveyed under corrosive conditions.

Cast Iron Pipes

Cast iron pipes are quite stable and well suited for high water pressure. However, cast iron pipes are heavy, which makes them unsuitable for inaccessible places due to transportation problems. In addition, due to their weight they generally come in short lengths increasing costs for layout and jointing.

Concrete Cement and Asbestos Cement Pipes

Concrete cement pipes are expensive but non-corrosive by nature. Their advantage is that they are extremely strong and durable. However, being bulky and heavy, they are harder and more costly to handle, install and transport.

Plasticised Polyvinyl Chloride (PVC) Pipes

PVC pipes are non-corrosive, extremely light and thus easy to handle and transport. Still, they are strong and come in long lengths that lower installation/transportation costs. However, they are prone to physical damage if exposed overground and become brittle when exposed to ultraviolet light. In addition to the problems associated with the expansion and contraction of PVC, the material will soften and deform if exposed to temperatures over 65 °C.

Cost Considerations

Installation costs make up a major part of the total cost of a project. Differences in the cost of the actual pipe do not change the total cost of the project much. However the following factors should be considered concerning installation costs and the choice of pipe:

- weight of the pipe: a pipe that is lightweight can be handled easier and faster.
- ease of assembling: push-on joints can be assembled much faster than bolted joints.
- pipe strength: if one type of pipe requires special bedding to withstand external pressures while another pipe does not, the choice can impact installation costs significantly.

Health Aspects

A leaking distribution system increases the likelihood of safe water leaving the source or treatment facility becoming contaminated before reaching the consumer. Moreover, leaking can result in considerable water loss on the way to the end-user (also see the factsheet on leakage control). The distribution system must be designed, managed and maintained to guarantee a minimal level of leakage. The internal pipe pressure constantly must be greater than the external hydrostatic pressure. This will ensure the delivery of the water reducing loss from leaks and minimising excess growth of pathogenic microorganisms. A certain level of free residual chlorine or chloramine disinfectant will reduce the risks of recontamination within the distribution system (see also chlorination). Inflows of contaminated water during distribution are major sources of waterborne pathogens and thus cause of waterborne diseases.

Water pipes are often made of copper and bath fixtures may be made from alloys containing copper (brass, bronze). The U.S. Environmental Protection Agency (EPA) has established a Maximum Contaminant Level Goal (MCLG) for copper in public drinking water systems at 1300 parts per billion (ppb). MCLGs are non-enforceable health standards for drinking water. The principal source of copper in drinking water results from the leaching of copper from pipes and bath fixtures due to corrosive (acidic) water. The blue-green stain left in some bath fixtures is a sign of the presence of copper in water. Usually, excess copper in drinking water comes from the leaching of the plumbing system into the water that has been sitting in the pipes for several hours. Therefore, letting the water run for 30 to 60 seconds before using it for drinking or cooking will often significantly reduce copper levels.

Applicability

Water pipes are required almost everywhere, especially for drinking water distribution. The most robust and durable type of water pipes is probably made from cement. Due to their heavy weight they are however difficult and expensive to install. PVC pipes are easier to install and much lighter, and thus particularly suited for remote areas that are difficult to access.

Advantages

Water can be transported using gravity

The quality of the water is preserved (compared to trenches)

Disadvantages

High initial investment

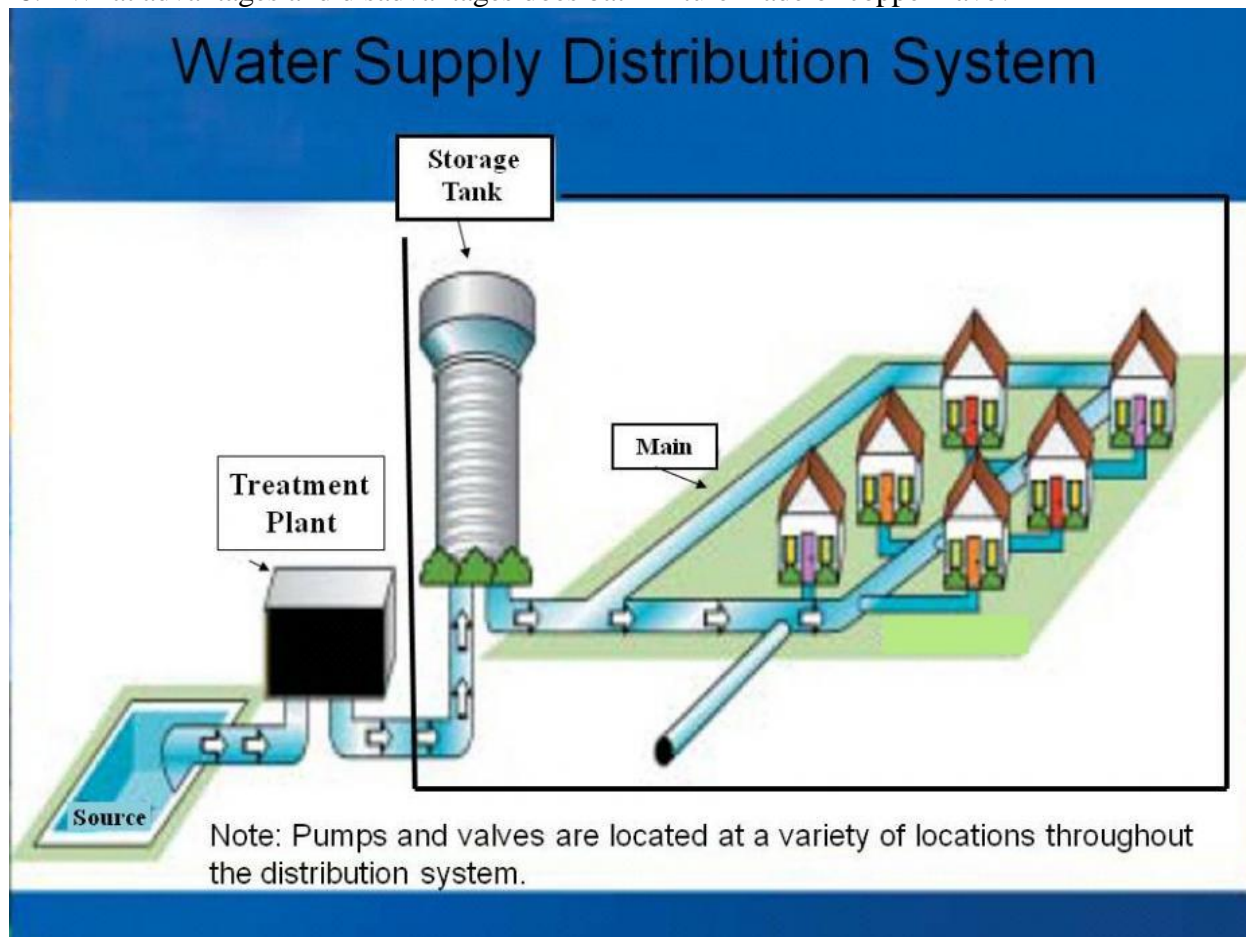
Expensive operation and maintenance (need for regular reinvestments to maintain the infrastructure)

Risk of recontamination

Risk of water loss through leakage

3. Answer the following comprehension questions.

1. How are pipes used in water supply?
2. When is it necessary to treat water? Why?
3. What classification of pipes do you know?
4. What advantages and disadvantages of different types of pipes can you suggest?
5. What does installation cost depend on?
6. What does a leaking distribution system causes?
7. What is required for designing water distribution system efficiently?
8. What advantages and disadvantages does bath fixture made of copper have?



Text B.

PIPES.

Vocabulary work

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

pipe

- трубопровід

hollow

- порожнистий

Trunk

- стовбур дерева

Tubing

- водопровід

Elm

- в'яз

to dig

- копати

Pottery

- кераміка, глиняний, гончарний

Resistant

- той, що має супротив

owing to

- завдяки

to assume	- припускати
weight	- вага
at least	- принаймні
asbestos cement	- асбоцемент
Portland cement	- портландцемент (гідравлічна в'язуча суміш, високоякісний цемент, який використовується для цементування свердловин)
to immune	- протистояти
vitriified	- скріплений
drains	- дренажні труби
burnt clay tile	- черепиця з обпаленої глини
water mains	- водопровідна магістраль

2. Match the words and word phrases in column A with their translation in column B.

- | | |
|--|--|
| 1. to carry water through (via) pipes | a) протистояти |
| 2. to be in use | b) легко збудувати та перевозити |
| 3. to be suitable for | c) бути в задовільному стані |
| 4. to cut and hollow | d) бути фізіологічно та медично прийнятним |
| 5. to be in a good state | e) використовуватися |
| 6. a vast network of conduits | f) для власних технічних потреб |
| 7. to be easier to construct and transport | g) транспортувати воду по трубах |
| 8. to be immune to | h) зрубати та видовбати |
| 9. for domestic engineering purposes | i) підходити для |
| 10. to be physiologically and medically acceptable | j) розгалужена мережа труб |

3. Build nouns from the given verbs with the help of the noun-building suffix –ion (-ation, -tion, -sion, -ssion):

To distribute, to transport, to recontaminate, to compress, to install, to add, to expand, to differ, to reduce, to contaminate, to produce, to construct, to inform, to confuse, to revise, to affect.

4. Match the words given below with their definitions:

engineering, preservation, pressure, invention, water, domestic, origin

1. a new, useful process, machine, improvement, etc., that did not exist previously and that is recognized as the product of some unique intuition or genius, as distinguished from ordinary mechanical skill or craftsmanship;
2. to keep safe from harm or injury; protect or spare;
3. a transparent, odorless, tasteless liquid, a compound of hydrogen and oxygen;
4. something from which anything arises or is derived; source; fountainhead;
5. devoted to home life or household affairs;
6. the exertion of force upon a surface by an object, fluid, etc., in contact with it;
7. the art or science of making practical application of the knowledge of pure sciences, as physics or chemistry, as in the construction of engines, bridges, buildings, mines, ships, and chemical plants.

5. Compose your own sentences using the words and word combinations given below:

to carry water through (via) pipes, to be in use, to be suitable for, to cut and hollow, to be in a good state, a vast network of conduits, to be easier to construct and transport, to be immune to , for domestic engineering purposes, to be physiologically and medically acceptable

Text B.

1. Read the text without a dictionary. Try to grasp both the central idea and the details.

PIPES

The idea of carrying water through a pipe is very old, and the earliest pipes, made from hollow tree trunks, suggest the probable origin of this invention. Tree-trunk pipes were in use for many centuries, indeed until the invention of the comparatively modern iron and steel tubing, wood was the only suitable material for this purpose.

Thousands of elms were cut and hollowed to provide pipes for water from the New River Canal which was made at the beginning of the seventeenth century to bring water to London, and quite recently, "trunk pipes" in a remarkably good state of preservation have been dug up during excavations.

The large-scale manufacture of iron and steel pipes, as well as of pottery and other materials, has introduced a new era during which water and gas are brought to every house through pipes, while other pipes take away waste matter.

The ground immediately under big cities is a vast network of conduits of all kinds, carrying water, gas and telephone cables to homes and factories. A great variety of materials is used for modern piping.

Cast iron is the material most used for water pipes. It is resistant to corrosion and accordingly is long-lived. Cast iron pipe at Versailles, France, has been dug up after being in use for 250 years and found in good condition. The average life of cast-iron pipe is difficult to state owing to the varying conditions to which it may be exposed, but it is safe to assume it as 100 years.

Steel is frequently used for water pipes, especially for pipe lines, trunk mains, where pressures are high and sizes large. As steel is being much stronger than cast iron, large steel pipes being constructed for high pressures are much lighter in weight. Also steel pipes are cheaper, easier to construct, and more easily transported than cast iron. Steel pipe under average conditions should have a life of 25 to 50 years. For water pipes not under pressure where leakage inward or outward is of no consequence plain concrete pipe is used. With good Joints, it presents a smoother surface than new steel pipe. The life of, concrete pipe, under normal conditions, should be at least 75 years.

Asbestos cement pipe is composed of a mixture of Portland cement and asbestos fiber. Pipe of this character has been used with success for carrying water in Europe for more than 20 years. In Great Britain it has been manufactured since 1928. It has the advantage of being immune to the action of ordinary soil and also to acids and salts; and being a nonconductor of electricity, it is not affected, by electrolysis.

Vitrified salt-glazed pipe is used extensively for drains and sewerage systems. Burnt clay tile being rendered impervious to water by glazing, is the best material for sewage purposes as it is not attacked by acids.

Plastic piping has found entrance into plumbing and is now being increasingly used for water mains and drains.

The polyethylene pipe is most suitable for domestic engineering purposed for the following reasons. It has no toxic effect on the drinking water it carries; it has neither smell nor taste and thus is physiologically and medically acceptable.

2. Find and read to your partner a descriptive paragraph that makes good use of details. State the central idea and name the details added.

3. Answer the questions:

1. In what way were the earliest pipes made?
2. In what century was the first water line constructed in London?
3. What materials were used for piping in the last century?
4. What are the new piping materials used in modern water engineering?

Text C.

AQUEDUCTS

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

artificial	- штучний
channel	- канал
conveyance	- транспортування
subsidiary conduits	- додаткова мережа каналів (акведуків)
masonry	- кладка з цегли
destination	- місце призначення
reliable	- надійний
insufficient	- недостатній
crops	- врожай, городина, сільськогосподарські культури
scarcity	- нестача
immense	- величезний
thermae	- гарячі джерела
declivity	- схил, нахил
trough	- жолоб
arched coping	- арочний звід
vent-hole	- вентиляційний отвір
egress	- вихід
shaft	- шахта, ствол шахти
sediment	- осад, відкладення
to be charged with	- відповідати за; бути завантаженим (чимось)
to attach	- приєднувати
precaution	- запобіжний захід
fraud	- підробка
tier	- ярус

2. Match the words and word phrases in column A with their translation in column B.

- | | |
|--|---|
| 1. in the broad sense | a) бути змушеним |
| 2. a series of arches | b) для того, щоб виробляти (вирощувати) |
| 3. to class | c) у широкому значенні |
| 4. the reliable force | d) вихід повітря |
| 5. to be forced by pumps | e) серія арок |
| 6. comfort and conveniences of modern living | f) Стародавній Рим |
| 7. large quantities of water | g) класифікувати |
| 8. to require | h) нестача природних джерел води |

- | | |
|-----------------------------|---|
| 9. in order to produce | i) велика кількість води |
| 10. Ancient Rome | j) постійним потоком |
| 11. the scarcity of springs | k) комфорт та зручності сучасного життя |
| 12. the egress of the air | l) потребувати |
| 13. at a regular flow | m) надійна сила |
| 14. to be obliged | n) примушувати рухатися насосами |

3. Give the definitions of the following words:

Thermae, aqueduct, reservoir, pump, to irrigate, fountain, artificial, tunnel, gravity, destination, impurity

4. Compose your own sentences using the words and word combinations given below:

in the broad sense, a series of arches, to class, the reliable force, to be forced by pumps, comfort and conveniences of modern living, large quantities of water, to require, in order to produce, Ancient Rome, the scarcity of springs, the egress of the air, at a regular flow, to be obliged

5. Read the text without a dictionary. Try to grasp both the central idea and the details.

AQUEDUCTS

In the broad sense of the word, an aqueduct is an artificial channel for the conveyance of water. In a more restricted sense it is often understood to mean a bridge formed in a series of arches or spans for the conveyance of water across a valley.

In the usual acceptance of the word in modern engineering an aqueduct is a primary channel or conduit for the conveyance of water from a source to the principal point; of distribution or use, subsidiary distribution conduits being not generally classed as aqueducts.

The materials used for aqueduct construction may be masonry, concrete, cast iron, steel or even natural rock through which a tunnel is dug. In many aqueducts the outlet is so much lower than the water source that gravity alone carries the water to its destination. This is the cheapest and most reliable force for carrying water from one place to another. Where gravity is insufficient, the water must be forced by pumps.

As cities grow in population and in industry, they require more water and more and longer aqueducts must be built.

Many of the comforts and conveniences of modern living, such as bathrooms, air-conditioning equipment, and swimming pools, require large quantities of water.

In many regions, lawns and trees require watering. Dry land which must be irrigated in order to produce crops usually gets their water through aqueducts and canals.

Ancient Rome had many aqueducts and they were typically Roman in character- massive, solid, and useful.

The Romans were forced to construct these aqueducts by the scarcity of springs within or near the city, and the impurity of the water from the Tiber, Immense quantities of water were required for the great thermae and for public

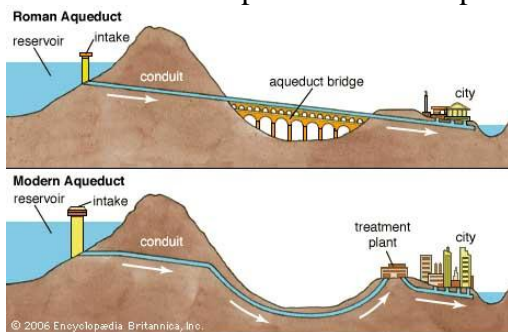


fountains, to say nothing of the domestic supply for the large population, and it has been computed that 350,000,000 gallons were daily poured into Rome through the eleven great aqueducts.

The channel of the aqueduct was constructed with a slight and as nearly as possible a uniform, declivity. It was a broad trough of masonry lined with cement, and covered with an arched coping; the water either flowed through this trough or in pipes laid along it. In the roof, or coping, vent-holes were left at intervals, in order to admit the egress of the air; while in order to ventilate the subterranean channel when it was conducted through a hill a shaft of masonry was carried up to the ground.

At convenient positions along the course of the aqueducts, reservoirs were constructed, in which the water might deposit any sediment that polluted it.

When it reached the walls of the city, it was received in a still larger reservoir from which it poured into three basins at a regular flow; the middle basin supplied the ponds and fountains and the outer ones the public baths and private houses.



Ancient records reveal that water was distributed to residents of Pompeii long before our era.

The following quotation describes the manner in which Pompeii was supplied: "The aqueducts were each charged with a certain number of supply pipes, and no new pipe could be inserted without a special application to the Emperor. The right to a supply of water was strictly personal, not attached to houses, and the supply was cut off at every change of house ownership.

The diameter of the pipe regulated the quantity of water which could pass through it and many precautions were taken to prevent fraud in this matter.

Those inhabitants whose means were insufficient to obtain a private supply pipe were obliged to carry their water from the public fountain".

Nearly two hundred cities in the Roman colonies also had aqueducts. One of the most famous Roman aqueducts remaining in France is the "Pont du Gard", which still stands across a river at Nimes. It is 160 feet high, and has three tiers of huge stone arches.

2. Find and read to your partner a descriptive paragraph that makes good use of details. State the central idea and name the details added.

3. Answer the questions:

1. Of what materials are modern aqueducts constructed?
2. What possibilities do modern aqueducts give?
3. In what countries do we find the remains of ancient aqueducts?
4. What materials did ancient Romans use for their aqueducts?
5. By what force was water conveyed in those aqueducts?

“Water and air, the two essential fluids on which all life depends, have become global garbage cans.”

- **Jacques-Yves Cousteau**

“Man is a complex being: he makes deserts bloom - and lakes die.”

- **Gil Scott-Heron**

“We still have too much air and water pollution and we still need to work to reduce it. But we also need to put the problem of pollution into a historical as well as scientific perspective...”

- **Ronald Reagan**

Module 6

WATER POLLUTION

Vocabulary Work.

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

algae (n)	- водорості (прості, мікроскопічні рослини)
to alter (v)	- змінювати
to conserve (v)	- зберігати
to cope with (v)	- справлятися (з чим-небудь)
corrugation (n)	- полив по дрібним борознах
dam (n)	- дамба
to depend on (v)	- залежати від
discharge (n)	- злив, викид, стік
discharges (n)	- стічні води
dispersal (n)	- розповсюдження
to disperse (v)	- розсіювати, розповсюджувати
to dissipate (v)	- розподіляти, розсіювати, розповсюджувати
to dissolve (v)	- розчиняти
to dredge (v)	- виконувати днопоглиблювальні роботи, поглиблювати
dredging (n)	- поглиблювання дна
evaporation (n)	- випаровування
extensively (adv)	- широко; ретельно
fresh water (n)	- прісна вода
freshwater (adj)	- прісноводний
greenhouse (n)	- теплиця, оранжерея
impact (n)	- вплив
impoundment (n)	- водосховище; акумуляція стоків, запруда
incentive (n)	- стимул, заохочення
intermittent (adj)	- переривчастий; той, що припиняється; нестійкий, нерегулярний
to interrupt (v)	- переривати
lock (n)	- шлюз, гребля
maintenance (n)	- підтримування, збереження
oxygen (n)	- кисень
pollution (n)	- забруднення
precipitation (n)	- випадіння осаду; опади
to purify (v)	- очищувати
recreation (n)	- відновлювальний відпочинок, дозвілля, оздоровлення

scarce (adj)	- мізерні
silt (n)	- мул, осад, шлам, наноси
solvent (n)	- розчинник
to treat (v)	- обробляти, піддавати обробці
unsightly (adj)	- непривабливий, що викликає огиду (своїм виглядом)
vessel (n)	- судно, корабель
water main	- водопровід, водопровідна мережа
water pipe (n)	- водопровідна труба
water-demanding (adj) (plant)	- вологолюбива (рослина)
to withdraw for (v)	- виймати, забирати, відкачувати (воду)

2. Match the words and word phrases in column A with their translation in column B.

A. 1. water purification facilities	B. а) потреба у воді
2. water supply	б) витрата води, споживання води
3. demand for water	в) полив за рахунок підтоплення
4. metropolitan areas	г) водокористування в руслі
5. water consumption	д) гирло річки
6. trickle irrigation	е) нутрієнти, поживні речовини
7. flooding irrigation	ж) рівень ґрунтових вод
8. furrow irrigation	з) підґрунтове зрошення, зрошення ґрунтовими водами
9. overhead irrigation	и) водозабезпечення
10. subirrigation	й) зрошення дощем
11. nutrient materials	к) струміневе зрошення
12. river's mouth	л) полив по борознах
13. natural setting	м) водоочисні споруди
14. inland waterway system	н) територія міста з околицями
15. in-stream use of water	о) система внутрішніх водних шляхів
16. water table	р) природне середовище

3. Translate these groups of international words into Ukrainian:

- class (n) – to classify (v) – classified (adj) – classification (n);
- category (n) – categorical (adj);
- domestic (adj) – domestication (n);
- industry (n) – industrial (adj) – to industrialize (v) – industrialization (n);
- resident (n) – residence (n) – residential (adj);
- to complex (v) – complex (n) – complex (adj) – complexion (n) – complexity (n);
- problem (n) – problematic (adj) – problematic (adv);
- water (n) – watered (adj) – waterless (adj),
- transport (n) – to transport (v) – transportation (n) – transporting (adj);
- percent (n) – percentage (n);
- municipal (adj) – municipality (n);
- active (adj) – activity (n) – to activate (v);

- nation (n) – national (adj) – nationality (n);
- conditioner (n) – conditioning (n) – conditioning (adj);
- toilet (n) – toilet (adj) ;
- person (n) – personnel (n) – personal (adj) – personality (adj);
- liter (n) – milliliter (n);

- nature (n) – natural (adj) – unnatural (adj);
- process (n) – processing (n);
- to concentrate (v) – concentration (n);
- type (n) – typical (adj);
- result (n) – to result (v) – resultative (adj);
- potential (n) – potential (adj) – potentially (adv);
- to train (v) – trainer (n) – training (n) – training (adj);
- to associate (v) – association (n) – associating (adj);
- adequate (adj) – inadequate (adj) – adequacy (n) – inadequacy (n);
- metropolitan (n) – metropolitan (adj);
- public (n) – public (adj) – publicly (adv) – publicity (n);
- to limit (v) – limit (n) – limitation (n) – limitative (adj);
- resource (n) – resourceful (adj);
- to conserve (v) – conservation (n);
- principle (n) – principally (adv);
- irrigation (n) – irrigational (adj);
- to produce (v) – product (n) – production (n) – productive (adj) – productivity (n);
- policy (n) – political (adj);
- technology (n) – technological (adj);
- million (n) – millionaire (n);
- meter (n) – kilometer (n);
- to result (v) – result (n) – resultative (adj) – resultativeness (n);
- to modify (v) – modified (adj) – modification (n);
- practice (n) – practical (adj) – impractical (adj) – practicability (n) – impracticability (n);

4. Match the words with their synonyms and translate the pairs you will get:

- | | |
|------------------|------------------|
| 1. unsightly | a) to dissipate |
| 2. to conserve | b) poor |
| 3. to disperse | c) reservoir |
| 4. scarce | d) unpleasant |
| 5. vessel | e) to preserve |
| 6. impact | f) to change |
| 7. to purify | g) influence |
| 8. impoundment | h) contamination |
| 9. to alter | i) to clean |
| 10. pollution | j) ship |
| 11. domestic | k) watering |
| 12. to interrupt | l) dissolvent |
| 13. irrigation | m) to intermit |
| 14. solvent | n) household |

5. Match the given words with their antonyms and translate the pairs you will get:

- | | |
|-----------------|-----------------------------|
| 1. intermittent | a) to contaminate |
| 2. rural | b) pollution |
| 3. adequate | c) continuous |
| 4. purification | d) to waste |
| 5. scarce | e) abundant |
| 6. unsightly | f) good-looking, attractive |
| 7. to conserve | g) urban |

8. to purify

h) inadequate

6. Match the words given below with their definitions:

1. discharge 2. to purify 3. evaporation 4. to withdraw 5. incentive 6. lock 7. dam 8. silt 9. precipitation 10. pipe 11. recreation 12. to treat 13. pollution 14. water main 15. solvent 16. algae 17. fresh water 18. to alter 19. to conserve

a – water that is not from the sea and is not salty;

b – to move sth away from a place;

c – a substance, especially a liquid, that can dissolve another substance;

d – to make sth pure by removing substances that are dirty, harmful or not wanted;

e – to use a chemical substance or process to clean, protect, preserve sth;

f – to use as little of sth as possible so that it lasts a long time;

g – to make sth different;

h – a large underground pipe or system of pipes that supplies buildings with water;

i – a tube through which liquids or gases can flow;

j – 1) rain, snow, etc. that falls; the amount of this that falls; 2) a chemical process in which solid material is separated from a liquid;

k – sth that encourages you to do sth;

l – a particular activity that sb does when they are not working;

m – a barrier that is built across a river in order to stop the water from flowing, used especially to make a reservoir (= a lake for storing water) or to produce electricity;

n – a substance that comes out from somewhere;

o – sand, mud, etc. that is carried by flowing water and is left at the mouth of a river or in a harbour;

p – a process of a liquid changing into a gas, especially steam;

q – very simple plants with no real leaves, stems or roots that grow in or near water, including seaweeds;

r – a section of canal or river with a gate at either end, in which the water level can be raised or lowered so that boats can move from one level to the canal or river to another;

s – the process of making air, water, soil, etc. dirty; the state of being dirty.

7. Form all possible word combinations using the words from both columns and translate them into Ukrainian:

1. water

a) irrigation

2. domestic

b) discharges

3. intermittent

c) supply

4. natural

d) life

5. scarce

e) setting

6. metropolitan

f) vessels

7. flooding

g) use

8. aquatic

h) areas

9. transport

i) materials

10. industrial

11. waste

12. nutrient

8. Compose the sentences of your own using the words and word combinations given below:

to be classified into, domestic use, agricultural use, industrial use, in-stream use, to include, a

solvent, irrigation, to be altered, recreation, navigation, hydroelectric power, to be used for cooling, to dissipate and transport waste materials.

9. Translate the following sentences into Ukrainian. Try not to look up any words, but work from memory:

1. Many rural residents still obtain safe water from untreated private wells.
2. Extending and merging of urban communities have created problems in the development, transportation, and maintenance of quality water applies.
3. Until recently, the cost of water in almost every community has been so low that there was very little incentive to conserve, but increasing purification costs have raised the price of domestic water and it is becoming evident that increased costs do tend to reduce use.
4. In fact, many streams are now overused for this purpose, especially watercourses in urban centers.
5. The use of watercourses for waste dispersal degrades the quality of the water and may reduce its usefulness for other purposes.
6. In some areas, irrigation is a problem because there is no supply of water nearby.
7. This act provided federal funds and technical assistance to strengthen local, state, and interstate water-quality programs.
8. However, the dams needed for hydroelectric power plants have definite disadvantages, including the high cost of construction and the resultant destruction of the natural habitat in streams and surrounding lands.

Text A

1. Read the words to the text “Types of Water Pollution” and their translation. Try to memorize these words so that to be able to grasp the main idea and the details of the text below more profoundly.

- | | |
|----------------------------------|--|
| 1. environmental problem | - екологічна проблема, проблема охорони природнього середовища |
| 2. to contaminate (v) | - забруднювати |
| 3. human and animal wastes | - відходи від життєдіяльності людини та ведення скотарства |
| 4. to affect (something) (v) | - впливати (на) |
| 5. ground water | - ґрунтові води |
| 6. germ (n) | - мікроби |
| 7. sewage (n) | - стічні води |
| 8. fertilizer (n) | - добрива |
| 9. overfertilization (n) | - надмірне внесення добрив, перенасичення добривами |
| 10. pulp (n) | - (технічна) целюлоза |
| 11. refining industry | - переробна (збагачувальна) промисловість |
| 12. to leach out (from) (v) | - вимивати, вилуговувати |
| 13. dump (n) | - звалище |
| 14. to deposit (v) | - наносити, відкладати |
| 15. runoff (n) | - стік (частина атмосферних опадів, що стікають у вигляді поверхневих вод) |
| 16. sediment (n) | - осад, мул, наноси, муť |
| 17. nonpoint source of pollution | - розосереджене джерело забруднення |

18. point source of pollution	- стаціонарне (місьцеве, точкове) джерело забруднення
19. drainage pipe	- водовідвідна труба (каналізаційної мережі)
20. litter (n)	- сміття
21. to float (v)	- плавати на поверхні, триматися на поверхні води
22. to entangle (v)	- обплутати, зловити в пастку
23. to drill (oil) (v)	- бурити (добувати нафту)
24. to foul (v)	- забруднювати, засмічувати
25. deliberately (adv)	- свідомо, навмисно
26. oil spill	- витік нафти
27. petroleum (n)	- нафта; бензин

2. Translate the text without a dictionary.

Types of Water Pollution

Water pollution is one of our most serious environmental problems. It occurs when water is contaminated by such substances as human and other animal wastes, toxic chemicals, metals, and oils. Pollution can affect rain, rivers, lakes, oceans, and the water beneath the surface of the earth, called ground water. Polluted water may look clean or dirty, but it all contains germs, chemicals or other materials that can cause inconvenience, illness or death. Water pollution has become a serious problem in most countries, including Canada, China, India, Japan, Russia, and the United States.

Domestic waste water. Sewage contains disease-causing bacteria and viruses. Wastewater usually contains high levels of nitrogen and phosphorus compounds that lead to overfertilization of water.

Industrial wastes. Heavy metals and synthetic organic compounds are produced by the pulp and paper, chemical, petrochemical and refining, metalworking, food-processing, and textile industries. Heavy metals such as zinc, lead, cadmium, chromium, mercury, and copper can cause serious health problems. Sometimes metals and other wastes leach out from dumps and enter ground water. Besides being discharged into water, industrial wastes are also released into the air. Rain and snow pick up airborne pollutants and deposit them on both land and surface water. This is called atmospheric deposition.

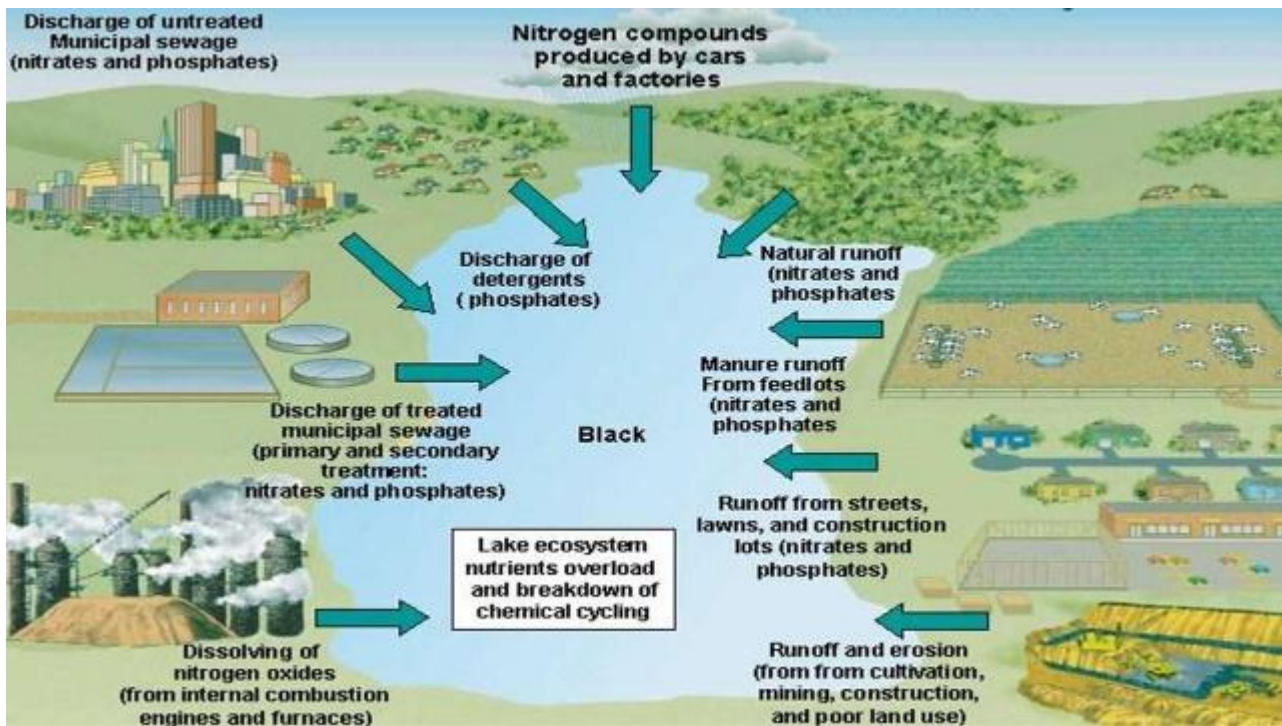
Land-use runoff. Rain washes sediment, fertilizers and pesticides into rivers. This is a nonpoint source of pollution in contrast to a point source of pollution, which comes from a specific source such as a drainage pipe.

Litter. Litter, especially plastic items such as six-pack container rings, is a serious form of marine pollution. Because it floats, plastic travels long distances, degrades beaches, and can entangle or kill birds, seals, turtles, and other marine life.

Petroleum. Most oil spills occur in coastal waters where oil is being drilled or transported. Oil fouls beaches, kills birds, fish, and animals, and causes long-lasting problems for many levels of marine organisms.

3. Answer the following comprehension questions.

1. What is water pollution?
2. In what countries has water pollution become a serious problem?
3. What main types of water pollution do you know? Describe each of them.



Text B. Agricultural Water Pollution

Vocabulary Work

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

abundant (adj)	- в достатку
adversely (adv)	- несприятливо, негативно
ammonia (n)	- аміак
broad (adj)	- широкий
to compromise (v)	- наражати на небезпеку, ставити під загрозу
consequence (n)	- наслідки
to degrade (v)	- занепадати, деградувати
to detect (v)	- виявляти
to determine (v)	- визначати
diversity (n)	- різноманітність; різноманіття
drought (n)	- посуха, посушлива погода
effect (n)	- вплив; наслідок, результат
to elevate (v)	- підійматися
grazing (adj)	- пасовищний; травоядний; на підніжному кормі
guideline (n)	- принцип, норма
habitat (n)	- ареал, середовище проживання
influence (n)	- вплив
investigation (n)	- розслідування
landscape (n)	- ландшафт, пейзаж
nitrate (n)	- сіль азотної кислоти, нітрат
nitrite (n)	- сіль азотної кислоти, нітрит
nitrogen (n)	- азот
nutrient (n)	- поживна речовина
protection (n)	- захист
to recharge (v)	- поповнювати
to recover from (v)	- відновитися, оговтатися (від)

reduction (n)	- скорочення
reed (n)	- очерет, очеретяні зарості
representative (n)	- представник
to restrict (v)	- обмежувати
salinity (n)	- мінералізація, вміст солі
seepage (n)	- просочування, витік
significant (adj)	- значний, істотний
susceptible (adj)	- схильний до, сприйнятливий
swamp (n)	- болото
to tolerate (v)	- допускати; виносити, терпіти; витримувати
vegetation (n)	- рослинність
well (n)	- колодязь
wetlands (n)	- заболочені землі; припливно-відливна зона узбережжя

2. Match the words and word phrases in column A with their translation in column B.

A	B
1. nutrient loads	a) акумуляція стічних вод
2. livestock waste	b) обробка пестицидами
3. fertilizer application	c) кліматичні зміни
4. wastewater storage	d) стоки тваринницьких господарств
5. land management	e) пасовищне угіддя, пасовища
6. pesticide application	f) місцева рослинність
7. water extraction	g) програми контролю
8. climatic variations	h) навантаження по біогенним речовин
9. native vegetation	i) організація землекористування
10. grazing land	j) забір води, зневоднення
11. monitoring programs	k) внесення добрив
12. water table aquifers	l) водоносні шари ґрунтових вод

3. Translate these international words into Ukrainian:

human (adj), pesticide (n), management (n), practice (n), natural (adj), irrigation (n), potential (adj), potential (n), table (n), concentration (n), monitoring (adj), program (n), state (n), localized (adj), toxic (adj), ecosystem (n), metal (n), protection (n), key (adj), naturally (adv), geology (n), nitrate (n), nitrite (n), to compromise (v), region (n), to construct (v), to localize (v), biological (adj), limit (n), climatic (adj), effect (n), vegetation (n), product (n), textile (n), system (n), to degrade (v), various (adj), process (n).

4. Build nouns from the given verbs with the help of the noun-building suffix –ion (-ation, -tion, -sion, -ssion):

to elevate, to determine, to restrict, to detect, to investigate, to reduce, to represent, to degrade, to protect.

5. Match the words with their synonyms:

- | | |
|-------------------|-----------------|
| 1. to elevate | a) scenery |
| 2. effect | b) plants |
| 3. landscape | c) result |
| 4. abundant | d) consequent |
| 5. vegetation | e) to withstand |
| 6. consequence | f) to locate |
| 7. to tolerate | g) to endanger |
| 8. diversity | h) to rise |
| 9. reduction | i) diminution |
| 10. swamp | j) rich |
| 11. to detect | k) standard |
| 12. protection | l) to limit |
| 13. to compromise | m) to affect |
| 14. guideline | n) bog |
| 15. to influence | o) maintenance |
| 16. to restrict | p) variety |
| 17. adversely | q) negatively |

6. Match the given words with their antonyms:

- | | |
|------------------|---------------|
| 1. to compromise | a) scanty |
| 2. reduction | b) cause |
| 3. diverse | c) to drop |
| 4. to elevate | d) simple |
| 5. effect | e) favourably |
| 6. abundant | f) increase |
| 7. adversely | g) to protect |

7. Match the words given below with their definitions:

1. wetlands (n), 2. nutrient (n), 3. salinity (n), 4. susceptible (adj), 5. to recharge (v), 6. confined (adj), 7. to restrict (v), 8. well (n), 9. adversely (adv), 10. to protect (v), 11. to compromise (v), 12. habitat (n), 13. swamp (n), 14. drought (n), 15. grazing (n).

- a) – a substance that is needed to keep a living thing alive and to help it to grow;
- b) – negatively and unpleasantly; not likely to produce a good result;
- c) – to bring sb/ sth into danger, especially by acting in a way that is not very sensible;
- d) – small and enclosed by walls or sides;
- e) – a long period of time when there is little or no rain;
- f) – land with grass that cows, sheep, etc. can eat;
- g) – the place where a particular type of animal or plant is normally found;
- h) – to make sure that sth/ sb is not harmed, damaged, injured, etc.;
- i) – 1) to limit the size, amount or range of sth; 2) to control sth with rules or laws;
- j) – to be filled with water again;
- k) – the fact of containing salt;
- l) – very likely to be influenced, harmed or affected by sth;
- m) – an area of ground that is very wet or covered with water and in which plants, trees, etc. are growing;

- n) – a deep hole in the ground from which people obtain water; its sides are usually covered with brick or stone and there is usually some covering or a small wall at the top of it;
 o) – an area of wet land.

8. Match the nouns in column B with the corresponding adjectives in column A:

A	B
1. essential	a) space
2. confined	b) drought
3. severe	c) habitat
4. poor	d) nutrients
5. natural	e) swamps
6. tropical	f) grazing

9. Compose your own sentences using the words and word combinations given below:

groundwater; to provide; drinking; to pollute with; livestock waste; fertilizer application; pesticide application; leaching of nutrients; aquifers; water extraction; increasing salinity; to restrict water use; toxic; heavy metal concentrations; ammonia, nitrate and nitrite concentrations; loss of habitat; effect; reduction in biological diversity.

10. Translate the following sentences into Ukrainian:

1. Agricultural land use generates large nutrient loads through livestock waste, fertilizer application and wastewater storage and reuse.
2. Pesticide application is often part of agricultural land management practice.
3. Many of the state's aquifers are already stressed because of high rates of water extraction and increasing salinity.
4. Increased natural recharge of groundwater has occurred because of land clearance and irrigation.
5. The pollution of aquifers with very high ammonia, nitrate and nitrite concentrations compromises irrigation, drinking water supply and ecosystem values.

11. Read the text without a dictionary. Try to grasp both the central idea and the details.

Agricultural Impacts on Ground Water



Groundwater provides much of the state's water for human use and is the source of some of the water in many of the state's creeks, rivers, wetlands and coastal waters. Agricultural land use generates large nutrient loads through livestock waste, fertilizer application and wastewater storage and reuse. Pesticide application is often part of agricultural land management practice. Increased natural recharge of groundwater has occurred because of land clearance and irrigation. This has the potential to increase the leaching of nutrients (particularly nitrogen) and pesticides into the aquifers. Many of the aquifers are already stressed because of high rates of water extraction and increasing salinity. Elevated nitrate in groundwater may restrict its use for drinking. This is because nitrate can be toxic at the concentrations detected in some wells. Nitrate may also adversely affect groundwater ecosystems or surface water ecosystems that are fed by groundwater. The pollution of aquifers with very high ammonia, nitrate and nitrite concentrations compromises irrigation, drinking water supply and ecosystem values.

Loss of habitats. Habitats are where organisms live. Loss of habitat can range from the removal of whole wetland ecosystems to the loss of a small stand of reeds in a swamp or creek. The effect of habitat loss is invariably a reduction in biological diversity. This can limit the ability of the environment to tolerate climatic variation and the effects of human activities. It can also affect the

ability of the environment to recover from a major event such as a drought, or a significant pollutant discharge. Agricultural activities have changed much in the landscape of many countries. Previously rich and abundant native vegetation has been cleared to make way for crops and grazing land needed to produce food products and textiles. An unfortunate consequence of this agricultural development is that many of the river systems have become degraded. Agricultural activities have affected rivers and streams through various processes.

12. Can you give the main ideas of each paragraph in a nutshell?

13. Answer the following comprehension questions. Try to mention as many facts, actions and features as possible.

1. What are the ways of agricultural groundwater pollution?
2. What is the reason of natural recharge of groundwater?
3. Why are many of the state's aquifers stressed?
4. What is the way of pollution of deeper confined aquifers?
5. What has been detected in all groundwater monitoring programs across the state?
6. What effect can elevated nitrate in groundwater have? Why?
7. What are habitats?
8. What is the effect of habitat loss?
9. In what way have agricultural activities changed much of the South Australian landscape?

Text C.

Industrial Water Pollution

1. To check or build up your vocabulary on this subject, look at the words and word combinations listed on this page.

to accomplish (v)	- виконувати, доводити до кінця
acid (n)	- кислота
to allow (v)	- дозволяти
amendment (n)	- поправка, доповнення
convert (into) (v)	- перетворювати
to cool (v)	- охолоджувати
to detect (v)	- виявляти, знаходити
to dissipate (v)	- розсіювати (-ся)
elimination (n)	- знищення
to enforce (v)	- примушувати, змушувати
fragile (adj)	- крихкий, слабкий, уразливий
noxious (adj)	- отруйний, токсичний
particulates (n)	- тверді частинки; дисперсний матеріал
pollutant (n)	- забруднююча речовина

to pump (v)	- викачувати (насосом)
to remodel (v)	- реконструювати, модернізувати, переробляти
to segregate (v)	- відокремлювати
sensitive (adj)	- чутливий
shallow (adj)	- дрібний
significant (adj)	- значний, істотний
to spawn (v)	- нереститися
steam (n)	- пар
substrate (n)	- ґрунтовий шар
to dispose (of) (v)	- позбавлятися
to trigger (v)	- провокувати
trout (n)	- форель
turbine (n)	- турбіна

2. Match the words and word phrases in column A with their translation in column B.

A.

B.

- | | |
|----------------------------|---|
| 1. sewage treatment plant | a) обладнання з обслуговування стічних вод |
| 2. municipal sewage system | b) стічна труба |
| 3. to meet one's needs | c) міська система каналізації |
| 4. wastewater facility | d) метод високого баштового прийому води |
| 5. effluent pipe | e) відповідати потребам |
| 6. adverse publicity | f) охолоджуюча башта |
| 7. pollution legislation | g) потепління |
| 8. thermal pollution | h) антиреклама (в ЗМІ) |
| 9. cooling tower | i) законодавство, що регулює забруднення навколишнього середовища |
| 10. dry tower | j) каналізаційна очисна споруда |

3. Read and translate the following international words:

turbine, method, standard, atmosphere, to construct, thermal, temperature, to regulate, to localize, automobile, radiator, to operate, to reproduce, diffuse, combination, organic, materials, complex, spray.

4. Build nouns from the given verbs with the help of the noun-building suffixes -ion (-ation, -tion, -sion, -ssion); -ment:

- to segregate, to detect, to convert, to dissipate, to inhabit, to eliminate, to facilitate, to pollute, to legislate, to signify, to annihilate, to prohibit;
- to treat, to accomplish, to amend, to enforce, to refine.

5. Match the words in column A with their synonyms in column B. Give the translation of the words from both columns:

A.	B.
1. fragile	a) contamination
2. pollution	b) to get rid of
3. facility	c) breakable
4. to dispose	d) annihilation
5. treatment	e) equipment
6. elimination	f) non-resistant
7. significant	g) refinement
8. sensitive	h) to finish
9. to accomplish	i) fleet
10. shallow	j) to separate
11. to segregate	k) important

6. Match the words in column A with their antonyms in column B. Translate the words from both columns.

A.	B.
1. to allow	a) insignificant
2. sensitive	b) deep
3. significant	c) inefficient
4. disadvantage	d) to prohibit
5. shallow	e) detergent
6. efficient	f) heating
7. cooling	g) advantage
8. pollutant	h) decrease
9. increase	i) resistant

7. Match the words given below with their definitions:

1. to remodel; 2. noxious; 3. plant; 4. cooling tower; 5. to convert; 6. turbine; 7. steam; 8. to pump; 9. to dissipate; 10. fog; 11. to trigger.

- a) a large high round building used in industry for cooling water before it is used again;
- b) to change or make smth change from one system, form, purpose, etc. to another;
- c) to gradually become or make smth become weaker until it disappears;
- d) a thick cloud of very small drops of water in the air close to the land or sea, that is very difficult to see through;
- e) to make smth happen suddenly;
- f) a machine or an engine that receives its power from a wheel that is turned by the pressure of water, air or gas;
- g) the hot gas that water changes into when it boils;
- h) to change the structure or shape of smth;
- i) a factory or a place where power is produced or an industrial process takes place;
- j) to make water flow in a particular direction by using a pump;

k) poisonous or harmful.

8. Match the words given in two columns to form as many word combinations as possible and translate them into Ukrainian.

A.

1. treatment
2. sewage
3. petroleum
4. industrial
5. toxic
6. noxious
7. poor
8. steam
9. shallow
10. temperature

B.

- a) system
- b) products
- c) plant
- d) turbines
- e) gases
- f) customers
- g) wastes
- h) condition
- i) increase
- j) pond

9. Compose your own sentences using the words and word combinations given below:

to dispose, facilities, treatment, to segregate, to remodel, noxious, plant, pollutant, cooling, turbine, to convert (into), steam, to pump, disadvantage, elimination, sewage treatment plant, municipal sewage system, wastewater facility, adverse publicity, pollution legislation, thermal pollution.

10. Translate the sentences below into Ukrainian. Try to work from memory.

1. Frequently a factory or industrial complex disposes of some or all of its wastes into a municipal sewage system.
2. Depending on the type of industry involved, these wastes are likely to be a combination of organic materials, petroleum products, metals, acids, and so forth.
3. This allows the industry to segregate and control toxic wastes and design a wastewater facility that meets its specific needs.
4. Generally, these plants are easily detected because the pollution is from a single effluent pipe or series of pipes.
5. Economic pressure and adverse publicity can affect those companies that continue to pollute from point sources.
6. In addition, pollution legislation relating to them is very difficult to enforce.

11. Read the text without a dictionary. Try to grasp both the central idea and the details.

Industrial Water Pollution



Frequently a factory or industrial complex disposes of some or all of its wastes into a municipal sewage system. Depending on the type of industry involved, these wastes are likely to be a combination of organic materials, petroleum products, metals, acids, and so forth. The metals, acids, and other ions need special treatment, depending on their nature and concentration. As a result, municipal sewage treatment plants must be designed with their industrial customers in mind. In

most cases, it is preferred that industries take care of their own wastes. This allows the industry to segregate and control toxic wastes and design a wastewater facility that meets its specific needs.

Many older facilities continue to pollute. Generally, these plants are easily detected because the pollution is from a single effluent pipe or series of pipes. This pollution is said to come from a

point source. Diffuse pollutants such as agricultural runoff, road salt and acid rain, are said to come from nonpoint sources. Pollutants that come from nonpoint sources are very difficult to control.

Thermal Pollution. Thermal pollution occurs when an industry removes water from a source, uses the water for cooling purposes and then returns the heated water to its source.

Power plants heat water to convert it into steam, which drives the turbines that generate electricity. This heated water is then discharged.

Cooling water used by industry does not have to be released into aquatic ecosystems. There are three other methods of discharging the heat. One method is to construct a large, shallow pond. Hot water is pumped into one end of the pond, and cooler water is removed from the other end. The heat is dissipated from the pond into the atmosphere and substrate.

A second method is to use a cooling tower. In a cooling tower the heated water is sprayed into the air and cooled by evaporation. The disadvantage of cooling towers and shallow ponds is that large amounts of water are lost by evaporation. The release of this water into the air can also produce localized fogs.

The third method of cooling, the dry tower, does not release water into the atmosphere. In this method, the heated water is pumped through tubes, and the heat is released into the air. This is the same principle used in an automobile radiator. The dry tower is the most expensive to construct and operate.

While the least expensive and easiest method of discharging heated water is to return the water to the aquatic environment, this can create problems for the inhabitants of the area. Although an increase in temperature of only a few degrees may not seem significant, some aquatic ecosystems are very sensitive to minor temperature changes. The spawning behavior of many fish is triggered by temperature changes. Lake trout will not spawn in water above 10° C; therefore, if a lake has a temperature of 8° C, the lake trout population will reproduce. But an increase of 3° C would prevent spawning of this species and result in their eventual elimination from that lake.

Ocean estuaries are very fragile. The discharge of heated water into an estuary may alter the type of plant food available. As a result, animals with specific food habits may be eliminated because the warm water supports different kinds of food organisms. The entire food web in the estuary may be altered by only slight temperature increases.

12. Find and read to your partners a descriptive paragraph that makes good use of details. State the central idea and name the details added.

13. Make an outline of the text using the following key words: industrial disposes, sewage system, sewage treatment plants, wastewater treatment, pollution, thermal pollution, shallow pond, cooling tower, dry tower, aquatic environment.

14. Answer the following comprehension questions and develop a dialogue with your partner:

1. What wastes do factories usually dispose of?
2. How must municipal sewage treatment plants be designed?
3. What pollutants come from nonpoint sources?
4. What is thermal pollution?
5. What are the three methods of discharging the heat?
6. In what way do plants influence the aquatic life?

Comprehension and Word Study.

1. Here are 6 jumbled sentences. Try to arrange the jumbled sentences in order. Some of these sentences are not present in the text. Appoint the place where they may be.

1. The discharge of heated water into an estuary may alter the type of plant food available.
2. A second method is to use a cooling tower.
3. The spawning behavior of many fish is triggered by temperature changes.

4. Economic pressure and adverse publicity can affect those companies that continue to pollute from point sources.
5. Power plants heat water to convert it into steam, which drives the turbines that generate electricity.
6. As a result, municipal sewage treatment plants must be designed with their industrial customers in mind.

2. Build up sentences from the given words. Give the translation of what you will get. Compare your variants with your partners' ones.

1. the / food / entire / web / the / in / may / estuary / be / by / only / altered / temperature / slight / increases.
2. aquatic / ecosystems / some / sensitive / are / very / temperature / to / changes / minor.
3. the / tower / operate / dry / is / most / the / construct / expensive / to / and.
4. the / water / release / produce / fogs / of / this / into / localized / the / air / can / also.
5. one / is / to / shallow / construct / method / a / pond / large.
6. hot / is / other / water / pumped / into / one / of / cooler / the / end / pond, / and / removed / water / is / from / the / end.
7. power / heat / plants / water / to / it / into / convert / steam, / drives / which / the / that / generate / turbines / electricity.
8. pollutants / come / from / that / sources / nonpoint / are / difficult / very / to / control.
9. many / facilities / pollute / continue / older / to.
10. municipal / mind / treatment / sewage / plants / customers / must / be / with / their / designed / industrial / in.

3. Go through the following statements and say if they correspond to the text. Put a tick next to the correct statements.

1. A factory seldom disposes of some or all of its wastes into a municipal sewage system.
2. In most cases, it is preferred that industries take care of their own wastes.
3. Few companies when they remodel their facilities include wastewater treatment as a necessary part of an industrial complex.
4. Pollution legislation relating to point sources is very difficult to enforce.
5. Thermal pollution occurs when an industry uses water for heating purposes and then returns it to the source.
6. For steam turbines to function efficiently, the steam must be evaporated after it leaves the turbine.
7. There are five methods of discharging the heat.
8. In a dry tower the heated water is sprayed into the air and cooled by evaporation.
9. The least expensive and easiest method of discharging heated water is a cooling tower.

4. Choose one variant (a, b, c) to complete the sentences according to the text. There is necessary one best answer.

1. Municipal sewage treatment plants must be designed with their industrial ... in mind.
 - a) customers
 - b) customs
 - c) consumers
2. Most companies when they... their facilities include wastewater treatment as a necessary part of an industrial complex.
 - a) assemble

- b) design
 - c) remodel
3. The plants, which pollute the environment, are easily detected because the pollution comes from a single pipe... .
 - a) efficient
 - b) influenced
 - c) effluent
 4. ... pollutants such as agricultural runoff, road salt and acid rain, are said to come from nonpoint sources.
 - a) Diffuse
 - b) Different
 - c) interdependent
 5. For steam turbines to function ... , the steam must be condensed into water after it leaves the turbine.
 - a) efficient
 - b) efficiently
 - c) efficiency
 6. Heat is ... from a pond into the atmosphere and substrate.
 - a) disappear
 - b) dissipated
 - c) eliminated
 7. In a cooling tower the heated water is sprayed into the air and cooled by
 - a) evaporation
 - b) elimination
 - c) dissipation
 8. Some ... ecosystems are very sensitive to minor temperature changes.
 - a) aquarium
 - b) aquatic
 - c) aquatical
 9. The release of water into air can produce ... fogs.
 - a) local
 - b) localizing
 - c) localized

5. Translate the following sentences into English. Try not to look up the words you do not remember. Ask your partner for help by using the phrase: "What is the English for..."

1. У більшості випадків необхідно, щоб промислові підприємства самі дбали про відходи виробництва.
2. Більшість компаній, коли модернізують своє обладнання, долучають споруди для очищення стічних вод як необхідну частину промислового комплексу.
3. Промисловим підприємствам більше не дозволяється використовувати воду і повертати її в природне джерело в невідповідному стандартам стані.
4. Теплове забруднення має місце, коли промислове підприємство забирає воду з джерела, використовує її з метою охолодження і потім повертає нагріту воду в природне джерело.
5. Гаряча вода закачується з одного кінця ставка, а більш холодна - забирається з іншого кінця.
6. Тепло йде зі ставка в атмосферу і ґрунтовий шар, той же принцип використовується в автомобільних радіаторах.
7. Скидання нагрітої води в гирло річки може змінити екосистему та позбавити річкову фауну відповідної рослинної їжі.

6. Make a generalizing summary of the texts A, B, C.

1. The texts under discussion are devoted to
2. Such problems as... are touched upon in the texts.
3. The first text deals with
4. The second (third, forth, etc.) text describes
5. The main idea of the texts is to show ... (to underline ... / to prove ... / to inform the reader about ...).
6. In my opinion, the texts are useful / informative / interesting. They are worth reading because

Additional Reading

1. WATER.

Active Vocabulary:

to constitute - составлять

weight - вес

to breathe – дышать

to spread - распространять

substance - вещество

invisible - невидимый vapour - пар, туман neither ...

пог - ни.. .ни

remote - далекий

ancestors - предки

settlement - поселение

fresh water - пресная вода

supply - снабжение, запас

pipes – трубы

clay - глина

aqueduct - акведук, водопровод

remains - остатки

brick - кирпич

sufficient - достаточный

pure - чистый

germs - микробы

to boil — кипятить

desert - пустыня

vessel - сосуд

wagon - подвода, фургон

waste matter - отбросы, стоки

daring - смелый

specimen – образец

Read and translate the following text into Ukrainian:

WATER

Water which constitutes 70% of the weight of human body is as necessary to a man as air which he breathes and even more essential to his life than food. We can live without food for several weeks but we must die in a few days if we have no water to drink.

Water is everywhere. It is one of the most widely spread and important substances known to us. The clouds are nothing but little drops of water, and the air we breathe contains water in the form of invisible vapour. Without water there would be neither animal nor vegetable life.

The importance of water was realised by our remote ancestors whose settlements were always situated on the banks of rivers and lakes where it was easy to obtain fresh water. The existence of human settlements and prosperity of its inhabitants depended upon their distance from a source of water. When people began to live at some distance from the water supply, it became necessary to build some kind of system to carry water to them.

The early Cretans made pipes of clay to transport water, and there were systems of aqueducts in early Greece.

The remains of water works we can see in China and the Roman aqueducts serve as monuments of engineering skill of these times.

Perhaps the most famous water system of all time is that of ancient Rome, Made of brick and stone, these aqueducts carried water from the Apennine Mountains into the city. Parts of these aqueducts still stand as a monument to early engineering.

As early as the year 300 A.D. Emperor Constantine realized the importance of a sufficient water supply.

He advised that some boys about eighteen years old be trained as water engineers. About this time, people had discovered that care must be taken to keep water pure, and that only pure water should be used. They had no notion germs could make water impure.

Aristotle advised Alexander the Great to boil the water he carried with him on desert marches, to keep it from getting "sour". Cyrus the Great also carried boiled water with him when he went on expeditions. Herodotus has described how it was transported in silver vessels in four-wheeled wagons.

In the early days of our country, when people lived far apart, there was plenty of pure water for all. As people began living closer together, and villages, and towns were formed, waste matter was allowed to get into the sources of supply. It soon became unwise to use any water without testing it for purity.

For centuries important innovations and development of the most daring kind have been introduced into the science of water supply by our Russian technical research.

Specimens of engineering skill in constructing water works belong to the reign of Ivan IV and Peter I and impress us by their high technical standard which leaves far behind all the primitive constructions of the ancients.

Answer the following questions:

1. Where were the settlements of our ancestors situated?
2. When did it become necessary to build water supply systems?
3. In what countries are the most ancient aqueducts found?
4. Of what materials were ancient Roman aqueducts made?
5. What means of purifying water were used in sapient times?

2. WATER SUPPLY.

Active Vocabulary:

to be concerned with - быть заинтересованным
shallow - мелкий, неглубокий
well - колодец, родник, водоем
spring - родник, источник, ключ
brook - ручей
modest - скромный
to be constrained - быть вынужденным
wealthy - богатый, состоятельный
outlets - водоспуск
medieval - средневековый
labour - работать трудиться
handicap - затруднительное положение
withstand - противостоят
moderate - средний
lead - свинец
bored wood - дерево с высверленным каналом
masonry - каменная или кирпичная кладка
grade line - линия уклона
conduit - акведук, трубопровод
cast iron - чугунный
leakage - утечка, просачивание
to deliver - доставлять
to reduce - снизить
to be polluted - быть загрязненным
watershed - водораздел, бассейн реки
treatment - обработка
to eliminate - устранять
hazard – риск

Read and translate the following text into Ukrainian:

WATER SUPPLY

During all the ages large cities have been concerned with their water supplies, Even the important ancient cities soon found that the local sources of supply-shallow wells, springs and brooks - were inadequate to meet the very modest sanitary demands of the day, and the inhabitants were constrained to build aqueducts which would bring water from distant sources. It cannot be said, however that such supply systems could compare with modern types, for only a few of the wealthier citizens had private outlets in their homes or gardens, and most citizens carried water in vessels to their homes from a few fountains or public outlets. The mediaeval cities were smaller than the ancient cities and public water supplies were practically nonexistent.

The water works engineers of ancient times laboured under the severe handicap of having no type of pipe that would withstand even moderate pressures. He used pipe of clay, lead and bored wood in small sizes, but even with these as with masonry aqueducts and he followed the hydraulic grade line and rarely placed the conduits under pressure.

It was in the seventeenth century that the first experiments were made with cast-iron pipe. They were successful, but it was not until the middle of the eighteenth century that cast iron pipes were cheap enough for wide use. The durability of cast iron and its freedom from breaks and leakages soon made its use almost universal, although, steel and other materials were also used.

This forward stride, together with the development of pumping methods, made it economically possible for all but the smallest villages to obtain water supplies and to deliver the water into the homes of the citizens.

Although some cities were able to collect safe water from uninhabited regions and thereby reduce water-borne disease to a low level, many others found that their supplies were dangerously polluted and that the danger was increasing as population increased upon watersheds.

Accordingly treatment methods were developed that, when properly applied, have eliminated the hazard.

Answer the following questions:

1. Of what materials were pipes made in ancient times?
2. In what century were first experiments made with the cast-iron pipe?
3. When did pumping water develop?
4. Due to what was water polluted in rivers and lakes?
5. What is the main function of a water supply system?

3.QUALITY OF WATER SUPPLIES.

Active Vocabulary:

vapor - пар
to condense - сгущаться, конденсировать
to absorb - впитывать, абсорбировать
to dissolve - растворять
oxygen - кислород
silt - ил, осадок, нанос
decomposition - распад, расщепление
solution - раствор
to retain - удерживать, сохранять
to percolate - просачиваться
soil - почва
suspended - взвешенный
impurities - примеси, засорения
to offset - компенсировать, возмещаться
to encounter - встречать
strata, pl. (stratum) - пласт
to traverse - пересекать
content - объем, содержание
subdivision - подразделение
colloidal - коллоидный
dispersion - рассеивание, дисперсия
to remove - удалять
to settle - осаждаться
turbidity - мутность
velocity - скорость
with the naked eye - невооруженным глазом
silica - кварц, кремнезем
dyes - краски, красящие вещества
swamp - болото
weedy - заросший сорняками
to affect - воздействовать на что-либо
become accustomed to - привыкнуть
taste flat - быть невкусной
palatability - вкусовые качества
odor - запах

Read and translate the following text into Ukrainian:

QUALITY OF WATER SUPPLIES

Water that is absolutely pure is not to be found in nature. As water vapor condenses in the air and falls, it absorbs dust and dissolves oxygen, carbon dioxide, and other gases. At the ground surface it takes up silt and other inorganic matter. A few bacteria will have entered the water from the air, but at the ground surface many more will be picked up as it runs off in streams or rivers. Small amounts of the products of the decomposition of organic matter will go into solution.

The surface water will retain all these impurities for an indefinite period, but that part of the rainfall which percolates into the soil will lose the suspended silt and bacteria by filtration. The products of decomposition

will probably also be lost in the filtration process by chemical combinations or by action of plants.

This loss of impurities, however, is offset by the solution of various salts which the percolating water will encounter in its path, the amount and character depending upon the length of underground travel and the chemical, make-up of the strata traversed.

The quality of natural water depends upon its content of impurities. The impurities in water occur in three states of subdivision, suspended, colloidal and dissolved.

A suspension is a dispersion of solid particles that are large enough to be removed by filtration or settling. Such particles contribute turbidity to the water. The turbidity is generally caused by silt or clay. The amount and character of the turbidity will depend upon the type of soil over which the water has run and the velocity of the water. When the water becomes quiet the heavier and larger suspended particles settle quickly, while the lighter and more finely divided ones settle very slowly.

Colloidal particles cannot be seen with the naked eye. Most of the colour of water is due to the presence of colloidal particles, but such colloids as silica are colourless.

Colour is caused by material in solution or colloidal condition. The colour in water supplies is generally caused by dyes derived from decomposing vegetation. Waters from swamps or weedy lakes and streams are therefore, most likely to be troublesome in this respect. Coloured water is not only undesirable, because of consumers objections to its appearance, but it may discolour clothing and affect industrial processes.

A solution is a molecular, dispersion. Solids, liquids, and gases are dissolved in natural waters. All natural waters have more or less dissolved mineral matter in them. As a matter of fact, we have become so accustomed to drinking water having such impurities that distilled water tastes flat and unpleasant, its palatability can be increased by adding common salt.

The substances present in drinking water may cause taste and odor.

Answer the following questions:

1. What kind of impurities does water collect while running on the ground surface?
2. In what states of subdivision are impurities found in water?
3. By what substances is colour in water generally caused?
4. What are the four taste sensations?
5. What produces the sensation of smell in water?

4. INDUSTRIAL WASTE CONTROL.

Active Vocabulary:

to expand - увеличиваться, расширяться industrial wastes - промышленные отходы to survive - выживать, жить

to dispose - избавляться, ликвидировать

community - община, общность

to tend - иметь тенденцию к чему -либо

to complicate - усложнять

to discharge - выпускать

quantity - количество

to demand - требовать

reduction - уменьшение

to accelerate - ускоряться

sewer - коллектор, канализационная труба

in order to - чтобы

to pretend - предотвратить

to treat - обрабатывать

Read and translate the following text into Ukrainian:

INDUSTRIAL WASTE CONTROL

The reduction of pollution of streams and lakes is an ever-increasing problem of expanding urban communities, and the control of industrial wastes is one of the most important factors in this problem.

Man has always needed air, water and food to survive. He has also had to dispose of his wastes, and this was one of the reasons why he established his settlements near bodies of water.

As long as society was relatively primitive and communities small, pollution of these bodies of water was not too great a problem.

In the last century, with the increasing development of industry, two factors have steadily tended to complicate the pollution problem, so that it is now one of the most critical facing urban society.

The first of these two factors is the continuing expansion of our industries, using more and more water on the one hand and discharging increasing quantities of waste on the other.

The second factor has been that modern society continues to demand a better standard of living with a resultant increase in water use, together with the demand for a reduction of the pollution.

These trends have been accelerating since the last war, and every day brings new processes and new problems.

Thirty years ago complex organics, petrochemicals, antibiotics, and various synthetic products were either unknown or of little importance.

Today these materials are produced by the millions of pounds. On the horizon we see the industrial development of atomic energy and the promise of new and more complex problems.

Industry uses very large quantities of water and almost all of this becomes highly polluted in processing and then has to be disposed of.

This is not an easy task, and the simplest solution is to discharge it to the sewers and local water courses. But in order to prevent the pollution of streams by industrial wastes, they should be properly treated before being discharged.

Answer the following questions:

1. Why does industry use more and more water every year?
2. Why does the amount of water required for modern society increase?
3. What new products of industry pollute bodies of water?
4. What is the right way of disposing highly polluted waters?

5. SEWAGE AND STORM WATER.

Active Vocabulary:

sewage - сточные воды

to define - определять

sink - раковина для стока воды

lavatory - уборная, туалетная комната

plumbing fixtures - сантехнические приспособления

residence - жилое помещение

run off- сток воды

street flushing - уличные стоки

domestic - бытовой

storm sewage - дождевые стоки

removal - удаление

turbid - мутный

gutter - сточная канава

objectionable - нежелательный

sewerage system - система канализации

sewer - коллектор, канализационная труба

temporarily - временно

to facilitate - содействовать, облегчать

smooth - ровный, гладкий

slope - уклон

impervious - водонепроницаемый

joint - соединение

cross - section-поперечное сечение

vitrified-iron - стекловидный

concrete - бетон

corrugated iron - рифленое железо

to deposit - осаждавать, давать осадок

Read and translate the following text into Ukrainian:

SEWAGE AND STORM WATER

Sewage is defined as the liquid waste of a community. It consists of wastes from toilets, baths, sinks, lavatories, and other plumbing fixtures in residences, institutions, and business buildings, wastes from various industrial plants and, in many communities, the run-off from the streets and other surfaces that results from storms or street-flushing operations.

Sewage may be classified, according to its source, as follows: that from residences and business buildings is called domestic sewage; that resulting from industrial processes is known as industrial waste; and that from run-off during storms is called storm sewage.

Domestic sewage is dangerous to health, since it may contain disease germs. Its complete removal is essential in order to protect the health of the community.

Rain or storm water may be very turbid or dirty because of the waste washed off the streets or out of the gutters, but after the first flushing of the street, storm water is not a danger to health.

The contents of industrial waste vary for different processes of manufacture and in many cases may be highly objectionable.

Where a sewerage system is installed it may carry all three types of sewage, but it is more general, except in the largest cities, to have one system of sewers for the domestic sewage and industrial wastes, and another system for the storm water.

Storm sewers are designed principally to remove quickly the water resulting from heavy rainfall. They are in use only at intervals. If such sewers are not large enough to remove immediately all the run-off from a storm, the resulting inconvenience from temporarily flooded streets is not usually serious. There is usually no objection to discharging storm water into a stream or lake near the city, and the storm sewer is relatively short.

In order to facilitate the flow of sewage, the inner or contact surface of the sewer should be smooth. The smoothness of the sewer determines to a large extent the slope at which the sewer must be laid.

The sewer should be made of impervious material and the joints should be properly sealed.

The inner surface of a sewer should be resistant to corrosion by acids, alkalies, and industrial wastes, and to the action of the various products of sewage decomposition.

The cross-section of a sewer is usually circular, but various other shapes are also used. For circular sections, pipes made of vitrified clay or of concrete are generally employed, but cast-iron or corrugated-iron pipes are preferred for certain locations.

Sewage disposal is one of the greatest sanitary problems, especially in large cities. The sewage should be deposited at a safe distance from the centres of population and scientific methods should be employed for its treatment.

Answer the following: questions:

1. Where is sewage usually discharged to?
2. What are the requirements for sewers?
3. What kind of sewage is the most objectionable?
4. Where is sewage treated?
5. Can storm water be discharged into lakes or rivers without treatment?

6. NEW TRENDS IN WATER TREATMENT.

Active Vocabulary:

surface - поверхность

particularly - особенно

to devise - изобретать, разрабатывать

waste - treatment plants-установки по переработке отходов

to find out - обнаружить

carbon - углерод

diatomite - диатомит

saving - экономия

to coat - облицовывать, наносить покрытие

coagulant - коагулянт, свертывающий

alum - квасцы

electrodialysis - электродиализ

foam fractionation - фракционирование пеной

volume - объем

to cope with - справиться с чем-либо

Read and translate the following text into Ukrainian:

NEW TRENDS IN WATER TREATMENT

In connection with the removal of soluble complex organics, which are now found more and more in surface supplies of water particularly in industrialized areas, new methods of treatment will have to be devised.

A large portion of these complex organics is not adequately decomposed or removed in industrial waste treatment plants and thus finds its way into rivers and streams.

This situation is, of course, well-recognized and much basic research is being done in different laboratories in many countries.

It was found out that some of these complex organics can be absorbed on carbon, and carbon filters are being studied and already used in some countries.

Diatomite filtration has already been used extensively and because of considerable saving in cost it will become more widely used.

Recent studies have been made which indicate that diatomite can be coated with a coagulant, such as alum, to improve the ability of such filters to remove colloidal material and colour.

Some waters have objectionable high concentrations of nitrates. Research work now in progress indicates that the most economical method for removal of such nitrates is by biological treatment?

Electrodialysis is already being used for removing high concentrations of salts from water. This process is now being studied in connection with the removal of other undesirable materials present in solution in polluted waters.

Foam fractionation is now being studied in laboratories as a method for removing soluble organics which cannot be removed readily by chemical or biological treatment.

Waste treatment is of great importance now, but it will become even more important in the future as water use expands and the volume of wastes increases.

It is new ideas and technologies which will cope in the future with the problem of treating polluted waters.

Answer the following questions:

1. What new impurities find their way into rivers and streams?
2. How can the problem of industrial waste disposal be solved?
3. What new methods of treating polluted waters are being devised?

GRAMMAR PRACTICE

The Verb Дієслово

Дієслово – частина мови, яка означає дію або стан. Воно має особові та не особові форми. Особові форми дієслова мають категорії особи, числа, часу, стану (активного та пасивного) та способу дії; виступають у реченні лише у функції присудка. В англійській мові є 3 способи дієслова:

1. Дійсний спосіб показує, що дія розглядається як реальний факт у теперішньому, минулому і майбутньому: Peter speaks (spoke/will speak) English.
2. Наказовий спосіб висловлює спонукання до дії, тобто наказ, прохання, пораду та ін.: Come in! Give me your dictionary.
3. Умовний спосіб показує, що мовець розглядає дію не як реальний факт, а як щось допустиме чи бажане: If I were you, I would not go there.

Основні форми дієслова:

I– інфінітив (Infinitive)

II– минулий неозначений час (Past Indefinite Tense);

III– дієприкметник минулого часу (Past Participle або Participle II); IV– дієприкметник теперішнього часу (Present Participle або Participle I).

Неособові форми дієслова – інфінітив, герундій, дієприкметник.

Часи дієслова

В англійській мові є чотири групи часів дієслова (кожна з них має форми теперішнього (Present), минулого (Past), і майбутнього (Future) часу; а також Future-in-the-Past – майбутній час в минулому):

I - Indefinite (Simple) Tenses – неозначені часи;

II - Continuous (Progressive) Tenses – тривалі часи; III - Perfect Tenses – перфектні (доконані) часи;

IV - Perfect Continuous Tenses – перфектно-тривалі часи.

Кожна група часів вживається для вираження дії, що відбувається в певний час за певних обставин.

Дієприкметник теперішнього часу (Participle I)

Participle I – це неособова форма дієслова, що має властивості прикметника, дієприслівника та дієслова. Утворюється шляхом додавання суфікса **ing** до основи дієслова: **to speak - speaking** той, хто каже; кажучи;

to rest - resting відпочиваючий, відпочиваючи. Перекладається дієприкметником активного стану теперішнього часу або дієприслівником недоконаного виду.

Додавання суфікса – ing призводить до змін в основі дієслів, які закінчуються на:

1) наголошену голосну + приголосну:

stop - stopping; begin - beginning; prefer - preferring

2) голосну + l:

travel - travelling; compel - compelling

3) **-ie:** *lie - lying; die - dying; tie - tying*

4) приголосну + e:

come - coming; make - making

Примітка: кінцева літера -y не змінюється:

fly - flying; play - playing

Дієприкметник може виконувати такі функції в реченні:

1) обставини:

Looking through the journal she Продивляючись журнал, вона

found many interesting articles. знайшла багато цікавих статей.

2) означення:

The student reading the journal is my friend.

Студент, який читає журнал - мій друг.

3) може бути частиною присудка. В цьому випадку Participle I разом з дієсловом **to be** є присудком речення в одному з тривалих часів:

I'll be waiting for you at 8 p.m. Я чекатиму тебе о 8-ій вечора.

Форми Participle I

Active Voice		Passive Voice		Present Participle
Present Participle	writing	being written	Дія одночасна з дією присудка	ple може виражати дію
Perfect Participle	having written	having been written	Дія, що передує дії присудка	

1) одночасну з дією, вираженою дієсловом-присудком:

Reading the English article
англійську статтю,

Читаючи цю

- a) I wrote out a lot of new words; я виписав багато нових слів;
b) I'll write out a lot of new words. я випишу багато нових слів. Participle I може відноситись до теперішнього, минулого чи майбутнього часу.

2) що відноситься до теперішнього часу, незалежно від часу дієслова-присудка:

The students working in the field
Kyiv.

Студенти, що працюють у селі, прибули з Києва.

3) що передують дії, вираженій присудком, якщо ці дії відбуваються одна за одною. У такому значенні в Participle I вживаються такі дієслова, як to arrive, to enter, to open, to close, to see, to hear, to receive та ін.

Participle I перекладається дієприслівником минулого часу, а дієслово-присудок в англійській мові вживається в Past Simple:

Coming home (When he came
began to work.

Прийшовши додому, він почав працювати.

Тренувальні вправи

1. Визначте, в якому з речень дієприкметник I вжито у функції обставини:

1. They often worked on the farms being students. 2. The girl writing the test is my neighbour.
3. Peter is painting the ceiling of his room now.

2. Прочитайте та перекладіть речення. Зверніть увагу на Participle I в ролі означення та обставини:

1. The chemists dealing with this problem exchange information.
2. Hydrogen and oxygen combine chemically, forming the molecule H₂O.
3. We increased the reaction rate increasing temperature.
4. They were sitting at the table discussing the article.
5. While (when) exploring the island, they found some plants never seen before.
6. Speaking at the conference he paid particular attention to this problem.

3. Переробіть речення з складнопідрядних на прості, використовуючи Participle I в ролі означення:

e.g. *The man who sells newspapers showed me the way to the post-office. The man selling newspapers showed me the way to the post-office.*

1. The students who spend their holidays in the country help the farmers with their field work.
2. Many students who learn English are members of our English club.
3. The man who is making the report is my father.
4. The women who are working in the field will go to the exhibition.
5. Most trees which grow near our building are broadleaved.
6. The girl who is going along the street is my friend.

4. Переробіть речення з складнопідрядних на прості, використовуючи Participle I в ролі обставини:

e. g. *When he reads English articles he writes out new words. Reading English articles he writes out new words.*

1. When I go to the Institute I usually meet our dean.
2. When they arrived in London, they went sightseeing the city.
3. When the students worked at this problem, they had to read many English journals.
4. While I was waiting for you, I read this article.
5. When my friend studied at the University, he published several scientific articles.

Дієприкметник минулого часу (Participle II)

Participle II є пасивним дієприкметником, який має лише одну форму і вживається тоді, коли іменник або займенник, до якого він відноситься, позначає об'єкт вираженої дії. Форма Participle II стандартних дієслів збігається з формою минулого часу цих дієслів: **to open відчиняти; opened відчинив; opened відчинений.**

Форма Participle II нестандартних дієслів утворюється різними шляхами: зміною кореневих голосних, кінцевих приголосних тощо. У таблиці нестандартних дієслів дієприкметник II завжди перебуває на третьому місці: to write – wrote – **written.**

У реченні Participle II може виконувати такі функції:

- 1) означення:

The article translated by our students was very interesting.

Стаття, перекладена нашими студентами була дуже цікавою.

- 2) обставини причини:

Packed in strong cases, goods arrived in good condition.

Упаковані в міцні ящики, товари прибули в хорошому стані.

- 3) обставини часу, що в українській мові відповідають підрядним реченням часу. Такі обставинні дієприкметникові звороти вводяться за допомогою сполучників when, while:

When given the journal read the article about environment protection.

Коли вам дадуть журнал, прочитайте статтю про охорону навколишнього середовища.

Тренувальні вправи

1. Визначте, в якому з речень вжито Participle II:

1. Peter solved a difficult problem.
2. Have you already solved this problem?
3. The problem solved by my friend was very difficult.

2. Прочитайте та перекладіть речення. Зверніть увагу на Participle II в ролі означення та обставини:

1. The problems discussed at the conference are of great interest to us.
2. The data obtained must be checked.
3. These scientific articles translated by our students are rather difficult.
4. When translated into Ukrainian these articles will be of great interest to our students.
5. When done this experiment will give good results.
6. Water becomes ice when cooled.
7. Asked whether he intended to return soon, he replied that he would be away for about three months.
8. The Opera House built many years ago is one of the finest buildings in our city.
9. They sent me some illustrated catalogues.
10. The improved methods of work gave good results.

3. Переробіть речення з складнопідрядних на прості, використовуючи Participle II в ролі означення:

e. g. They study at the university which was founded 100 years ago. They study at the university founded 100 years ago.

1. I received a telegram which was sent yesterday.
2. The problem which was solved by our students is rather difficult.
3. The method which was used is very important for this experiment.
4. The decisions which were adopted at the conference are supported by our scientists.
5. The cotton which is grown here is of good quality.
6. The machines which are made at this plant are exported to many countries of the world.

Sequence of Tenses

Узгодження часів

Узгодження часів (заміна часових форм) застосовується в підрядних реченнях, якщо дієслово у головному реченні стоїть в одному з минулих часів.

Якщо дієслово-присудок у головному реченні стоїть у теперішньому або майбутньому часі, то у підрядних реченнях час вживається за змістом речення.

Основні правила узгодження часів

Часова форма присудка у підрядному реченні, необхідна за змістом:

Часова форма присудка у підрядному реченні, на яку замінюється:

Present Simple

I know (that) he **lives** in Paris.

(Я знаю, що він живе в Парижі.)

Present Continuous

I think (that) she **is waiting** for me in the reading-room.

(Я думаю, що вона чекає на мене у читальній залі)

Present Perfect Continuous

I know (that) he **has been living** in Paris since 1995.

(Я знаю, що він живе в Парижі з 1995 р.)

Past Simple

I knew (that) he **lived** in Paris.

(Я знав, що він живе в Парижі.)

Past Continuous

I thought (that) she **was waiting** for me in the reading-room.

(Я думав, що вона чекає на мене у читальній залі)

Past Perfect Continuous

I knew (that) he **had been living** in Paris since 1995.

(Я знав, що він живе в Парижі з 1995 р.)

Past Simple

She says, "He **left** Kyiv three days ago."

(Вона каже: "Він виїхав з Києва три дні тому.")

Present Perfect

I think she has already written the article.

(Я думаю, що вона вже написала статтю.)

Past Perfect¹

He says, "I **had worked** by 8 o'clock."

Past Perfect

She said (that) he **had left** Kyiv three days before.

(Вона сказала, що він виїхав з Києва три дні тому.)

Past Perfect

I thought she had already written the article.

(Я думав, що вона вже написала статтю.)

Past Perfect

He said (that) he **had worked** by 8 o'clock."

Future Tenses: Future Simple

She said, "I **will write** a letter to my brother."

Future Continuous

He said, "I **will be writing** the composition the whole evening."

He said, "I **will have done** it by 6 o'clock."

Future Perfect Continuous

He said, "I'll **have been translating** the text for an hour when she comes."

(Він сказав: "Я перекладатиму текст вже годину, коли вона прийде.")

Future-in-the-Past:**Future****Simple-in-the-Past**

She said (that) she **would write** a letter to my brother."

Future Continuous-in-the-Past

He said (that) he **would be writing** the composition the whole evening.

Future Perfect-in-the-Past

He said (that) he **would have done** it by 6 o'clock."

Future Perfect Continuous-in-the-Past

He said (that) he **would have been translating** the text for an hour when she came.

(Він сказав, що він перекладатиме текст вже годину, коли вона прийде.")

Past Perfect та Past Perfect Continuous залишаються без змін.

Випадки, коли правила узгодження часів не застосовуються:

1. Якщо в підрядному реченні мова йде про вічні істини або загальновідомі факти – переважно вживається Present Simple:

The teacher told the children that water boils at 100 degrees centigrade.

2. Якщо в реченні точно зазначено час виконання дії (обставиною часу чи підрядним реченням часу), то ця дія виражається за допомогою

Past Simple та Past Continuous:

He said that his parents **graduated** from the University in 1988. I thought that you **were working** in the library at five o'clock yesterday.

She said that she **was working** when I rang her up.

3. Дієслово-присудок в підрядних реченнях причини, а також в означальних та порівняльних підрядних реченнях може вживатися в Present і Future:

He told me about the book which you **are reading**.

He refused to go to the theatre as he **will have** an examination in History in a few days.

He was once stronger than he **is** now.

4. Дієслова must, should та ought вживаються в підрядному реченні без змін незалежно від часової форми дієслова-присудка головного речення:

She tells (told) him that he should consult a doctor. He says (said) that I ought to visit my grand-parents.

The teacher tells (told) the children that they **mustn't** cross the road against the red light.

Непряма мова (Indirect Speech)

При перетворенні прямої мови на непряму утворюється складнопідрядне речення з підрядним додатковим реченням із сполучником **that** або без нього:

He says, "I have read this book"

He says (that) he has read that book. Якщо

вказано особу, до якої звернено пряму мову і вживається *to say* з прийменником *to*, то перед непрямою мовою **to say to** замінюється на дієслово **to tell**:

She says to me, "I saw him yesterday"

She tells me (that) she saw him the day before.

При перетворенні прямої мови на непряму вказівні займенники, деякі обставини місця і часу змінюються на наступні:

this	that
these	those
now	then
here	there
today	that day
yesterday	the day before
the day before yesterday	two days before
tomorrow	the next day
the day before tomorrow	two days later
ago	before
next	the next
last (year)	the previous (year)

Непрямі запитання (**Indirect Questions**) мають структуру розповідного речення: з прямим порядком слів.

Загальні запитання замінюються підрядними реченнями із сполучниками **if** або **whether**:

We asked him, "Do you know this girl?" - We asked him **if/(whether)** he knew that girl.

При відтворенні непрямою мовою *спеціальних запитань* – питальні слова стають сполучними

СЛОВАМИ:

He asked me, "Where do you live?"

He asked me **where** I lived.

I asked him, "Why have you come so late?"

I asked him **why he had come** so late.

Наказовий спосіб дієслова при перетворенні в непряму мову наказових речень замінюється **інфінітивом**. Дієслово **to say** замінюється на **to tell, to order**, а при проханні – на **to ask**:

She said to him, "Come at five o'clock."

She told him **to come** at five o'clock.

He said to me, "Don't go there."

He told me **not to go** there.

I said to her, "Please give me a glass of water."

I asked her **to give** me a glass of water.

Тренувальні вправи

Вправа 1. Перекладіть наступні речення українською, визначте час присудків та поясніть вживання часів:

1. I didn't expect that you would come two days later. 2. The mother was angry with the children because they had been making a terrible noise since early morning. 3. He said that he was there in 1945. 4. They knocked because they didn't know that the children were sleeping then. 5. When she woke up in the morning she saw that it had already stopped raining. 6. I learnt from this book that elephants never forget.

Вправа 2. Поставте присудок головного речення в Past Simple, зробивши всі необхідні зміни в реченні:

1. I can't understand why you are doing this. 2. He doesn't like the shoes he bought last year. 3. I am surprised that you finished the work yesterday. 4. They look at the picture she has drawn today. 5. She can't tell the time because her watch has stopped. 6. He knows that you have received a letter from Helen. 7. I know you are a person I can trust completely.

Вправа 3. Розкрийте дужки, поставивши дієслово у відповідному часі та стані:

1. He posted the letter he (to write) two days before. 2. He said he (to leave) tomorrow morning. 3. I knew they (to wait) for me at the metro station and I decided to hurry. 4. He says that he (to know) the laws of the country. 5. He thought that all his dreams (to come) true very soon, when he finished school. 6. He understood why she (not to come) the previous evening. 7. She promised that she (to answer) all the questions at the conference.

Вправа 4. Замініть пряму мову на непряму:

1. "I'm waiting for my parents," Nick said. 2. Mary said, "I didn't recognize him." 3. "I was here with my friends," said Jane. 4. "Do you have a photograph of your son with you?" Helen asked. 5. "You should be careful," my friend said to me. 6. "The Sun isn't a planet, it is a big star," the teacher explained. 7. "Don't make so much noise, will you?" the neighbour said to Pete. 8. "I promise I'll write to you as soon as I arrive, Jane," said Nick. 9. She asked, "Are there skyscrapers in London?" 10. "Why didn't you say that to me?" she asked her boyfriend.

Пасивний стан дієслова (Passive Voice)

В англійській мові дієслово має дві форми стану: активний (Active Voice) – коли підмет (особа чи предмет) в реченні виконує дію та пасивний (Passive Voice) – коли підмет (особа,

предмет) підлягає дії з боку іншої особи чи предмета, тобто є не суб'єктом, а об'єктом дії.

Порівняйте:

Captain Cook discovered Australia. *Australia was discovered by Captain Cook.*

У пасивному стані суб'єкт дії здебільшого не вказується, оскільки в центрі уваги знаходиться особа чи предмет, на які спрямована дія: *They will not deliver the new sofa on Monday.*

The new sofa will not be delivered on Monday.

Особливо це стосується випадків, коли підмет виражений одним із наступних слів: *people, one, someone/somebody, they, he, etc.*

Зазначення виконувача дії або діючої сили дається у формі прийменникового звороту з прийменником *by*:

This experiment was conducted by our research workers. The rate of chemical reaction is influenced by many factors.

Слід пам'ятати про дієслова, що вживаються з прийменником *by*: *To judge by* – судити по кому, судити з чого, міркувати; *to mean by* – мати на увазі; *to take by* – взяти (тримати, схопити) за, та ін.

Для позначення предмета, за допомогою якого виконується дія – вживається прийменник *with*:

The paper was cut with a knife.

The letter was written with a ball-pen.

В українській мові тільки перехідні дієслова вживаються в пасивному стані; і підметом речення пасивного стану може бути тільки прямий додаток з відповідного речення активного стану:

Студент написав тест.

Тест був написаний студентом.

В англійській мові з дієсловами, наприклад, такими як *to ask, to bring, to tell, to send, to show, to teach, to promise, to offer, to give, to pay, to lend*, що приймають два додатки, можна утворювати пасивний стан двома шляхами:

Active: Someone sent me flowers. Passive: a) I was sent some flowers.

a) Some flowers were sent for me.

В англійській мові навіть неперехідні дієслова, що потребують прийменникового додатка, можуть вживатися в пасивному стані, причому прийменник зберігає своє місце після дієслова:

They laughed **at** him.

He was laughed **at**.

Вони сміялися з нього.

З нього сміялися.

They can depend **on** Bill.

Bill can be depended **on**. Вони можуть

покластися на Білла.

На Білла можна покластися.

Утворення пасивного стану дієслова

Часові форми пасивного стану утворюються за допомогою дієслова **to be** у відповідному часі, особі, числі та дієприкметника минулого часу (the past participle) смислового дієслова:

to be + past participle (pp)

Tense Form	Indefinite			Continuous
Present	I am	} asked	}	I am
	He is			being asked
	We are			
Past	I was	} asked	}	I am
	He is			being asked
	We were			We are

Future	I shall (will)	}	be
	He		asked
	We		

Future in the Past	I	}	would
	He		be
	We		asked

**Tense
Form**

Perfect

Perfect Continuous

Present	I have	He	}	been asked
	has	We		
	have			

Замість відсутніх форм Perfect Continuous вживаються форми Perfect

Past	I	}	had been asked
	He		
	We		

Future	I	}	will have been asked
	He		
	We		

Future in the Past	I	}	would have been asked
	He		
	We		

Часові форми пасивного стану вживаються за тими самими правилами, що й відповідні часи активного стану.

SIMPLE (INDEFINITE) PASSIVE TENSES

Tense	Affirmative	Interrogative	Negative
Present Simple	The office <u>is cleaned</u> twice a week.	Is the office <u>cleaned</u> twice a week?	The office <u>is not cleaned</u> twice a week.
Past Simple	The office <u>was cleaned</u> yesterday.	<u>Was</u> the office <u>cleaned</u> yesterday?	The office <u>was not cleaned</u> yesterday.
Future Simple	The office <u>will be cleaned</u> next day.	<u>Will</u> the office <u>be cleaned</u> next day.	The office <u>will not be cleaned</u> next day.

1. Часи групи Simple пасивного стану виражають одноразову, повторювану або постійну дію в теперішньому, минулому або майбутньому часі:

а) TV is watched all over the world. б) Jim's car was stolen last night.

в) His portrait will be painted by a famous artist.

2. Present Simple вживається для вираження майбутньої дії в підрядних реченнях часу та умови:

а) I shall be very glad if my article is published in the newspaper. Я буду дуже радий, якщо моя стаття буде опублікована в газеті.

б) The director will sign the documents when they are checked. Директор підпише документи, коли вони будуть перевірені.

3. Як і в активному стані, вживання часів в підрядному реченні, що залежить від головного з дієсловом-присудком в минулому часі, підпорядковується правилам послідовності часів:

а) I knew that very interesting articles were published in the magazine.

Я знав, що в цьому журналі друкуються дуже цікаві статті. б) He said that the bridge would be built next year.

Він сказав, що міст побудують в наступному році.

в) Mary said that she would show us the article when it was typed. Мері сказала, що покаже нам статтю, коли вона буде опублікована.

4. Присудку в активному стані, що виражений словосполученням одного з модальних дієслів must, can (could), may (might), should, ought, to have, to be з інфінітивом активного стану, відповідає в пасивному звороті словосполучення цього ж модального дієслова з інфінітивом пасивного стану:

а) You ought to translate this article at once. Вам слід перекласти цю статтю відразу. The article ought to be translated at once. Цю статтю слід перекласти відразу.

б) They must finish their work as soon as possible.

Вони повинні закінчити свою роботу якомога швидше. Their work must be finished as soon as possible.

Їх робота повинна бути закінчена якомога швидше.

5. Пасивні звороти з формальним підметом **it**.

Звороти, що складаються із займенника **it** і дієслова в пасивному стані

– **it is said, it was said, it is reported, it was reported** та ін., відповідають в українській мові дієсловом в 3-ій особі множини з неозначено-особовим значенням: *кажуть, казали, повідомляють, повідомляли* та ін. в таких зворотах **it** є формальним підметом і немає

самостійного значення:

а) It is reported that the delegation has arrived in Kyiv. Повідомляють, що делегація прибула в Київ.

б) It was expected that he would return soon.

Сподівалися, що він скоро повернеться.

У таких зворотах часто зустрічається сполучення модального дієслова з інфінітивом пасивного стану: **it can be said** можна сказати, **it should be mentioned** слід нагадати, **it was be expected** треба було очікувати та ін.

Тренувальні вправи

Вправа 1. Перекладіть українською мовою речення з дієсловами в пасивному стані, при потребі починайте переклад з прийменників:

1. This engineer's design was much spoken of at the conference.
2. This research was given particular attention because of its prime importance for the development of this branch of physics.
3. This book is written mainly for researchers.
4. New electronic devices are dealt with in this article.
5. New methods will be developed as a result of this experimental work.
6. The First Congress of Biochemistry was held in Cambridge in 1949.
7. The opening plenary session was followed by a concert.

Вправа 2. Поставте запитання до поданих речень:

1. The Houses of Parliament were built *in the nineteenth century*.
2. *Twenty* people were hurt in the train crash.
3. *Three* teenagers were given an award for bravery yesterday.
4. The telephone was invented by Bell *in 1876*.
5. *20,000* cars will be produced next year.
6. *Ten* pictures have been stolen from the National Gallery.
7. During the centuries *the famous Tower of London* was used as a fortress, a royal residence and a prison.

Вправа 3. Заповніть пропуски необхідною формою дієслова:

1. These pictures are beautiful. They ... (paint) by my father while he was on holiday last summer.
2. Volkswagen cars ... (make) in Germany.
3. The Pyramids ... (build) by the Ancient Egyptians.
4. Those flowers are great. They ... (send) to her yesterday by one of her furs.
5. Who does the washing-up in your house? The dishes ... (wash) by my brother and then ... (dry) by my sister.
6. Who looks after your baby when you're at work? Well, he ... (look after) by my mother.
7. When will I have my car? It ... (deliver) to your house the day after tomorrow.

Вправа 4. Перетворіть подані речення з активного стану на пасивний:

1. They use a computer to do that job nowadays.
2. Where will your company send you next year?
3. The pop star sang the song.
4. They won't take him home after the party.
5. Tom didn't break the window.

6. Mary sent Peter a birthday card.
7. His mother cooked this delicious turkey.
8. An international company publishes these books.

Вправа 5. Перетворіть подані речення з активного стану на пасивний, звертаючи увагу на модальні дієслова з інфінітивом пасивного стану:

1. You must take the dog for a walk.
2. We should eat this cake immediately.
3. You ought to put these clothes away.
4. I have to finish my homework tonight.
5. You must tidy your bedroom.
6. They should inform the citizens as soon as possible.
7. You can use this saucepan for cooking spaghetti.
8. He must finish the project by Friday afternoon.
9. You must post these letters today.
10. Employers must pay all travel expenses for this training course.

CONTINUOUS (PROGRESSIVE) PASSIVE TENSES

Часи групи Continuous (or Progressive) пасивного стану, як і активного, виражають тривалу дію, що відбувається в якийсь момент або період часу в теперішньому чи минулому часі. Майбутній час – Future Continuous – в пасивному стані не вживається.

Present Continuous Passive: A very interesting film is being shown on TV.

Past Continuous Passive: An ice hockey game was being shown on TV when he returned home.

Present (Past) Continuous Passive утворюються за допомогою допоміжного дієслова to be в Present (Past) Continuous Active Voice та дієприкметника минулого часу основного дієслова.

Tense	Affirmative	Interrogative	Negative
Present Continuous	The office <u>is being cleaned</u> now.	Is the office <u>being cleaned</u> now?	The office <u>is not being cleaned</u> now.
Past Continuous	The office <u>was being cleaned</u> when the boss arrived.	<u>Was the office being cleaned</u> when the boss arrived?	The office was not being cleaned when the boss _____ arrived.
Future Continuous	-	-	-

Як і в активному стані, дієслова, що не виражають дію як процес, як правило, не вживаються в формі Continuous. До них відносяться дієслова, що виражають відчуття: *to see, to smell, to hear, to seem, to taste;*

волевиявлення: *to refuse, to prefer, to object, to agree, to disagree, to deny, to impress, to promise;* бажання: *to wish, to want, to desire;* почуття: *to like, to hate, to love;* розумову діяльність: *to know, to understand, to believe, to doubt, to see (= "understand"), to imagine, to realise, to suppose, to remember, to think (= "have an opinion"), to forget, to recognise;* дієслова, що виражають відношення між предметами: *to be, to belong, to concern, to*

involve, to consist, to contain, to depend, to lack, to need, to include, to owe, to possess, to weigh
(= 'have weight'), та ін.

Тренувальні вправи

Вправа 1. Прочитайте та перекладіть речення. Зверніть увагу на форми часу дієслів в пасивному стані:

1. Excuse the mess, the house is being painted.
2. I felt as if I was being watched.
3. The roof is being repaired by a friend of ours.
4. A multistoried house is being built near our school.
5. The children are being taught by Mr. Rice at the moment.
6. I think the film is being shown on TV now.
7. The factory was still being built when we came to that place.

Вправа 2. Підкресліть присудки в реченнях. Перетворіть речення у Passive Voice, звертаючи увагу на часову форму дієслів:

1. Some people are considering a new plan.

A new plan is being considered.

2. The grandparents are watching the children.

The children _____ by their grandparents.

3. The author is writing a new book.

A new book _____ by the author.

4. They are planting the trees in the garden.

The trees _____ in the garden.

5. According to one scientific estimate, we are losing 20,000 species of plants and animals each year due to the destruction of rain forests. According to one scientific estimate, 20,000 species of plants and animals _____ each year due to the destruction of rain forests.

Вправа 3. Утворіть питальну та заперечну форми речень:

1. The sick man is being operated on.
2. The network of transmitting stations is being built in this region now.
3. The children are making a birthday cake in the kitchen.
4. The road is being repaired by our workers.
5. The film was being shown from 7 till 9.
6. The orchestra was being conducted by our music teacher.
7. Water-power stations are being built on the Mountain Rivers.
8. Students from about 30 countries are being trained at Kyiv University.

Вправа 4. Замініть наступні речення на Passive Voice:

1. Someone is organizing a student trip to the art museum. A student trip to the art museum _____.

2. We couldn't use our classroom yesterday because someone was painting it. We couldn't use our classroom yesterday because _____.

3. Someone is considering Jack for the job. Jack _____ for the job.

4. The police are questioning two boys in connection with the accident. Two boys _____ by the police in connection with the accident.

5. Look! Someone is feeding the seals. The seals _____.

PERFECT PASSIVE

1. Часи групи Perfect пасивного стану, як і активного, виражають дію, що передують іншій дії або якомусь моменту в теперішньому, минулому або майбутньому часі. Крім цього, перфектні часи, особливо Present Perfect Passive, вживаються для підкреслення результату дії, що відбулася.

The windows **have** still not **been repaired**. – Вікна ще не відремонтовані.

I was thinking of all that **had been said**. – Я думав про все, що було сказано.

The goods **have** just **been examined** by the customs officers. – Товари щойно оглянуті (були оглянуті) митниками.

2. Present (Past, Future) Perfect Passive утворюються за допомогою допоміжного дієслова **to be** в Present (Past, Future) Perfect та дієприкметника минулого часу основного

Tense	Affirmative	Interrogative	Negative
Present Perfect	The office <u>has been cleaned</u> today.	<u>Has</u> the office <u>been cleaned</u> today?	The office <u>has not been cleaned</u> today.
Past Perfect	The office <u>had been cleaned</u> by two o'clock.	<u>Had</u> the office been <u>cleaned</u> by two o'clock?	The office <u>had not been cleaned</u> by two o'clock.
Future Perfect	The office <u>will have been cleaned</u> by the time we come.	<u>Will</u> the office have <u>been cleaned</u> by the time we come?	The office <u>won't have been cleaned</u> by the time we come.

Future Perfect-in-the-Past Passive утворюється так само, як і Future Perfect Passive, але замість допоміжних дієслів **shall/will** вживаються відповідно **should/would**.

Future Perfect-in-the-Past Passive: I (we) should have been invited.

He (she, you, they) would have been invited.

1. Замість Present Perfect Continuous та Past Perfect Continuous, які не мають форм пасивного стану, відповідно вживаються Present Perfect і Past Perfect Passive.

The dissertation **has been discussed** for two hours.

Дисертація обговорюється уже дві години.

The dissertation **had been discussed** for two hours when he came. Дисертація вже обговорювалась дві години, коли він прийшов.

2. Як і в активному стані, в підрядних обставинних реченнях часу та умови для вираження майбутньої дії замість форми Future Perfect Passive вживається форма Present Perfect Passive:

After the goods **have been examined** we shall take them to the ware- house.

Після того як товари будуть оглянуті, ми відвеземо їх на склад.

3. Узгодження, як і в активному стані, вживання часів в підрядному реченні з дієсловом-присудком в минулому часі, з правилами послідовності часів.

I knew that the plant **had been built** for two years. Я знав, що завод будується вже два роки.

She showed me the article which **had been translated** by her brother. Вона показала мені статтю, яка була перекладена її братом.

He said that the house **would be built** by January. Він сказав, що будинок (вже) буде **have been built** до січня. She said that

you **would have been shown** a new film before he left. Вона сказала, що вам покажуть **been shown** a new film before he left. новий фільм, до того як він піде.

3. **Perfect Infinitive Passive** та модальні дієслова. Perfect Infinitive Passive вживається:

- після модальних дієслів **must** і **may** для вираження припущення, що дія вже здійснилася:

The letter **may have been sent** to the wrong address.

Лист, мабуть, був відісланий за неправильною адресою.

- після дієслів can, cannot для вираження здивування, сумніву з приводу того, що дія могла здійснитися:

Can this work **have been done** in Невже ця робота була зроблена за such a short time?
такий короткий строк?

- після дієслів **should, would, could, might, ought** та **was (were)** для вираження дії, яка повинна була б чи могла б здійснитися, але не здійснилася:

The goods **were to have been delivered** Товари повинні були бути доставлені на початок травня (але не були доставлені).

The windows **should have been cleaned** yesterday. Вікна слід було (потрібно було) вимити вчора.

Тренувальні вправи

Вправа 1. Прочитайте речення та перекладіть їх. Зверніть увагу на Passive Voice:

1. Jim didn't know about the change of plans. He hadn't been told.
2. During the last decades a great number of researchers have been involved in the study of cancer problems.
3. Various ideas have been proposed to explain the origin of the moon.
4. An advertisement have not been placed in the newspaper yet.
5. I'm not going to the party. I haven't been invited.
6. In recent years much of our interest has been centred round the problem of the evolution of comets.
7. The letters have already been posted by the time the boss came in.
8. He said that he would show us the letter when it was typed.
9. This room looks different. Has it been painted since I was last here?
10. A tree was lying across the road. It had been blown down in the storm.

Вправа 2. Підкресліть перфектну форму дієслова. Закінчіть речення відповідною часовою формою дієслова у пасивному стані:

1. They have changed the date of the meeting.
The date of the meeting has been changed.
2. The chef hasn't made dinner.
The dinner _____.
3. Brian told me that somebody had attacked and robbed him in the street. Brian told me that he _____.
4. The doctor had already told him to go on a diet. He _____.
5. They have been built excellent shelters for tourists in these mountains.
Excellent shelters for tourists _____.
6. Richard has offered Helen a watch.
Helen _____.

Вправа 3. Утворіть питальну та заперечну форми речень:

1. The light has not yet been turned off.
2. He has been told everything, so he knows what to do now.
3. The door has been left open.
4. The article will have been published by the time you arrive.
5. This crop had been sown by the end of the month.

Неособові форми дієслова (Non-Finite Forms of the Verb)

Неособові форми дієслова (non-finite forms of the verb) – інфінітив (the Infinitive), герундій (the Gerund), дієприкметник (the Participle) – не мають граматичних ознак особи, числа і способу, не виражають часу дії, тому не можуть бути присудком речення, а можуть

тільки входити до його складу. Вони вказують лише на співвіднесеність у часі дії, що вони виражають, до дії присудка: одночасна вона чи передує їй.

The Infinitive (Інфінітив)

Інфінітив – це неособова форма дієслова, яка тільки називає дію і відповідає на запитання *що робити?, що зробити?* — **to read** читати; **to understand** розуміти.

В англійській мові інфінітив має одну просту і п'ять складних форм. Інфінітив перехідних дієслів має форми часу й стану, а неперехідних – тільки часу.

Форми інфінітиву

	Active	Passive
Indefinite	to write to come	to be written
Continuous	to be writing to be coming	-
Perfect	to have written to have come	to have been written
Perfect Continuous	to have been writing to have been coming	-

Якщо дієслово не вживається в пасивному стані або в формі Continuous, то кількість форм інфінітива відповідно менша. Ознакою інфінітива в англійській мові є частка **to**.

Частка **not**

перед інфінітивом вказує на заперечну форму.

Але слід пам'ятати, що в деяких випадках інфінітив вживається без частки to:

- 1) після модальних дієслів (окрім дієслова *ought*);
- 2) в об'єктному інфінітивному звороті після дієслів: **to see, to hear, to feel, to watch, to observe, to notice; to let, to make;**
- 3) після виразів **would rather, would sooner, had better...**

Значення і вживання форм інфінітиву

I. Інфінітив у формі **Indefinite** вживається:

1. Якщо дія, яку він виражає, одночасна з дією, вираженою дієсловом-присудком речення:

I am sorry to hear it.

Мені прикро чути це.

He was glad to see them.

Він був радий бачити їх.

It will be very interesting

Буде дуже цікаво прочитати

to read these books.

ці книжки.

2. З дієсловами, що вказують намір, надію та ін. Indefinite Infinitive означає дію, майбутню щодо відношення до дії, вираженої дієсловом-присудком:

I hope to see you on Monday.

Я сподіваюсь побачитися з вами в понеділок.

I want to make a report.

Я хочу зробити доповідь.

3. З модальними дієсловами Indefinite Infinitive часто виражає майбутню дію:

They may come tomorrow.

Може, вони прийдуть завтра.

II. **Continuous Infinitive** виражає тривалу дію, що відбувається одночасно з дією, вираженою дієсловом-присудком:

It was pleasant to be driving a car again.

Приємно було знову вести автомобіль.

III. **Perfect Infinitive** виражає дію, що передує дії, вираженій дієсловом-присудком:

I was pleased to have done something.

Я була задоволена, що я дещо зробила.

З модальними дієсловами **should, ought, could, might** у стверджувальній формі, а також після **was/were** в модальному значенні Perfect Infinitive показує, що дія не відбулася:

He should have stayed at home.

Йому слід було залишитися вдома (але він не залишився).

He was to have done it.

Він мав зробити це (але не зробив).

Таке саме значення має Perfect Infinitive після минулого часу дієслів **to expect** сподіватися, чекати; **to hope** надіятися; **to intend** мати намір та ін.:

I hoped to have found him at home.

Я сподівався застати його вдома (але не застав).

IV. **Perfect Continuous Infinitive** виражає тривалу дію, що відбувалася протягом певного часу перед дією, вираженою дієсловом-присудком:

I am happy to have been living in Kyiv for 25 years.

Я щасливий, що 25 років живу в Києві.

V. Інфінітив вживається в активному стані, якщо іменник або займенник, до якого він відноситься, означає суб'єкт дії, вираженої інфінітивом:

But they don't want to play with me.

Але вони не хочуть гратися зі мною.

Інфінітив вживається в пасивному стані, якщо іменник або займенник, до якого він відноситься, означає об'єкт дії, вираженої інфінітивом:

She didn't want to be found. Вона не хотіла, щоб її знашли.

VI. Інфінітив також вживається:

1. Після таких дієслів, як: **advise, afford, agree, appear, attempt, decide, dare, forget, fail, expect, hope, manage, offer, plan, pretend, promise, refuse, seem, tend, threaten, want, etc.**

e.g. He refused to answer my questions. I hope to see you again soon.

He promised not to be late.

Інфінітивні конструкції

Складний підмет (Суб'єктний інфінітивний комплекс)

Інфінітив вживається в суб'єктному інфінітивному звороті – **Complex Subject** - ("складний підмет"), де іменник чи займенник стоїть в загальному відмінку:

а) після таких дієслів в пасивному стані, як: *say, report, think, believe, expect, consider, suppose, see, hear, feel, notice, observe, watch, order, allow, permit, etc.*

e. g. Mark was seen to cross the street. Бачили, як Марк переходив вулицю.
He was made to do it. Його примусили це зробити. The Moon is known to be the Earth's
Відомо, що Місяць - satellite. супутник Землі.

He is known to be a good poet. Кажуть, що він хороший поет.

б) після наступних дієслів в активному стані: *seem, appear (здаватися), happen, chance (трапитися), turn out, prove (виявлятися)*:

e.g. They seemed not to listen to their teacher. Здавалося, що вони не слухали свого вчителя. He appears to be a good psychologist.
Здається, він хороший психолог.

в) після словосполучень *to be sure, to be certain, to be likely, to be unlikely*:

e. g. They are likely to meet often.
Вони, мабуть, часто зустрічатимуться. He is unlikely to change his mind.

Несхоже, щоб він передумав. They are sure to win the match.

Вони обов'язково виграють цей матч.

Складний додаток (Об'єктний інфінітивний комплекс)

Інфінітив вживається в конструкції: Verb + Pro(noun) + Infinitive

– в об'єктному інфінітивному звороті (**Complex Object**), де додатком (object) є іменник у загальному відмінку або особовий займенник в об'єктному відмінку, після якого вживається інфінітив, що виражає дію, яку виконує або якої зазнає особа чи предмет, позначений цим іменником або займенником.

Цей об'єктний інфінітивний зворот (Complex Object) вживається:

1) після дієслів: *consider, believe, think, find, know, expect, suppose, want, wish, desire, like, would like, dislike, hate, intend, request, ask (просити), allow, permit, recommend, cause, force, make* (примушувати), *let* (веліти, дозволяти):

e. g. Mr. Lee expected them to be here at ten o'clock. The police ordered the driver (him) to stop.

2) після дієслів to make, to let, to see, to hear, to feel, to watch, to observe, to notice – частка **to** перед інфінітивом не вживається:

e. g. I saw Mark cross the street. Я бачив, як він переходив вулицю. They made him do it. Його примусили це зробити.

Об'єктний інфінітивний зворот перекладається на українську мову здебільшого підрядним додатковим реченням, де іменник чи займенник відповідає підмету, а інфінітив – присудку цього підрядного речення.

For+ Інфінітив

Інфінітив вживається також в прийменниковому інфінітивному комплексі – в конструкції “for + noun/pronoun + infinitive” (де займенник вживається в об'єктному відмінку):

e. g. They asked for the data (them) to be published. Вони просили, щоб ці данні були опубліковані.

For this work to be done successfully conditions must be favourable. Для того щоб ця робота була виконана успішно, необхідні сприятливі умови.

Цей інфінітивний зворот може знаходитися в будь-якій частині речення. На українську мову частіше за все перекладається підрядним реченням з сполучником "щоб/для того щоб".

Функції інфінітива в реченні

1. Інфінітив може вживатися в реченні в ролі підмета:

e. g. To apply fertilizers is very important for growing crops in this region.

Вносити добрива (внесення добрив) – дуже важливо для вирощування врожаїв в цьому

регіоні.

2. Інфінітив може вживатися в ролі предикатива (іменної частини складного присудка):

e. g. The point is to achieve the aim. Головне – досягти мети.

3. Інфінітив може вживатися в ролі частини дієслівного складного присудка:

а) з модальними дієсловами:

e. g. They must do it at once.

б) з дієсловами, що вживаються з інфінітивом іншого дієслова (to want, to wish, to try, to intend, to expect, to hope та ін.):

e. g. He wants to read a newspaper.

в) з дієсловами, що означають початок або продовження дії (to begin, to start, to continue та ін.):

e. g. She began to look through the journals on her speciality.

4. Інфінітив може вживатися в ролі додатка до дієслів та прикметників:

e. g. She asked me to speak loudly.

I'll be happy to accept your invitation.

5. Інфінітив може вживатися як обставина мети:

e.g. We often use heating (in order) to increase the reaction rate.

Ми часто використовуємо нагрівання для того, щоб підвищити швидкість реакції.

б. Інфінітив також вживається як означення:

e.g. He described some phenomena to be observed there only in winter. Він описав деякі явища, які можна спостерігати тільки взимку

Тренувальні вправи

1. Перекладіть українською, звертаючи увагу на форму інфінітиву:

1. She wants to be invited to the party. 2. They must be working in the garden. 3. We expect them to have returned. 4. She is said to have been working at school for many years.

2. Поставте дієслова у відповідній формі інфінітиву. Перекладіть речення українською:

1. This film turned out (show) ... in our club last month.
2. He is expected (take part) ... in the conference next week.
3. Pluto is known (discover) ... in 1930.
4. We expect them (return) ... in 2 days.
5. This question is likely (discuss) ... tomorrow.
6. We know this phenomenon (explain) ... by astronomers in the distant past.

3. Поставте частку *to* перед інфінітивом там, де це необхідно:

1. I think you ought ... apologize. 2. Make him ... speak louder. 3. Help me ... carry this bag. 4. My son asked me ... let him ... go to the theatre. 5. I must ... go to the country. 6. He said that she might ... come in the evening. 7. She was made ... repeat the song.

4. Прочитайте та перекладіть наступні речення з об'єктним інфінітивним комплексом. Зверніть увагу на вживання або відсутність частки *to* перед інфінітивом:

1. We expected her to return.
2. He allowed me to use his car.
3. I expect you to be on time.
4. The doctor told me to take these pills.
5. I want you to be happy.

6. I saw my friend run down the street.
7. I heard the rain fall on the roof.
8. I heard a famous opera star sing at the concert last night.
9. She watched the children play in the yard.
10. His parents intended him to go with them to the farm.

5. Доповніть речення, поставивши, де необхідно, частку to перед інфінітивом та займенники в об'єктному відмінку:

1. The teacher made ... (he/ to learn) the poem by heart.
2. I wanted ... (they/ to work) here.
3. They expect ... (we/ to answer) the letter at once.
4. You noticed ... (she/ to approach) the river.
5. I heard ... (he/ to read) it aloud.
6. His parents want ... (he/ to become) an agronomist.
7. We watched ... (they/ to play) in the yard.
8. You forced ... (he/ to do) the exercise again.
9. I let ... (she/ to leave) the room.
10. The rain ... (we/ to go) home.

6. Перефразуйте наступні складнопідрядні речення в прості, вживаючи Complex Subject (суб'єктний інфінітивний зворот). Зверніть увагу на форму інфінітиву:

e.g. It is reported that the delegation arrived in Paris on the 10th of September. – *The delegation is reported to have arrived on the 10th of September.*

1. It is known that he works hard.
2. It is said that she has been teaching chemistry at our University for thirty years.
3. It seems that our students are working in the field.
4. It is believed that this house was built in the 19th century.
5. It is supposed that his article will be published next week.
6. It turned out that the translation was very difficult.
7. It was supposed that the weather would be fine in May.

The Participle
(Складні форми дієприкметника)

Перфектний дієприкметник (Perfect Participle)

Perfect Participle має дві форми — активного та пасивного стану. Форма активного стану утворюється за допомогою Present Participle допоміжного дієслова to have і Past Participle основного дієслова: **having asked**.

Форма пасивного стану Perfect Participle утворюється за допомогою having been і Past Participle основного дієслова: **having been asked**. Неперехідні дієслова не мають форми пасивного стану (напр. to go):

<u>Форми</u>	<u>Active</u>	<u>Passive</u>
Perfect	having asked	having been asked
	having gone	

Значення та вживання

Perfect Participle виражає дію, яка передуює дії, вираженій дієсловом- присудком. Perfect Participle відповідає українському прислівнику доконаного виду:

Having learned about it, they stopped speaking. Дізнавшись про це, вони припинили розмову.

Perfect Participle Active вживається тоді, коли іменник чи займенник, до якого він відноситься, означає суб'єкт вираженої ним дії:

Having taking the book, he left the library. Взявши книгу, він вийшов з бібліотеки.

Пасивна форма дієприкметника.

(Present Participle Passive та Perfect Participle Passive)

Пасивна форма дієприкметника вживається тоді, коли іменник чи займенник, до якого він відноситься, означає об'єкт вираженої ним дії. Present Participle Passive вживається для вираження дії, що відбувається на теперішній момент чи теперішній період часу, на відміну від Past Participle, який виражає дію, що відбувається звичайно, взагалі.

The question now **being discussed** is very important. Питання, що обговорюється зараз at the meeting На зборах, - дуже важливе.

The large house **being built** in our building of the Велика будівля, що будується на street is a new нашій вулиці, новий корпус University. університету.

Perfect Participle Passive вживається в функції обставини причини і часу та вказує на дію, що відбулася до дії присудка:

Having been invited to a party, she could not stay at home.

Оскільки її запросили на вечірку, вона не змогла залишитися вдома.

Дієприкметникові конструкції

Складний додаток

Складний додаток з дієприкметником вживається після дієслів **see, hear, fell, want, like, find, catch, leave, keep, have, get, etc.**, і має таку ж структуру, що й складний додаток з інфінітивом. Але замість інфінітива вживається дієприкметник:

I saw him running. = Я бачив, як він біг.

I saw him run.

I heard her shouting. = Я чув, як вона кричала.

I heard her shout.

Present Participle вживається замість інфінітива, якщо дію не завершено:

I saw him driving off. Я бачив, як він від'їжджає.

I saw him drive off. Я бачив, як він від'їхав. Past

Participle вживається замість пасивного інфінітива:

He had his hair cut. Йому підстригли волосся.

The Absolute Participle Complex (Незалежний дієприкметниковий зворот)

Незалежний дієприкметниковий зворот (НДЗ) складається з дієприкметника, перед яким стоїть іменник у загальному відмінку або займенник у називному відмінку. НДЗ завжди відокремлюються від головного речення комою.

Коли НДЗ стоїть на початку речення, він перекладається підрядним реченням обставини за допомогою сполучників "коли"; "після того, як"; "тому що"; "через те, що"; "оскільки"; "якщо":

The rain having stopped, we went out. Коли (після того, як) дощ ущух, ми вийшли з дому.

Weather permitting, we'll go for a walk. Якщо погода дозволить, ми підемо на прогулянку.

The professor being ill, the lecture was put off.

Оскільки професор був хворим, лекцію відстрочили.

Коли НДЗ стоїть після головного речення, він перекладається сурядним реченням за допомогою сполучників “і”; “а”; “при цьому”; “до того ж” або без сполучника:

Farmers grow a lot of grain crops in our

Фермери вирощують багато, country,

wheat being the most important. зернових, при чому пшениця є найважливішою.

They went quickly out of the house, **he accompanying her to the station.**

Вони швидко вийшли з дому, і він провів її до вокзалу.

Тренувальні вправи

1. В якому з речень вжито Perfect Participle?

1. While reading an interesting English story she used a dictionary.
2. Entering the room we found nobody there.
3. He looked through the newspaper received this morning.
4. Having cleaned the room they went shopping.
5. The contract signed last year is useful for both sides.

2. Прочитайте та перекладіть українською:

1. Having finished the experiment he described its results in his article
 2. Having solved many scientific and technical problems, our scientists could launch the first spaceship in outer space.
 3. Having travelled about the country nearly two months, he returned to the capital.
 4. The questions now being discussed at the meeting are very important.
 5. Having collected all the material, she was able to write her report to the conference.
 6. Having been sent to the wrong adress, the letter didn't reach them.
 7. Yesterday the professor told us about the experiments now being carried on in his laboratory.
- #### 4. В якому реченні незалежний дієприкметниковий зворот слід перекласти підрядним реченням з сполучником «після того як»?

1. This crop being used for different purposes, man cultivates it all over the world.
2. Water covers nearly three fourths of the Earth, most being sea water.
3. The distribution of water on our planet varying greatly, some places get too much water or too little.
4. The experiments having been carried out, they started new investigations.
5. The bridge being destroyed, we couldn't cross the river.

The Gerund (Герундій)

Герундій - це неособова форма дієслова, що має властивості дієслова та іменника. Як і інфінітив, герундій називає дію: reading — читання, seeing — бачення.

В українській мові немає форми, яка відповідала б герундію. Слова читання, бачення - іменники, що утворились від дієслів, але вони не мають граматичних ознак дієслова. Герундій перекладається іменником, інфінітивом, дієприкметником, дієсловом, підрядним реченням.

Дієслівні властивості Герундій має такі дієслівні властивості:

- 1) герундій перехідних дієслів вживається з прямим додатком: I like **reading books**. Я люблю читати книжки.
She began **preparing food**. Вона почала готувати їжу.
- 2) герундій може мати означення, виражене прислівником:
They continued **listening attentively**. Вони продовжували уважно слухати.
- 3) герундій має неозначену й перфектну форми, вживається в активному і пасивному стані. Форми герундія співпадають з формами дієприкметника.

<u>Форми</u>	<u>Active</u>	<u>Passive</u>
Indefinite	writing	being written
Perfect	having written	having been written

Неозначена форма герундія (Indefinite Gerund) вживається:

а) для вираження дії, одночасної з дією, вираженою дієсловом-присудком речення:
He sat without **turning** his head. Він сидів, не обертаючись, б) для вираження дії безвідносно до якогось певного часу:

Seeing is believing. Бачити — значить вірити.

в) після дієслів to intend, to suggest, to insist та деяких інших Indefinite Gerund виражає майбутню дію по відношенню до дії, вираженої дієсловом-присудком:

He insisted on **telling** her about it. Він наполягав на тому, щоб розказати їй про це.

г) для вираження дії, що передує дії, вираженій дієсловом-присудком, зокрема після дієслів to thank, to forget, to remember, to excuse, to apologize, а також після прийменників on і after:

I don't remember seeing her. Я не пам'ятаю, щоб я бачив її. Перфектна

форма герундія (Perfect Gerund) виражає дію, що передує дії, вираженій дієсловом-присудком речення:

Thank you for **having helped** me. Спасибі, що допомогли мені. Герундій вживається в пасивному стані, якщо іменник чи займенник, до якого він відноситься, позначає об'єкт вираженої ним дії:

He does not come without **being invited**.

Він не приходить, якщо його не запрошують. She remembers **having been showing** this article.

Вона пам'ятає, що їй показували цю статтю.

Функції герундія в реченні.

Герундій у реченні може виконувати такі властиві іменнику синтаксичні функції:

1) підмета:

Smoking is harmful. Палити - шкідливо.

2) предикатива:

His hobby is **collecting** stamps. Його улюблене заняття - колекціонувати поштові марки.

3) додатка (прямого і прийменникового):

Forgive my **saying** it. Пробач мені те, що я сказав.
She is fond **of painting**. Вона любить малювати.

4) обставини (мети, причини, умови, часу, способу дії): She improved the text **by changing** a few sentences.

Вона покращила текст, замінивши декілька речень. They never obtain high yields **without applying** fertilizers.

Вони ніколи не отримують високих врожаїв, не застосовуючи добрив.

Вживання

1) Після дієслів: to avoid, to finish, to suggest, cannot help, to enjoy, to excuse, to forgive, to postpone, to delay, to mind, та ін. - вживається тільки герундій (з усіх неособових форм дієслова):

We finished **dressing**. Ми закінчили одягатися.

2) Після дієслів та дієслівних словосполучень з прийменниками: to leave off, to give up, to

go on, to keep on, to put off, to insist on, to agree to, to prevent from, to thank for, to be busy in, to be capable of, to be fond of, to be proud of, to be surprised at, та ін.:

Mary left off **ironing**.

Мері перестала прасувати.

Fancy **going** for a walk in such weather. Уявіть собі прогулянку в таку погоду.

3) Після прикметників **worth** та **busy** (з дієсловом to be):

These fertilizers **are worth buying**.

Ці добрива варто купити. Yesterday he **was**

busy working
in the garden.

Вчора він був зайнятий
роботою в саду.

4) Герундій або інфінітив вживається після таких дієслів, як: to begin, to start, to continue, to propose, to like, to try, to refuse, to intend, to forget, to remember, to prefer:

The children **began playing**. = The children **began to play**.

Порівняйте:

(1) stop + gerund: When the professor entered the room, the students stopped talking. (The room became quiet.)

(2) stop + infinitive of purpose: While I was walking down the street, I ran into an old friend. I stopped to talk to him. (I stopped walking in order to talk to him.)

Комплекс з герундієм

Перша частина герундіального комплексу — іменник у присвійному чи загальному відмінку або присвійний займенник. Друга частина — герундій, що виражає дію, яку виконує чи зазнає особа або предмет, позначений першою частиною комплексу. Такий зворот часто перекладається підрядним реченням, де займенник чи іменник є підметом, а герундій - присудком:

I don't like **him going** here.

Мені не подобається, що він іде туди.

I remember **his friend taking part** in the conference.

Я пам'ятаю, що його друг брав участь у конференції.

They told us about **his coming** here.

Вони сказали нам про те, що він приходив сюди.

Тренувальні вправи

1. Перекладіть на українську мову, звертаючи увагу на функцію герундія в реченні та його форму:

1. He likes translating scientific articles from English into Ukrainian.
2. After having changed the temperature twice he decided to change conditions of the experiment.
3. The manager has finished dictating a text to her secretary.
4. Having been read and corrected by the secretary, the text contained no mistakes.
5. On carrying out his experiments, he could make a lot of calculations.
6. Instead of translating the article himself, he asked his friend to do it.

2. Доповніть речення, вживаючи форму герундія наступних дієслів:

to watch, to go, to stay, to write, to talk, to forget, to clean

1. I think people should stop ... television so much.
2. He has finished ... the flat.
3. Nobody thought of ... to bed.
4. Don't fear my ... her.

5. I insist on my sister's ... at home.
6. I don't enjoy ... letters.
7. He likes ... to me.

3. Складіть речення, користуючись таблицею:

- | | |
|------------------------|-----------------------------------|
| 1. Thank you for | seeing my parents next week. |
| 2. I'm thinking of | disturbing you. |
| 3. How about | dancing and singing. |
| 4. I apologise for | telling me the truth. |
| 5. I'm tired of | understanding this. |
| 6. She's very good at | going to the cinema tonight? |
| 7. He's not capable of | answering that child's questions. |

4. З наведеного переліку дієслів, виберіть ті, після яких вживається герундій:

Agree, avoid, can't help, decide, expect, fancy, finish, give up, happen, hope, mind, manage, prepare, postpone, promise, put off, refuse, seem, suggest, wish.

5. Виберіть правильну форму дієслова (інфінітив чи герундій):

1. Do you remember (meet) her last year?
2. I regret (not visit) her when she was ill.
3. Do you want to go on (learn) English?
4. He doesn't allow us (make) personal phone calls.
5. He's stopped (smoke).
6. He stopped for a few minutes (rest).
7. I like (watch) TV in the evenings.
8. Do you think this book is worth (read)?
9. I can't help (worry) about it.
10. I managed (find) a taxi. 11. She suggested (go) to a movie.
12. They can't afford (buy) this car.

Умовний спосіб (The Subjunctive Mood)

Умовний спосіб виражає дію не як реальну, а як таку, що могла б відбутися за певних умов, а також необхідну, бажану або нереальну, нездійсненну.

В англійській мові вживаються чотири форми умовного способу: the Conditional Mood, the Suppositional Mood, Subjunctive I, Subjunctive II.

The Conditional Mood.

3 types of Conditional Sentences (3 типи умовних речень).

Conditional Mood утворюється з допоміжних дієслів *should* або *would*, у другій і третій особах – *would*. За формою Conditional Mood збігається з Future-in-the-Past дійсного способу, але відрізняється від нього за значенням.

Conditional Mood вживається для вираження дії, яка відбулася б за певних умов у теперішньому, минулому або майбутньому часі, але не відбудеться з якихось причин:

If she knew his addree (now), she would write to him. - Якби вона знала його адресу, вона б написала йому.

Conditional Mood має дві часові форми: present і past.

Present Conditional утворюється з допоміжних дієслів *should* і *would* та інфінітива основного дієслова без частки *to* (збігається з Future Simple-in-the-Past):

I (we) **should/would work**

He (she, it, you, they) **would work**

Present Conditional виражає дію, що за певних умов могла б відбутися в теперішньому або майбутньому часі.

Past Conditional утворюється з допоміжних дієслів *should* і *would* та перфектної форми інфінітива основного дієслова без частки *to* (збігається з Future Perfect-in-the-Past):

I (we) **should/would have worked**

He (she, it, you, they) **would have worked**

Past Conditional виражає дію, що за певних умов могла б відбутися в минулому, але через відсутність цих умов не відбулася.

3 типи умовних речень

I	Реальна умова, що відноситься до теперішнього або майбутнього часу	1) If Present Simple;	Present Simple.	If I <u>have</u> enough time, I <u>visit</u> granny every week.
		2) If Present Simple;	Future Simple.	If the weather <u>is</u> fine tomorrow, we' <u>ll</u> <u>go</u> to the country.
II	Малоймовірна умова, що відноситься до теперішнього або майбутнього часу	If Past Simple;	Future-in-the-Past ²	If he were ¹ here, he would help us. If I <u>saw</u> my friend tomorrow, I <u>should ask</u> him about it.
III	Нереальна умова, що відносяться до минулого часу	If Past Perfect; до + Perfect Infinitive	would	If I <u>had seen</u> him yesterday, I <u>should have asked</u> him about it.

Примітка:

¹ Дієслово *to be* має форму **were** в 1-ій та 3-ій ос. однини, оскільки вживається у формі Past Subjunctive.

² В умовних реченнях II типу в головному реченні може вживатися сполучення **could** або **might** з Indefinite Infinitive.

Аналогічно, в умовних реченнях III типу в головному реченні може вживатися сполучення **could** або **might** з Perfect Infinitive. На українську перекладається – міг би, могли б з інфінітивом:

He could do it if he tried.

He could have done it if he had tried.

Він міг би це зробитиб якби спробував.

Умовні речення з дієсловом WISH

Має відношення до часу I wish you would read more in future.

Як би мені хотілося, щоб ви читали більше в майбутньому.

I wish we would (could) meet next summer.

Як би мені хотілося, щоб ми зустрілися (змогли зустрітися) наступного літа.

Має відношення до теперішнього часу I wish I had time.

Шкода, що в мене немає часу.

I wish I could speak German.

Мені б хотілося розмовляти німецькою.

Має відношення до минулого часу I wish I had had more time yesterday.

Шкода, що вчора я мав мало часу.

I wish you hadn't done this. I wish he had been here then

Шкода, що ти це зробив. Шкода, що його тоді тут не було.

Тренувальні вправи

1. Вправа 1. Розкрийте дужки, поставте дієслово у відповідному часі: She (to buy) the dress tomorrow but the shop will be closed.
2. She (to buy) the dress but the shop was closed.
3. The teacher was absent today, so class was canceled. If she (be) absent if again tomorrow, class (cancel) tomorrow, too.
4. If she (to learn) English, I (to buy) her this book.
5. If my brother (to have) time now, he (to help) us.
6. I am not an astronaut. If I (to be) an astronaut, I (to take) my camera with me on the rocket ship next month.
7. I (to do) the same if I (to be) in your shoes.
8. It is expensive to call across the ocean. However, if transoceanic telephone calls (be) cheap, I (call) my family every day and (talk) for hours.

Вправа 2. Розкрийте дужки, вживаючи потрібну форму умовного речення після wish. Перекладіть українською:

1. I wish you (to come) with us.
2. I wish you (to be) with us yesterday.
3. I wish we (to meet) again next summer.
4. I wish I (to be) at yesterday's party: it must have been very merry.
5. If only she (to tell) me the truth then.
6. I wish you (not to be) so impatient. It wasn't wise of you.
7. They wished they (not to see) this horrible scene again.
8. I wish you (to phone) me last Sunday.
9. I wish I (to have) a season ticket to the Philharmonic next winter.
10. I wish you (not to speak) on the telephone so much.
11. I wish you (to send) word as soon as you arrive

12. They wish they (not to quarrel) with their neighbours a year ago.

Вправа 3. Перефразуйте речення за зразком, використовуючи відповідні часові форми умовного способу:

Model: If my brother has time, he will help them. If my brother had time, he would help them.

1. If there is much snow in January, they will go skiing every day.
2. If you've spoken the truth, you won't have anything to complain about.
3. If the rain stops, the children will go for a walk.
4. If I send the money at once, my dog will be returned alive and well.
5. If the water is warm, we shall have a picnic.

Вправа 4. Перефразуйте речення за зразком, використовуючи відповідні часові форми умовного способу відносно минулого часу: Model: If he saw his friend, he would ask him about it

If he had seen his friend (yesterday), he would have asked him about it.

1. If she were attentive, she wouldn't make so many mistakes.
2. If he were here, he would help us.
3. If he knew the number of her telephone, he would ring her up.
4. She would buy that book, if she had money with her.
5. If Nick worked hard, he would pass his examination.
6. If we had time, we would play chess.
7. If she came in time, she would join us.

Рекомендована література

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